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DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

BENJAMIN J. CAYETANO
GOVERNOR

December 27, 1995

TO: Michael D. Wilson, Director
Department of Land and Natural Resources

SUBJECT: Acceptance of Final Environmental Impact Statement for Keolonahihi State
Historical Park, North Kona, Hawaii

With this memorandum, I accept the Final Environmental Impact Statement for Keolonahihi State Historical Park, North Kona, the Island of Hawaii, as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. The economic, social and environmental impacts which will likely occur should this project be implemented are adequately described in the statement. The analysis, together with the comments made by reviewers, provides useful information to policy makers and the public.

My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws but does not constitute an endorsement of the proposed action.

I find that the mitigation measures proposed in the environmental impact statement will minimize the negative impacts of the project. Therefore, if this project is implemented, the Department of Land and Natural Resources and/or its agents should perform these or alternative and at least equally effective mitigation measures at the discretion of the permitting agencies. The mitigation measures identified in the environmental impact statement are listed in the attached document.


BENJAMIN J. CAYETANO

Attachment

c: Gary Gill

**ATTACHMENT TO ACCEPTANCE MEMORANDUM FROM GOVERNOR BENJAMIN CAYETANO
TO MICHAEL D. WILSON REGARDING KEOLONAHIHI STATE HISTORICAL PARK
ENVIRONMENTAL IMPACT STATEMENT MITIGATION MEASURES**

The following list of mitigation measures identified in the final environmental impact statement will minimize the negative impacts of the project. If the project is implemented, the Department of Land and Natural Resources and/or its agents should perform these or alternative and at least equally effective mitigation measures at the discretion of the permitting agencies.

Construction Impacts

Construction Waste

During the restoration phase all debris must be removed by hand to an approved location and not placed on site or in any body of water.

Flooding

Since several parcels in the site are subject to flooding conditions (FIRM Zones VE, AE and X) and to seasonal high surf conditions during winter months, Chapter 27 of the Hawaii County Code, which prescribes measure for activities in flood zones, must be adhered to.

Soil

Due to rocky soil conditions under the proposed parking lot, fill material may migrate into the open rock matrix and cause sinkholes to occur. This effect can be mitigated through measures to choke off fill migration and to prevent future development of sinkholes. The recommendations of a soils engineer must be incorporated into the parking lot design.

Operational Impacts

Flora and Fauna

In consultation with experts in the field:

1. A protection plan for rare, threatened or endangered species must be developed during the design phase of the project;
2. Historically and culturally accurate species must be used in the landscaping plan;
3. Planting must not occur where historic sites may be threatened or where plants did not exist during the historic period of the area.

Culturally appropriate ground cover on the northern area of the site must be used where the presence of soil would otherwise lead to an ongoing weed or maintenance problem.

KEOLONAHIHI STATE HISTORICAL PARK
MITIGATION MEASURES
Page 2

An irrigation plan that is visually and culturally appropriate must be adhered to.

Noise & Visual Resources

Important view corridors within the site must be preserved while noise and visual buffers between site visitors and neighboring residences must be implemented using culturally appropriate landscaping.

Recreation

Culturally insensitive recreational activities (such as picnicking, camping and sunbathing) must not be permitted.

Traffic

To mitigate impacts to neighbors, on-site parking must be limited to 15 spaces plus bus drop-off and signs discouraging shoulder roadway parking must be installed.

Safety

To prevent trespassing during the Park's closed hours, a security patrol must be established.

Cultural

To advise on the cultural appropriateness of all phases of design, construction and operations of the Park, an Advisory Committee composed of members of the Native Hawaiian community must be established.

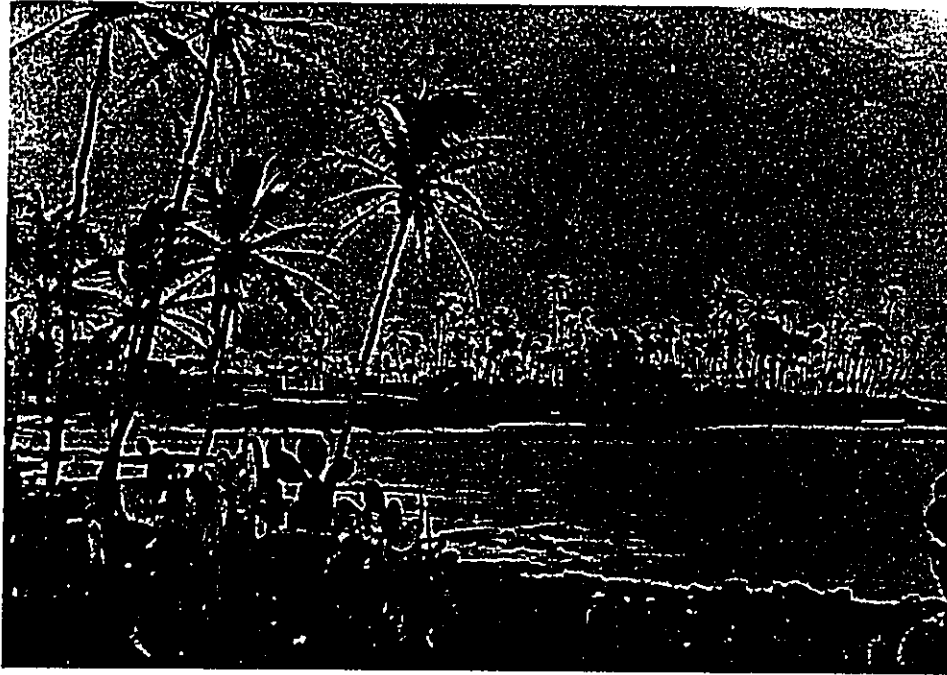
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Final Environmental Impact Statement

***KEOLONAHIHI STATE HISTORICAL
PARK (CULTURAL SITE)***

Holualoa 4, North Kona District, Hawaii



Historic photograph of Kamao Point

Prepared for:
Department of Land and Natural Resources
Division of State Parks

October 1995

Final Environmental Impact Statement

***KEOLONAHIHI STATE
HISTORICAL PARK
(CULTURAL SITE)***

*Holualoa 4, North Kona District, Hawaii
TMK: 3rd 7-7-4:12, 51 & 52*

Prepared for:
Department of Land and Natural Resources
Division of State Parks

Prepared by:
Ron Terry & Roy Takemoto
HCR 1 Box 9575
Keaau, HI 96749

This document has been prepared pursuant to Chapter 343, Hawaii Revised Statutes.


Ron Terry

Date: 10/12/95

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SUMMARY

Proposing Agency and Accepting Authority

Proposing Agency

The Department of Land and Natural Resources, Division of State Parks ("State Parks") proposes to establish a State historical park (or cultural site). State Parks has synthesized its proposal in a draft management plan entitled *General Management Plan: Keolonahihi State Historical Park (Cultural Site), North Kona, Island of Hawaii* (Draft, January 1995) ("Management Plan"). The Management Plan is the subject of this EIS. The use of State land and/or funds, the use of a registered historic site, and the project's partial location within the shoreline setback area trigger the requirements for an EIS.

Accepting Authority

For all State projects, the accepting authority is the Office of Environmental Quality Control on behalf of the Governor.

Location and Ownership

Location

The project site is located at Kamo Point in Holualoa 4, North Kona District, island and county of Hawaii. The 12.05-acre site consists of three parcels: TMK 3/7-7-4:12, 51, & 52 (Land Court Application No. 1745, Lots 1, 2 & 3).

Ownership

The State purchased the site in 1980 to protect it from a proposed resort development. By Executive Order No. 3136, dated 30 March 1982, the Governor set aside the historic site for preservation under the jurisdiction of the Department of Land and Natural Resources, Division of State Parks.

Project Description

The Management Plan proposes to preserve and protect the archaeological features through effective management, stabilization, and selective restoration; provide limited visitor/educational facilities; and landscape. The Management Plan also describes interpretive programs and park operations.

Stabilization, Restoration, and Reconstruction

Stabilization and restoration will include the repair of historic-era damage to the sites, such as the breaks in the stacked rock walls, and removal of known historic structures that detract from the historical setting or that cannot be adaptively used, such as the stone and mortar water tank feature that covers the site of Keolonahihi's house platform. Stabilization and restoration shall be preceded by adequate research to establish the correct construction style and form. The same kind of materials shall be used to maintain site integrity. Since detailed information is lacking for the Site, reconstruction at this time would be limited to generic features such as a *halau* and *hale*. Besides its interpretive value, the *halau* would be used as a gathering area for talks to educational groups, for cultural demonstrations, and for cultural ceremonies. The *hale* would be reconstructed on the platform identified as Keolonahihi's house site as an authentic display of an *ali'i* residence. A scale model would provide a "reconstructed" overview of the Site to the best of current knowledge.

Facilities

Proposed facilities include an interpretive center, restrooms, small parking lot (15 cars and bus drop-off), walkways, and viewing platforms. The facilities were sited and designed in accordance with the following objectives:

- To minimize disturbance and therefore preserve the integrity of the Site for research and cultural purposes, proposed facilities are limited to areas previously disturbed during the historic-era along the edge of the archaeological complex.
- Certain areas of the Site are sacred-- they were used for religious ceremonies and/or were restricted to the *ali'i* class. In respect for cultural traditions, the general public will be requested to voluntarily avoid these sacred areas, and instead to view these sacred areas from viewing platforms.
- The proposed facilities are limited in scale to accommodate a relatively small number of visitors at any one time in order to protect the Site's resources and to enhance the personal and spiritual experience of Keolonahihi.
- The facilities are "portable" in the sense that they can be easily relocated should additional land area become available to expand the park in the future.

Landscaping

The landscaping will include:

Summary

- Removal of the alien vegetation and replacement with native and Polynesian-introduced plants to restore the cultural and historical setting of Keolonahihi. The removal will be by hand as much as possible. The removal and replacement of the tree canopy will be phased rather than clear-cutting, to provide shade at all times and a pleasant setting.
- Providing a buffer between the archaeological and the visitor facilities, as well as between the Site and adjacent land uses.
- Herbicide use will be minimized.
- Planting will be avoided in places where the plants may threaten the stability of a historic site (e.g., tree roots invading a stacked wall).
- Planting will also not occur in the open, stone-paved areas where plants probably did not exist when the area was occupied as a chiefly residence.

Interpretation and Operations

State Parks currently plans to open the park eight to ten hours a day seven days a weeks. The staff will consist of a *kahu*, interpretive specialist, and two caretakers. State Parks will establish an Advisory Committee with representatives from the Hawaiian community to provide input in the design, construction, staff qualifications, and development of an interpretation program.

Timetable and Cost

State Parks will seek funds in the upcoming fiscal years to complete the design and construction. The planned opening date is by 2005. The preliminary design and construction cost is \$2.575 million. The estimated annual operating cost is \$162,000.

Environmental Setting

Climate

The Site receives an average annual rainfall of approximately 30 inches. Typical for Kona, rainfall is slightly higher during the summer months. Wind patterns usually shift diurnally, with gentle sea breezes during the day and evening breezes from the mountains.

Topography and Soils

Topographic relief varies from sea level to 15 feet above sea level. The soil cover at the Site is classified as part of the Kaimu Soil Series, which is an extremely stony peat found on slopes of 6-20 percent. A sandy deposit of up to a meter thick is present on the northeast corner of the peninsula and is probably a remnant of an older beach in Holualoa Bay, which may have been eroded because of the construction of Ali'i Drive. Extensive stone paving is present in the southernmost section of the Site. This appears to be a cultural modification of a naturally rocky ground surface.

Summary

- Natural Hazards** Portions of the Site are in flood hazard zones VE and AE with base flood elevations of 11'. The Site is in lava flow hazard zone 4.
- Flora/Fauna** The Site consists of two major vegetation zones: shoreline and inland. The inland zone is a dense, impenetrable jungle dominated by alien species such as *kiawe*, *opiuma*, banyans, monkeypod, and *koa haole*. The shoreline zone contains a few native species, including two species of the endangered *lo'ulu* palm. There were no native terrestrial faunal species observed. The pond on the Site has several native and introduced fishes as well as native crustaceans and molluscs.
- Historic/Cultural/
Archaeological Resources** The Site is listed on both the State and National Historic Registers as the Kamoia Point Complex (State Site #2059). The complex consists of 16 sites including 5 *heiau* sites, a housesite, a sacred pond and springs, and a grandstand for viewing the surfing in Holualoa Bay. At least five generations of high ranking *ali'i* used the Site. The Site's features and functions changed with the successive generations. The Site's unique historical significance is its association with chiefesses. Oral traditions suggest that Keolonahihi, the daughter or niece of Pa'ao, along with her husband, constructed the complex. In later years, chiefesses Keakamahana and her daughter Keakealaniwahine, who were two of only a few ruling *ali'i wahine*, resided in the *mauka* area and conducted ceremonies at the Site. Kamehameha I also used the Site and learned to surf at Holualoa Bay.
- Water Resources** There are no streams or defined water courses within the Site. Several holes or depressions fill with brackish groundwater and were used as wells or bathing ponds.
- Recreational Resources** The Site includes approximately 100 yards of frontage along a narrow portion of the parcel between Ali'i Drive and the ocean. This area, along with the coastline to the southwest for approximately 50 yards, is the staging area for the many surfers who use Kamoia Point, which is often called Lyman's.

Impacts and Mitigation

The proposed actions in the Management Plan will have beneficial impacts--damage to the archaeological features from root growth, falling leaves and branches, and wave action would be stemmed through stabilization and restoration efforts, the cultural values of the Site would be more widely appreciated through interpretive and educational programs, and archaeological research opportunities would be enhanced. Despite the beneficial impacts, concerns have been raised relating primarily to fundamentally differing management concepts for the Site. These alternative concepts are summarized in the following section ("Alternatives"). Most of the concerns relating to the Management

Summary

Plan's concept can be mitigated. These mitigation measures have been sorted according to when the mitigation measure should be implemented-- i.e., during the design or construction phase, during the operational phase, or in the process of permit compliance.

Mitigation Measures Related to Design/Construction

Impacts/Concerns	Suggested Mitigation Measures	Consultant	EIS §
Stability of the boulder-filled area	Design and construct in accordance with recommendations	Soils Engineer	§3.1.2
Insulation from noise and visual intrusions	Design adequate buffer; Open discussions with Kaumalumu development re: open space easement	Landscape Architect	§3.1.8
Culturally appropriate plant selection	Review of landscaping plan by Advisory Committee	Landscape Architect	§3.1.4
Pond restoration without dredging	Remove debris by hand and not dispose in ocean	Biologist	§3.1.6
Input by Native Hawaiians in the design and construction	Establish Advisory Committee consisting of members from the Hawaiian community		§3.2.1

Mitigation Measures Related to Operations

Impacts/Concerns	Suggested Mitigation Measures	EIS §
Parking lot congestion by shoreline users	Impose parking time limits; hire adequate security	§3.1.9
Trespassing during closed hours	Hire adequate security to patrol during evening hours	§3.1.9
Input by Native Hawaiians in the staffing and operations	Establish Advisory Committee consisting of members from the Hawaiian community	§3.2.1

Mitigation Measures Related to Permit Compliance

Impacts/Concerns	Suggested Mitigation Measures	EIS §
Floodproofing structures located in the flood hazard zone	Compliance with Flood Control Code as part of the Building Permit and Certificate of Occupancy	§3.1.3
Protection of endangered <i>loulu</i> palm	Propagation Permit	§3.1.4
Accommodate handicapped persons	UFAS compliance	§4.8

Alternatives

The following alternatives were considered:

- *No Project.* The archaeological features would continue to deteriorate from root damage, fallen branches and trees, high surf and shoreline erosion, and uncontrolled visitor traffic within the Site.
- *Exclusive Use and/or Control By Native Hawaiians for Traditional Cultural Practices.* Under this alternative, the site would be transferred to a Native Hawaiian organization to enable the Native Hawaiians to have full control over the use of the Site, with the possible option to limit access to the Site exclusively for Native Hawaiians. The general public would not have the benefit to learn and appreciate the lessons of the Native Hawaiian culture offered by this Site.
- *Visitors Permitted with Stabilization and Restoration Only.* No visitor facilities would be constructed on the site. Parking problems and unsanitary conditions may develop. No onsite staff to monitor the condition of the archaeological resources and visitor behavior.
- *Visitors Permitted with Minimal Portable Facilities.* The minimal facilities could be located either in the southeastern or northeastern portion of the site. The southeastern portion lacks space, could impact subsurface archaeological features, and is in close proximity to a sacred *heiau*. The northeastern portion has adequate space and has been previously disturbed with boulder fill-- this is the proposed and preferred alternative.
- *Visitors Permitted with Permanent Facilities.* Under this alternative, facilities would be designed for minimum maintenance and cost-effective durability. Relocation of the facilities, if ever necessary, would be more costly and possibly more disruptive to the Site.

Relationship to Land Use Plans, Policies, and Controls

State Land Use Classification

Urban. During the recent State Land Use District Boundary Review, the Office of State Planning recommended reclassification of the Site from Urban to Conservation.

County General Plan

Open

County Zoning

Resort (V-1.25)

Special Management Area (SMA)

SMA Use Permit required.

Summary

Shoreline Setback Variance No activities proposed in shoreline setback area that require a variance.

Unresolved Issues

The major unresolved issue is whether to transfer the Site to a Native Hawaiian organization. When the Hawaiian sovereign organization has been established, the disposition of the Site can be reevaluated-- the Site could remain under State Parks with continued input from the Hawaiian community, or leased, transferred, or contracted (management agreement) to the sovereign entity. If transferred, the sovereign entity can decide whether to allow public visitation or exclusive use by Native Hawaiians. In the meantime, proceeding with the Management Plan in accordance with the guidance of the Advisory Committee and *kahu* will enable the restoration and interpretation of the Site, while not foreclosing the option for eventual control by a Native Hawaiian organization.

Assuming State Parks would proceed with the project, the following issues require resolution in the process of finalizing the Management Plan:

- *Opinion from the Attorney General* regarding the extent the general public may be restricted from the sacred areas;
- Extent of permitted recreational use in Recreational Zone 2;
- Security measures to control access to the Site during closed hours, especially access to the viewing platforms;
- Whether to hookup to the sewer system or use composting toilets.

The following issues do not require resolution as part of the Management Plan but have high priority for action by State Parks to ensure that the cultural values and historical setting are maintained:

- Selection of the Advisory Committee to advise the design, construction, and operational phases.
- Qualifications and selection of the *kahu*.
- Agreement with the Kaumalumu developer regarding the extent and type of landscape buffer along the boundary within the open space easement.

Summary

INTRODUCTION

1.1 PROPOSING AGENCY

In response to community pressure and in recognition of the significant historic value, the State purchased the site in 1980 to protect it from a proposed resort development. By Executive Order No. 3136, dated 30 March 1982, the Governor set aside the historic site for preservation under the jurisdiction of the Department of Land and Natural Resources, Division of State Parks ("State Parks").

State Parks formed an advisory committee to assist with research and development of a management plan. State Parks, its consultants, and other DLNR divisions conducted studies on the history and archaeology, botany, aquatic resources, wildlife, and potential interpretive and facilities development schemes. State Parks then synthesized this information in a draft management plan entitled *General Management Plan: Keolonahihi State Historical Park (Cultural Site), North Kona, Island of Hawaii* (Draft, January 1995) ("Management Plan"). The name of the park may be changed to Keolonahihi State Cultural Site to emphasize the educational and living cultural values of the Site.

1.2 PURPOSE OF THIS DOCUMENT

The use of State land and/or funds, the use of a registered historic site, and the project's partial location within the shoreline setback area trigger the requirements for an Environmental Impact Statement (EIS). The actions proposed in the Management Plan are the subject of this EIS. The EIS will evaluate the impacts of the Management Plan and suggest mitigation measures or alternatives where appropriate. State Parks will refine the Management Plan with the comments received through the EIS process.

This document has been compiled from published and unpublished studies, field investigations, and input from various agencies and the community. Technical studies conducted specifically for this project are included as appendices to this EIS.

The EIS process consists of the following steps:

1. *EIS Preparation Notice and Consultation Period.* During this initial phase of the EIS process, the EIS consultants prepare a summary document consisting of preliminary information describing the project and environs. Availability of this document, called the EIS Preparation Notice, is published in the OEQC Bulletin and mailed to various organizations to notify interested persons that an EIS is being prepared for this project. Publication in the Bulletin commences a 30-day Consultation Period to receive comments. The comments assist in identifying the major issues that should be addressed in the EIS. For this project, the Consultation Period commenced on November 23, 1994 and officially ended on December 23, 1994. A public information meeting was held during this period on December 6, 1994 in Kona to solicit comments. Informal meetings were also held with certain special interest groups (e.g., Hawaiian organizations, neighbors, ocean users).
2. *Draft EIS.* The Draft EIS compiles pertinent information on the project. It describes the proposed action, existing conditions, issues, and possible solutions (mitigation measures) or alternatives to resolve the issues.
3. *Public Review Period.* The public has 45 days to review and comment on the Draft EIS. The objective during this review period is to clarify, correct inaccuracies, and/or provide additional pertinent information.

1.2 PURPOSE OF THIS DOCUMENT

4. *Final EIS*. The Final EIS incorporates the comments made during the review period. As a comprehensive record of information and concerns, the EIS serves as an important decisionmaking reference.

INTRODUCTION

DESCRIPTION OF PROPOSED ACTION

2.1 LOCATION AND OWNERSHIP

The site for Keolonahihi State Historical Park (Cultural Site) is located at Kamoia Point, which is midway between Kailua town and Keauhou, in Holualoa 4, North Kona District, island and county of Hawaii (see Figure 1, "Location Map," on page 2-2). The State-owned site consists of three parcels (TMK 7-7-4:12, 51, and 52) totaling 12.05 acres ("Site") (see Figure 2 on page 2-3).¹

The existing uses and ownership of the surrounding land are as follows:

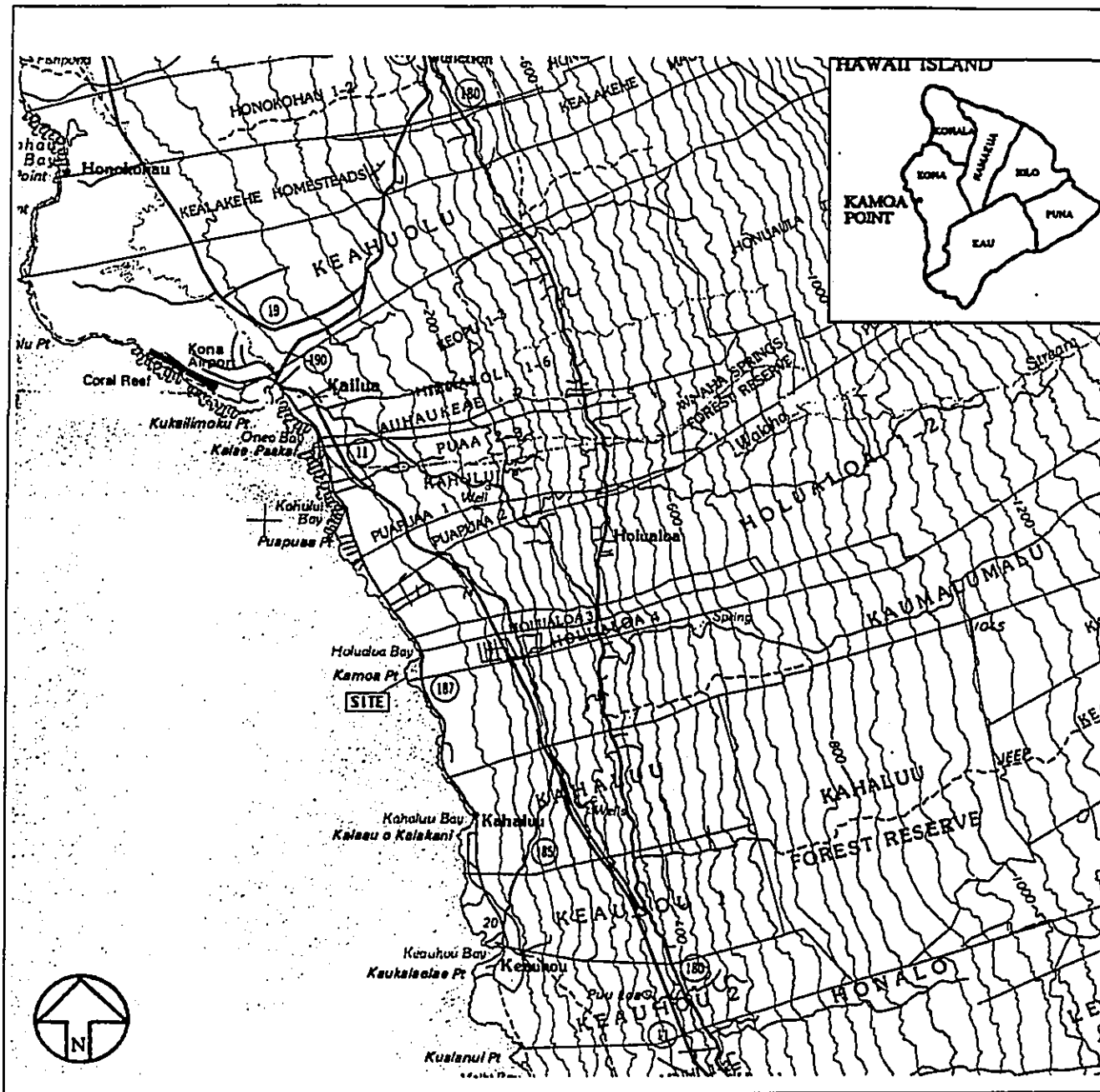
- North: To the north is Holualoa Bay.
- East (*mauka*): On the northeast boundary of the Site between the Site and Ali'i Drive, the Old Beach Road separates the Site from four privately owned residences. Across Ali'i Drive is the Keakealaniwahine Complex, a significant historic site.
- South: Another historic site, known as the Kaumalumu Complex, is the neighbor to the south. The County recently approved a 16-lot residential subdivision for this privately owned parcel.²
- West (*makai*): *Makai* of the Site is the ocean.

1. The parcels are also described as Land Court Application No. 1745, Lots 1, 2, and 3.

2. SMA Permit #347, approved 10/20/94.

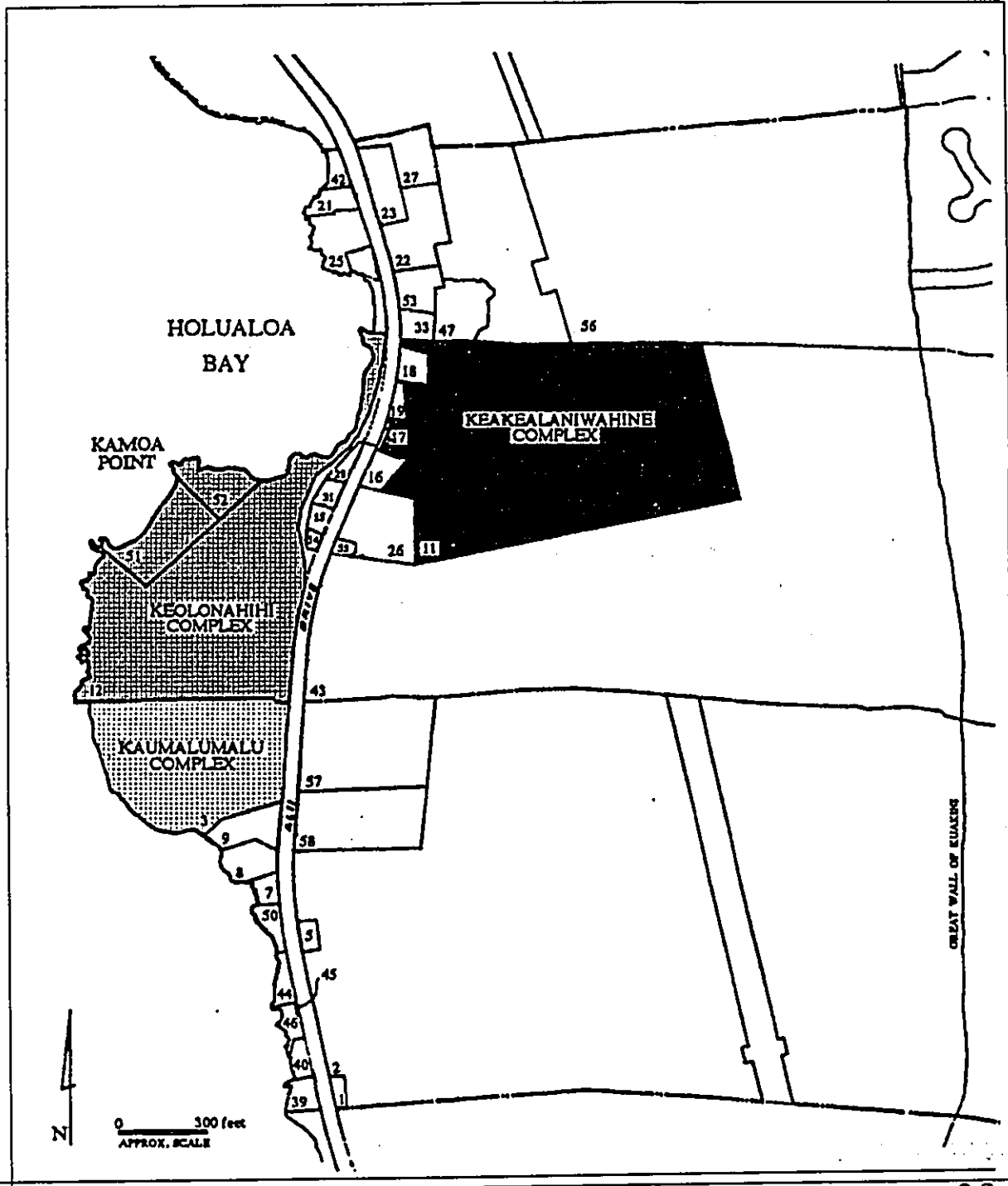
DESCRIPTION OF PROPOSED ACTION

FIGURE 1. Location Map



2.1 LOCATION AND OWNERSHIP

FIGURE 2. Tax Map



2.2 EXISTING SITE CONDITIONS

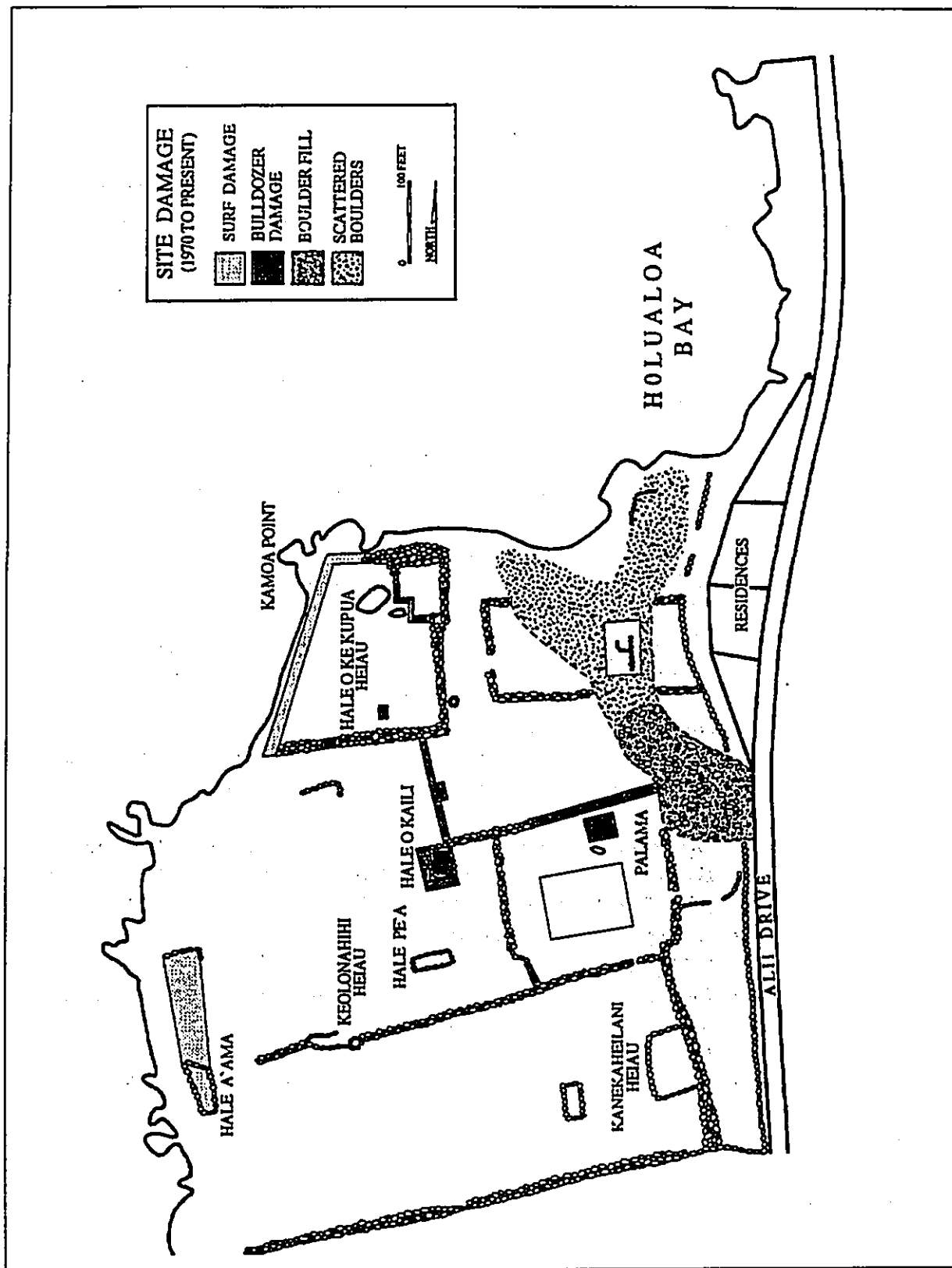
During the 19th and 20th centuries, ranchers grazed cattle and introduced for cattle feed the *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and *opiuma* (*Pithecellobium dulce*) trees that densely cover the Site today. The aggressive roots of certain alien vegetation, particularly the Moreton Bay Fig trees, penetrate and destroy the rock walls.

In the 1960s and 1970s, construction along Ali'i Drive resulted in the placement of boulders along the northeastern portion of the Site creating a boulder platform about a half acre in size (see Figure 3, "Site Damage," on page 2-5). The previous landowner used a bulldozer to place other boulders along the northern shoreline as a means of erosion control. The bulldozer may have impacted several of the stacked rock walls in the northern portion of the Site.

The Site is exposed to seasonal high surf during the winter months as evidenced by the coastal erosion along the Kamo Point shoreline. The gradual subsidence of the Kona shoreline at an estimated rate of eight inches every fifty years (based on average Kailua rate of 3.8-4.0 mm/year)³ has increased the inland extent of high surf damage causing damage to some of the rock walls.

3. Personal communication, J. Lockwood, April 1995.

FIGURE 3. Site Damage



2.3 BACKGROUND

2.3.1 Regional Context of Historical-Archaeological Interpretation

Of the large number of historic sites in West Hawaii, only a small proportion enjoy permanent protection, and even fewer are available for visitors or residents to experience. The following list includes those sites open to the public:

- *Lapakahi State Historical Park.* Precontact to historic continuity in the cultural traditions associated with a fishing and agricultural settlement. A secondary theme emphasizing *la`au lapa`au* is being developed through research and oral traditions.
- *Pu`ukohala Heiau National Historical Park.* Cultural traditions associated with Kamehameha I, his rise to power, and his battles in the late 1700s to unite the Hawaiian Islands.
- *Puako Archaeological Park.* Preservation and interpretation of a large petroglyph field at Puako as a joint effort of Mauna Lani Resort and the State of Hawaii.
- *Ahuena Heiau and Kamakahonu.* The residence of Kamehameha I in the early 1800s has been preserved, reconstructed, and interpreted by King Kamehameha Hotel.
- *Hulihee Place.* Retreat for Hawaiian Royalty built by Governor Kuakini reflects the monarchy period. The Kailua site has been restored and is being maintained by the Daughters of Hawaii, who provide tours of the site.
- *Mokuaikaua Church.* Referred to as the first Christian Church in Hawaii, this basalt and coral structure in Kailua was built in 1837 and reflects the missionary period of Kona's history.
- *Kaloko-Honokohau National Historical Park.* A range of historic sites including fishponds, *heiau*, housesites and trails.
- *Kuemanu Heiau.* A surfing *heiau* along the shoreline of Kahaluu Bay has been restored and interpreted through signage by the County of Hawaii.
- *Greenwell Store.* This stone and masonry building in South Kona houses a museum and the offices of the Kona Historical Society.

2.3.2 Background on the Project Boundaries

- *Kealakekua Bay State Historical Park.* Kealakekua was one of seven chiefly centers along the Kona Coast. Hikiau Heiau is the only historic property readily accessible for public visitation at this time, but no interpretation is available.
- *Pu`uhonua o Honaunau National Historical Park.* The interpretive program at the park is centered around the concept of a pu`uhonua or place of refuge in conjunction with a chiefly residence. Interpretive talks are available and the visitor follows a trail accompanied by a brochure.

In the context of these other sites in the region, the distinctive interpretive theme for Keolonahihi is the chiefly residence, its association with chiefesses, and surfing.

2.3.2 Background on the Project Boundaries

Keolonahihi and Keakealaniwahine, an archaeological complex across Ali'i Drive, are actually part of one larger site artificially divided by the modern road. The chiefess Keakamahana and her daughter Keakealaniwahine resided in the *mauka* area and conducted ceremonies in the *makai* area. The unification of these two areas into one historical complex is desirable for effective interpretation of the chiefly residence at Holualoa. Acquisition of this area by the State has been considered but not funded.

Because of the density of historic features on the Site, the available area for visitor facilities is extremely limited. The Management Plan identified three options for additional land acquisition to expand the park boundaries:

A. *A portion of TMK: 7-7-04:43 adjacent to Ali'i Drive.* This portion would provide a connection between the Keakealaniwahine and Keolonahihi Complexes that are now separated by Ali'i Drive and the modern residences on both sides of the road.

B. *A portion of Kaumalumalu (TMK: 7-7-04:3).* This five-acre parcel has been grubbed and graded in the past and no surface features associated with the precontact occupation of Kamo Point remain. Therefore, after delineating an adequate buffer along the *ahupua`a* wall, facilities could be built on this parcel. However, the County recently approved a SMA Permit for residential development on this parcel.

DESCRIPTION OF PROPOSED ACTION

C. *Acquisition of modern residences (TMK: 7-7-04: 54, 15, 31, 28).*
Acquisition of one or more of these residences along the Old Beach Road might permit adaptive use as an interpretive center and/or caretaker's residence.

Undeveloped land along the coastline in the Kailua-Keauhou area is expensive by any standards, often exceeding \$10.00/square foot. Current budget considerations preclude the purchase of any of these parcels. It is likely that one or more of these parcels will soon be further developed, making acquisition more difficult. Therefore, it is not now possible to determine whether any of these acquisitions will ever be made. The Draft Management Plan was based on the premise that other areas beyond the Site will not be available in the near future, but any development of facilities on the Site should be flexible to accommodate the possibility of future acquisitions.

2.4 PROPOSED MANAGEMENT PLAN

2.4.1 Project Objectives

As a *historical* park (cultural site), the primary objective is the long-term protection and preservation of the archaeological resources and cultural traditions. To achieve this objective, the Management Plan was developed based on the following guidelines:

Site Development Guidelines:

- Certain areas of the Site are sacred-- they were used for religious ceremonies and/or were restricted to the *ali'i* class. In respect for cultural traditions, the general public will be requested to stay on defined pathways and view these sacred areas from viewing platforms.
- To minimize disturbance and therefore preserve the integrity of the Site for research and cultural purposes, facilities will be limited to areas previously disturbed along the edge of the historic complex.
- Landscaping will focus on the removal of trees that threaten the structural integrity of archaeological sites, selective planting of native and Polynesian-introduced species, and establishing a buffer along the park boundaries.

2.4.2 Proposed Actions

Operational Guidelines:

- Only recreational activities compatible with the historic preservation objectives will be permitted (e.g., picnicking, sunbathing, and camping will not be permitted).
- Interpretive programs will be developed with the assistance and guidance of those knowledgeable about the cultural traditions and history of Kona.
- Staff selection will emphasize a knowledge of Hawaiian culture and history.

2.4.2 Proposed Actions

The Management Plan proposes to preserve and protect the archaeological features through effective management, stabilization, and selective restoration; provide limited visitor/educational facilities; and landscape (see Figure 4, "Conceptual Site Plan," on page 2-10). The Management Plan also describes interpretive programs and park operations.

2.4.2.1 Stabilization, Restoration, and Reconstruction

Stabilization, restoration, and reconstruction are different levels of structural repair. Stabilization involves the least alteration and includes activities such as the repair of collapsed portions of stacked rock walls and removal of invasive vegetation. Restoration is the recovery of the form and details of a structure and its setting as it appeared at a particular period of time and includes activities such as the removal of later work or the replacement of missing earlier work. Reconstruction is the reproduction in the exact form and detail of a vanished structure.

FIGURE 4. Conceptual Site Plan

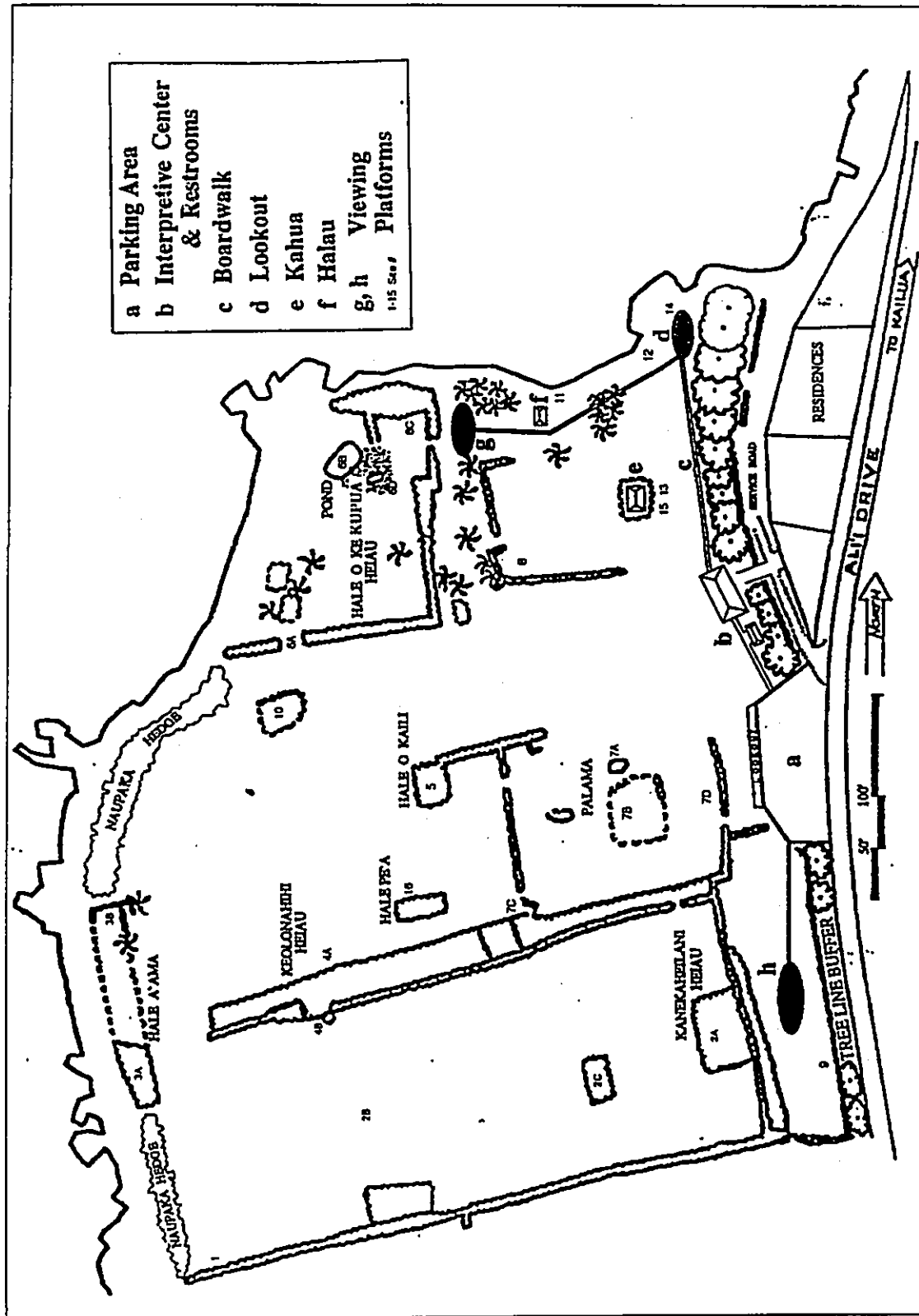


Table 1 on page 2-11 lists the sites to be stabilized and/or restored. The list includes the repair of historic-era damage to the sites, such as the breaks in the stacked rock walls, and removal of known historic structures that detract from the historical setting or that cannot be adaptively used, such as the stone and mortar water tank feature that covers the site of Keolonahihi's house platform. Stabilization and restoration shall be preceded by adequate research to establish the correct construction style and form. The same kind of materials shall be used to maintain site integrity.

Reconstruction should be attempted only if adequate documentation exists to produce an historically appropriate and accurate reconstruction of a structure. Since detailed information is lacking for Keolonahihi, reconstruction at this time would be limited to generic features such as a *halau* and *hale*. Besides its interpretive value, the *halau* would be used as a gathering area for talks to educational groups, for cultural demonstrations, and for cultural ceremonies. The *hale* would be reconstructed on the platform identified as Keolonahihi's house site as an authentic display of an *ali'i* residence. A scale model would provide a "reconstructed" overview of the Site to the best of current knowledge.

Table 1: Archaeological Sites Comprising the Kamo Point Complex

SITE #	SITE NAME	SITE TYPE/FUNCTION	HISTORICAL PERIOD ^a	SACRED SITE	TREATMENT
1		<i>ahupua'a</i> wall	II		stabilize
2	Kane-ka-hei-lani	<i>heiau</i> , <i>kahua-hale</i> , warrior training area	I	yes	stabilize
3	Hale A'ama	surfing <i>heiau</i>	I, II		restore
4	Keolonahihi	women's <i>heiau</i>	I	yes	stabilize
5	Hale o Kaili	place for war god, Ku-kailimoku	III		stabilize

DESCRIPTION OF PROPOSED ACTION

Table 1: Archaeological Sites Comprising the Kamoia Point Complex

SITE #	SITE NAME	SITE TYPE/FUNCTION	HISTORICAL PERIOD ^a	SACRED SITE	TREATMENT
6	Hale-o-ke-kupua Heiau	prepare <i>ali'i</i> bones pond-- bathing pool for royal surfers pond-- chiefly bathing area grandstand-- view surfing	} } } I, II, III } }	yes	stabilize, restore
7	Palama	enclosure for virgins; sacred drinking well	I	yes	stabilize
8		historic house enclosure	IV		
9		wall along Old Beach Rd	IV		
10		foundation	?	?	
11		wall remnants of canoe <i>halau</i> ?	?	?	
12		cultural deposit	?		
13		stone & mortar structure	IV		
14		house platform	IV		
15	Keolona-hihi's House Platform	housesite	I		
16	Hale Pe'a	women's site	I, II	yes	stabilize

a. Historical Period: I= Keolonahihi Period; II= Keakamahana & Keakealaniwahine Period; III= Kamehameha I Period; IV=1800+

2.4.2.2 Facilities

The proposed facilities are limited in scale to accommodate a relatively small number of visitors at any one time, thereby protecting the Site's resources and enhancing the personal and spiritual experience of Keolona-hihi. The facilities are "portable" in the sense that they can be easily relocated should additional land area become available to expand the park in the future. The facilities are sited in areas that have been previously disturbed during the historic-era along the edge of the Site. The proposed facilities include:

- *Parking Lot.* The proposed paved parking lot area of approximately 10,000 to 15,000 square feet would accommodate an estimated 15 car stalls and a bus drop-off, in keeping with the desired park carrying capacity. The parking lot would be located in an area previously filled with boulders adjacent to Ali'i Drive.
- *Interpretive Center.* The Management Plan proposes a structure of about 1,600 square feet to house the interpretive exhibits and displays, a small office, a maintenance storage area, and possibly the restrooms. The size of this facility reflects the limited space available and the desire to minimize the impacts on the cultural and historical setting. The facility would be designed to be portable in the event that additional park lands become available in the future, at which time the facility could be moved and expanded as necessary. The design would be harmonious with the traditional Hawaiian theme of the setting.
- *Restrooms.* The Management Plan proposed a restroom facility utilizing a self-contained composting toilet in order to minimize site disturbance. During the EIS process, consultation with the State Department of Health and the County Department of Public Works determined that a sewer hook-up would be possible without significant ground disturbance. Discussion of this issue is contained in §3.3.3 "Wastewater System" on page 3-46.
- *Lookouts and Viewing Platforms.* The Management Plan proposes several strategically located viewing platforms and higher lookouts to enable visitors to view features without having to actually walk through the more culturally sensitive areas. The proposed locations of the lookouts and platforms include:
 - A lookout alongside the parking lot atop the boulder fill mound to provide an overview of the entire Site; interpretive signs would orient visitors to the layout of the park and the cultural significance of this historic area;
 - A lookout in the vicinity of the historic house platform with views of Holualoa Bay and the shoreline to the north; the themes of surfing, canoeing, and the legend of the shark cave can be interpreted from this point;
 - A viewing platform at the break along the eastern wall to interpret the Hale-o-ke-kupua Heiau, pond, and grandstand features; and

DESCRIPTION OF PROPOSED ACTION

- A viewing platform at the southern portion of the Site to interpret the women's sites, including Keolonahihi Heiau, and the sports-related sites, including a *heiau* for warriors.

- *Walkways*. The Management Plan proposes a wooden boardwalk restricted to the *mauka* side of the Site to connect the facilities and viewing platforms. A boardwalk, instead of coral or asphalt walkways, minimizes the impact to potential subsurface archaeological remains, can be moved or shifted as necessary, blends with the setting, and accommodates wheelchairs. The walkways may be installed concurrently with site clearing of vegetation to direct any wayward visitor who may be attracted to the Site once the vegetation is removed.

2.4.2.3 Landscaping

The proposed landscaping will serve several functions:

- *Restore the cultural and historical setting of Keolonahihi*. The alien vegetation will be gradually removed and replaced with native and Polynesian-introduced plants, such as *niu* (*Cocos nucifera*), *lo'ulu* (*Pritchardia affinis*), *milo* (*Thespesia populnea*), *kou* (*Cordia subcordata*), *naupaka* (*Scaevola sericea*), and *hala* (*Pandanus tectorius*).
- *Provide shade and a pleasant setting*. The removal of the alien vegetation will be phased so as to maintain a tree canopy and prevent a clear-cutting of the Site.
- *Provide a buffer between the archaeological and the visitor facilities, as well as between the Site and adjacent land uses*. Landscaping will provide a buffer between the historical complex and the interpretive structures in order to preserve the integrity of the historical and cultural setting. A line of trees is also planned along the *mauka* edge of the park to buffer the park from the noise and visual presence of Ali'i Drive and the four residences adjacent to the park.

Herbicide use will be minimized. Planting will be avoided in places where the plants may threaten the stability of a historic site (e.g., tree roots invading a stacked wall). Planting will also not occur in the open, stone-paved areas where plants probably did not exist when the area was occupied as a chiefly residence.

2.4.2.4 Interpretation and Operations

Staffing. The Management Plan anticipates a minimal park staff of four-- a Site Supervisor (*kahu*), an Interpretive Specialist, and two Caretakers. In addition, some special needs at the Park will require contracting expertise in skills such as rock wall building or cultural knowledge for workshops. Volunteer efforts will be encouraged in order to support limited park staffing.

Advisory Committee. The Management Plan recommends the establishment of an advisory committee to assist State Parks with the detailed development of the interpretive programs, the landscaping plan, and facility design. This committee would consist of approximately twelve persons from the Hawaiian community whose knowledge and expertise would promote culturally appropriate, accurate and sensitive programs and facilities. In addition, this committee would serve as a liaison to the larger Kona and Hawaiian communities for identifying *kupuna* and those with special expertise regarding Hawaiian cultural practices and traditions, ethnobotany, rock wall building, *hale* and *halau* construction, and Hawaiian architecture.

Interpretive Materials. Interpretive materials would be developed by a coordinated effort of the State Parks Interpretive Program and the Advisory Committee. The Advisory Committee will provide the cultural expertise for developing the materials and review the interpretive text and graphics developed by the State Parks Interpretive Program Staff. State Parks will hire consultants for model building, artwork, and exhibit design. The objective of the interpretive program will be to provide educational information with minimal intrusion on the Site (e.g., limited use of signs). The program will be primarily a self-guiding system supplemented by hired or volunteer guides especially for groups.

Maintenance, Operations and Security. State Parks currently plans to open the park approximately eight to ten hours a day, seven days a week in order to accommodate school classes and the majority of visitors. Interpretive talks and guided interpretive tours would be scheduled at given times, e.g., every hour. Groups will be accommodated with special programs when scheduled in advance. Consideration will be given to groups or individuals who request to use the park before or after the regular hours of operation for

DESCRIPTION OF PROPOSED ACTION

cultural reasons. In addition, special events determined to be culturally or historically appropriate will be considered.

Based on the experience of existing historical parks in Kona and Kohala, the projected annual visitor count to the Site is projected at 150,000 to 200,000. The parking lot was designed to accommodate a preferred number of 50 visitors at any one time. Groups arriving by bus may bring as much as 150 visitors at one time. Special arrangements will be made to accommodate these groups. An average stay of 30 to 45 minutes is projected for many of the visitors, while groups may stay for 2 hours or more where a special program is presented.

At closing time, the interpretive center would be secured and the parking lot closed with a gate or chain. The State Parks rules and regulations for the park will be enforced by the Division of Conservation and Resource Enforcement (DOCARE). The community will be requested to assist with security by reporting any disturbances or acts of vandalism to DOCARE. State Parks will evaluate the need for a resident park caretaker in the event that land becomes available for a caretaker's residence facility in the future.

2.5 TIMETABLE, COST AND FUNDING

This EIS process is expected to be complete by the end of 1995. State Parks will then seek funds to implement the proposed interim development plan and for design and construction of the facilities in the upcoming fiscal years. The Site is expected to open by 2005. In addition to C.I.P. funds, a special fund created by the State Legislature for the Division of State Parks, the `Aina Ho`omalua (Interpretive) Program, may provide funds for interpretive programs.

The preliminary design and construction cost estimate is \$2.575 million with the breakdown as follows:

Table 2: Estimated Design and Construction Costs

COST ITEM	COST ESTIMATE
Topographic Survey	\$50,000
Design of Facilities	\$75,000
Landscaping Plan & Design	\$25,000
TOTAL DESIGN COST	\$150,000
Construction of Interpretive Center	\$500,000
Construction of Restroom	\$100,000
Construction of Walkways & Lookouts	\$250,000
Construction of Parking Lot	\$250,000
Stabilization and Restoration	\$250,000
Vegetation Clearing & Landscaping	\$500,000
Boulder Removal	\$150,000
TOTAL CONSTRUCTION COST	\$2,000,000
Interpretive Program Design	\$75,000
Interpretive Exhibits	\$150,000
Interpretive Signs	\$25,000
Interpretive Brochures	\$25,000
Reconstruction of Hale	\$150,000
TOTAL INTERPRETIVE COST^a	\$425,000
GRAND TOTAL	\$2,575,000

a. Note: Use of the 'Aina Ho'omalua Special Fund is proposed.

The estimated annual operating costs for the Park is approximately \$162,000. This amount includes staff salary and benefits, vehicle expenses, utilities, supplies, equipment and interpretive materials.

DESCRIPTION OF PROPOSED ACTION

*ENVIRONMENTAL SETTING,
IMPACTS, & MITIGATION
MEASURES*

3.1 PHYSICAL CHARACTERISTICS

3.1.1 Climate

Setting

The great masses of the island's volcanoes shelter the Kona Coast of Hawaii from regional trade winds. Daytime heating induces gentle sea breezes, while night winds come from the mountain.

Afternoon showers in Kona occur due to orographic uplift of moist sea breezes, particularly in summer. Rainfall increases in the *mauka* direction. At Kamoia Point the average annual rainfall is approximately 30 inches. Seasonal distribution of rainfall is fairly even, with a slight summer maximum (Giambelucca *et al* 1986). Skies are usually clear in the morning and partly sunny to partly cloudy in the afternoon. Temperatures rarely exceed 90 or fall below 60 degrees Fahrenheit, and average approximately 75 degrees. Seasonal temperature differences are less than 5 degrees. The climate is best described as warm semi-arid (UH-Manoa Dept. of Geog 1983). Mild temperatures, fair skies, little rainfall, and light winds combine to make this area among the best locations in the State for outdoor recreation.

Impacts

None-- the project will not alter the microclimate of the region.

Mitigation

None required.

3.1.2 Topography & Soils

Setting

The terrain on the Site was formed by prehistoric lava flows from Hualalai Volcano, whose summit rises to 8,271 feet. The Kamoā Point peninsula consists of a relatively flat foundation of basaltic *a`a*. Topographic relief varies from sea level to 15 feet above sea level.

The soil cover at the Site is classified as part of the Kaimu Soil Series, which is an extremely stony peat found on slopes of 6-20 percent (U.S. Soil Conservation Service 1973). This well-drained, organic soil occurs interspersed among *a`a* outcrops in thin pockets. These soils are generally unsuitable for cultivation but are sometimes used for macadamia nuts, papayas, coffee and pasture. Permeability is rapid, runoff is slow and erosion hazard is slight.

A sandy deposit of up to a meter thick is present on the northeast corner of the peninsula and is probably a remnant of an older beach in Holualoa Bay, which may have been eroded because of the construction of Ali`i Drive. Extensive stone paving is present in the southernmost section of the Site. This appears to be a cultural modification of a naturally rocky ground surface.

An area along the eastern edge of the Site bordering Ali`i Drive was filled with large boulders, rocks and dirt from a road construction project in Kona prior to 1969. The fill was placed without compaction, and several sinkholes have since emerged. The height of the fill embankment varied from 8 to 18 feet, with slopes as steep as 65 percent.

Impacts

A soils engineering firm investigated the boulder-fill area proposed for the parking lot. Their report is included as Appendix C: "Soils Engineering Site Reconnaissance Report" and is summarized below.

3.1.3 Natural Hazards

The existing fill is relatively well-graded, but with an open matrix that was never filled with fine-grained materials. While this type of fill will provide excellent support and stability for parking, it would be subject to migration of fine-grained materials from the surface into the matrix between the boulders. The fill may contain buried organic materials, but since this material has been in place approximately 25 years, any subsidence due to decomposition of buried organic material has probably already occurred.

Geotechnical investigations concluded that it would be both cost-effective and safe to use the existing fill, supplemented by choking off the surface with intermediate and fine-grained granular fill to reduce the migration of surface materials into the open rock matrix, plus appropriate compaction. Pavement, if desired, should consist of 4 inches of base course with 2 inches of asphaltic concrete.

Even with these activities, additional sinkholes may possibly develop in the parking lot. If they do occur, they can be economically repaired by filling with granular materials at a relatively low cost - much cheaper than removing all existing fill and replacing it with standard fill with no chance of subsidence.

Mitigation

The soils engineer's report includes recommendations for design and construction that should be considered for incorporation in the construction documents to mitigate foundation concerns relating to the boulder fill.

3.1.3 Natural Hazards

Setting

Flood Hazards. The low-lying coastline of North Kona is subject to tsunami inundation and storm waves. The area adjacent to the shoreline at Kamo Point is classified on Flood Insurance Rate Maps (FIRM) as Zone VE, which is defined as areas subject to inundation by the 100-year flood with additional hazards due to velocity (wave action). Further *mauka*, the parcels are classified as Zone AE (subject to inundation by the 100 year flood) and Zone X (areas of moderate or minimal flood hazard from the principal source of flood in the area) (see Figure 5 on page 3-5). In the past,

Kailua and Keauhou have recorded tsunami damage in October 1919, March 1933, April 1946, March 1957, and May 1960. In addition, hurricane damage has been reported along this coastline in 1957 (Nina), 1959 (Dot), 1978 (Fico), 1982 (Iwa), and 1992 (Iniki).

The Site is exposed to seasonal high surf during the winter months as evidenced by the coastal erosion along the Kamoia Point shoreline. The inland extent of high surf damage is aggravated by the gradual subsidence of the Kona shoreline at an estimated rate of eight inches every fifty years.

Volcanic Hazards. The United States Geological Survey (USGS) classifies the area as Lava Flow Hazard Zone 4, on a scale of ascending risk 9 to 1. Less than 15 percent of the ground surface within Zone 4 has been covered by lava within the last 750 years (Heliker 1990).

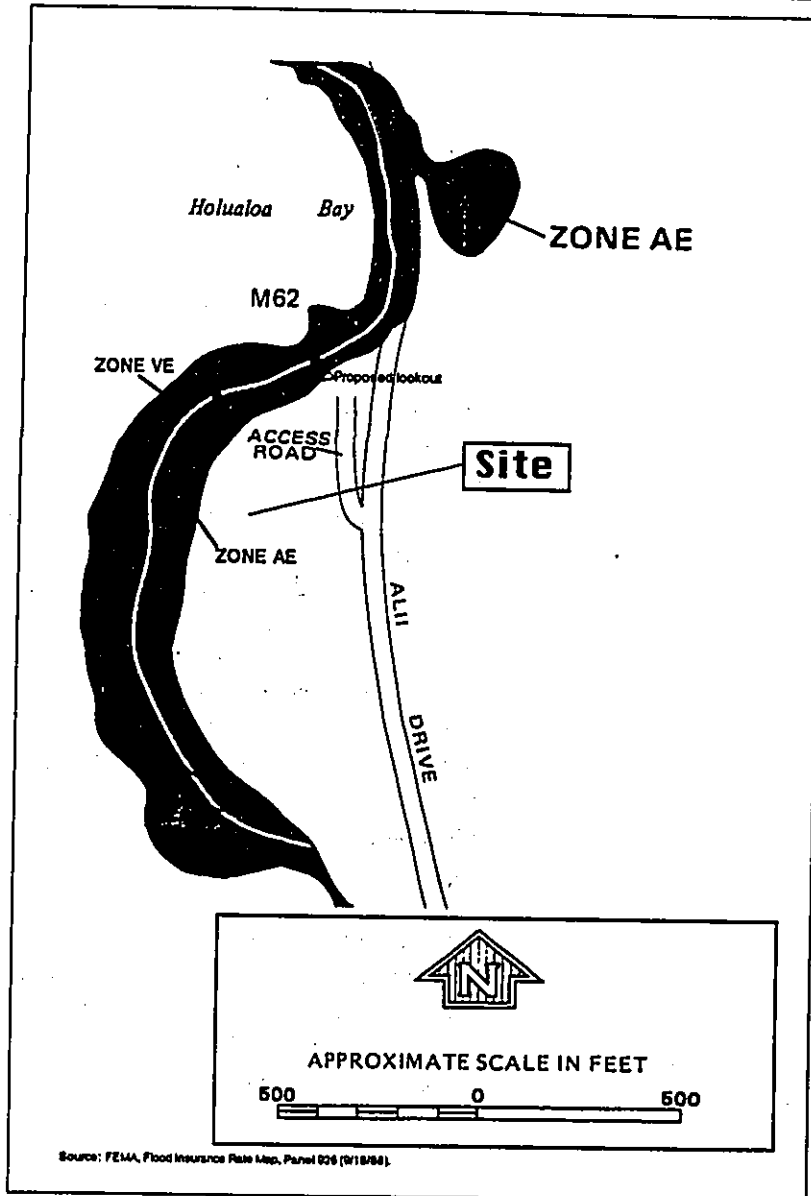
Impacts

Of the facilities proposed for Keolonahihi in the various site plan alternatives, only the proposed viewing platform "G" and lookout "D" are located within a flood zone. Both are located near the boundary of the AE and VE zones (see Figure 5 on page 3-5).

Mitigation

Chapter 27 of the Hawaii County Code sets out compliance measures for activities in the various flood zones. Construction is permitted within the AE and VE zones subject to requirements related to anchoring, floodproofing, and elevating certain building elements above the base flood elevation. The base flood elevation within the AE and VE zones on the Site is 11'. The Department of Public Works requires certification of design compliance with Chapter 27 upon review of the building permit and also requires certification of actual construction compliance as a condition to issue the certificate of occupancy.

FIGURE 5. Flood Insurance Rate Map



To mitigate the wave damage on the rock walls closest to the shoreline, the landscape designer should examine the possibility for a vegetation buffer (e.g., *naupaka*) to reduce the force of the wave runup. No structural measures should be considered. Any vegetation buffer should be carefully maintained to prevent the vegetation overrunning the rock structures.

3.1.4 Flora/Fauna

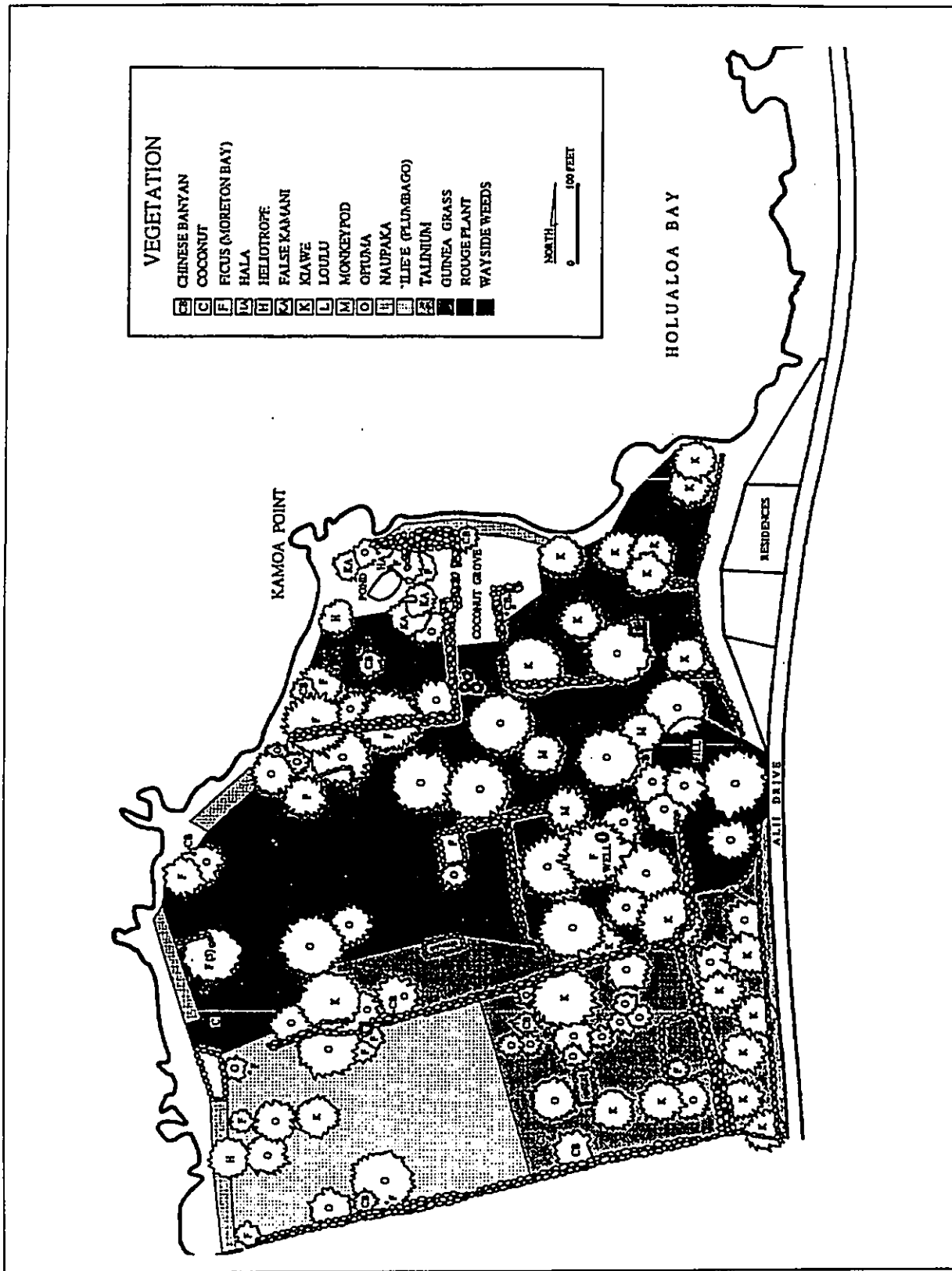
Setting

Studies concerning the botany, wildlife and aquatic biology of the Site have been conducted as part of the park planning process (see Appendix D: "Botanical Survey", Appendix E: "Wildlife Survey", and Appendix F: "Overview Of Aquatic Resources").

Terrestrial Flora/Fauna. A vegetation survey in 1985 determined that over 90 percent of the vegetation at Keolonahihi is alien (see Appendix D: "Botanical Survey"). The Site consists of two major zones: shoreline and inland. The Inland Zone contains drought tolerant, often deciduous species such as *kiawe* (*Prosopis pallida*), *opiuma* (*Pithecellobium dulce*), monkey-pod (*Samanea saman*), Chinese banyans and Moreton Bay figs (*Ficus microcarpa* and *Ficus macrophylla*) and *koa haole* (*Leucaena leucocephala*) which have created a thicket made nearly impenetrable in places by the dense growth of ivy gourd vine (*Coccinea grandis*). The Shoreline Zone, except on the steep edge of Holualoa Bay, contains dense growth of salt tolerant species taking advantage of brackish ground water. This zone contains the few surviving native plants including *hala* (*Pandanus tectorius*), *naupaka* (*Scaevola sericea*), *'ala'ala-wai-nui* (*Peperomia leptostachya*), plumbago (*Plumbago zeylanica*) and *'uhaloa* (*Waltheria indica*) (see Figure 6, "Existing Vegetation Pattern at Keolonahihi," on page 3-7).

Of particular interest were two *lo'ulu* palms (*Pritchardia affinis*) discovered near the coast, adjacent to the pond. Subsequent to this discovery the species has been placed on the federal Endangered Species List. Aside from the protection mandated by this status, these plants are noteworthy as historically important representatives of an extensive *lo'ulu* group that once inhabited the Site.

FIGURE 6. Existing Vegetation Pattern at Keolonahihi



Faunal resources on the Site are almost entirely non-native. Alien birds including common mynah (*Acridotheres tristis*), white eye (*Zosterops japonicus*) and spotted doves (*Streptopelia chinensis*) are typical. Cats and mongooses were also sighted.

Shoreline Pool. The shoreline pool at the Site lacks the characteristics of an anchialine pool. The water level of an anchialine pool fluctuates with the tides due to subsurface connections to the marine water table, and is brackish due to dilutions by groundwater. Distinctive biota include red shrimp (*Halocaridina rubra*) and blind shrimp (*Procaris hawaiiiana*) whose characteristics reflect their adaptation to the dark subterranean environments of the brackish groundwater habitat. Fishes are rare or absent, and may degrade or eliminate the unusual crustaceans. The pool at the Site averaged 30" deep with clear water and approximately 40% of the bottom covered with sediment. Observed organisms included tilapia (*Sarotherodon mossambicus*), *aholehole* (*Kuhlia sandwicensis*), mullet (*Mugil cephalus*), *o'opu akupa* (*Eleotris sandwicensis*), grapsid crab (*Metograpsus thukuhar*), *opaehuna* (*Palaemon debilis*), and *hihi kai* (*Theodoxus cariosa*) (see Appendix F: "Overview Of Aquatic Resources").

Nearshore Marine Flora/Fauna. The offshore habitat at Kamo Point is basalt pavement with patchy sand and varying coral cover. The shoreline consists of wave-washed benches and boulder/cobble beaches. The area provides excellent habitat for a number of native reef fish and invertebrates.

Impacts

The proposed landscaping and removal of vegetation as part of archaeological site stabilization would result in beneficial impacts in terms of alleviating root damage to the rock walls, re-introducing native and Polynesian flora, and providing a visual buffer between the Site and outside features. However, the proposed actions raise the following concerns:

- The selection of landscaping species should be historically and culturally appropriate;
- Clear-cut removal of trees could result in an uncomfortable environment with very little shade;
- Planting should be avoided in certain areas that are not culturally appropriate or that may threaten historic sites with root damage;

- Perimeter planting as buffers could block existing views enjoyed by neighboring residents;
- Use of herbicides for clearing or maintenance may not be culturally appropriate;
- The method used to remove existing plants that threaten historic sites could aggravate damage to these sites;
- Irrigation requirements should be minimized to conserve water and to avoid the need to install irrigation lines.
- Because the *Pritchardia affinis* (*lo`ulu* palm) is a federally listed endangered species, actions that affect individuals or their surroundings must be approved through appropriate State and federal agencies.

Mitigation:

The above concerns will be mitigated as follows:

- During the design phase, State Parks should include as part of the landscape designer's scope of work the development of a protection plan for the two mature *lo`ulu* individuals and the acquisition of a Propagation Permit for any plantings. The scope of work should also require the landscape designer to consult with government and private entities who possess expertise in dealing with rare Hawaiian plants and the regulations that affect their use (e.g., Bishop Museum's Amy Greenwell Ethnobotanical Garden).
- The Draft Management Plan includes the following guidelines for the development of the landscaping plan:
 - Use of historically and culturally accurate species, selected in consultation with knowledgeable persons in the Hawaiian and ethnobotanical communities. Examples might include niu (coconut), *lo`ulu*, milo, kou, naupaka and hala (pandanus);
 - Removal of alien species phased so as to maintain a tree canopy during growth of landscaped species, avoiding a "clear-cut" of the Site;
 - Avoidance of planting in areas where historic sites may eventually be threatened and in areas (such as open, stone paved areas) where such plants probably did not exist when the Site was occupied as a chiefly residence.

- Preservation of important view corridors within the Site and shielding of views in and out of the Site with respect to adjacent residences, while minimizing adverse impacts to views of ocean/shoreline from existing residences;
- Establishment of a culturally appropriate ground cover on the northern area of the Site, where the presence of soil will otherwise lead to a continual weed/maintenance problem.
- During the operational phase, the Management Plan contains operational policies that call for minimal use of herbicides in respect for cultural values;
- To minimize irrigation requirements, a landscaping study prepared for this EIS (see Appendix B: "Keolonahihi State Cultural Site Landscape") recommended the following guidelines that should be considered by the landscape designer:
 - In the Shoreline Zone, plants will need irrigation during the planting and establishment period. After the plants have developed substantial rooting systems, natural water sources will support these plants. In the Inland Zone, plants will require establishment period irrigation as well as ongoing irrigation to grow and thrive.
 - The following plants make up a preferred landscape list, based on cultural association and water use:

TABLE 3. Suggested Landscaping Plant List

Plant	Species	Water Need
Coconut	<u>Cocos nucifera</u>	Low
Lo'ulu	<u>Pritchardia affinis</u>	Low
Hala	<u>Pandanus spp.</u>	Low
Kou	<u>Cordia subcordata</u>	Moderate
Hau	<u>Hibiscus tiliaceus</u>	Moderate
Milo	<u>Thespesia populnea</u>	Low
Noni	<u>Morinda citrifolia</u>	Low

TABLE 3. Suggested Landscaping Plant List

Plant	Species	Water Need
Naupaka	<i>Scaevola taccada</i>	Low
Beach Morning Glory	<i>Ipomoea brasiliensis</i>	Low

•In areas of sensitive archaeological features, the method of irrigation may be limited to hand watering. Due to the visually unattractive and culturally inappropriate nature of surface irrigation lines, water may have to be transported by vessels to the planting area. Landscaping dependent upon hand watering should be minimized because of the labor intensity. Alternatively, hoses that would normally be kept rolled up and out of sight except during infrequent watering might be acceptable.

•The precise water requirements of the landscape cannot be predicted with any certainty without a detailed landscape plan, which has not yet been commissioned. Based on a concept of limited landscaping with low-water need plants, estimated water needs would be approximately 3,400 gallons per day (gpd), which when added to the less than 600 gpd for hand watered plants elsewhere on the Site, leads to a total landscaping water need of 4,000 gpd.

3.1.5 Historic/Archaeological Resources

Setting

The Kamoia Point complex of archaeological features testify to both the important historical events that took place on the Site and the significance of the Site's role in past and present Hawaiian culture. The *heiau*, walls, bathing ponds and other structures have fascinated cultural historians and scholars for over a hundred years. Many native Hawaiians have expressed a deep personal concern for the historical and living meaning of the Site, which contributed to its preservation from the bulldozers of hotel development in the 1960s.

This interest, among other considerations, helped justify the expenditure of millions in State monies for acquisition of the Site in 1980. Today, the archaeological complex offers the potential for a wide array of uses, includ-

ing archaeological research, restoration opportunities, cultural activities, and public interpretation.

The following sections are based on the "Summary of Archaeological Investigations of Keolonahihi State Historical Park" (Yent 1995) and the "Kamoa Point Archaeological Complex at Keolonahihi, Holualoa" (Yent 1994), which are jointly attached as Appendix G: "Archaeological Investigations".

Chronology of Archaeological/Historical Investigations

The following studies have contributed to the current knowledge of Keolonahihi:

- 1860 John Papa I'i documented Keolonahihi's location and function in a series of newspaper articles which appeared in the Hawaiian language newspaper, Kuokoa, from 1866 to 1870.
- 1906 John Stokes of Bishop Museum conducted a survey of *heiau* in the Kamoa Point vicinity: Keolonahihi, Hale A`ama and Hale-kekupa. Information was obtained from informant John Bull.
- 1929 John Reinecke of Bishop Museum surveyed the archaeological sites in West Hawaii. He located the 2 *heiau* identified by Stokes (Keolonahihi and Hale A`ama), as well as the Pu`uhonua of Haulelani. Recent research indicates that Reinecke mislocated sites. Some information was provided by informant Thomas Kahulamu.
- 1950 Kekahuna and Kelsey drew a detailed map of the 12-acre complex at Keolonahihi that provided site names and functional descriptions. They located six *heiau* (Ka-Hala-o-Mapuana, Hale A`ama, Kane-ka-hei-lani, Keolonahihi, Hale-o-Kaili, and Hale-o-ke-kupua) along with associated house platforms (*kahuahale*), canoe sheds, wells/springs/pond, and the grandstand feature. Information was obtained from informant Naluahine.
- 1970 For the Statewide Inventory of Historic Places, DLNR surveyed the island of Hawaii and relocated the Kamoa Point Complex based on earlier records. The Kamoa Point (Keolonahihi) Complex was designated site #2059 (Kamoa Point Archaeological

Complex) with the adjacent area being designated site #2058 (Kaumalumu Complex). The register form followed Reinecke's survey and in doing so, appears to have again mislocated the site of Haulelani by placing it on the *makai* side of Ali'i Drive. The Kamo Point (Keolonahihi) Complex was listed on the Hawaii Register of Historic Places in 1977 and the National Register in 1983. The Kaumalumu Complex is presently not listed on either register.

- 1977 Aki Sinoto of Bishop Museum conducted an archaeological survey of the Site within the 12-acre area for owner Skipper Kent. The surface features and remains were mapped with compass and tape. In comparing the maps drafted by Sinoto and Kekahuna and Kelsey, there appears to have been some damage to the Site between 1950 and 1977.
- 1985 State Parks archaeologists began excavations (continued during 1988 and 1989) to evaluate the subsurface cultural deposits associated with the structural features of the complex. A total of 12 test units were placed in the northern portion of the complex for various purposes. Some were excavated to evaluate the impact of historic-era disturbance on sites, while others were meant to document the transition from precontact to historic occupation of the Site. No testing was done in the southern portion.
- 1986 Extensive summary of historical and archaeological documents relating to Kamo Point accomplished by Holly McEldowney.
- 1993 Pualani Kanahale related ethnohistorical and modern cultural perspectives in a conceptual plan from the perspective of the Hawaiian community.

Historical/Archaeological Overview

The story of Keolonahihi, spanning as it does at least five centuries of historical events and cultural change, is of course not fully known-- and it may never be. However, a clearer image of the historical significance of the Site has begun to emerge, thanks to oral histories as well as documentary and

archaeological research. Although there is no consensus on many details of the origin and functions of many of the Site's features, most agree on the general chronology of the Site.

At least five generations of highest ranking *ali'i* in the Hawaii Island dynastic line used the Site. The Site's features and functions changed with the successive generations. The following timetable illustrates some of the significant changes:

- *Keolonahihi (circa A.D. 1200) (see Figure 7 on page 3-15)*. Oral traditions suggest that Keolonahihi, the daughter (or niece) of Pa'ao, along with her husband Aka, constructed the complex at Kamao Point. Keolonahihi lived 22 generations before Kamehameha I. During this period, the Site was used for women's ceremonies and sports.
- *Keakamahana and Keakealaniwahine (circa A.D. 1600) (see Figure 8 on page 3-16)*. Chiefesses Keakamahana and her daughter Keakealaniwahine, who were two of only a few ruling *ali'i wahine*, resided in the *mauka* area (the area now referred to as Keakealaniwahine's Residential Complex) and conducted ceremonies in the *makai* area. Their religious obligations extended throughout the entire Hawaii island. There were no changes to the Site documented during this time.
- *Kamehameha I (circa A.D. 1780) (see Figure 9 on page 3-17)*. Kamehameha I learned to surf and canoe on the waves of Holualoa Bay. Although there is no evidence that Kamehameha I maintained a residence at the Site, he did use the Site for religious purposes. In the late 1700s, he constructed the *heiau* known as Hale o Kaili for his war god Kukailimoku. He is also credited with the construction of the *heiau* around the pond called Hale-o-ke-kupua Heiau. Historical accounts also mention that the pond was a favorite bathing place for Kamehameha I.
- **Post-Contact**
 - Circa A.D. 1890 (see Figure 10 on page 3-18)*. A 19th century housesite in the northeastern corner of the Site altered an area of about 1.5 acres. Associated with the housesite was a well, pump-house, water tank, and roadway.
 - Circa A.D. 1950 (see Figure 11 on page 3-19)*. Several years after the Site had been abandoned, Kekahuna and Kelsey mapped what remained of the Site with some interpretation of site functions.

FIGURE 7. Keolonahihi Complex circa A.D. 1200

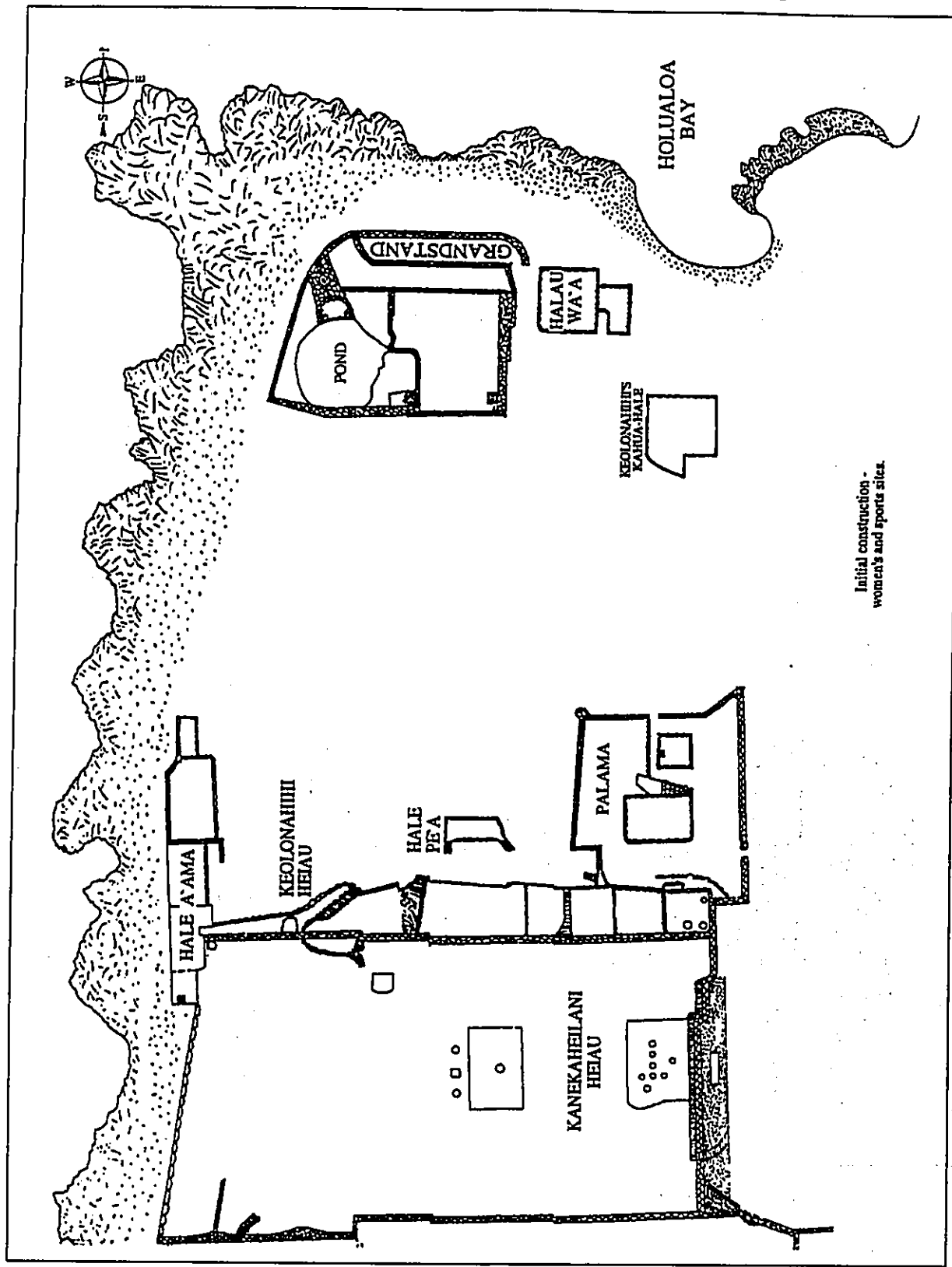
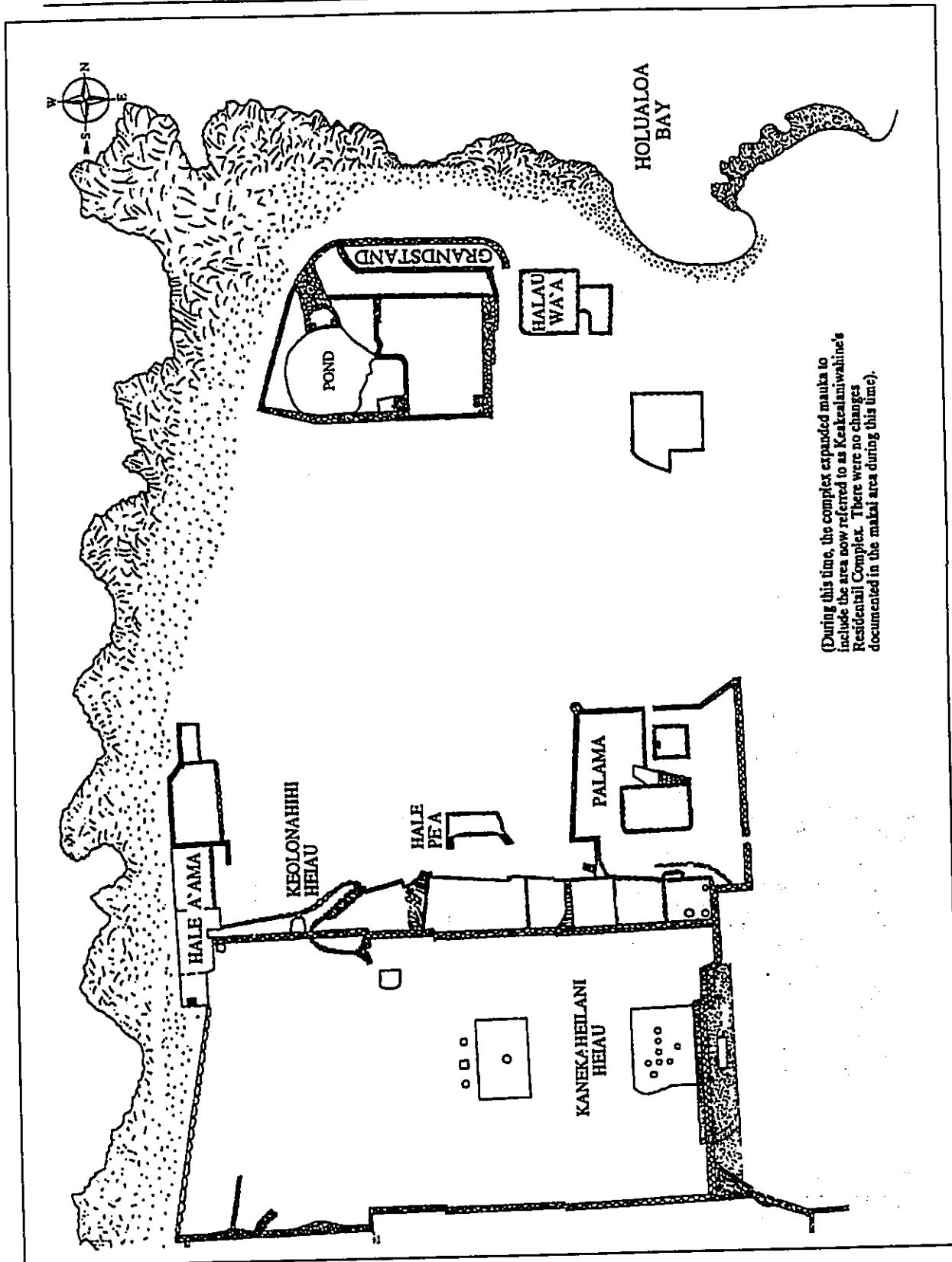
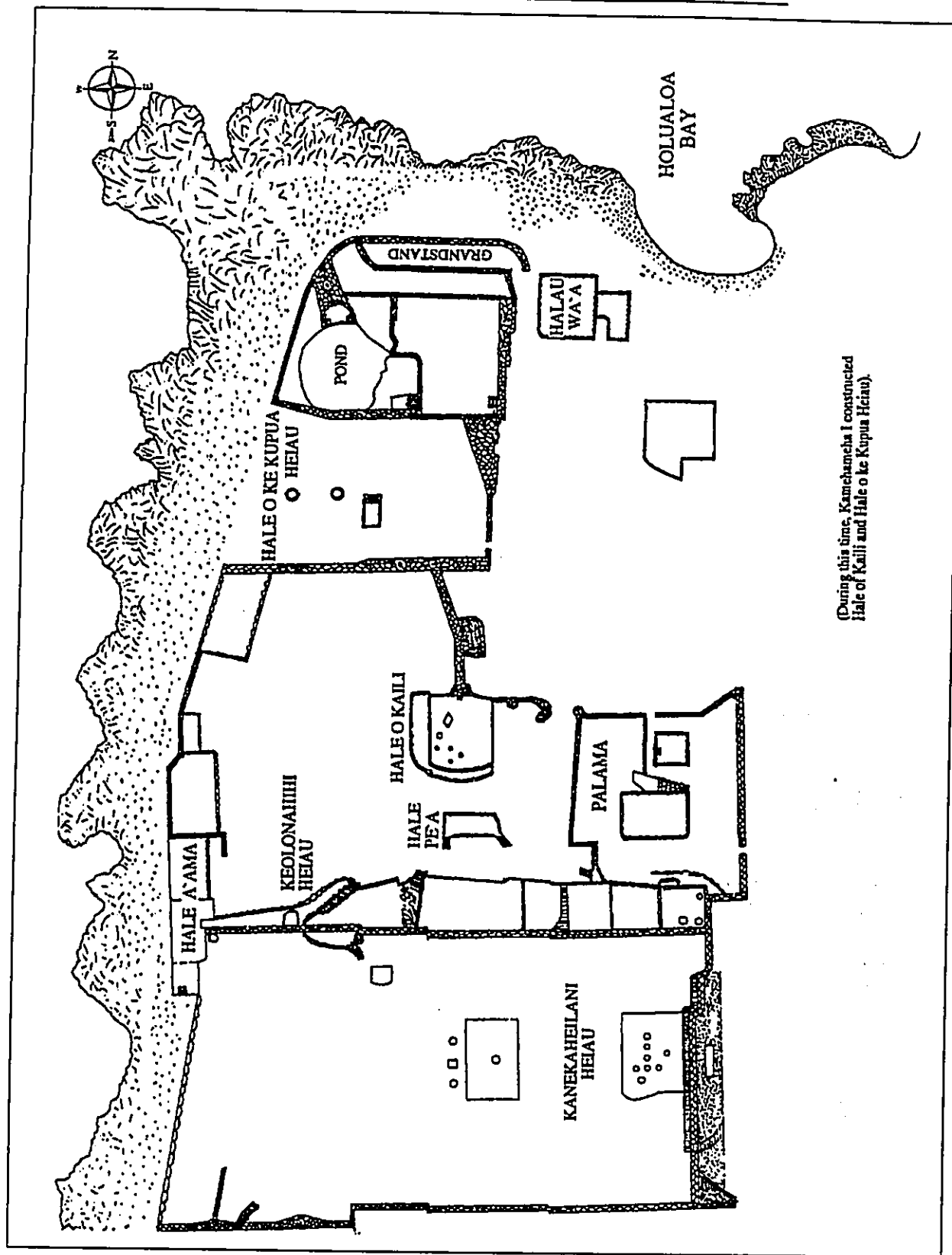


FIGURE 8. Keolonahihi Complex circa A.D. 1600



(During this time, the complex expanded mauka to include the area now referred to as Keatolaniwahine's Residential Complex. There were no changes documented in the makai area during this time).

FIGURE 9. Keolonahihi Complex circa A.D. 1780



(During this time, Kamehameha I constructed Hale of Kaili and Hale o ke Kupua Heiau).

FIGURE 10. Keolonahihi Complex circa A.D. 1890

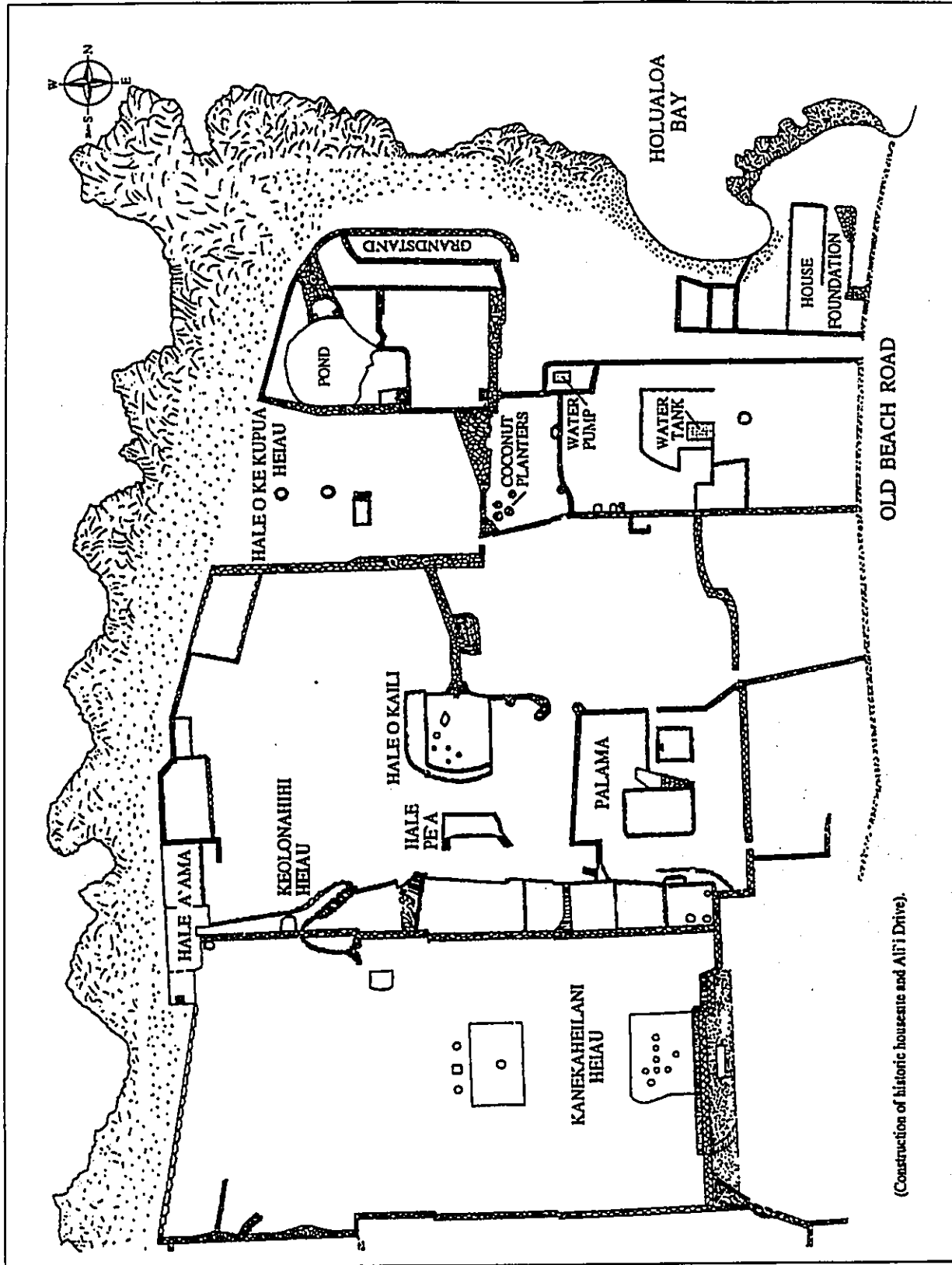
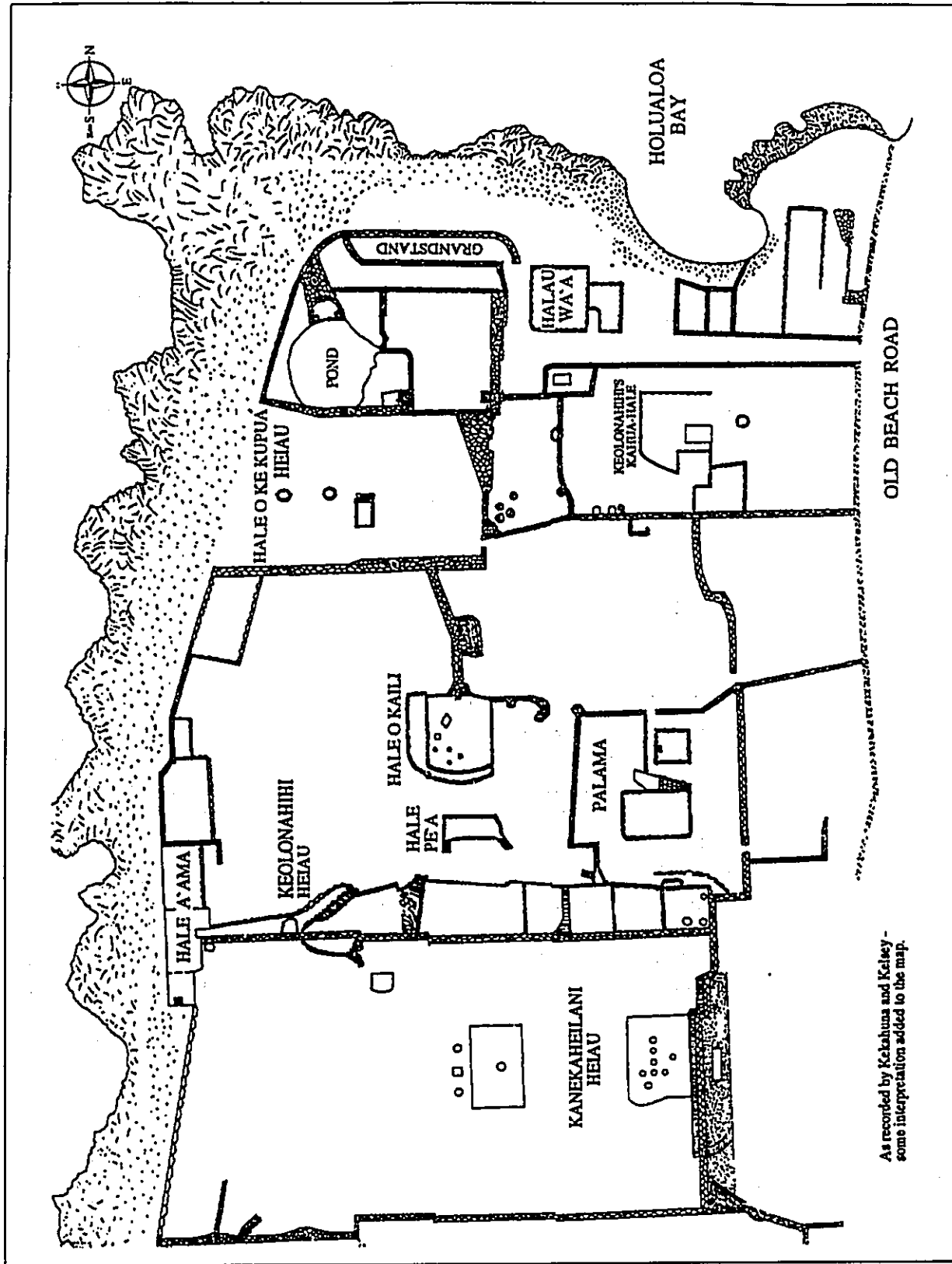


FIGURE 11. Keolonahihi Complex circa A.D. 1950



Impacts

Site investigations conducted as a part of this EIS attempted to characterize the nature and rate of damage to archaeological structures resulting from plant growth and to determine priority actions to reduce future damage (see Appendix B: "Keolonahihi State Cultural Site Landscape"). Several main processes were observed:

- Growth of roots in spaces between fitted stones and in joints of parent rock, force stones apart and induce feature collapse;
- Leaves and branches drop onto the surface, creating acidic litter that promotes rock weathering and encourages further plant growth;
- The shoreline zone, where growth of large trees is apparently promoted by slightly brackish ground water, has a higher rate of damage.
- There is potential for exponential rate of damage to features, as unrestrained plant growth increases root and litter biomass at a geometric rate.

Strictly in terms of archaeology, the proposed project offers several essentially beneficial impacts.

- The program of vegetation removal would halt or slow the damage that roots, branches and leaf litter are currently inflicting on the structures. Stabilization, as discussed in section 2.4.2.1 on page 2-9, is necessary to preserve the integrity of sites, which have been badly damaged by physical dislocation from plant roots and trunks as well as accelerated chemical weathering from the decay of plant tissues. Park staff will develop a selective removal plan for certain trees, especially *Ficus* spp., *kiawe*, *opi-uma*, and false *kamani*.
- Keolonahihi offers great potential for the scientific investigation of Hawaiian history and prehistory through survey and analysis of archaeological features. This would be a particularly valuable addition to our knowledge of prehistory because of the extensive oral history and traditions also associated with the Site. Continuing research in Hawaiian language newspapers and other sources would complement the archaeological investigations, fostering a truly holistic perspective on the Site.

- Clearly, the Keolonahihi Complex would provide an important pre-Western contact addition to the list of interpretive sites in Kona. Its location makes it especially accessible. The principal themes stressed in the Management Plan-- chiefly centers, surfing and the association of chiefesses - would complement the existing opportunities for interpretation. The incorporation of modern cultural ceremonies and activities planned for Keolonahihi would serve a need that has been sorely lacking in other sites, where the intrusive nature of much visitation precludes certain Hawaiian cultural practices, which by their nature require some degree of privacy.

Mitigation

None required-- the proposed stabilization and restoration will have beneficial impacts; archaeological research opportunities will be enhanced.

3.1.6 Water Resources

Setting

Streams. There are no watercourses or defined channels within the Site.

Groundwater and Wetlands. The water table at Kamo Point rests slightly above sea level. Natural depressions and cracks and artificial holes or depressions fill with water, which is brackish to varying degrees. Several such holes and depressions are present at the point. Formerly, they were used as bathing areas and drinking water wells. Rocks falling from the sides have reduced the size of the holes and some have been completely filled in. One depression near the coast is now a pond serving as a habitat for native and introduced fish and invertebrates (see Section 3.1.5 above).

There are two known former well sites. The well site in the central section of the Site has retaining walls built to a depth of 6' below the surface. During rainy periods there is standing brackish water. Presently, there is a thick layer of organic litter and silt at the bottom of the pit. The other well site is associated with the historic housesite that was located in the northeastern portion of the Site during the late 1800s. This well, with an associated pump house and water tank, appears to have been dismantled and filled.

Impacts

The Draft Management Plan proposes to restore the bathing pond at Hale-o-ke-kupua by removing debris from decades of storms and tsunamis. This action would not adversely affect the modest faunal resources of the pond, and the resulting deepening might act to diversify and improve the range of habitats.

The U.S. Army Corps of Engineers (COE) has determined that hand cleaning of organic debris or litter from the bathing pond would not require a permit (see Appendix I: "Comments and Responses to the EIS Preparation Notice"). However, any deepening of the pond would necessitate Section 404 consultation with COE to determine the appropriate course of review and permits, if required.

Mitigation

State Parks should ensure that pond restoration specifications include the following requirements:

- all debris must be removed by hand;
- all debris must be removed to an approved land location and not placed on the Site or disposed of in any water body.

3.1.7 Air Quality and Noise

Setting

Air pollution in the area is endemic because of volcanic emissions ("vog") from Kilauea Volcano that are blown into Kona's stagnant *mauka-makai* air circulation. Synoptic-scale atmospheric disturbances disrupt this circulation and periodically disperse particulates, cleansing the atmosphere.

No serious health hazards are associated with typical levels of vog, but elevated amounts may trigger island-wide alerts calling for reduced physical activity, particularly for those with respiratory problems. Since vog is distributed region-wide, all sites in Kona have roughly equal vog problems.

Aside from vog, a slight amount of vehicle emissions from traffic on Ali'i Drive is also present. Traffic is also the principal noise source in the area, especially trucks and buses.

Impacts

Noise levels produced from the Site would slightly increase as a result of the proposed project. Prime sources include automobiles and occasional buses parking, turning, and starting their engines. Buses, which would be allowed to drop off passengers but not to park at the Site, would not idle for long periods. This would avoid substantial noise and air quality impacts. Visitors, especially children, would also elevate noise levels. A temporary source would be the initial projects associated with facility construction.

Because of the small scale of emissions, the presence of dispersive breezes, and the lack of low-level atmospheric inversions (which trap emissions), no material impact on mesoscale air quality would be expected from the project. Slight increases in very localized auto and bus engine exhaust, which includes carbon monoxide, ozone and nitrogen oxides, would be associated with the parking lot. The impacts would be experienced only by immediately neighboring residents-- those on the *makai* side of Ali'i Drive.

On the other hand, these neighbors, including the prospective neighbors of the recently approved 16-lot subdivision at Kaumalumalu, will subject the Site to air quality and noise impacts. Many Kona residents during public meetings and interviews stated the opinion that the sensitive cultural nature of the Site required sheltering from surrounding activities. Once some of the vegetation on the Site was cleared out, the adjacent houses, condominiums, and auto traffic might interject unwanted sounds, sights or fumes into the complex, degrading the cultural experience.

Mitigation

The landscape buffers proposed for visual impact mitigation (see Section 3.1.8, "Scenic Resources," on page 3-24) will mitigate noise or air quality degradation to some degree. To some extent, the impacts are unavoidable-- the users of the Site must expect some outside noise intrusion and the neighbors must expect some degree of noise. The respective noise

levels, however, would not disrupt the functions of the Site users nor the neighbors. Limiting the hours of park operation to daylight hours would reduce the impact on the neighbors.

3.1.8 Scenic Resources

Setting

Kamoa Point, as seen from areas north and south along the coast, offers a tranquil vista of an undeveloped section of the Kona coastline. From Ali'i Drive on the *mauka* side, the Site appears to be a dense jungle of thorny trees and vines, which obscures the historic structures within almost completely. From within the Site, because of the dense vegetation, only the coastline has views of adjacent areas.

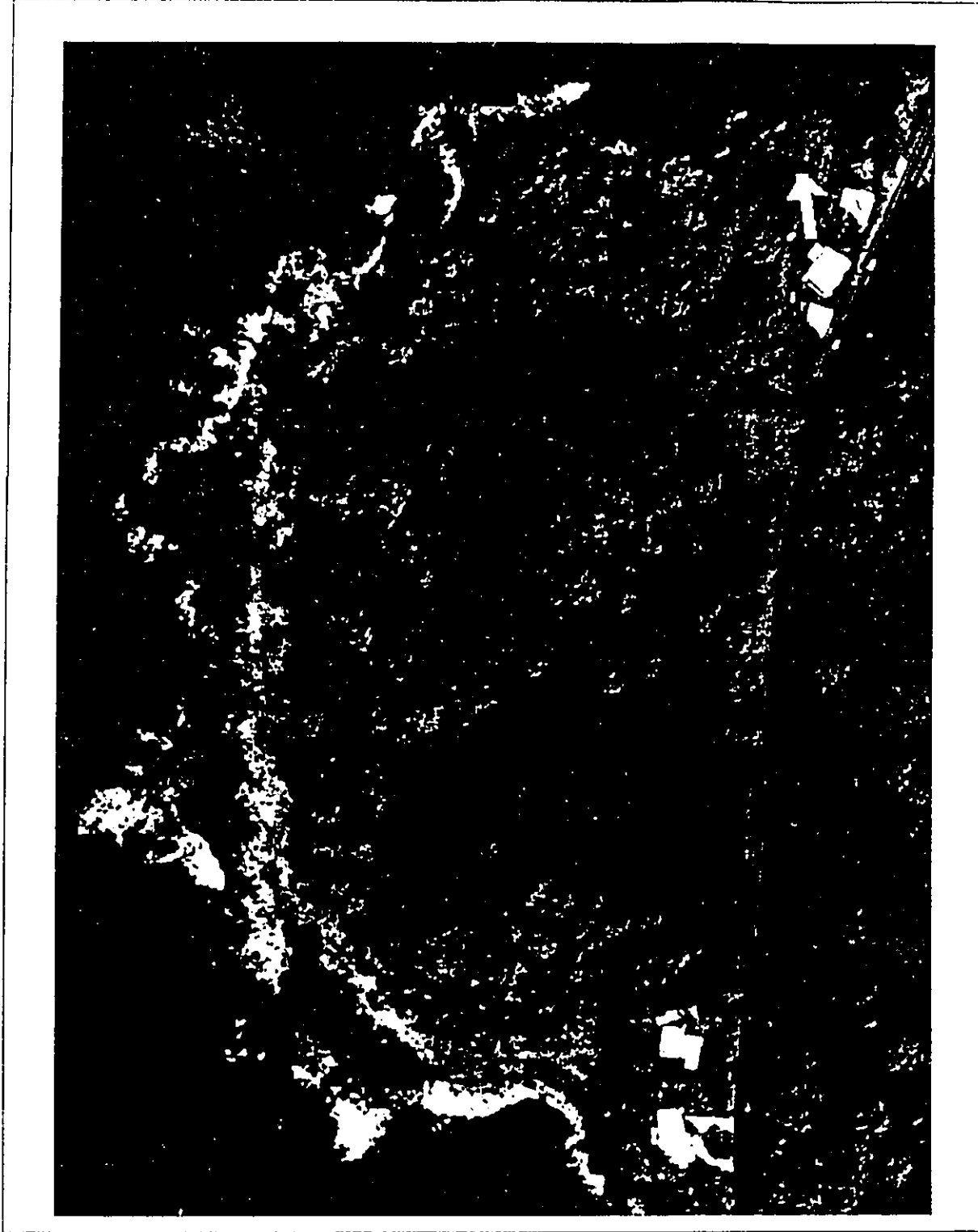
Impacts

Several elements of the proposed action, including removing alien vegetation, landscaping with native and Polynesian plants, and building facilities will change the visual attributes of the Site as well as views of the Site from the exterior.

For the most part, these changes would be considered beneficial impacts. Plantings of native and Polynesian trees would be both visually pleasing and evocative of Hawaiian history and culture. Feature-to-feature views from within the Site will once again be possible, restoring some of the former ambience.

Occupants of four houses located between Ali'i Drive and the Site have long enjoyed the privacy afforded by the unused State of Hawaii parcel. However, the dense growth of vegetation during approximately the last twenty years has progressively restricted their views of the Site and beyond to Holualoa Bay. Currently, the most open view corridor is to the north as indicated by the arrow on Figure 12, "Makai View from Neighbors' Perspective," on page 3-25 rather than across the Site.

FIGURE 12. Makai View from Neighbors' Perspective



Of particular concern is the visual impact on the Site from any development on the Kaumalumu site. A 38-unit condominium project had been previously approved for Kaumalumu in 1982 (SMA #192), but was declared void in 1986 since no construction had started. The recently approved 16-lot single-family dwelling subdivision is less dense and lower in height than the previous condominium project. As a condition of the SMA Permit, the developer is required to grant in favor of the State a 10' wide public access and open space easement along the boundary between Kaumalumu and the Site (SMA #347, 10/20/94, Condition #4). No structures or heavy equipment is permitted within this easement. Any landscaping within the easement must have the approval of the State Historic Preservation Division, State Parks, and Planning Department. The developer is responsible to provide for the maintenance of the easement in perpetuity.

Mitigation

Several measures may be employed to mitigate the problem with visual (and other sensory) intrusions and other scenic impacts:

- *Visual impacts from Kaumalumu.* The SMA Permit conditions for the Kaumalumu project mitigate the potential visual impacts of the project to acceptable levels. State Parks should actively work with the developer to agree on a landscape buffer that will effectively screen the development from the Site, and to encourage planting the buffer early in the development process so that the buffer is established by the time the dwellings are constructed.
- *Visual impacts from Ali'i Drive and the residences along the Old Beach Road.* Since the dense vegetation on the Site currently obstructs any *makai* vistas across the Site from the highway and the four residences along the Old Beach Road, planting a landscape buffer along the entire landward periphery of the Site would not impact any existing vistas. The type of plant species selected should be culturally appropriate, provide an adequate screen, yet not be so dense to completely block *makai* views of the residences.

3.1.9 Recreational Resources

Setting

Shoreline recreation areas and facilities in Kona include several County beach parks, a State Recreational Area at Old Kona Airport, two National Historical Parks (Pu`uhonua O Honaunau and Kaloko-Honokohau), and the new and expanding Kona Coast State Park. Outside of Kona proper but heavily used by Kona visitors and residents alike is Hapuna Beach, unquestionably the largest coastal attraction on the island.

Surf sites are found in a number of locations within and outside of parks. In the immediate vicinity of Kamao Point are Banyan's, Kahalu`u, Magic Sands and Kamao Point (often called Lyman's).

Although the number and variety of beach parks is indeed impressive, the recreational resource is nevertheless experiencing stress and overcrowding, at least at some locations at certain times. A lack of sandy beaches and picnic areas, conflicts between visitors and locals and parking problems are frequent. Parks in conceptual planning stages, including a waterfront park at Keahuolu Point, will ultimately be capable of absorbing additional demand, but there continues to be a high demand for recreational areas.

In terms of current recreational activities on the Kamao Point site, there are three basic zones (see Figure 13, "Site Recreational Zones," on page 3-28):

1. *Site Interior.* Virtually no activity occurs within the Site apart from the coastal fringe. Occasional unauthorized campers are driven off by residents concerned with the integrity of the Site's archaeological features.

2. *Coastal Frontage on Ali'i Drive.* The Site contains approximately 720 total yards of shoreline frontage. This includes approximately 100 yards of frontage along a narrow portion of the parcel between Ali'i Drive and the ocean. This area, along with the coastline to the southwest for approximately 50 yards, is the staging area for the many surfers who use Kamo Point, which is often called Lyman's. A picnic bench was brought to the site by surfers and is now chained to a tree. The Kamo Point Winter Surf Classic, an annual surfing event for the past three years, places temporary structures including tables and a judges platform on the site. It should be noted that this event, which is sponsored by Na Maluhia, is accompanied by a "Beach Awareness Day", in which litter is removed from the shoreline and public education about coastal issues occurs.
3. *Coastal Frontage Beyond Ali'i Drive.* This area is less frequently used by surfers, divers, limu and opihi pickers and others. The rough terrain, narrow unvegetated coastal fringe, the sacred associations of the Site, and the absence of signs indicating permission to use the area all perhaps contribute to the relatively scant use of this shoreline.

Impacts

The proposed cultural and historical visitation of the Site would have a beneficial impact in terms of increasing the recreational value of the Site and add to the suite of Kona resources.

However, there is potential for conflicts between the historic/cultural value of the Site and other recreational uses. In the interest of preserving the cultural/historical ambience and the integrity of archaeological features, the Management Plan proposed the following guidelines:

- *Permitted Recreational Uses.* Surfing, fishing, other shoreline gathering activities, and coastal access would continue to be permitted unrestricted along the shoreline areas (Recreational Zones 2 and 3).
- *Permitted with State Parks Special Use Permit.* Use of the shoreline for surfing contests and other surfing events involving the erection of temporary structures or other potential sources of disturbance to the Site would require a permit and be restricted to Recreational Zone 2. The use of the "grandstand" area would be restricted to access to the surf site (i.e., no judging stands or other structures).

- *Not Permitted.* Incompatible recreational activities, including picnicking, sunbathing, and camping, are to be discouraged in all Recreational Zones of the Site as inappropriate and conflicting with cultural and historical values of the Site and potentially damaging to the archaeological features.
- *Restricted Access to Sacred Areas.* Public access to certain sacred areas on the Site (Recreational Zone 1) may be restricted; these areas could be viewed at a distance from the proposed viewing platforms and walkways.

At public meetings and in comments on the EISPN, some members of the public expressed concern over conflicts between these restrictions and the recreational uses that the public may reasonably expect to appertain to a public "park" purchased with State funds.

- *Potential Conflicts Regarding Recreational Zone 2.* A prominent community leader involved in canoe and surfing organizations stated concern that ocean activities, which were and are in fact integral elements of the cultural and historical uses of the Site, be encouraged and not discouraged by any development of the Site. He was particularly concerned that informal use of the narrow portion of the parcel between Ali'i Drive and Holualoa Bay (Recreational Zone 2) not be restricted from use by surfers for daily surfing and surf contests. He also stated that young surfers would provide an excellent source of volunteer labor for clean-up and restoration at the Site.
- *Potential Conflicts Regarding the Viewing Platforms.* Several neighboring property owners expressed concern over the placement of lookouts and viewing platforms "G" and "D" in areas that might create "attractive nuisances" on the Site. They believed that without strict supervision, such locations would become after-hours "recreational" spots for informal parties.
- *Potential Conflicts Regarding Parking.* Neighboring residents as well as surfers interviewed for the EIS expressed the opinion that during times of particularly heavy use of the surf break, some surfers might park in the lot, particularly if it were connected by an easily negotiable trail to Holualoa Bay.

- *Potential Conflicts Regarding Recreational Zone 1.* A County Council member from Kona found it unacceptable that

...the general public would be virtually excluded from state owned land. The concept of the general public only being allowed to walk a dog-legged boardwalk on part of two sides is neither realistic, nor, I believe constitutionalI find it difficult to accept the notion that the subject site is, in virtual entirety, sacred and sacred to a degree that demands public funds be expended to acquire and develop this site for the sole use of persons meeting certain religious, cultural or possibly racial tests" (see Keola Childs letter of 19 December 1994, Appendix I: "Comments and Responses to the EIS Preparation Notice").

The comment raises a legitimate issue: whether the State, by restricting access of the general public to the sacred areas, abridges First Amendment constitutional rights. State Parks will request an opinion from the Attorney General's office before finalizing any policies. Some of the policy considerations are discussed below.

The First Amendment to the U.S. Constitution provides:

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances (emphasis added).

The "Establishment Clause" prohibits governmental action whose principal or primary effect is one that advances or inhibits a particular religion. The "Free Exercise Clause" prohibits governmental action that unduly burdens the beliefs or practices of a particular religion.

Establishment Clause

For governmental actions not to implicate the Establishment Clause, the actions must:

- have a secular purpose;
- neither advance nor inhibit religion as its principal or primary effect; and
- not foster an excessive governmental entanglement with religion.¹

Arguably, restricting public access to the sacred areas to protect the traditional religious values of the areas is not "secular in purpose", and does in fact "advance a religion as its principal or primary effect". Therefore,

1. *Lemon v. Kurtzman*, 411 U.S. 192 (1973).

such a policy would "foster an excessive governmental entanglement with religion." In essence, such a policy would create a government-managed religious shrine. The restrictive access policy requires others to modify their conduct so as not to offend the Native Hawaiians' religiously-grounded preferences. The Establishment Clause "protects one against action from the government. . . , but it gives no one the right to insist that in the pursuit of their own interests others must conform their conduct to their own religious necessities. . ." ² Merely labeling the restriction as protecting "traditional cultural activities" does not render the rationale bereft of spiritual/religious significance.

On the other hand, Congress has enacted special legislation for a specific park (El Malpais National Monument and National Conservation Area in New Mexico) that permits the closure of a park to protect the privacy of religious activities:

. . . the Secretary, upon the request of an appropriate Indian tribe, may from time to time temporarily close to general public use one or more specific portions of the monument or the conservation area in order to protect the privacy of religious activities in such areas by Indian people. ³

However, Congress stipulated that such closures "shall be made so as to affect the smallest practicable area for the minimum period necessary for such purposes."

The implications for Keolonahihi are as follows:

- Special legislation may be required to specifically authorize State Parks to restrict public access.
- Further analysis would be required whether the Organic Act, Hawaii's Constitution, or any other law already provides the necessary authority.
- The restricted access may have to be only temporary (i.e., during ceremonial activities), and limited to the particular areas of the ceremonies.

2. *Badoni v. Higginson*, 638 F. 2d 172 (10th Cir., 1980), citing *Otten v. Baltimore & O.R. Co.*, 205 F.2d 58 (2d Cir. 1953).

3. Public Law 100-225 (December 31, 1987).

•Clarification is needed whether viewing the areas from the viewing platforms permits adequate access to the general public for purposes of the Establishment Clause.

Free Exercise Clause

The U.S. Supreme Court developed a two-part test to determine if governmental action violates the Free Exercise Clause. If a court finds that the purpose or effect of a regulation infringes upon religious exercise, whether by coercion or by impeding practice, the court then applies the second part of the test. The second part is whether the "compelling state interest" outweighs the "infringement".⁴

For Keolonahihi, the question is whether allowing visitors to the sacred areas impedes the practice of the traditional Hawaiian religious practices. A court found that a tourist's presence does not coerce the Indians into violating their religion or acting contrary to their beliefs, even if the tourist's presence is a desecration of a sacred site.⁵ The court reasoned that the First Amendment cannot give a veto power over public programs that do not prohibit the free exercise of religion. Arguably, allowing visitors may not even meet the first test since a tourist's presence does not coerce anyone to act contrary to their beliefs. Even if found to impede religious practice, the government action of establishing a park to preserve the archaeological resources may be considered a compelling state interest.

The American Indian Religious Freedom Act (AIRFA) ensures that no laws shall abridge the free exercise of traditional native American religious practices:

On and after August 11, 1978, it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and *Native Hawaiians*, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.⁶

4. *Sherbert v. Verner*, 374 U.S. 398 (1963).

5. *Badoni v. Higginson*, 638 F.2d 172 (10th Cir., 1980), citing *Otten v. Baltimore & O.R. Co.*, 205 F.2d 58 (2d Cir. 1953).

6. 42 U.S.C. 1996 (1988).

Although this law ensures native Americans' access to sacred sites, AIRFA does not overrule any state or Federal law.⁷ A similar provision in Hawaii's Constitution⁸ would not be able to preempt Federal caselaw interpreting Federal constitutional rights.

Mitigation

In light of these potential conflicts, the following mitigation measures are recommended:

- The concerns of the surfing community and the Management Plan's proposed guidelines are essentially in harmony-- surfers would be allowed unrestricted access to the surfing sites through Recreational Zones 2 and 3 and surfing contests would continue to be permitted with a Special Use Permit. The hired *kahu* should attempt to involve the surfing community volunteers in the restoration of the Site and interpretive activities relating to surfing. State Parks should also work with the surfing community to develop clear policies regarding the *Special Use Permit* for surfing contests.
- In the process of finalizing the Management Plan, State Parks should address alternative means to secure access to the lookouts and platforms, especially during closed hours. Suggestions include perimeter security around the Zone 1 area with landscaping and/or fences, fencing around the lookouts and platforms only, or eliminating the lookouts and platforms. Since the neighboring residents have expressed willingness to assist with security, perhaps a "hotline" or "neighborhood watch" program could be developed to facilitate reporting unauthorized visits or activities and to ensure prompt response.
- Parking policies need to be developed to discourage surfers and other recreational users from using the parking lot. The operational budget should include funds for adequate security personnel to enforce parking and use rules during daytime, evening and late evening hours.

7. *Lyng v. Northwest Indian Cemetery Protective Association*, 485 U.S. 439 (1988).

8. Hawaii State Constitution Art. XII, 7 (Traditional and Customary Rights).

3.2 SOCIOECONOMIC CHARACTERISTICS

- Permanently closing portions of a government-owned park to the general public for religious purposes may violate the Establishment Clause, and allowing the general public to access the sacred areas would not violate the Free Exercise Clause. If the Attorney General confirms this holding as applied to Keolonahihi, State Parks could revise the access policy to provide for *voluntary* avoidance of the sacred areas by viewing these areas from the platforms. If special legislation is necessary, State Parks could seek legislative authority to at least close the sacred areas during ceremonies. However, those members of the general public who demand to visit the sacred areas would have a right at least during non-ceremonial periods. Alternatively, if permanent and complete closure of the sacred areas to the general public is an absolute necessity, then State Parks should seek the transfer of the site to a non-governmental entity.

3.2 SOCIOECONOMIC CHARACTERISTICS

3.2.1 Cultural Impact Analysis⁹

The proposed project arose out of a series of efforts from within the Hawaiian community, which has continued to express a strong interest in guiding the development to ensure fulfillment of Hawaiian cultural needs.

9. Potential effects on Hawaiian culture that may result from government actions merit analysis in an EIS in the context of effects on the social environment. Current laws and rules concerned with EIS (HRS 343; Title 11, Chapter 200 HAR) do not specify the depth or content of such analysis. In recognition of the exceptional connections of the project with Hawaiian culture, a specialist in Hawaiian culture and archaeology with particular knowledge of Keolonahihi, Kala Mossman, was retained to investigate and explain impacts to Hawaiian culture. A series of meetings with individuals and groups concerned with the project was supplemented by review of oral history, documented traditions and other information.

Cultural Significance

Traditional Hawaiian cultural "historical" sites are of major importance to the Hawaiian community in ways that are often under-appreciated by the Western view and unprotected by law. Historic preservation laws, for example, reflect an essentially Western concept of what makes a site "historically significant":

- Those associated with important historical events;
- Those associated with lives of persons significant in our past;
- Those embodying distinctive characteristics of a type, period, type of construction or having high artistic value; and
- Those which have yielded or may yield information important to history or prehistory.

In the Hawaiian perspective, cultural sites are equally important for the spiritual and ancestral connections these sites have with the gods, the environment and with themselves as native people. They are also important in a sociopolitical sense, in that they encompass the preservation of a culture which has endured so much. The abolition of the *kapu* system and religion of the Hawaiian people, the near loss of the *olelo makuahine* (mother tongue) as well as the illegal overthrow of the Hawaiian government have been major stumbling blocks in the preservation of Hawaiian culture. In spite of these obstacles the culture and traditions of the *kanaka maoli* (native Hawaiians) have persevered. U.S. Public Law 103-150, signed by President Clinton on Nov. 27, 1993, was an apology to Native Hawaiians on the 100th Anniversary of the illegal overthrow of the Kingdom of Hawaii. The support of cultural autonomy on lands of great spiritual value is an act in harmony with the spirit that led to this accord.

The cultural and archaeological significance of Keolonahihi was first documented in English in 1906 by John Stokes of the Bishop Museum. Stokes recorded three *heiau* and a *pu`uhonua* (place of refuge) at Kamoia Point. Although Stokes is the first to document this area, its importance has been recognized for countless generations through oral tradition. Through times of religious overthrow and *kapu* abolishment, the tradition was passed on. The meaning of the tradition transcends mere tales of events past to cele-

brate the continuity of a culture that may have been transformed but is still thriving.

Naluahine Ka`opua was a vessel through which this tradition was carried on. Ka`opua was the great grandson of Lana`i, the last officiating high priest of Kahalu`u. He was born in 1855, only fifty years after the Keolonahihi area had been abandoned, and he lived until 1962. He is revered as a treasury of cultural information. Ka`opua passed on a portion of his cultural information to Henry Kekahuna during the 20th century. Kekahuna and companion Theodore Kelsey were able to record detailed maps of Keolonahihi, together with names and detailed descriptions of functions of the various structures. This invaluable information which Ka`opua has left us through the writings of Kekahuna and Kelsey takes us back 22 generations before the birth of Kamehameha I to the time of Pa`ao.

Oral tradition indicates that the Keolonahihi complex was built by the chiefess Keolonahihi and her husband Aka near 1200 AD. Keolonahihi is said to be a relative, perhaps the daughter or niece, of Pa`ao. It is Pa`ao who brought the Ku religion along with a highly stratified social system. He installed as ruler Pili Ka`aiea, an ali`i of the most royal of blood, from whom all subsequent rulers were descended. The association of the Keolonahihi complex with this age of social change is a key element in the deep cultural meaning of the Site.

It is thought that Keolonahihi maintained the work of Pa`ao in continuing pure ali`i blood lines within the walls of the Keolonahihi complex through the practices of *ho`omau keiki* (continuation of the race) and *ho`ao* (marriage). All the structures in the complex were linked together in continuing the ali`i blood line. It is a shining example of true *lokahi* (harmony and accord). As Pualani Kanahela explains:

Keolonahihi is a cultural site displaying a very comprehensive family cycle. The native Hawaiian purpose were to encourage: 1) procreation, 2) recognize the life cycle from conception to birth, 3) to promote religious teachings, 4) sex education, 5) training for war, 6) mating expectations, 7) making political decisions 8) promote the responsibility of passing traditions or knowledge 9) to promote final preparation of the chief's bones for burial and deification (1993:n.p.).

To understand this quote is to understand the cyclical association the sites within this complex share, be it the Keolonahihi *heiau*, the *palama* (sacred *kapu* enclosure) and *hale pe`a* (menstrual house), the warriors *heiau* of Kanekaheilani, and the Hale `A`ama *heiau*, as well as the Hale o ke kupua *heiau* where bones of the *ali`i* were prepared for deification. In the traditional Hawaiian viewpoint, all of these sites make up an unending circle of life for those closest to the gods: the *ali`i*.

Keakamahana and Keakealaniwahine were *ali`i* of the highest rank who have been associated with the use of Keolonahihi as well as the complex just *mauka* of Keolonahihi (circa A.D. 1600) They were of the *pi`o* (highest) status, which carried the *kapu moe* (prostrating *kapu*). This rank was of such high status that it allowed them to be honored through human sacrifice. John Papa `Ii wrote about Keakealaniwahine, "...there was no other chiefess her equal..." She was a direct descendant of Pili Ka`aiea and as such a subsequent ancestor of all future *mo`i* (highest rulers) of Hawai`i. The use of Keolonahihi by Keakamahana and Keakealaniwahine seems to suggest that the Site had continued to be a significant part of *ali`i* life since the time of Keolonahihi.

Other notable *ali`i* associated with Keolonahihi include Alapa`i, Keku`iapoia, and Kamehameha I (circa A.D. 1780). Oral tradition tells us that Kamehameha I constructed and maintained the Hale o ke kupua Heiau, as well as the Hale o Ka`ili Heiau. Hale o Ka`ili is said to have housed Kamehameha's feather god Kuka`ilimoku. Kamehameha was also said to have learned to surf and canoe on the waves of Holualoa Bay and bathe in a nearby pond.

The Keolonahihi complex, although just a portion of the entire Holualoa complex, is an integral part of the Hawaiian culture. Its relationship with the continuation of the *ali`i* blood line and its association with high ranking *ali`i* are of great importance. Thus, around the actions that occurred here the entire social network of the Hawaiian culture revolved. *Lokahi* is the only way to describe such a system. It is a system that not only relates to the *ali`i* of Hawai`i but to the entire Hawaiian culture throughout the entire *pae`aina* (archipelago). Although much of the oral tradition concerning Keolonahihi is now known, voids still remain. More research is needed to

help clarify our understanding of the past and fill these voids for the benefit of our future.

History of Area Since 1820

By 1820, the continuity of the complex social system preserved by *ali'i* for hundreds of years lay in ruins due to the abolition of the *kapu*. As this system crumbled, making way for the Christian religion, the *heiau* of old were abandoned. The traditional religion was forced to go into hiding. This was a time of change of enormous proportions, the repercussions of which can still be felt today by the Hawaiian community. Keolonahihi was no exception to this scenario. Since this time, the complex has slowly deteriorated due to the infringement of development and the forces of nature.

Kaiama was the last known *konohiki* to manage the land of Holualoa 4 which includes the Keolonahihi complex. Upon his death in 1842, the land was passed to his wife Lo'e. Lo'e willed the land to Kinimaka, however the will was contested by her legal heirs and was later awarded to her children.

In 1888 Kekaulike purchased two-thirds of this land, and the other one-third was used by the last of Lo'e's descendants. Mo'i Kalani lived there from 1888 to 1892. During this time a historic house was built in the northern edge of the parcel near Holualoa Bay. After Mo'i Kalani's death, Kekaulike passed the land on to Jonah K. Kalaniana'ole and David Kawananakoa.

Upon annexation, the land was bought by Kona Sugar Company, which in turn resold it to other sugar companies. The parcel was then mortgaged to an individual who received title on default. He mortgaged it to a local *haole* rancher to finance a business venture which soon failed, causing the land to be forfeited. The next owner used the parcel for ranching and added a well and some walled planters. The parcel was then passed to this owner's nephew, who in turn sold it to a San Francisco businessman who subdivided with intentions of development. This particular owner surveyed the property and began subdivision, bulldozing a substantial part of the northeastern end as well as other areas within the complex. It was during this time that boulder fill from road work done on Ali'i Drive was dumped on the eastern side of the Site. The land was then sold to local Japanese speculators. This group of speculators were planning to sell to a development group, but

community opposition brought these plans to a halt. The State stepped in and bought the property outright.

Issues of Concern to the Hawaiian Community

Many in the Hawaiian community have expressed sincere gratitude for the tireless work of those who succeeded in preserving this Site. Naluahine Ka'opua, Henry Kekahuna, Theodore Kelsey, George Pinehaka and the Friends of Kamoia now known as the Friends of Keolonahihi, as well as the Kamoia Point Advisory Committee all played an important part in the acquisition and management of this sacred Site. The work they have done over the years is a tribute to the importance of the Keolonahihi Complex. Within this unity of purpose to preserve the Site are embedded diverse views of what can now be realized on the Site.

Facilities. The extent of facilities is a major issue in the community. Many feel that the construction of a facility on the Keolonahihi grounds is unacceptable and will negatively impact the sacredness of the Site. Others feel facilities are necessary for cultural interpretation as well as to provide the bare necessities to those who visit the Site.

Many facility plans, formal and informal, have been developed for the Site. In December of 1982 the Advisory Committee prepared a cultural resource management report, including recommendations on what type of development would be acceptable for this Site as a "State Historic Park." They proposed the construction of three structures just *makai* of the four residences along the northeastern edge. These would house a restored hale, an interpretive center, and a administration building with a library, office space, restrooms, storage, a garage, and a parking lot.

In 1989 a facilities plan was developed by Ron Mortimore in consultation with the community. In this plan, facilities were to include an interpretive center, restrooms, office space, walkways, and a parking area. Four schematic drawings illustrated the alternatives for facility layout. The Advisory Committee for the most part supported the alternative which most resembled the proposed Management Plan. The Friends of Keolonahihi, which included Advisory Committee members Francis Schobel and Maile Akimseu, supported the alternative which is essentially the same as that discussed

in Section 5.4.1, "Facilities Located in the Southeastern Portion of the Site," on page 5-4.

In an effort to refine alternatives to best reflect the sensitivities and needs of the Kona Hawaiian community, State Parks in 1993 commissioned the "Conceptual Plan From the Perspective of the Hawaiian Community," prepared by Pualani Kanahele. In regards to facilities, this conceptual plan supported the same alternative as the Advisory Committee (which most resembled the Management Plan), with modifications. She suggested that the facilities be made temporary and portable and that the walkway and viewing areas be limited to the *mauka* side of the complex-- all of these modifications were incorporated in the Management Plan. These suggested modifications would allow for facility relocation should the Kaumalumalu and Keakealaniwahine lands be acquired. Reconstruction of the *halau* along the northern edge of the side near Holualoa Bay was recommended to serve as an interpretive gathering and *demonstration area*.

Although Kanahele stated that this minimal plan would be workable, she presented a further alternative which she titled a "Full Re-dignification Plan." This included the acquisition of the Kaumalumalu and Keakealaniwahine sites. Use of these parcels would promote a holistic understanding of the area and the sacred practices which were conducted here. In this plan, all major development would take place in the Kaumalumalu site which would consist of a visitor center, an educational/ cultural center, a small parking lot, a *halau wa'a*, a security residence and a maintenance facility. Construction to the Keolonahihi area will be restricted to "learning pods." Kanahele sees the complex as a place where Hawaiian traditions can be practiced and carried on and where exhibition was not the primary focus.

Cultural Function of the Site. Another issue has been the extent to which Keolonahihi should conform to the model of a "park", where thousands of visitors come to briefly (and often shallowly) experience some aspect of nature, culture or history. Some people fear that the sacred nature of Keolonahihi will be diminished by such treatment, while others believe that with proper management, it can be a site to both practice and share Hawaiian culture.

Dialogue with concerned community groups and individuals has made it clear that there are many opinions as to how the Keolonahihi area should be handled. Some support the Advisory Committee's plan of 1982, which promotes use of the Site as a Historical Park with cultural aspects. Others support the Friends of Keolonahihi's plan, in which visitation is more limited. Still others support Pua Kanahale's ideas, which focuses on cultural practice but does not exclude the visitor. Still others would prefer to see the entire Site transferred from State Parks Division to a Hawaiian entity such as the Office of Hawaiian Affairs (OHA) or Ka Lahui.

Some strongly feel the Site should not be used as a "park" but rather restricted for the use of those with Hawaiian ancestry. They feel it is simply not enough to change the name from a Historic Park to a Cultural Site, as has been proposed. Others feel that the Site should be open to non-Hawaiians with restrictions from sacred areas, while others would wish to welcome non-Hawaiian visitors. Currently, State Parks would have difficulty justifying exclusive use by Hawaiians, which is why the option of transferring the parcel to OHA was generated (see Section 5.2, "EXCLUSIVE USE AND/OR CONTROL BY NATIVE HAWAIIANS," on page 5-2).

The Function of the *Kahu*. The inclusion of a "*Kahu*" [director; cultural caretaker] in the Management Plan is a concept which is generally considered culturally correct and supported by the Hawaiian community. Many, however, have expressed concern about the Plan's interpretation of the *Kahu*, which seems to be akin to the role of a park caretaker. The role of the *Kahu* is very important in Hawaiian thinking and is established through lineal descent, cultural knowledge, and lifelong achievement and service. To be a *Kahu* of a place such as Keolonahihi would be an honor and an enormous responsibility. Whether a Hawaiian group or an individual is the appropriate entity to take on this responsibility remains to be seen.

Vegetation Removal, Stabilization, Restoration and Reconstruction. The removal of alien vegetation which is currently destroying the Site and site stabilization are plan elements with broad community support. The problem arises on how this practice will be done. A number of community organizations have expressed interest in hand clearing and stabilizing the Site, however others are concerned that this work is of a very sensitive nature

and fear that sites may be damaged by well meaning workers. In this case perhaps consultants familiar with this kind of work (e.g, David Kahelemauna Roy, Jr.) can guide the work.

Reconstruction and restoration of the sites is a questionable issue. Some have expressed the opinion that no one really can say what the structure looked like when it was built and therefore, it can never truly be reconstructed or restored. Others feel partial restoration is necessary in order for the Site to be functional once again. For those who accepted the construction of an interpretive facility, some were against the boardwalk idea illustrated in the Management plan, preferring instead walkways of wood chips lined with stone borders.

Other Concerns. Other concerns voiced by the Hawaiian community include:

- Filling of Kaumalumu (which is occurring now) and attendant runoff problems;
- The idea that surrounding structures as well as proposed lookouts would allow the *heiau* to be looked down upon, which is not acceptable by some;
- Insensitive regulation of development at Kaumalumu and, potentially, Keakealaniwahine.

Although differences in opinions of the community exist, many commonalities are evident as well. The majority of those contacted agree that the acquisition of the Kaumalumu site and the Keakealaniwahine site are of major importance and require immediate action. Another unified idea is that the community be an integral part of the direction this area takes. It is clear that in order to develop the Site in harmony with the Hawaiian community's wishes, the State must consult the community throughout processes such as development, stabilization, or land transfer. Failing to do so will cause serious negative impacts on the Hawaiian community with major repercussions. It can only be hoped that the sacredness of this Site is preserved and that the *Akua* and *aumakua* of the Hawaiian people are pleased with the outcome.

Mitigation Measures

The timely establishment of the Advisory Committee with representation from the Hawaiian community will mitigate many of the concerns discussed above. For example, the Advisory Committee will provide input and review design details such as whether to use a boardwalk or chips for the walkways. The Advisory Committee will also review the qualifications of consultants and contractors to ensure restoration tasks are done properly.

The Advisory Committee will also be involved in determining the qualifications for the *kahu*. The *kahu* will ensure that the operations and educational programs uphold the Site's sacred cultural values and traditions, and that special Hawaiian functions are accorded appropriate protocol.

When the Hawaiian sovereign organization has been established, the disposition of the Site can be reevaluated-- the Site could remain under State Parks with continued input from the Hawaiian community, or leased, transferred, or contracted (management agreement) to the sovereign entity. If transferred, the sovereign entity can decide whether to allow public visitation or exclusive use by Native Hawaiians. In the meantime, proceeding with the Management Plan in accordance with the guidance of the Advisory Committee and *kahu* will enable the restoration and interpretation of the Site, while not foreclosing the option for eventual control by a Native Hawaiian organization.

3.2.2 Employment

The park is projected to generate only four permanent jobs-- *kahu*, interpretive specialist, and two caretakers. Certain jobs that require special skills, such as rebuilding the rock walls, may be contracted to consultants. State Parks will involve the Advisory Committee and the Hawaiian community in the selection of the *kahu* and certain special skills consultants.

During the construction of the facilities, limited jobs would be created. The number of construction jobs is negligible due to the small scale of the proposed facilities.

3.3 PUBLIC FACILITIES, UTILITIES, AND SERVICES

3.3.1 Roads and Traffic

Setting

Access to the park is from Ali'i Drive, a 50-foot right-of-way with a 22-foot pavement. This is the main road servicing the coastal resort and residential corridor between Kailua and Keauhou. A 300-foot long remnant of the Old Beach Road separates the Site from four private residences. Although presently used exclusively by the four residences, the Old Beach Road is a publicly-owned government road.¹⁰

Impacts

Based on a peak day visitation of 830 persons (150% of average day visitation), peak hour traffic entering and exiting the project is estimated at 33 vehicles (see Figure 14, "Traffic Assignment: Year 2000," on page 3-47). At this level, the project would have a minor impact on Ali'i Drive-- an increase in traffic of less than 5%. Since left turns into the Site would incur little or no delays during the peak hour, a separate left turn lane on Ali'i Drive is not warranted. There would be sufficient gaps in the Ali'i Drive traffic to permit vehicles exiting the project to make a left turn onto Ali'i Drive with little or no delays (see Appendix A: "Traffic Impact Assessment").

Mitigation

To control visitation within the projected carrying capacity and not cause neighborhood traffic impacts, State Parks will implement the following mitigation measures:

- limit parking to 15 spaces and bus drop-off;
- erect signs to discourage parking on the roadway shoulder in coordination with the County of Hawaii;

10. Memorandum opinion from the Department of Attorney General to State Parks dated 12 June 1991.

- patrol by security personnel to discourage off-hours visitation;
- coordinate scheduled visitations with tour bus companies and schools;
- initiate an appointment-only system for all visitors, if demand becomes too overwhelming.

3.3.2 Water System

Setting

Water service is available via an 8-inch meter main on Ali'i Drive.

Impacts

The project will require water for drinking purposes at the proposed interpretive center, wash basins in the restroom, and limited irrigation. Within the Site, the water lines can be laid on the ground surface and covered with fill to avoid excavating. The estimated average daily water demand is 500 gpd for domestic use and 4000 gpd for irrigation for a total of 4500 gpd.

Mitigation

None required since adequate capacity is available.

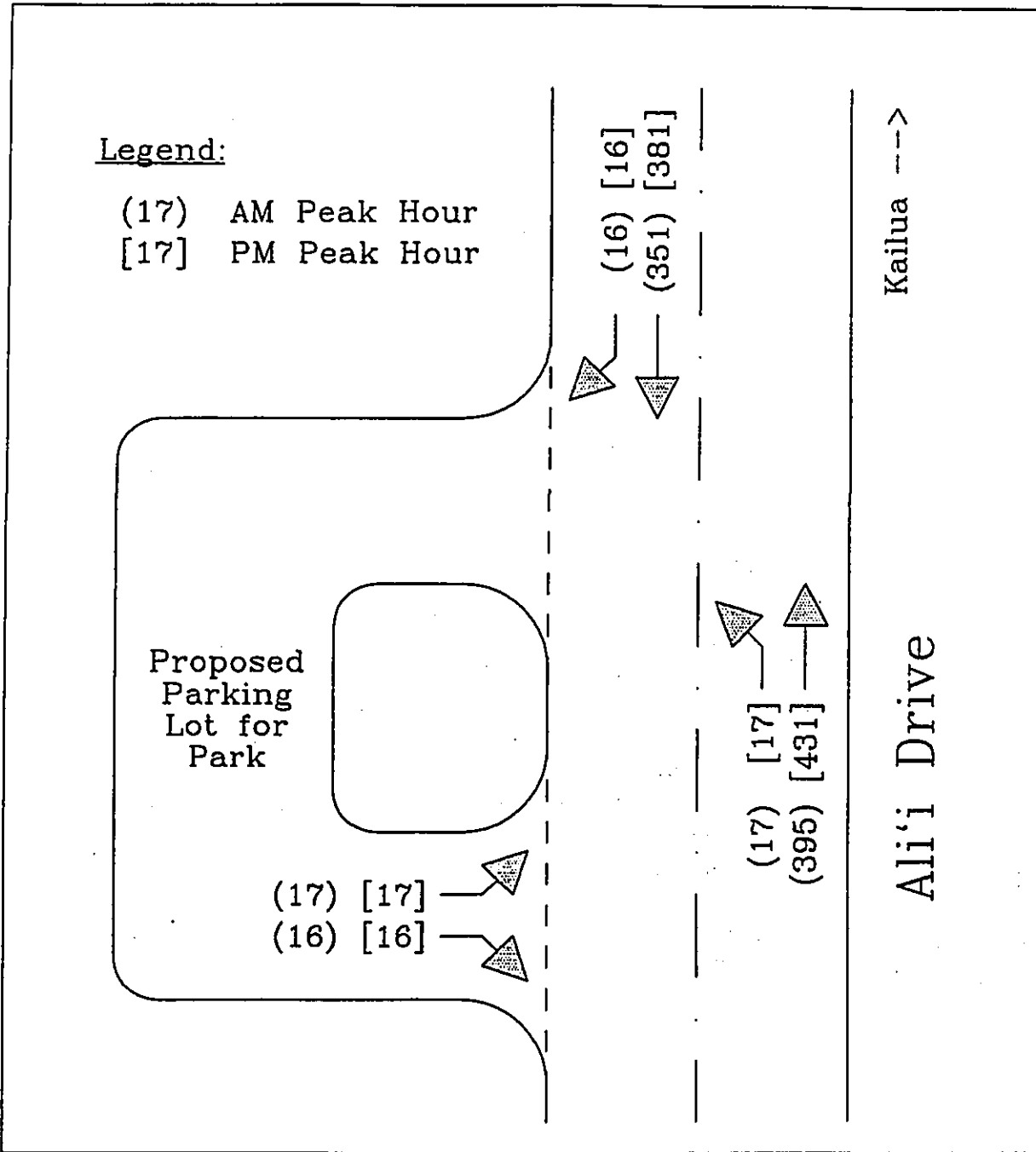
3.3.3 Wastewater System

Setting

A sewer line is currently under construction on Ali'i Drive, which will connect to a sewage treatment plant in Lanihau, north of Kailua town. The County requires new construction to hook up to sewer lines where available.¹¹ Exceptions to this requirement are granted only in circumstances in which connection would produce a significant adverse impact to the public, and only when the alternative disposal systems do not negatively impact public or environmental health.

11. Hawaii County Code §21-5 (Supp. 1990).

FIGURE 14. Traffic Assignment: Year 2000



Impacts

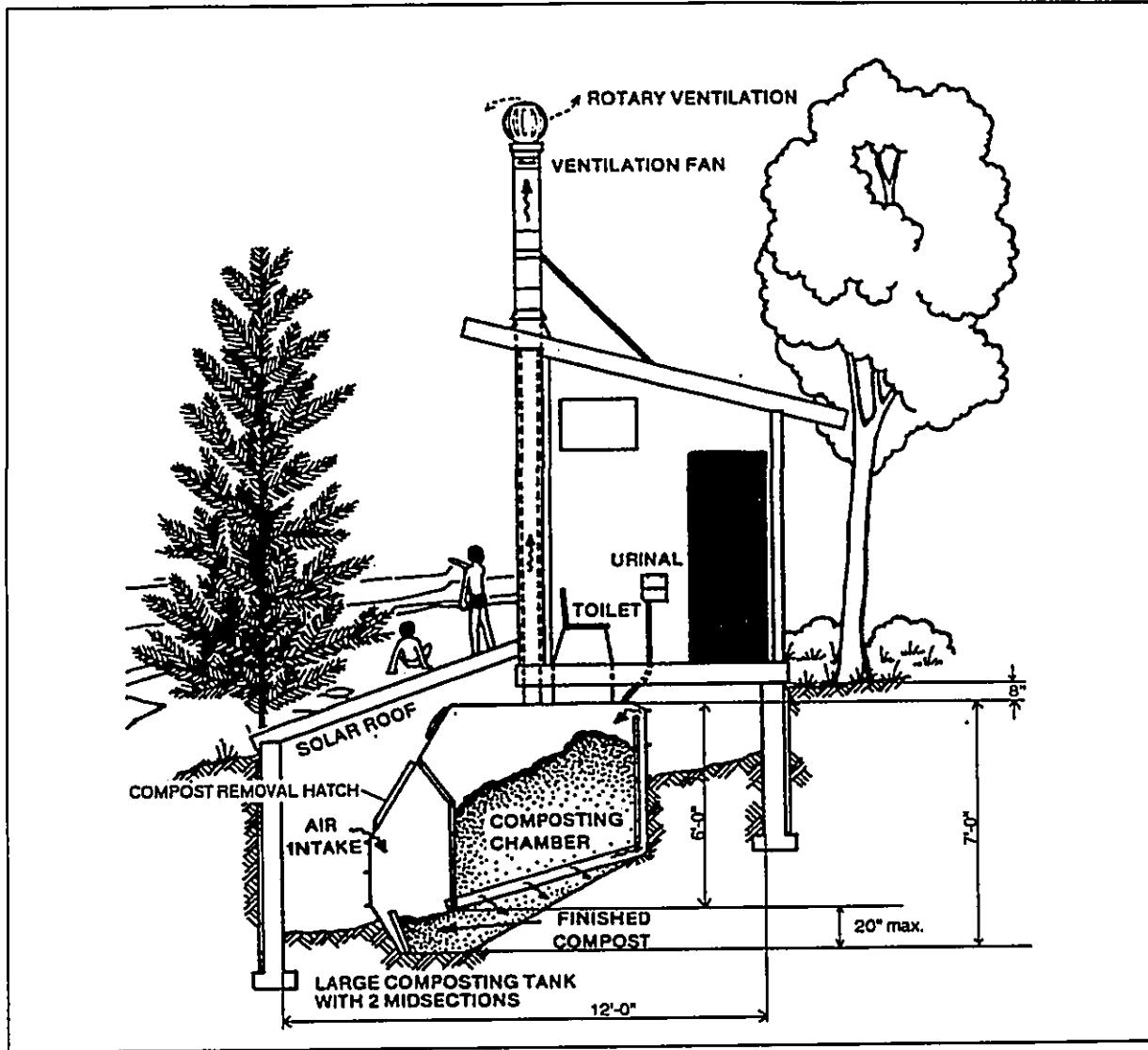
Because of the potential to irreparably harm subsurface archaeological deposits and the sensitive nature of the cultural features of the Site, State Parks proposed in the Draft Management Plan that no excavation take place, even in areas with existing bulldozing or boulder fill. Eventually, if an alternative parcel for the Site's facilities can be obtained, all facilities may be removed and the surface restored to its original condition.

One means of achieving a portable system without excavation is a self-composting toilet. Such systems are currently in use at Na Pali Coast State Park, Manuka State Wayside and Makena State Park. They function well with proper maintenance and ventilation. Unlike "port-a-potties," self-composting toilets decompose naturally by adding carbon-rich materials (e.g., lawn clippings or leaves) in an oxygen-rich environment. A small fan in the vent stack draws off odors continuously and keeps the toilet stalls odor-free at all times. Over a period of time, decomposed wastes will be reduced by 90 percent of their original volume and can easily be disposed of by facility personnel.

The concerns with the self-composting toilet are as follows:

- Excavation may be unavoidable to accommodate the vertical dimension requirements of the composting toilet (see Figure 15, "Conceptual Diagram of a Self-Composting Toilet," on page 3-49).
- Gray water (e.g., water from the washbasins) cannot be disposed in the composting toilet; an alternative disposal system would have to be designed.
- Odors can be generated if the system is not properly maintained or under-used.
- The building structure required for the composting toilet is not really portable.
- Users dispose waste into the toilet that a composting system cannot digest.

FIGURE 15. Conceptual Diagram of a Self-Composting Toilet



Mitigation

In the process of finalizing the Management Plan, State Parks should consider hooking up to the sewer system in lieu of the composting toilet. The restroom facility could be a post-and-pier structure approximately 14'x14' to accommodate 2 water closets (1 handicapped) for females, 2 water closets (1 handicapped) and 2 urinals for males, and 2 washbasins each for females and males. This structure would be more portable than the composting toilet structure.

Excavation for the sewer line should be minimal, especially since the line begins at a higher elevation for a post-and-pier compared to slab-on-grade construction. The maximum depth of excavation is approximately 3' at the right-of-way boundary assuming an estimated distance of 150' from the location of the restroom to the right-of-way boundary. Since the soils engineer estimated the depth of the boulder fill to be 8' to 18' (see Appendix C: "Soils Engineering Site Reconnaissance Report"), the depth of excavation should not impact the undisturbed subsurface layers with potential archaeological remains.

The sewer alternative is more tolerant to user abuses of what is disposed in the toilet than the composting toilet, and the sewer line also provides for disposal of gray water. There is less maintenance involved since it would no longer be necessary for the maintenance staff to monitor whether carbon-rich material needs to be added nor to periodically dispose the composted waste.

The sewer lateral that would serve the Site is designated for the area fronting the narrow northern portion of the Site (referred to as Recreational Zone 2 in Figure 13, "Site Recreational Zones," on page 3-28). State Parks should immediately request the County Division of Wastewater to relocate the lateral, perhaps to a location in the vicinity of the Old Beach Road to maintain a more feasible hook-up option. The construction of the sewer line is currently in Phase I; the portion fronting the Site is in Phase II. State Parks should request the relocation as soon as possible before the contractor begins Phase II to accomplish the relocation without additional cost.

The recommendation for sewer connection concurs with the opinion of the Wastewater Division of the Hawaii County Department of Public Works and the State Department of Health who reviewed the composting toilet proposal. They do not believe a variance to the sewer hookup requirement is justified (see Appendix J: "Comments and Responses to the Draft EIS", letter of 28 February 1995 from Ben Ishii, and letter of 22 June 1995 from Dr. Lawrence Miike).

3.3.4 Drainage System

Setting

No storm sewer system has been deemed necessary along Ali'i Drive, owing to the high percolation capacity of the natural surface. Projects adding significant quantities of unpaved surfaces are required to address drainage projects through drywells and other drainage control structures. As mandated in Storm Drainage Standards for Hawaii County, any increase in runoff determined to be due to development of a proposed site, including but not limited to buildings, paved roads and parking areas and more intensive use, must be disposed of by on-site drainage facilities.

Impacts

Because of the relatively small size of the parking lot and low rainfall, anticipated surface runoff is minimal. The runoff can be shed along the entire length of the parking lot without the need for drywells or other drainage structures.

Mitigation

None required since there would be no excavation for drywells.

3.3.5 Electrical/Telephone

Setting

Electricity and telephone lines are available via overhead lines on Ali'i Drive.

Impacts

No special considerations or permits are necessary. Energy consumption of the facility is expected to be minimal.

Mitigation

None required.

3.3.6 Police & Fire Protection

Setting

Police patrols are dispatched out of a station in Kealakehe. Three shifts with an average of eight patrolmen per shift provide round-the-clock coverage. The average response time to the Site is three to four minutes.

A two-company fire station located on Palani Road *mauka* of the junction with Queen Kaahumanu Highway serves the area. Three shifts with twelve firemen per shift provide round-the-clock service. Response time is also three to four minutes. Three certified Mobile Intensive Care Technicians (MICT) are assigned to the station, and one MICT is assigned to each shift. Emergencies are taken to Kona Hospital, which takes approximately 15 to 20 minutes. Firemen at the station are also trained in rescue procedures and have a Radon 25-foot rescue boat, diving equipment and surfboards for search and rescue work. Several of the firemen have various levels of water safety training and some are certified lifeguards.

Impacts and Mitigation

None.

RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

4.1 STATE PLAN AND FUNCTIONAL PLANS

The Hawaii State Plan consists of goals, objectives, policies, and priority directions to guide the future long-range development of the State. State functional plans coordinate agency actions within specific areas of concern, such as agriculture, conservation lands, recreation, tourism, and historic preservation. Appropriation of funds for major programs and capital improvement projects must conform with the goals, objectives, policies, priority guidelines, and functional plans.¹ The applicable policies are discussed below.

Objectives and policies for the economy-- visitor industry.²

Objective:

Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.

Policies:

(2) Ensure that the visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.

1. *Hawaii Revised Statutes* §226-52(b)(2) (Supp. 1992).

2. *Hawaii Revised Statutes* §226-8 (Supp. 1992).

RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawaii's cultures and values.

Priority Guidelines:³

(4) Encourage visitor practices and activities which respect, preserve, and enhance Hawaii's significant natural, scenic, historic, and cultural resources.

Discussion: The Site, conveniently located between two concentrations of visitor facilities (Kailua and Keauhou), provides a unique opportunity to foster an understanding by visitors of Hawaii's cultures and values. However, access to certain areas of the Site will be controlled to respect the sacred cultural values of these areas. An Advisory Committee will play a significant role to ensure that interpretive programs and operational guidelines respect the cultural values of the Site.

Objective and policies for the physical environment-- scenic, natural beauty, and historic resources.⁴

Objective:

Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historic resources.

Policies:

(1) Promote the preservation and restoration of significant natural and historic resources.

(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

Historic Preservation Functional Plan:⁵

Policy: Encourage the maintenance and preservation of State and County owned historic properties.

3. *Hawaii Revised Statutes* §226-103(b) (Supp. 1992).

4. *Hawaii Revised Statutes* §226-12 (1985 & Supp. 1992).

5. State of Hawaii, Department of Land and Natural Resources, State Historic Preservation Plan, October 1982.

Policy: Establish a substantive interpretation program for publicly owned historic properties.

Discussion: This project directly implements the State Plan and Historic Preservation Functional Plan policies to promote the enhancement and restoration of cultural historic resources. The Site's historic significance, recognized by its placement on the National and State Registers of Historic Places, merits priority allocation of funds and energy towards restoration and preservation.

Objective and policies for socio-cultural advancement-- education.⁶

Objective:

Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.

Policies:

(4) Promote educational programs which enhance an understanding of Hawaii's cultural heritage.

Objective and policies for socio-cultural advancement-- leisure.⁷

Objective:

Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.

Policies:

(1) Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.

(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.

6. *Hawaii Revised Statutes* §226-21 (1985 & Supp. 1992).

7. *Hawaii Revised Statutes* §226-23 (1985 & Supp. 1992).

RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.

(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.

(5) Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.

(10) Assure adequate access to significant natural and cultural resources in public ownership.

Discussion: The restoration and interpretation of Keolonahihi is significant not only for historic preservation purposes, but for educational values as well. The Site has invaluable potential as an asset for cultural education. This type of outdoor educational resource provides a setting to learn in leisure as well as formally as part of a school excursion or course.

The State Plan supports such educational/recreational resource enhancement as proposed for the Site. However, if the Site remains in public ownership, the policies advocate that the facility should be secure and adequate for public safety and health, should provide opportunities for all groups to enjoy the resource (including those with disabilities), and it should be accessible. Implied in this policy is that if the Site should be exclusive to the Native Hawaiians, then it should not remain in public ownership but should instead be transferred to a Native Hawaiian organization.

On the other hand, the State policies for culture cited below promote the enhancement of cultural identities and traditions. This policy could support either transfer of the Site to a Native Hawaiian organization to enable exclusive use by the Native Hawaiians, or a compromise where the Site would be closed to the public during certain Native Hawaiian ceremonial uses of the Site, but otherwise open to the public.

Objective and policies for socio-cultural advancement-- culture.⁸

Objective:

8. *Hawaii Revised Statutes* §226-25 (1985 & Supp. 1992).

4.2 STATE LAND USE LAW

Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identifies, traditions, values, customs, and arts of Hawaii's people.

Policies:

- (1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.
- (2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.
- (3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.

4.2 STATE LAND USE LAW

The State Land Use classification for the Site is Urban. However, during the recent State Land Use District Boundary Review, the Office of State Planning recommended reclassification of the Site, together with Keakealaniwahine, from Urban to Conservation in recognition of the significant historic values (see Figure 16 on page 4-6). The County of Hawaii recently petitioned the Land Use Commission for a regional reclassification to conform the area's land use designations to the County General Plan.⁹ Although the County's petition area encompassed the Site, the petition did not propose reclassification of the Site. A state park is a permitted use in the Urban district. If reclassified to Conservation, the construction of the visitor facilities may require a Conservation District Use Application.

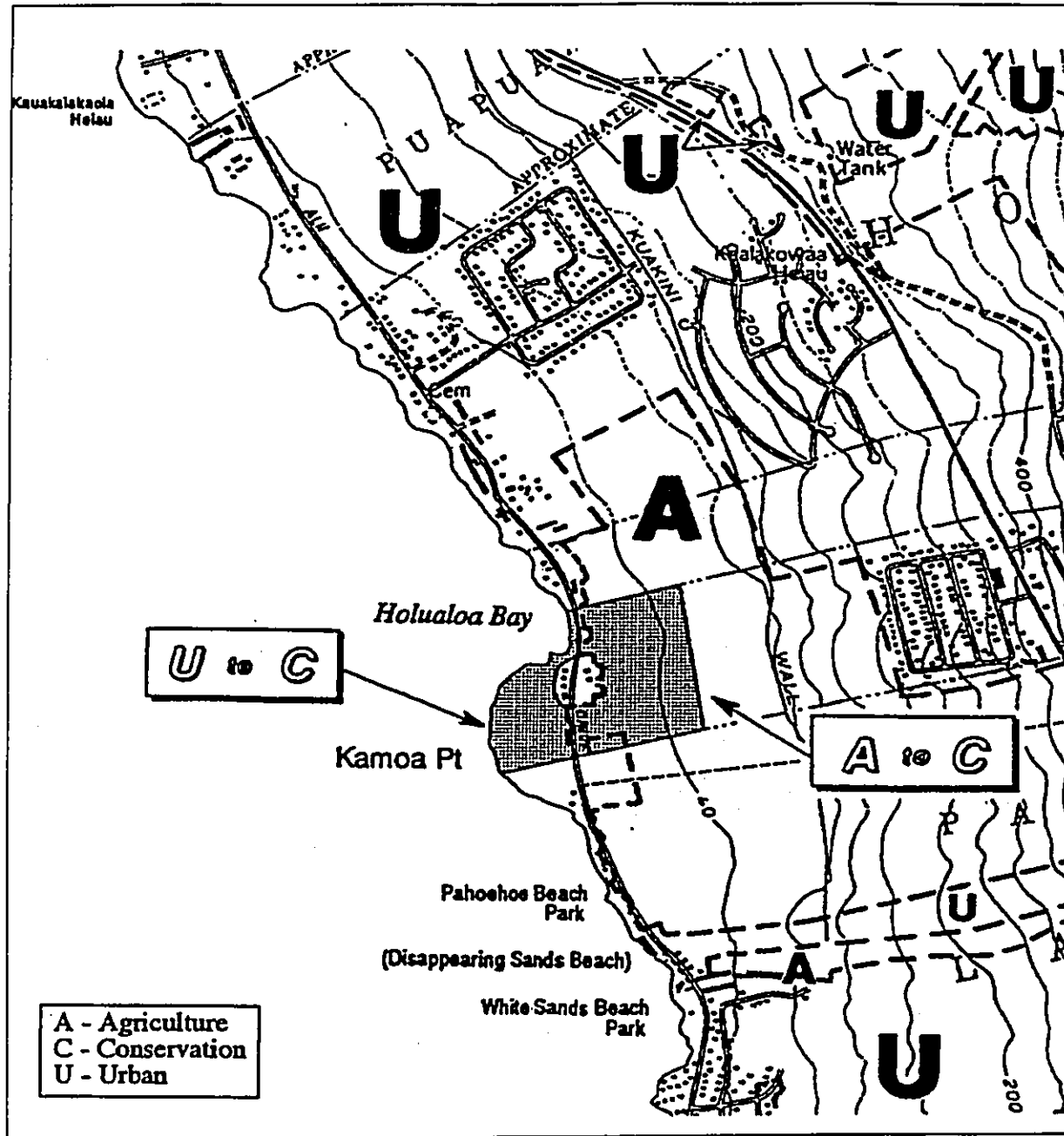
4.3 WEST HAWAII REGIONAL PLAN

The Office of State Planning prepared the West Hawaii Regional Plan to coordinate State activities in the planning region that included North and South Kohala and North Kona. The Plan recommended expansion of the Kamoia Point Historical Park to include Keakealaniwahine.¹⁰

9. Kau-Keauhou Petition for Reclassification, LUC Docket #A94-705.

10. State of Hawaii, Office of State Planning, *West Hawaii Regional Plan, 1988*, p. V-19.

FIGURE 16. Proposed State Land Use District Boundary Reclassification



4.4 HISTORIC PRESERVATION

Hawaii Revised Statutes §6E-8 requires the review by the Department of Land and Natural Resources of any project which may affect historic properties, especially properties on the Hawaii Register of Historic Places. Since the Site is on the National and Hawaii Register of Historic Places, State Parks has allowed the Historic Preservation Division to review and participate in all aspects of this project.

4.5 HAWAII COUNTY GENERAL PLAN

The proposed use conforms with the General Plan LUPAG designation for the Site which is Open (see Figure 17 on page 4-8). This Open designation is intended for parks and historic sites. The General Plan lists the "Kamoa Point Complex" as a significant historic site.¹¹

The project conforms with the following goals and objectives of the General Plan:

Historic Sites

Goals

Protect and enhance the sites, buildings and objects of significant historical and cultural importance to Hawaii.

Access to significant historic sites, buildings and objects of public interest should be made available.

Policies

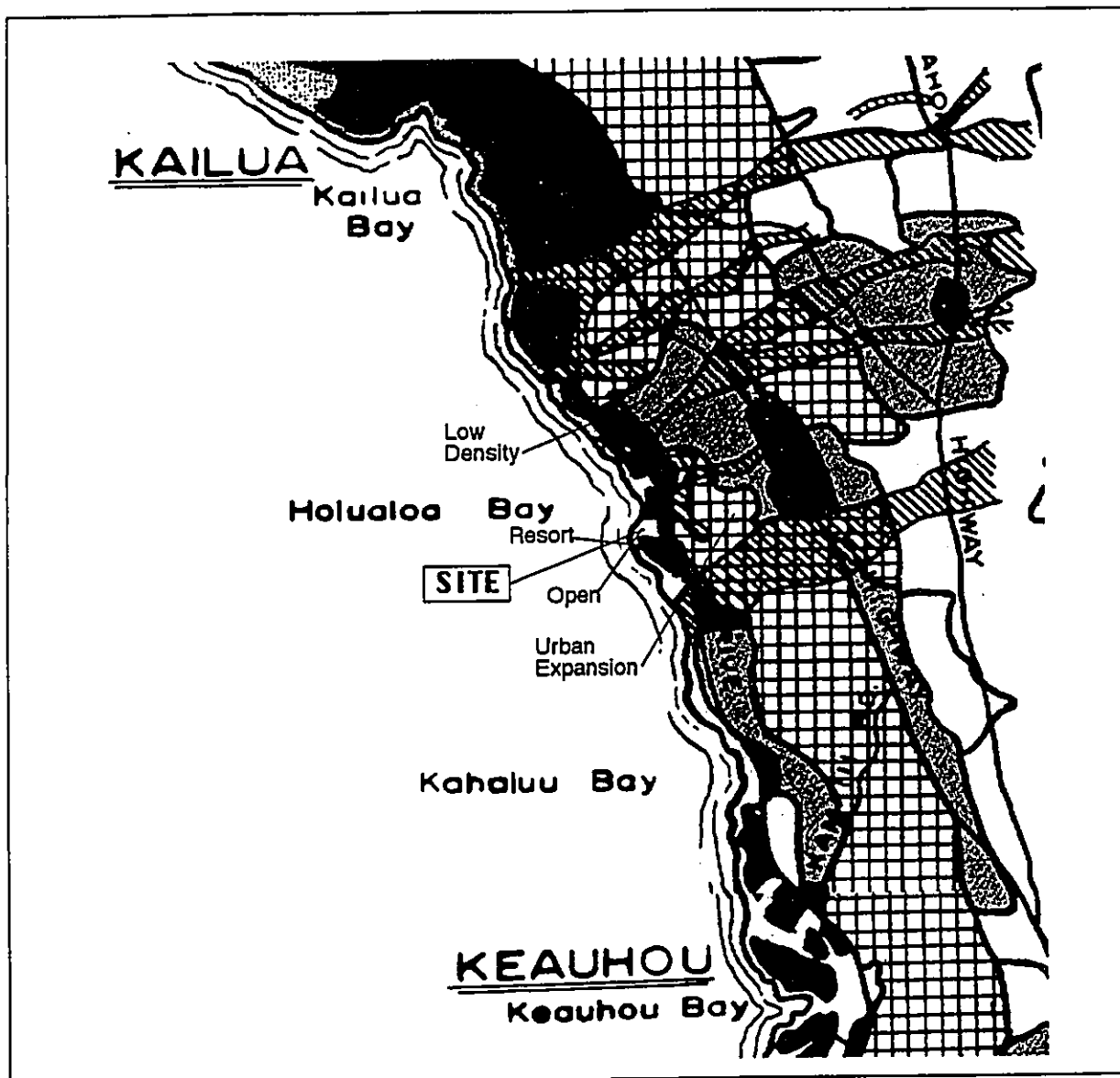
Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.

Public access to significant historic sites and objects shall be acquired.

The County shall also aid in the development of a program of public education concerning historic sites.

11. General Plan Support Document, November 1989, p. 31.

FIGURE 17. Hawaii County General Plan LUPAG Map



Signs explaining historic sites, buildings and objects shall be in keeping with the character of the area or the cultural aspects of the feature.

Courses of Action

Encourage the establishment of a historic park at Kamoia Point and protect the historic sites.¹²

Discussion: The courses of action for North Kona recreation specifically support a historic park at Kamoia Point; therefore, this project directly implements the General Plan. Public involvement in the planning process for this project has been encouraged through the establishment of advisory committees, holding public meetings, consulting with special interest groups (e.g., Hawaiian organizations, neighbors, ocean users), and public review and comments through this EIS process. Interpretive signs will be designed in keeping with the character of the Site and will be reviewed by the Advisory Committee to be established to provide input during the design, construction, and operational phases of the project.

Natural Resources and Shoreline

Goals

Provide opportunities for the public to fulfill recreational, economic, and educational needs without despoiling or endangering natural resources.

Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.

Protect rare or endangered species and habitats native to Hawaii.

Policies

The shoreline of the island of Hawaii shall be maintained for recreational, educational, and/or scientific uses in a manner that is protective of resources and is of the maximum benefit to the general public.

Encourage the use of native plants for screening and landscaping.

Discussion: The project will expand the number of native endangered *lo'ulu* palms, currently growing on the Site, as part of the landscaping. Other native plants adapted to the coastal environment will also be used. The Site

¹²General Plan, §5.G(6).

RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

will provide an educational/recreational opportunity to learn about the Hawaiians' interaction with shoreline resources from surfing to the use of coastal ponds for ceremonial purposes.

Recreation

Goals

Provide a wide variety of recreational opportunities for the residents and visitors of the County.

Maintain the natural beauty of recreation areas.

Provide a diversity of environments for active and passive pursuits.

Policies

Recreational facilities in the County shall reflect the natural, historic, and cultural character of the area.

The use of land adjoining recreation areas shall be compatible with community values, physical resources and recreation potential.

Discussion: The project will broaden the spectrum of recreational opportunities in the area. As a passive, historical, educational recreation resource, the Site provides a welcome diversity from the active beach recreation parks in the vicinity. Adjoining land uses can be buffered to be compatible with the values of the Site.

Land Use-- Open Space

Goals

Provide and protect open space for the social, environmental, and economic well-being of the County of Hawaii and its residents.

Protect designated natural areas.

Policies

Open space in urban areas shall be established and provided through zoning and subdivision regulations.

Zoning, subdivision and other applicable ordinances of the County of Hawaii shall provide for and protect open space areas.

4.6 KONA REGIONAL PLAN

Discussion: The General Plan "Open" designation of the Site provides an oasis of open space amidst intensifying urban uses in this coastal area. The County zoning perhaps should conform to the General Plan by rezoning the Site from its present Resort designation to an Open designation.

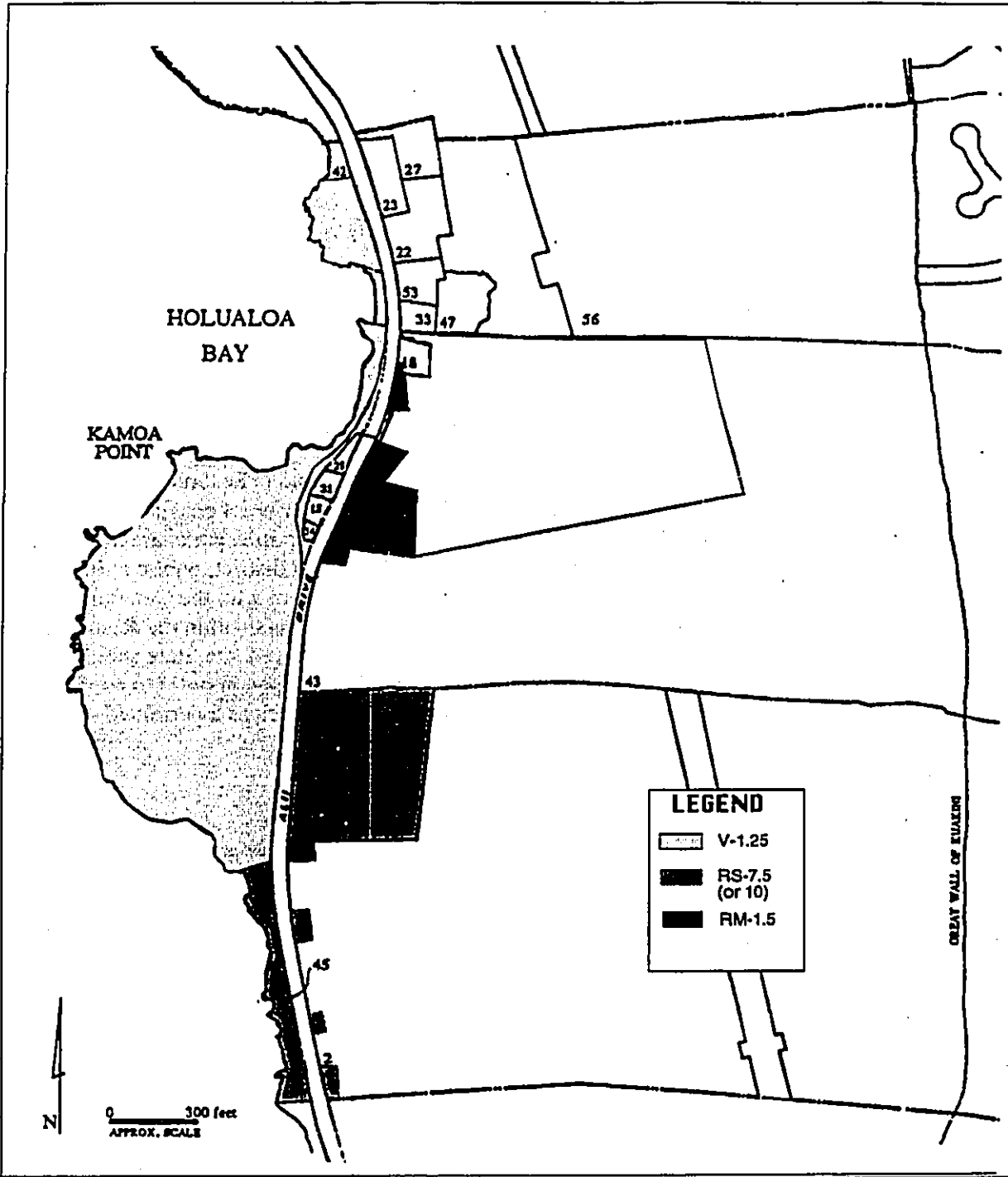
4.6 KONA REGIONAL PLAN

The County Planning Commission adopted the Kona Regional Plan as a guide in 1984. The Plan designates the Site as "Open".

4.7 HAWAII COUNTY ZONING

The County zoning designation for the Site is Resort (V-1.25) (see Figure 18 on page 4-12). This designation is not consistent with the General Plan designation of Open. Although public parks are not specifically listed as a permitted use within the Resort district, public buildings are permitted in all districts provided they conform with the General Plan (Hawaii County Code §25-51(c) (1989)). All projects within the Resort district require Plan Approval. Although not required, the State should consider applying for a downzoning of the Site to Open in order to conform with the General Plan and to clearly establish the park as a permitted use.

FIGURE 18. Hawaii County Zoning



**4.8 COASTAL ZONE MANAGEMENT,
SPECIAL MANAGEMENT AREA, AND
SHORELINE SETBACK**

The project is located within the Special Management Area (SMA). Since the proposed activities fall within the definition of "development" under the County's SMA Rules,¹³ the project will require a SMA Permit. Since the estimated project cost exceeds \$125,000, the project will require a SMA Use Permit rather than a Minor Permit. A shoreline survey certified by the chairperson of the Board of Land and Natural Resources will need to be submitted as part of the SMA Use Permit application.

To be approved, the project must conform with the objectives and policies of the Coastal Zone Management Act (*Hawaii Revised Statutes Chapter 205A*).¹⁴ The policies are discussed below:

- **Recreational Resources**

The policy objective is to provide coastal recreational opportunities accessible to the public. The proposed project protects and provides public access to a significant and unique cultural resource. Although the public would be restricted from certain sacred areas, these areas could be viewed from platforms and walkways. Public access to surfing areas and the shoreline would be provided along the *makai* perimeter of the Site, but not through the Site.

- **Historic Resources**

The project will protect and restore the significant archaeological remains. Sensitive interpretation of the Site will be coordinated with an Advisory Committee comprised of community and Native Hawaiian representatives.

- **Scenic and Open Space Resources**

13. County of Hawaii, Planning Commission, Rules of Practice & Procedure §9-4(10) (November 1992).

14. *Ibid.*, §9-11.C.

RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

The proposed clearing of some of the dense vegetation that currently threaten the stability of the rock walls, coupled with the proposed landscaping with native plants, should enhance the scenic attributes of the Site and possibly improve *makai* vistas from the highway.

- Coastal Ecosystems

The proposed landscaping would encourage the coastal strand vegetation to flourish. The coastal pond on the Site would be restored.

- Economic Uses

Since the proposed cultural site is not an economic venture, the policies are not applicable.

- Coastal Hazards

All structures constructed within the flood hazard zones will comply with the restrictions and flood-proofing requirements of the County's Flood Control Code (Chapter 27, *Hawaii County Code* (1983)).

- Managing Development and Public Participation

Public participation in the development process has been encouraged through the establishment of Advisory Committees, public meetings, broad distribution of draft plans, and the EIS process.

- Beach Protection

All structures will be located inland of the shoreline setback line to avoid interference with natural shoreline processes.

Certain rock walls do fall within the shoreline setback area. Since restoration activities are probably exempt¹⁵ a shoreline setback variance would not be applicable. Landscaping and walkway/pathway construction within the shoreline setback area are considered "minor structures or activities" and also do not require a shoreline setback variance.¹⁶ State Parks will submit a request for minor activity determination for the Planning Department's confirmation that the proposed activities are exempt or minor.¹⁷

15. County of Hawaii Planning Commission, Rules of Practice & Procedure, §8-7(a)(4) (November 1992).

16. *Ibid.*, §§8-3(f) & (g), -7(d) (November 1992).

17. County of Hawaii Planning Commission, Rules of Practice & Procedure, §8-7(d)(1) (November 1992).

4.9 HANDICAPPED ACCESSIBILITY

All plans and specifications for the construction of any State or County building must be prepared so the building is accessible to and usable by the physically handicapped.¹⁸ The building must conform to the Uniform Federal Accessibility Standards (UFAS), 41 C.F.R. §101-19.6, Appendix A and the Americans with Disabilities Act. During the design phase, State Parks should send the plans and specifications to the Commission on Persons with Disabilities for review and advice.

4.10 OTHER PERMITS AND APPROVALS

Construction activity for the proposed parking lot and facilities may not require a grading permit since the sitework may involve less than one acre.¹⁹ Since drywells are not required to drain the parking lot, the Underground Injection Control (UIC) Permit from the Department of Health (DOH) is not required. The County would have to grant a variance to permit the proposed individual composting sewage disposal system in lieu of connecting to the sewer system. Since the limits of grading for the improvements will involve less than 5 acres, the non-point source controls under the NPDES Permit administered by DOH will not likely apply to the project. The visitor facilities will require a Building Permit.

18. *Hawaii Revised Statutes* §103-50.

19. *Hawaii County Code* §10-3 (excluded activities include grubbing <1 acre, fill <100 cy, excavation <100 cy and <5' in height).

Table 4: List of Permits and Approvals

Permit or Approval	Authority ^a	Approving Agency
FEDERAL		
Propagation Permit	Endangered Species Act	U.S. Fish & Wildlife
STATE OF HAWAII		
Conservation District Use Permit (possibly, if rezoned)	HAR Chap. 13-2	Department of Land & Natural Resources
Historic Preservation review	HRS §6E-8	Department of Land & Natural Resources
UFAS & ADA Compliance	HRS §103-50.	Commission on Persons with Disabilities
COUNTY OF HAWAII		
Shoreline Setback minor activity determination or Shoreline Setback Variance	PC Rule 8	Planning Commission
SMA Use Permit	PC Rule 9	Planning Commission
Subdivision (consolidation) approval (possibly)	HCC Chap. 23	Planning Department
Sewer hook-up variance (if composting toilet)	HCC Chap. 21	Department of Public Works
Plan Approval	HCC Chap. 25	Planning Department
Driveway Permit	HCC Chap. 22	Department of Public Works
Building Permit	HCC Chap. 5	Department of Public Works

a. PC Rule= Rules of Practice & Procedure, Planning Commission, County of Hawaii; HCC= Hawaii County Code; HAR= Hawaii Administrative Rules; HRS= Hawaii Revised Statutes

The following alternatives avoid or reduce impacts that cannot be mitigated to acceptable levels.

5.1 NO PROJECT

Under this alternative, all efforts to obtain additional funding would cease and the Site would remain as is. The State could perpetually hold the Site as is, or "temporarily" defer any additional work until the State acquires the Keakealaniwahine Residential Complex and/or acquires adjacent land that could be used for visitor facilities.

Advantages. If the intent is to perpetually hold the Site as is, then there would be no risk of damaging subsurface archaeological features. If the intent is to await additional land acquisition, then a comprehensive plan could be developed based on the unity of the Keolonahihi Site and the Keakealaniwahine Site. By proceeding with plans only for Keolonahihi, the State's options may be limited if and when the State acquires Keakealaniwahine or an adjacent site for facilities. The feasibility of removing the boulder fill area and restoring the buried historic sites would need to be determined.

Disadvantages. The archaeological features would continue to deteriorate from root damage, fallen branches and trees, high surf and shoreline erosion, and uncontrolled visitor traffic within the Site. The extent and detail of the various archaeological features could not be appreciated due to the

impassable density of the vegetation. Furthermore, the State may be unable to acquire any site in the near future especially under the current budget constraints. Should the State acquire the Keakealaniwahine site (TMK 7-7-04:11), that site does not have space for facilities and additional land acquisition would still be necessary for the permanent facilities.

**5.2 EXCLUSIVE USE AND/OR CONTROL BY
NATIVE HAWAIIANS FOR TRADITIONAL
CULTURAL PRACTICES**

Because of the sensitive sacred cultural values of the Site, certain Native Hawaiians believe the Site should be reserved for Native Hawaiians just as Native American Indians have their exclusive cultural sites. Other Native Hawaiians do not advocate exclusive use, but believe in self-determination and that the Site's use and development should be controlled by Native Hawaiians.

Advantages. If there is consensus among the Hawaiian community that exclusivity is mandated to preserve the traditional cultural values of the Site, then the State should sell or transfer the Site to the Office of Hawaiian Affairs or other Hawaiian organization. Since the State paid several million dollars to acquire the Site, the amount of compensation, if any, may be a subject of negotiation. If control rather than exclusive use is desired, then there are several alternatives-- State Parks could enter into a lease or management agreement with a Hawaiian organization to develop and/or manage the Site, or State Parks could develop and manage the Site with input from an Advisory Committee with Native Hawaiian members and the hiring of a *kahu* to supervise operations. The latter alternative (Advisory Committee and *kahu*) is the concept proposed in the Management Plan.

Disadvantages. If the Site is reserved for the exclusive use by Native Hawaiians, the residents and visitors would lose the opportunity to learn and appreciate the unique lessons from this Site about the Hawaiian culture.

**5.3 VISITORS PERMITTED WITH
STABILIZATION AND RESTORATION ONLY
(NO FACILITIES)**

Although the Site would be cleaned and the archaeological features stabilized or restored so that visitors could easily view the features, no visitor facilities would be provided in recognition of the sacred values of the Site.

Advantage. Without facilities, there would be no incompatible uses with the sacred values of the Site (e.g., toilets in the vicinity of the features). The current state of disrepair and deterioration would be remedied by stabilization and restoration. Impacts to potential subsurface features would be avoided since there would be no excavation associated with proposed visitor facilities.

Disadvantage. State Parks would have difficulty justifying expenditure of funds for a site that could not accommodate the basic needs of a visitor and did not show movement towards a park opening. Such conditions would only encourage unsanitary practices and unsafe parking. Without onsite staff assigned to the facility, there would be no one to monitor the visitors and the condition of the archaeological resources. There would be limited or no interpretive services provided to promote visitor awareness and education. The lack of awareness could potentially result in visitor activities that are disrespectful of the Site and could result in site damage.

**5.4 VISITORS PERMITTED WITH MINIMAL
PORTABLE FACILITIES**

5.4.1 Facilities Located in the Southeastern Portion of the Site

This alternative would locate the interpretive center and restrooms south of the proposed parking lot. The walkways and lookouts would be similar to the proposed plan. A more extreme version of this alternative would limit facilities to only an interpretive center (no restrooms) and a visitor drop-off area (see Figure 19 on page 5-5). Under this version, since there is no pro-

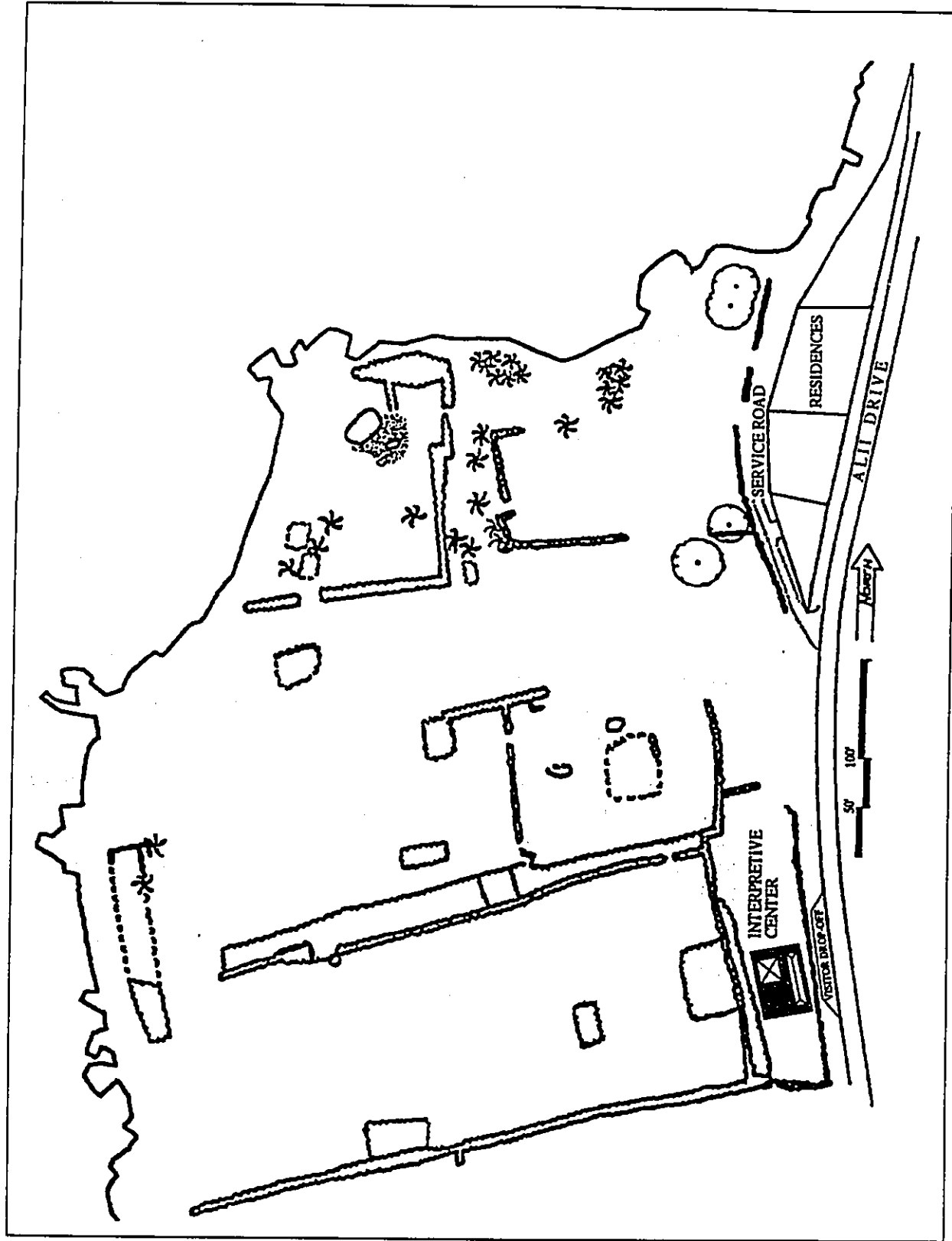
ALTERNATIVES

vision for a parking lot, an implicit assumption is that visitors would park along the streets until the State acquires an adjacent site for parking (if ever).

Advantages. The facilities would be provided next to the archaeological feature that is believed to have less sacred values (i.e., the sports site). The facilities would also be located away from the closest residents to the Site along the Old Beach Road. Interpretive services would be provided.

Disadvantages. The proposed location of the visitor facilities in the southeastern portion of the Site has not been previously disturbed and could contain subsurface archaeological features. Moreover, a *heiau* is located in close proximity to the proposed visitor facilities. There is also a concern whether the area has adequate space to accommodate the facilities with the necessary buffers and setbacks from the highway right-of-way and archaeological features. For the more extreme version, the lack of parking facilities would create traffic hazards and inconvenience for bikers, pedestrians, and other users of the road shoulder. Without defined pathways within the Site, there is less control of the visitor. If the visitor is restricted from the interior areas, the lack of a good vantage point from elevated viewing platforms reduces the viewing experience. The lack of restrooms may result in unsanitary visitor practices and desecration of the Site.

FIGURE 19. Alternative Site Plan with Facilities in the Southeastern Portion of the Site



5.4.2 Facilities Located in the Northeastern Portion of the Site

This alternative is the proposed plan.

Advantages. Minimal facilities are provided to accommodate visitors. Interpretive services would be provided. Defined pathways control the visitor and restrict the visitor from the sacred interior areas. Elevated platforms, however, enable the visitor to view and experience the interior areas from a distance. The facilities are located in previously disturbed areas. Landscaping and distance will buffer the facilities from the sacred sites. Because the facilities are portable, the option to relocate the facilities to an adjacent site is not foreclosed should that option become a reality in the future.

Disadvantages. The facilities will be located in the vicinity of the residents closest to the Site along the Old Beach Road. Landscaping will buffer the impacts to some extent.

5.5 VISITORS PERMITTED WITH PERMANENT FACILITIES

In this alternative, the type and siting of the facilities would be similar to the portable facilities alternative; however, the design of structures and selection of construction materials would recognize that the existing park boundaries and management concept would not change in the future.

Advantages. The design of walkways and structures would be designed for aesthetics, durability, and minimum long-term maintenance. For example, paved walkways would be considered for ease of maintenance and durability. Slab foundations or stone construction would be considered for the building.

Disadvantages. Potential subsurface archaeological features could be impacted during construction of the permanent facilities. Future options to relocate facilities would be more costly.

*IMPACT SIGNIFICANCE
ANALYSIS*

*6.1 RELATIONSHIP BETWEEN SHORT-TERM
USES AND MAINTENANCE OF LONG-TERM
PRODUCTIVITY*

The proposed project will maintain the long-term viability of the archaeological resources through stabilization and restoration. If no action is taken, the archaeological sites will deteriorate from the root damage caused by the existing vegetation.

*6.2 IRREVERSIBLE AND IRRETRIEVABLE
COMMITMENT OF RESOURCES*

The proposed facilities are confined to a previously disturbed boulder-filled area. The facilities will be designed to be "portable" to maintain the option to relocate the facilities should the State acquire an adjacent site.

The alternative of transferring the Site to a native Hawaiian organization will not be foreclosed by the proposed actions. The transfer could occur at any time-- immediately, after stabilization and restoration but prior to construction of any facilities, or even after opening to the public.

6.3 UNAVOIDABLE ADVERSE IMPACTS

The following impacts are unavoidable:

- As long as the Site is government-owned and therefore subject to constitutional limitations of the 1st Amendment Establishment Clause (see Section 3.1.9, "Recreational Resources," on page 3-27 for more detailed discussion), State Parks may only have the power to request the public to *voluntarily* refrain from visiting the sacred areas and instead to view these areas from the lookout platforms. Conflicts may be unavoidable between Native Hawaiians who believe the sacred areas would be desecrated by visitors and those visitors who desire to visit the sacred areas. Suggestions to reduce the conflict include transfer of the Site to a non-governmental entity (see Section 5.2, "EXCLUSIVE USE AND/OR CONTROL BY NATIVE HAWAIIANS FOR TRADITIONAL CULTURAL PRACTICES," on page 5-2), special legislation and acceptance by Native Hawaiians to prohibit visitation of the sacred areas only during ceremonial periods, or education of the general public to appreciate and respect the beliefs of the Native Hawaiians and thereby willingly comply with the voluntary restrictions.
- Noise will increase for the Site's neighbors, but should not be at a level that would disrupt daily activities and would be limited to daylight hours. This impact would be avoided by the "No Project" alternative, or substantially reduced by relocating the facilities to the southeastern portion of the Site (see Section 5.4.1, "Facilities Located in the Southeastern Portion of the Site," on page 5-4).

UNRESOLVED ISSUES

The major unresolved issue is whether to transfer the Site to a Native Hawaiian organization.

Assuming State Parks would proceed with the project, the following issues require resolution in the process of finalizing the Management Plan:

- Opinion from the Attorney General regarding the extent the general public may be restricted from the sacred areas;
- Extent of permitted recreational use in Recreational Zone 2;
- Security measures to control access to the Site, especially the viewing platforms during closed hours;
- Parking policies and enforcement measures to avoid potential conflict between recreational users and Site users;
- Whether to hookup to the sewer system or use composting toilets.

The following issues do not require resolution as part of the Management Plan but have high priority for action by State Parks to ensure that the cultural values and historical setting are maintained:

- Selection of the Advisory Committee to advise the design, construction, and operational phases.
- Qualifications and selection of the *kahu*.
- Agreement with the Kaumalumu developer regarding the extent and type of landscape buffer along the boundary within the open space easement.

*EIS PREPARERS AND
CONSULTED PARTIES*

8.1 PREPARERS OF THE EIS DOCUMENT

Ron Terry, Ph.D.	Overall coordination and production
Roy Takemoto, J.D., M.A.	Overall coordination and production
William Moore	Community meetings
Kala Mossman	Cultural impact analysis
Julian Ng, Inc. (Julian Ng, P.E.)	Traffic impact assessment
Imata & Associates, Inc. (Ray Nakamura, P.E.)	Water, wastewater, and drainage preliminary engineering analysis
Fewell Geotechnical Engineering, Ltd. (Richard Fewell, P.E.)	Soil engineering analysis of boulder fill area
David Tamura, A.S.L.A.	Landscape analysis

8.2 CONSULTED PARTIES

The consulted parties are listed in Appendix I: "Comments and Responses to the EIS Preparation Notice".

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APPENDIX A

Traffic Assessment Report
Keolonahihi State Historic Park

TRAFFIC ASSESSMENT REPORT
Keolonahihi State Historic Park
North Kona, Island of Hawaii
TMK: 7-7-04: 12, 51, 52

prepared by:
Julian Ng, Inc.
P. O. Box 816
Kaneohe, Hawaii 96744

September 1994

An assessment of the potential traffic impact of the proposed Keolonahihi State Historic Park was done to address traffic concerns related to the project. The site is located on the west (makai) side of Ali`i Drive near Kamo`a Point, approximately 3 miles south (toward Keauhou) of Kailua village. The project site is about halfway between Kailua Bay and Keauhou Bay.

Existing Conditions

Ali`i Drive, a two-lane roadway providing access to adjoining properties, connects Kailua village at its north end to the Keauhou resort area to the south. A bikelane/pedestrian path is striped along the east (mauka) edge of the roadway. Where there is sufficient width, parking occurs off of the pavement on the west (makai) side. Daily traffic volume on Ali`i Drive near the project is estimated to be 9,200 vehicles per day (VPD), based on counts taken in 1992 (Table 1).

Table 1
TRAFFIC COUNTS

	<u>southbound</u>	<u>northbound</u>
Station 8-X (Ali`i Drive 0.25 mile south of Holualoa Bay)		
24-hour (July 6-7, 1992)	4,490	4,577
AM Peak Hour (11:00 AM-12:00 noon)	331	356
PM Peak Hour (2:45-3:45 PM)	359	390

Source: State of Hawaii, Department of Transportation, Highways Division,
Traffic Survey Data (Individual Stations) - Island of Hawaii 1992.

Future Traffic

Traffic on Ali`i Drive is expected to increase with or without the proposed project, as a result of other growth in the area. The *Island of Hawaii Long Range Highway Plan*¹ projects an increase in traffic from 11,500 VPD in 1986 to 14,000 VPD in year 2010 on Ali`i Drive north of the site, which would be an annual average increase of 0.75%. This annual growth over eight years would be an increase of approximately 6.2%; application of this increase to the 1992 count data provided an estimate of year 2000 volumes.

Project Traffic

The proposed project is the development of park facilities to support and emphasize interpretive programs related to the historic cultural and archaeological resources at the site. Park visitation will include groups such as tour groups and educational classes, and independent visitors. The *Draft General Management Plan* for the project² has projected visitation to be between 150,000 and 200,000 visitors per year at full use. Independent visitors (couples, families) are expected to arrive primarily via automobile, while group visitors will probably be scheduled and arrive by bus. A parking lot consisting of space for about 15 automobiles and one bus loading area has been proposed on an existing boulder fill adjacent to Ali`i Drive which measures 150 feet long (parallel to Ali`i Drive) and 100 feet deep (perpendicular).

The management plan indicates that the site will be able to accommodate up to 150 visitors at one time, and that a typical visit duration is between 30 and 45 minutes, except that educational groups may stay as long as two hours.

Based on the visitation projections, the number of visitors on a peak day has been estimated to be 150% of the average daily visitation, or 830 persons per day. Assuming nine hours of operation (9 a.m. to 6 p.m.), average hourly visitors would be 92 persons; for a peak hour visitation of 125% of the average hour and an average vehicular occupancy of 3½ persons per vehicle, peak hour traffic has been estimated to be 33 vehicles entering and 33 vehicles exiting the site.

For the proposed parking lot, separate driveways for entrance and exit have been assumed. Traffic approaching the site and traffic leaving the site are assumed to come from or go to the north or south in proportion to the counted volumes. Analyses were done to consider traffic impacts for the project peak hour coinciding with the existing peak hours of Ali`i Drive. Exhibit 1 shows the peak hour volumes estimated for year 2000 at the site parking driveways.

Analyses

The volumes shown in Exhibit 1, which were estimated by conservatively assuming that the project traffic would be new traffic that is in addition to traffic already on Ali`i Drive, indicate that project traffic would be about 5% of total traffic on Ali`i Drive. The management plan notes that some of the visitors "may be accidental visitors who drive along Ali`i Drive, notice the park sign and decide to stop." Other visitors may plan their visit in conjunction with other activity in the area. The net impact of the project to volumes on Ali`i Drive is therefore expected to be less than 5% of other traffic.

Conditions at the site driveways, which operate as if they were unsignalized intersections, were analyzed using the *Highway Capacity Manual*³ procedure for unsignalized intersections. The analysis determines the capacity of the left turn into, and each movement out of, the minor street or driveway by considering the speed and volume of the unstopped traffic. The difference between these capacities and the traffic demand wishing to make the movement is the "reserve capacity" which are used to identify a qualitative levels of service, as shown in Table 2. Table 3 summarizes the findings of the intersection analysis, assuming that a single lane is shared by all exiting traffic (right and left turns).

Table 2
LEVEL OF SERVICE CRITERIA

Reserve Capacity	Level of Service	Expected Delay to Minor Street Traffic
≥ 400	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays

Source: *Highway Capacity Manual*, Table 10-3

Table 3
DRIVEWAY LEVELS OF SERVICE

	Reserve Capacity	Level of Service
<u>AM Peak Hour</u>		
Left turn, northbound Ali`i Drive to driveway	806	A
Exit driveway to southbound Ali`i Drive	421	A
<u>PM Peak Hour</u>		
Left turn, northbound Ali`i Drive to driveway	779	A
Exit driveway to southbound Ali`i Drive	389	B

An analysis was also done to determine if a separate left turn lane is warranted, using criteria⁴ for intersection design. Left turns into the driveway are less than five percent of the northbound traffic on Ali`i Drive. These left turns would be made against an opposing volume (southbound) of less than 400 vehicles per hour in each peak hour. If Ali`i Drive were a two-lane highway operating at 40 miles per hour, the minimum advancing (northbound) volume at which a separate left turn lane should be considered is 510 vehicles per hour. The criteria for considering a separate lane are not met and therefore, a separate left turn lane is not warranted.

Conclusions

The proposed development of the Keolonahihi State Historic Park will have minor impacts to traffic conditions in the area. The impact in the immediate area is an increase in traffic on Ali`i Drive of less than five percent; the proportionate impact elsewhere would be smaller. At the driveway, left turns into the site will incur little or no delays in the peak hour, and a separate lane would not be warranted. The analysis also found that there will be sufficient gaps in the main traffic stream to permit vehicles exiting the project to enter Ali`i Drive.

References

1. Parsons Brinckerhoff Quade & Douglas, Inc., *Island of Hawaii Long Range Highway Plan - Final Report* (prepared for State Department of Transportation and County of Hawaii: Departments of Planning and Public Works), May 1991. Figures II-7 and IV-3.
2. State of Hawaii Department of Land and Natural Resources Division of State Parks, *Draft General Management Plan, Keolonahihi State Historical Park, North Kona, Island of Hawaii*. August 1994
3. Transportation Research Board, National Research Council, *Highway Capacity Manual*, Special Report 209, Washington, D.C., 1985
4. American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, 1990. Table IX-15.

APPENDIX B

Keolonahihi State Cultural Site Landscaping

KEOLONAHIHI STATE CULTURAL SITE LANDSCAPE

1. Introduction

This report has been prepared as a component of the Environmental Impact Statement for the proposed Keolonahihi State Historical Park (Cultural Site). It describes the existing landscape at Kamoia Point, assesses the resources, functions and problems associated with the current vegetation, and summarizes environmental needs and considerations for any future landscaping plan. Not included in this report but also a desirable component of the final landscape plan is an in-depth ethnobotanical and historical research of the site.

The sensitive nature of the Cultural Site with its many archaeological features and unique coastal environment make the selection of a preferred ultimate landscape critical. The present landscape has evolved through time from the deliberate plantings of the original cultural grounds to the present mix of exotic and native plant communities.

The physical, cultural and environmental requirements of the Cultural Site needs to be determined to aid in formulating strategies to develop this landscape.

2. The Existing Landscape

The Shoreline Zone

A diverse plant community appear to be thriving along the rocky beach front of the site. Plants of this zone have salt tolerant roots and foliage to be able to grow in the salt or brackish water and to withstand the frequent heavy salt spray and surf.

Moisture and water sources for these plants are being stored by the rocky gravel of some areas, the porous rock composition, the tidal action of the water table, and in the mulch and soil on the ground surface.

An evolution of the plant growth is visible with the shading out of sun loving lower growing plants by the taller canopy trees. A heavy mulch and plant debris layer covers the ground under trees that have heavy leaf drop habits such as the Coconuts, Hala, Heliotrope and Kamani trees.

The Inland Zone

This zone is made up of a mixed community of large canopy mature trees such as Kiawe, Opiuma, and Ficus trees, woody smaller Koa-Haole trees and groundcovers, vines and grasses.

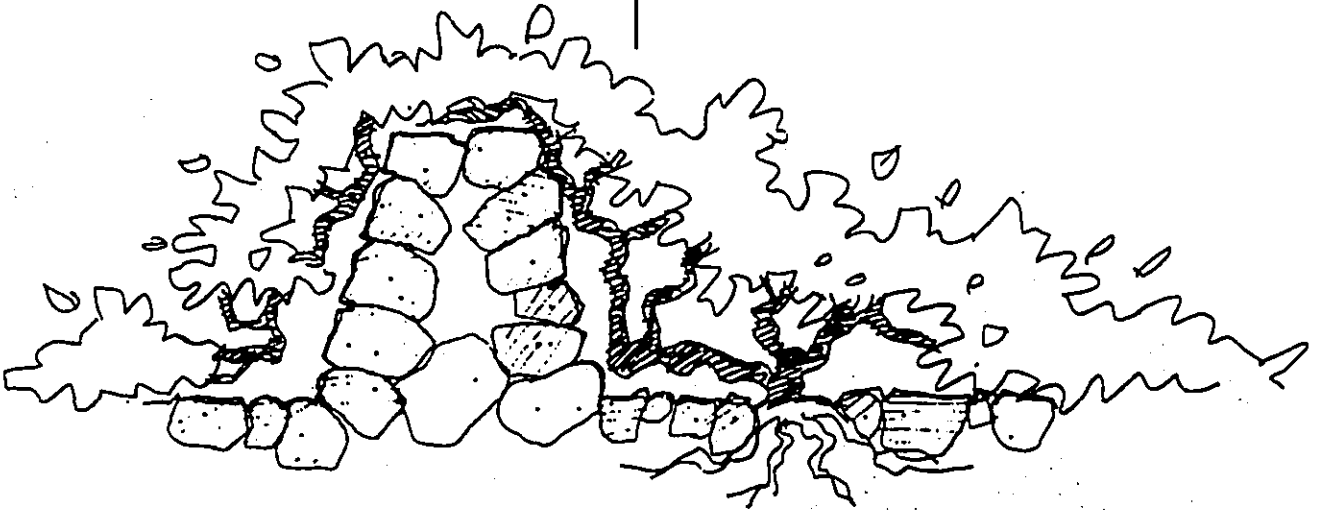
A few of the mature trees appear to have reached underground water sources which are evident in their size and healthy overall appearance. Much of the remaining plants show signs of their dependence upon seasonal rainfall. Decline of heavy rain influenced growth such as dried vines on trees and brown stands of tall grasses occur through this zone in the dry seasons.

Inland Zone
Vegetation dependent on
seasonal rainfall or artificial
irrigation

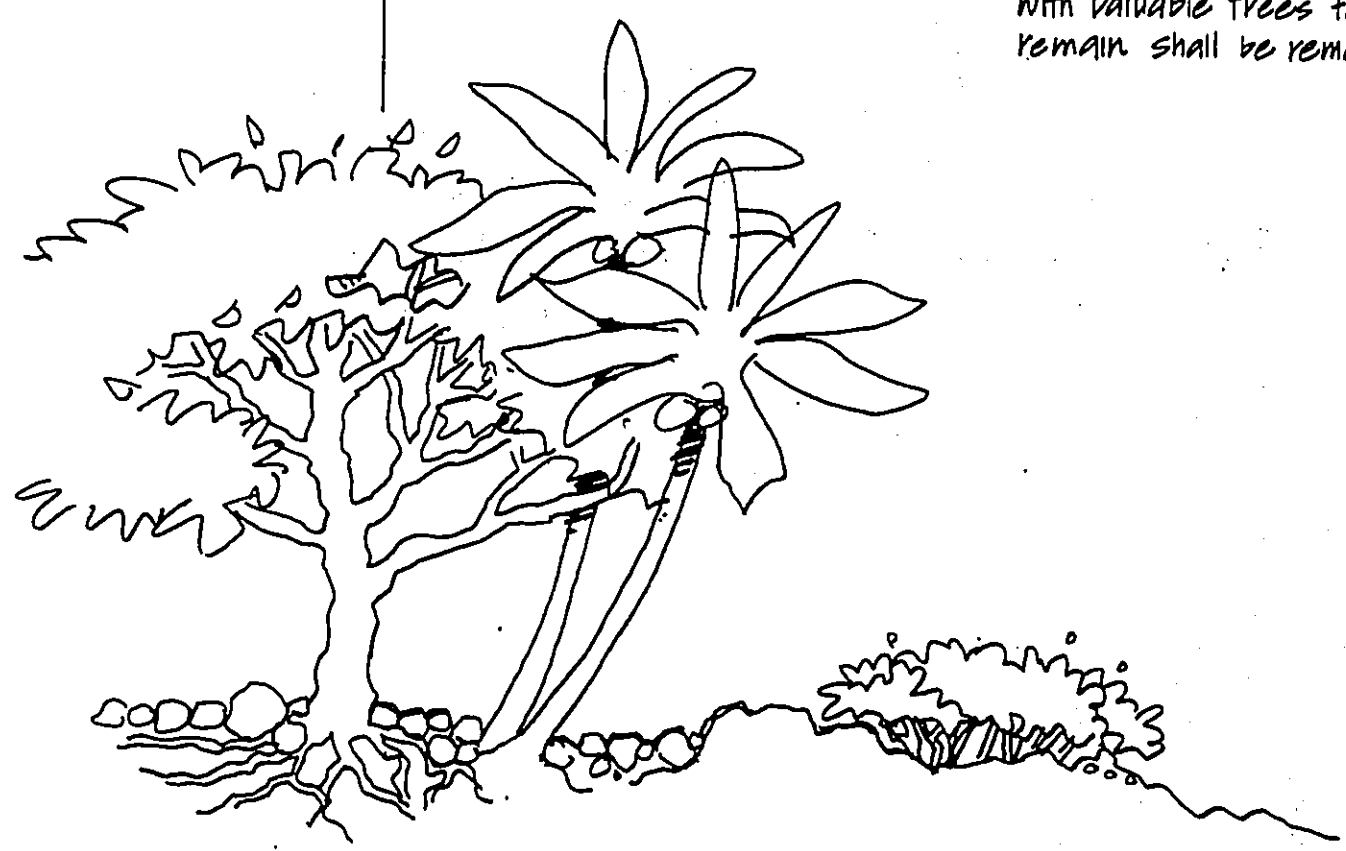
Shoreline Zone
Vegetation dependent on
ground water sources or
ocean spray.



Existing Naupaka plants create good physical barriers for archaeological features.



Trees that compete
with valuable trees to
remain shall be removed.



Ground conditions vary from A'A rock, Pahoehoe outcroppings to areas of shallow surface soil. Many of the mature trees appear to have surface rooting systems. Large Kiawe trees, noted for their shallow roots have fallen through the years and lay about the site.

3. Resources the Existing Landscape

The existing landscape contain plants that are valuable to the present site as well as the preferred ultimate landscape.

The remaining collection of native and Polynesian introduced plants planted as a part of the original Cultural Site grounds are significant and should be preserved. Many of these plants are thriving and would not need further care at this time. The seeds of the rare native Loulu Palm should be collected and propagated as a possible addition to the grounds and also to increase the population of this Palm. (In accordance with management practices approved through the Propagation Permit by the State of Hawaii for plants listed on the Endangered Plant List.)

Plants such as the Naupaka are covering archaeological sites with its trailing dense habit. The Naupaka is creating a physical barrier from human encroachment of these sites and should remain unless they present physical damage to the archaeological sites.

The many mature canopy trees provide welcome shade in this hot humid environment. These trees should be evaluated to determine their compatibility with the preferred ultimate landscape. Some of these trees may need to be removed immediately due to their damage to the site and others may be retained until a time they are determined to be incompatible with the site. Still others may become a part of the preferred landscape.

4. Impacts of the Existing Landscape

The delicate nature of the archaeological sites raise the following concerns over the impact of the existing plant growth of the site:

1. Exotic and native plants growing in the archaeological sites are causing damage to the site. Exotic trees such as the Opiuma and Banyan Trees have established foot holds in wall structures and are causing instability of the walls as the trunks and roots grow in size.
2. The propagation habits of certain plants are producing undesirable and uncontrolled propagation of plants. Seeds are being distributed by mother plants into all areas of the site.
3. The growing habits of the plants. Plants growing over archaeological sites have leaf and branch drop whose decay process is providing growing media for new plants.

4. Visual changes of the Cultural Site grounds has occurred due to plant growth. Areas that were intended for open space or vistas are now plant thickets and tree groves.
5. Valuable existing plants are being overgrown by more aggressive plants. Measures should be taken to allow valuable plants such as the Loulu Palm to continue to thrive. Plant growth that competes with these special plants should be removed.

5. Landscape Needs

Landscaping was a part of the original Cultural Site grounds and should be a part of the preferred landscape of the future Cultural Site. The extent of this landscape will be determined by the following needs:

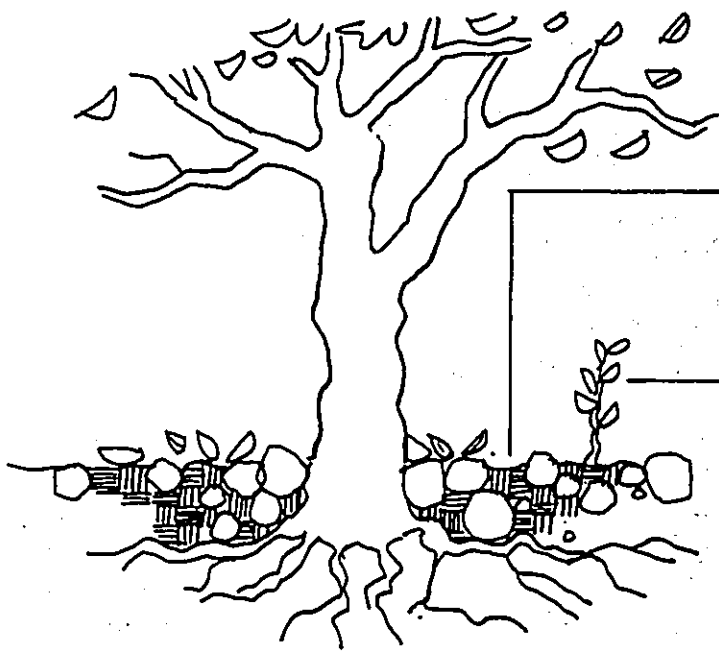
1. Aesthetically and spiritually supplement the Cultural Site. Plants should be selected and installed to complement the Cultural Site and to help create a rich cultural environment.
2. Buffer for neighboring landuses. The existing homes, the future condominium site and Alii Drive are landuses that conflict with the Cultural Site. Through careful landscaping the impact of these landuses can be minimized. The condominium site buffer requires special consideration since archaeological sites occur along the property lines. Arrangements need to be made with the condominium site to allow the appropriate landscape buffers.
3. Barriers to preserve archaeological sites. Plants can provide physical barriers for sensitive archaeological features.
4. Preserve rare and endangered native plant species as well as plants important to the Hawaiian culture. The Cultural Site can act as a sanctuary for rare native Hawaiian plants that are appropriate for the Site's environment.
5. Enhancement of the future Interpretive Center. The landscape of the Interpretive Center needs to be developed to create a special landscape setting for the Center.
6. Shoreline vegetation buffer to minimize potential conflict between recreational users and the cultural site.
7. Effective groundcover for erosion control and minimization of need for herbicide weed control.

6. Considerations for Future Landscaping

Appropriate landscape plants will need to be selected for the Cultural Site grounds. The success of this landscape will be influenced by recognizing the following plant needs:

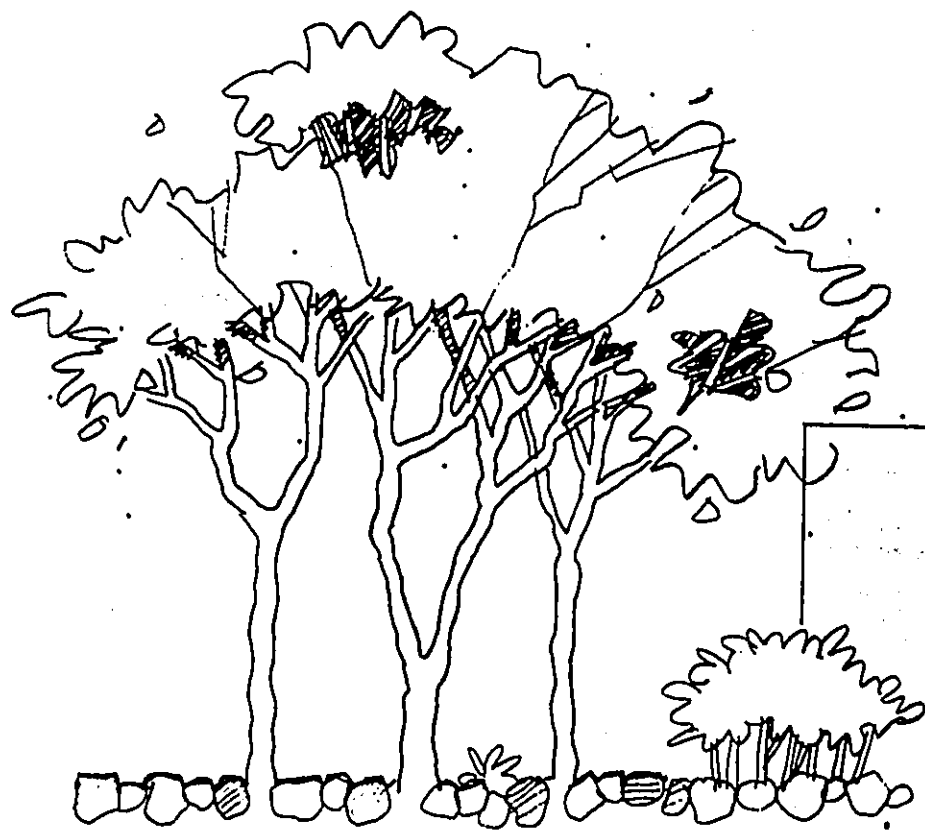


Leaf drop from palm
type of trees easier
to manage than smaller
leaf Kamanii and Banyan
trees.
Large leaves falling on
archaeological sites
may become a problem.

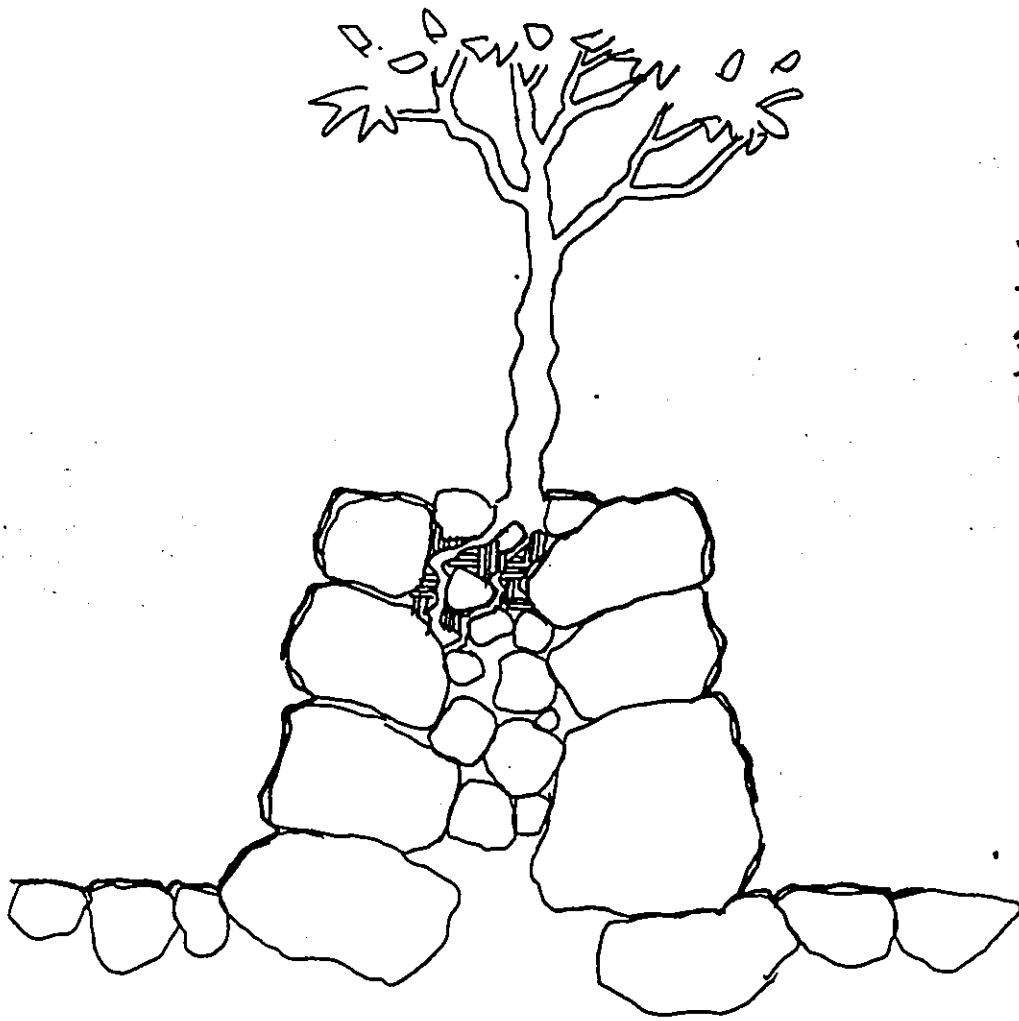


Falling leaves contribute to the build-up of mulch and soil, creating a growing environment for plants.

new plants from mother trees.



seeds from mature trees
and shrubs spread through
out the site carried by
winds, birds and animals.
creating new plants.



Volunteer plants' roots and trunks undermine the stability of archaeological features.



1. Physical compatibility of plants to the site.
Salt tolerance, rooting habits, sun and wind exposure.
2. Cultural appropriateness of plants to the site.
Ethnobotanical and cultural suitability.
3. Plants needs.
Water, sun, exposure, soil
4. Plant growth habits.
Size, rooting habit, leaf drop, deciduous nature
5. Plant problems.
Insects, disease, life span, rodents
6. Maintenance.
Litter, trimming, irrigation.

7. Irrigation Needs of the Landscape

Water for the landscape of the site will be necessary for provide long term survival of the plants.

In the Shoreline Zone, plants will need irrigation during the installation and establishment period. After the plants have developed substantial rooting systems, the natural water sources of surf spray, tides and underground water will be able to support these plants.

In the Inland Zone, plants will require establishment period irrigation as well as ongoing irrigation to allow these plants to continue to grow and thrive.

In areas of very sensitive archaeological features, the method of irrigation may be limited to 'hand watering'. Due to the visually unattractive nature of surface irrigation lines, water may have to be provided by transporting water vessels to the planting areas. This 'hand watering' method should be minimized because of its labor intensive nature. Hoses may be used and placed over the ground surfaces in a careful manner that will not disturb the archaeological features. These hoses should be removed when not in use. Burying of irrigation lines in areas of archaeological sites in not recommended.

In areas that have been previously disturbed, artificial irrigation means can be provided such as automatic buried irrigation systems. An automatic irrigation system would provide a regulated, consistent water supply to the plants through out the year. Plants would be able to develop uniform growth habits and provide the necessary screening, shading and visual attractiveness.

8. Preferred Landscape Plant List

<u>name</u>	<u>description</u>	<u>water use</u>
Coconut, <i>Cocos nucifera</i>	palm	low
Lo'ulu Palm, <i>Pritchardia affinis</i> var. <i>hopalocarpa</i>	palm	low
Hala, <i>Pandanus</i> sp.	tree	low
Kou, <i>Cordia subcordata</i>	tree	moderate
Hau, <i>Hibiscus tiliaceus</i>	tree	moderate
Milo, <i>Thespesia populnea</i>	tree	low
Noni, <i>Morinda citrifolia</i>	small tree	low
Naupaka, <i>Scaevola taccada</i>	shrub	low
Beach Morning Glory, <i>Ipomoea brasiliensis</i>	vine	low

9. Landscape Scenario

1. Selective removal of alien plants considered undesirable and/or causing destruction to archaeological sites.
2. Removal of accumulation of debris and soil from non-landscape area.
3. Exotic shade trees may be allowed to remain if they do not affect archaeological sites and are not contributing to further undesired vegetation. These trees may be removed at a time when they are not compatible with the Cultural Site.
4. Phased planting of new plants such as buffer trees and landscaping to enhance the Interpretive Center. Use of native Hawaiian plants are recommended.

APPENDIX C

Soils Engineering Site Reconnaissnace Report
Proposed Parking Lot
Keolonahihi State Historical Park



**FEWELL
GEOTECHNICAL
ENGINEERING, LTD.**

Oahu Office
96-1416 Waihona Place
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File 1455.01
March 1, 1995

Mr. Ron Terry
HCR1
Box 9575
Keaau, Hawaii 96749

Subject: **Site Reconnaissance Report**
Proposed Parking Lot
Keolonahihi State Historical Park
Kamoa Point, North Kona, Hawaii

We have completed the site reconnaissance as outlined in our December 27, 1994 Proposal. This letter summarizes our observations and comments and presents recommendations for the pavement construction, including recommendations for the site preparation and earthwork necessary to build upon the existing fill.

Project Description - It is our understanding that the 11.6-acre Kamoa Point parcel will be developed as a State historical park. The proposed site improvements include a parking lot approximately 100 feet by 200 feet in plan dimensions adjacent to Alii Drive in an area that had been built up to the level of Alii Drive with excavated materials consisting primarily of boulders, rock and some dirt. This report covers the proposed parking area; no other aspect of the proposed park development was included within this scope-of-work.

The proposed park site is adjacent to Alii Drive near its intersection with a remnant of the Old Beach Road approximately 3 miles south of the center of Kailua-Kona. It is adjacent to Holualoa Bay.

A 1969 Topographic Map prepared by Island Survey, Inc. indicates that the area adjacent to the intersection of Alii Drive and the Old Beach Road had been filled with large boulders. The drawing indicates that the boulder fill continues about 400 feet along the Old Beach Road to approximately the shore line.

A field investigation in 1985 by the Department of Land and Natural Resources confirmed that the area adjacent to Alii Drive had been filled with excavated materials consisting of boulders, rock and dirt. According to a Department of Public Works inspector, "the excavated material came from a road construction project in Kona." The field investigation indicated that the height of the fill embankment varied from 8 feet to nearly 18 feet and that the slopes of the embankment varied from 1.5 Horizontal to 1 Vertical (1.5H:1V) to 1H:1V. At the time of their site visit, 4 to 5 sinkholes were noted on the top of the embankment, and it was speculated that they were probably caused by storm runoff. The fill was apparently placed without compaction.

Site Reconnaissance - At the time of our site visit, the filled portion of the parcel was heavily overgrown with tall grass and brush and with portions of the fill having some small trees. It appears that most of the fill placement had occurred in the area immediately adjacent to the intersection of Alii Drive and Old Beach Road with some scattered boulders pushed out into the surrounding areas.

The fill area is delineated by the portions of the site where the walls were broken down during the placement of the fill. This is an area approximately 100 feet deep into the site and having a length of approximately 200 feet to 220 feet. The boulders present in the northern part of the site along Old Beach Road to the shore line do not appear to be fill but random boulders, either resulting from the lava formation or for large boulders tossed up on the land by large waves.

The existing rock fill appears to be relatively well-graded, but with an open matrix which has not been filled with fine-grained materials. While this type of fill will provide excellent support and stability, it is subject to migration of fine-grained materials from the surface into the matrix between the boulders. This is apparently what produced the sinkholes observed during the 1985 site visit.

The fill may contain buried organic materials but, since this material has been in place approximately 25 years, any subsidence due to decomposition of buried organic material has probably occurred.

Conclusions - We believe that the existing fill can be developed as a parking area, and that it would not be cost-effective to completely remove the existing fill and replace it with properly compacted materials. For the intended parking lot usage, the surface can be choked off with intermediate and fine-grained granular fill to prevent the migration of surface materials into the open rock matrix. This can generally be accomplished with the placement of two 1-foot thick layers of choke material.

The initial layer should consist of 4- to 8-inch diameter cobble-sized fill and would be placed in areas where the open rock fill matrix is not covered by adequate fill. The size of this material is selected to span between the larger boulders and should be covered by a final choke layer consisting of 1- to 4-inch diameter material compacted with a vibratory roller at the surface. This size gradation should permit the rocky surface to be used as a non-surfaced parking area, or it would permit the placement of base course and asphalt for a paved parking area. FGE, Ltd. should examine the exposed surface after the clearing and grubbing to determine where the initial choke layer is needed.

The recommended placement of the choke layers is illustrated on the enclosed Figure 1 and could be completed at a relatively low cost compared to reworking the uncompacted fill. Each layer should be spread with a dozer and tracked into place.

The surface of the choke layer should be compacted with 8 passes with a 10-ton vibratory roller. Compaction testing is not appropriate for this type of fill due to the large size of the fill.

The vibratory compactor should only be used after sufficient fine-grained materials have been placed on the surface to prevent damage to the compaction equipment from protruding boulders. Once the choke layer is in place, the site grading should be graded with granular

materials, such as select borrow or any minus 6-inch well-graded granular fill, to create the desired final grades. Each 12-inch layer of fill, or portion thereof, should be compacted with at least 6 passes of a 10-ton vibratory compactor having a minimum dynamic compactive effort of 30,000 foot-pounds.

Recommendations - The recommendations for the site grading and pavement construction are summarized below and assume that the pavement would be primarily used by automobiles and light trucks with an occasional heavy truck.

1. Prior to the start of the grading operations, the site should be cleared and grubbed of all vegetation, trash, debris, and any other deleterious materials.
2. Any sinkholes observed at this time should be filled with boulder- or cobble-sized fill to match the surrounding grades.
3. The existing fill surface should then be graded to remove any surface irregularities or stockpiles of fill and to permit the placement of at least 2 feet of additional fill between the graded fill surface and the proposed finish parking subgrade. The exposed surface should be checked by FGE, Ltd. to determine if an initial choke layer could be eliminated.
4. The proposed parking area should then be covered by a choke layer consisting of two 1-foot layers of granular fill. The initial layer should be composed of 4- to 8-inch diameter rock fill that is spread and tracked into place with a heavy dozer. The second choke layer should also be 12 inches in thickness and should be composed of 1- to 4-inch diameter rocky fill.
5. The surface of the choke layer should be compacted with a minimum of 8 passes of a vibratory roller delivering a dynamic compactive effort of at least 30,000 foot-pounds.
6. Any additional grading necessary to bring the site to the proposed parking lot subgrades should be performed with granular materials placed in maximum lift thicknesses of 12 inches and compacted with a minimum of 6 passes of the previously specified vibratory compactor.
7. If a paved surface is desired, the pavement should consist of 4 inches of Base Course with 2 inches of Asphaltic Concrete. The Base Course and Asphaltic Concrete should be in accordance with the 1994 Standard Specifications for Road, Bridge and Public Works Construction for the State of Hawaii Department of Transportation.

This approach does have a slight risk of additional sinkholes developing in the parking area after the grading and paving. These sinkholes can normally be economically repaired by filling with granular materials at a relatively low cost. The approach recommended above is a compromise to produce a fill with a small risk of additional subsidence at a relatively low cost as compared to producing a fill with no risk of subsidence at a very high construction cost.

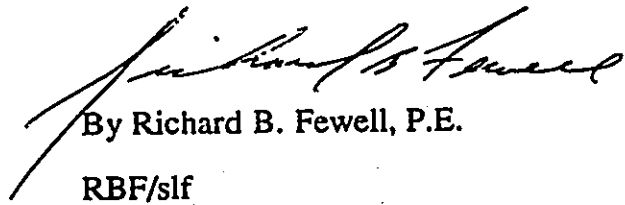
File 1455.01
March 1, 1995
Page 4

The recommendations given above are based upon a limited site investigation and no subsurface explorations. FGE, Ltd. should monitor the site grading to verify that the anticipated conditions have been encountered and to provide revised recommendations as necessary.

We would be pleased to discuss our findings and conclusions in more detail. If you have any questions in the meantime, please do not hesitate to contact us.

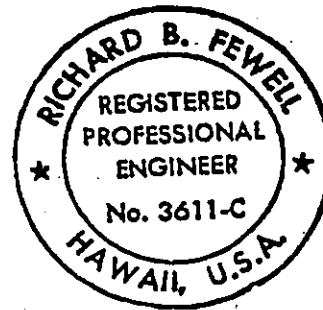
Respectfully submitted,

FEWELL GEOTECHNICAL ENGINEERING, LTD.

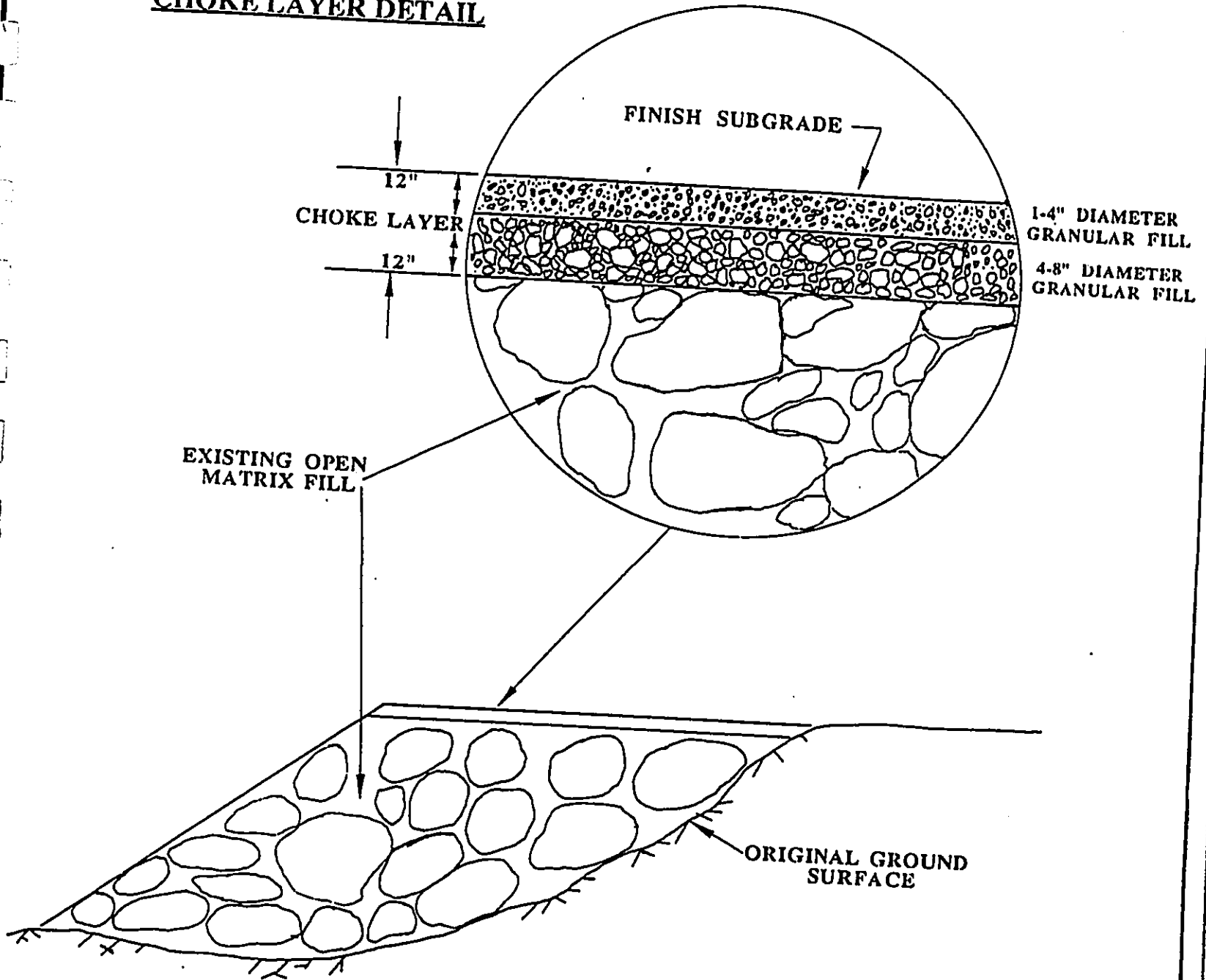

By Richard B. Fewell, P.E.
RBF/slf

Enclosure: Figure 1


Copy to: Mr. Roy R. Takemoto



CHOKELAYER DETAIL



FILL CROSS-SECTION
(Not to Scale)

 FGE <small>96-1410 WAIHONA PLACE PEARL CITY HAWAII 96783-1973</small>	FEWELL GEOTECHNICAL ENGINEERING, LTD.
	BOULDER FILL SKETCH
	PROPOSED PARKING LOT KEOLANAHIFI STATE HISTORICAL PARK KAMOA POINT, NORTH KONA, HAWAII
	FILE 1455.01 MARCH 1995
FIGURE 1	

APPENDIX D

Botanical Survey
Keolonahihi State Historical Park

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

October 8, 1985

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES FORESTRY AND WILDLIFE LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

MEMORANDUM

TO: MR. RALSTON NAGATA, Administrator
Division of State Parks

FROM: NOBUO HONDA, Acting Administrator

SUBJECT: Botanical Reports for Kamao and Kealakekua State Parks

DIVISION OF STATE PARKS
OCT 11 1 35 PM '85

Attached are two botanical reports--one for Kamao Point State Historical Park, North Kona, Hawaii and one for Kealakekua Bay State Historical Park. Dr. Carolyn Corn (DOFAW) visited these parks with Wayne Souza and Martha Yent (State Parks) on September 3-6, 1985.

No rare, threatened or endangered plants were seen in a thorough survey of Kamao State Historical Park. A reconnaissance of Kealakekua Bay State Historical Park suggests that if any rare, threatened or endangered plants occur, they would be expected only along the steep pali cliff and talus slope or collapsed lava tubes.

NOBUO HONDA

Attachments

TO: ADMIN.
 ASST. ADMIN.
 DEV. BR.
 PLAN. BR. *OB*
 RES. MGT. BR.
 PROJ. CONTROL
 SW REC. PLAN.
 CLERICAL STAFF
 HIST. SITES SEC.

FOR: CIRC.
 COMMENTS & REC.
 DRAFT REPLY
 FILE
 FOLLOW UP
 INFO
 SEE ME
 SIGNATURE

*Thank you
note*

BOTANICAL REPORT FOR KAMOA POINT STATE HISTORICAL PARK,
NORTH KONA, HAWAII (12 ACRES)

by

Carolyn A. Corn

On September 3 and 6, 1985, I visited Kamoā with Wayne Souza and Martha Yent of State Parks (figure 1). A total of 8 botanist hours were spent exploring the area, compiling a checklist of plants, and collecting voucher specimens. This survey is considered adequate for locating unusual, important plants within the park.

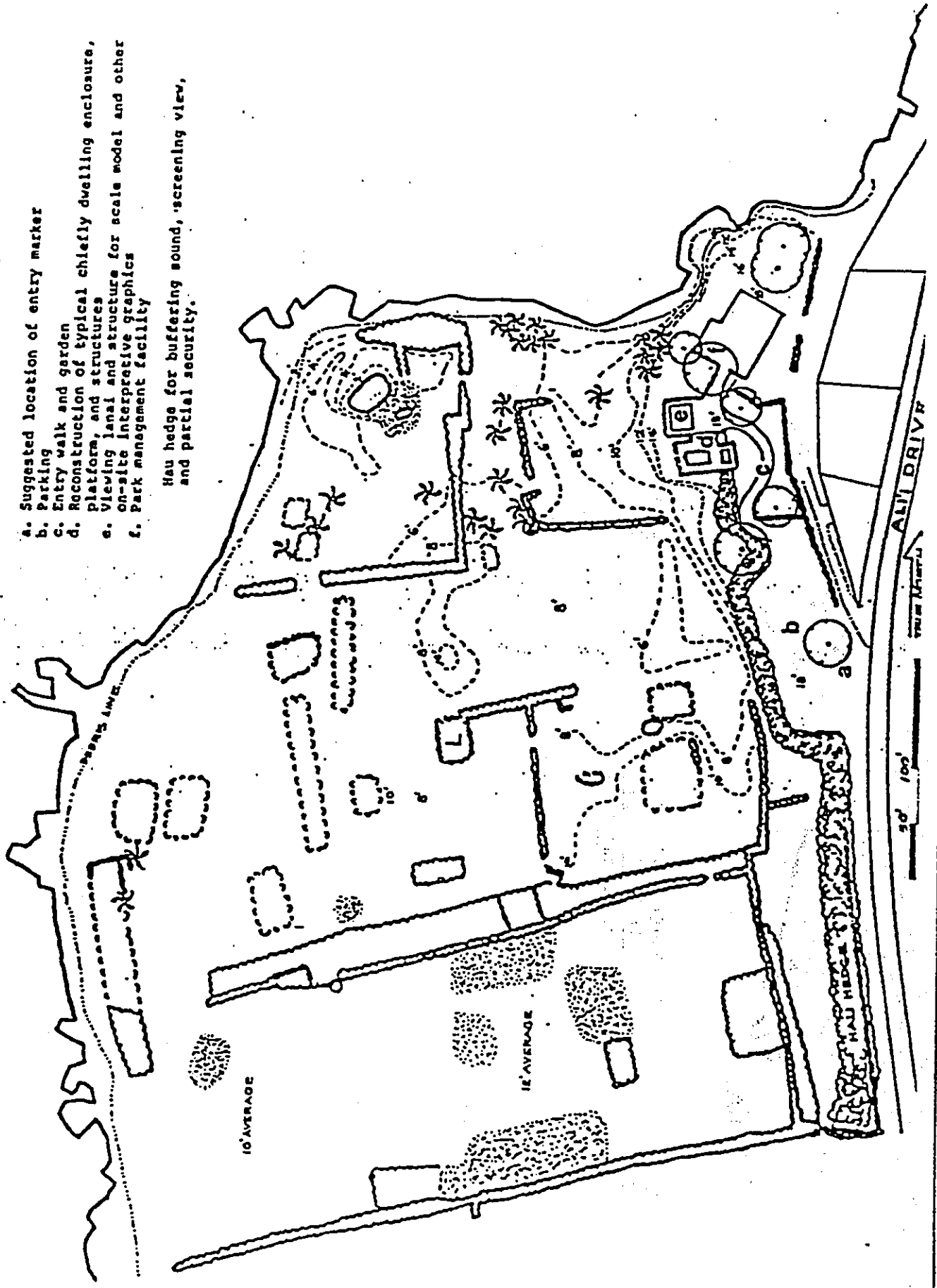
The plant cover is greater than 90 percent exotic and no plants were found which are listed in the December 15, 1980 Federal Register as listed, proposed, or plants under review for threatened or endangered status.

A checklist of live plants which occur within the park boundary is attached as part of this report. Those plant taxa, which are designated Polynesian, endemic, or indigenous, may be relics of the vegetation which occurred when the site was used by the Polynesians.

Two lo'ulu palms (Pritchardia affinis var. rhopalocarpa) occur near the pond (figure 2). Otto Degener made a collection of Pritchardia affinis from a small grove of 17 palms south of Kona along coast on August 19, 1926, stating" because of a former large native population in the vicinity, these palms might easily be more or less of aboriginal cultivation". Degener could have been referring to this area where there are now two trees within the historical park and approximately 5 additional trees on adjoining lots along Alii Drive. There is also one live tree near the former Polynesian Umis Well at Kealakekua Bay. Its spotty range occurrence along the Kona coast may serve as an indication of areas which have a fresh or brackish water source near the surface of the ground, and/or of Polynesian plantings of useful importance. Since this palm is an uncommon to rare tree growing naturally only along the Kona coastline, it is recommended that it be preserved and cultivated within Kamoā and Kealakekua State Parks.

If State Parks is interested in restoring the vegetation within Kamoā as it existed at the time of the Polynesians, those plant species growing within the park which are endemic,

Figure 1. Park Facilities and Development as Proposed by the Kamao Point State Historical Park Advisory Committee, December 1982.



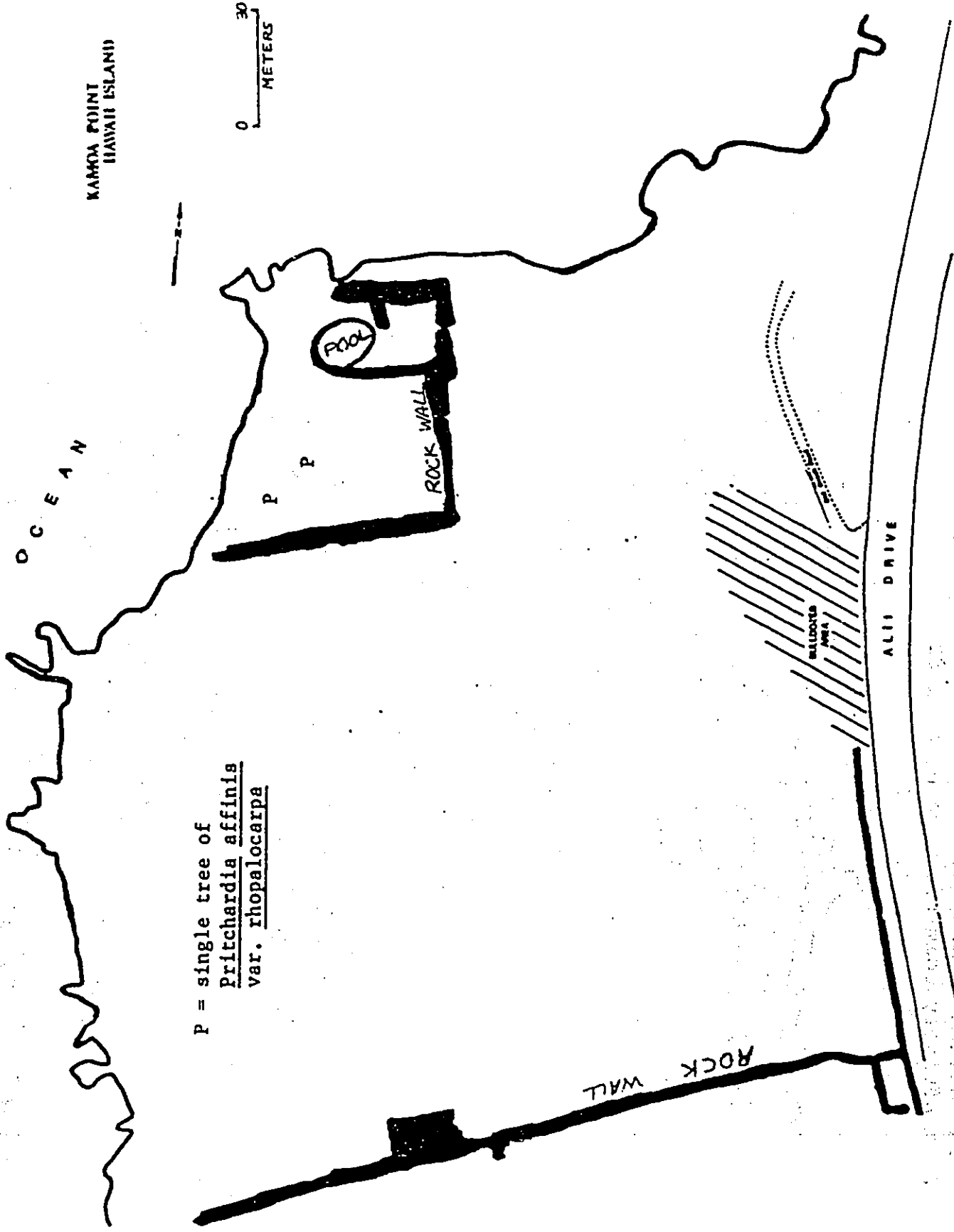


Figure 2. Location of two lo'ulu (*Pritchardia affinis* var. *rhopalocarpa*) palm trees at Kamao State Park, Hawaii.

indigenous, or of Polynesian introduction should be encouraged while exotics and weeds should be eliminated or discouraged. In addition, a list of potential plants for planting could be made based upon recommendations of botanists and historians.

Checklist of Plants for Kamao Point State Historical Park

by

Dr. Carolyn A. Corn and Wayne H. Souza

	Status	Abundance	Comments
<u>FILICINAE</u>			
Polypodiaceae			
<u>Phymatosorus scolopendria</u> (Burm.) Pichi Sermolli Laua'e, maile-scented fern	X	LC	
<u>ANGIOSPERMAE</u>			
MONOCOTYLEDONEAE			
Commelinaceae			
<u>Commelina diffusa</u> Burm. f. Honohono, day flower	X	LC	
<u>Rhoeo spathacea</u> (Sw.) Stern Tradescantia, oyster plant	X	R	Two plants
Cyperaceae			
<u>Cyperus javanicus</u> Houtt. 'Ahu'awa, 'ehu'awa	I(?)	U	
Gramineae			
<u>Cenchrus echinatus</u> L. Common sandbur, 'ume'alu	X	U	Cleared area
<u>Cynodon dactylon</u> (L.) Pers. Bermuda grass, manienie	X	U	Cleared area
<u>Eleusine indica</u> (L.) Gaertn. Wiregrass, manienie-ali'i	X	LC	Cleared area
<u>Eragrostis tenella</u> (L.) Beauv. ex. R. & E. Japanese lovegrass	X	R	
<u>Panicum maximum</u> Jacq. Guinea grass	X	C	
<u>Setaria verticillata</u> (L.) Beauv. Bristly foxtail, mau'u pilipili	X	U	Roadside by bayhead

	Status	Abundance	Comments
<u>Tricachne insularis</u> (L.) Nees Sourgrass	X	O	
Palmae			
<u>Cocos nucifera</u> L. Coconut, niu	P	LC	
<u>Pritchardia affinis</u> Becc. var. <u>rhopalocarpa</u> Becc. Lo'ulu, hawane	E	R	Two trees near pond
Pandanaeae			
<u>Pandanus</u> sp. Hala, puhala, pandanus, screw pine	P	R	One sterile plant by pond
DICOTYLEDONEAE			
Amaranthaceae			
<u>Amaranthus spinosus</u> L. Spiny amaranth	X	LC	Along road and cleared area
Araliaceae			
<u>Brassaia actinophylla</u> Endl. Umbrella tree, octopus tree	X	R	Two trees by pond
Boraginaceae			
<u>Cordia subcordata</u> Lam. Kou	P	R	Single tree at roadside by bayhead
<u>Messerschmidia argentea</u> (L.f.) Johnston Tree heliotrope	X	O	
Cactaceae			
<u>Hydocereus undatus</u> (Haw.) Britt. and Rose Night-blooming cereus	X	R	
<u>Opuntia megacantha</u> Salm-Dyck Prickly pear, pa-nini	X	U	

	Status	Abundance	Comments
Capparaceae			
<u>Gynandropsis gynandra</u> (L.) Briq. African spider flower, honohina	X	LC	Cleared area and roadside by bayhead
Caricaceae			
<u>Carica papaya</u> L. Papaya	X	C	
Chenopodiaceae			
<u>Atriplex semibaccata</u> R. Br. Australian salt bush	X	O	Bayhead
<u>Chenopodium murale</u> L. Nettle-leaved goosefoot	X	LC	Bayhead
Combretaceae			
<u>Terminalia catappa</u> L. False kamani, tropical almond	X	LC	Near pond
Compositae			
<u>Bidens cynapifolia</u> HBK. West Indian beggar's tick	X	LC	Cleared area
Convolvulaceae			
<u>Ipomoea brasiliensis</u> (L.) Sweet Pohuehue, beach morning glory	I	U	Bayhead
<u>Ipomoea violacea</u> L.	X	O	
Crassulaceae			
<u>Kalanchoe pinnata</u> (Lam.) Pers. Air plant	X	LC	
Cruciferae			
<u>Brassica oleracea</u> L. var. <u>italica</u> Plenck Broccoli	X	R	One plant

	Status	Abundance	Comments
Cucurbitaceae			
<u>Coccinea grandis</u> Voigt	X	R	
<u>Momordica charantia</u> L. Bitter melon	X	O	
Euphorbiaceae			
<u>Euphorbia heterophylla</u> L.	X	R	
<u>Euphorbia hirta</u> L. Garden spurge, hairy spurge	X	LC	Cleared area and by bayhead
<u>Ricinus communis</u> L. Castor bean	X	R	
Goodeniaceae			
<u>Scaevola taccada</u> (Gaertn.) Roxb. Naupaka, naupaka-kahakai	I	LC	
Labiatae			
<u>Leonotis nepetaefolia</u> (L.) Ait. Lion's-ear	X	R	
Leguminosae			
<u>Cassia occidentalis</u> L. Coffee senna, 'auko'i	X	R	
<u>Desmodium</u> sp.	X	LC	Cleared area
<u>Leucaena leucocephala</u> (Lam.) de Wit Koa-haole	X	A	
<u>Pithecellobium dulce</u> (Roxb.) Benth. Madras thorn, Manila tamarind, 'opiuna	X	O	
<u>Prosopis pallida</u> (Humb. & Bonpl. ex Willd.) HBK. Kiawe, algaroba	X	O	
<u>Samanea saman</u> (Jacq.) Merr. Monkeypod, rain tree, 'ohai	X	R	Three trees
Malvaceae			
<u>Abutilon grandifolium</u> (Willd.) Sweet Hairy abutilon, ma'o	X	U	
<u>Hibiscus tiliaceus</u> L. Hau	I	U	

	Status	Abundance	Comments
<u>Malvastrum coromandelianum</u> (L.) Garcke False mallow, hauuoi	X	LC	Cleared area
<u>Thespesia populnea</u> (L.) Soland. ex Correa Milo, portia-tree	I	R	
Moraceae			
<u>Ficus microcarpa</u> L.f. Chinese banyan	X	O	
<u>Ficus macrophylla</u> Desf. Moreton Bay fig	X	O	
Nyctaginaceae			
<u>Boerhavia coccinea</u> Mill.	X	LC	Cleared area and bayhead
<u>Mirabilis jalapa</u> L. Common four o'clock, nani ahiahi	X	R	
Passifloraceae			
<u>Passiflora foetida</u> L. Love-in-a-mist, running pop, pohapoha	X	U	
Phytolaccaceae			
<u>Rivinia humilis</u> L. Rouge plant, coral berry	X	A	
Piperaceae			
<u>Peperomia leptostachya</u> H. & A. 'Ala'ala-wai-nui, kupali'i	I	LC	On rocks and walls
Plumbaginaceae			
<u>Plumbago zeylanica</u> L. 'Ilie'e, hilie'e	I	C	In SW quadrant
Polygonaceae			
<u>Coccoloba uvifera</u> (L.) L. Sea grape	X	LC	Three trees near pond

	Status	Abundance	Comments
Portulacaceae			
<u>Portulaca oleracea</u> L. Common purslane, pigweed	X	LC	Roadside at bayhead; rare elsewhere
<u>Talinum triangulare</u> (Jacq.) Willd.	X	LC	In southeast quadrant
Rubiaceae			
<u>Morinda citrifolia</u> L. Noni, Indian mulberry	P	R	Three trees
Sterculiaceae			
<u>Waltheria americana</u> L. Hi'aloa, 'uhaloa, kanakaloa	I	LC	Cleared area
Verbenaceae			
<u>Lantana camara</u> L. Lantana, lakana	X	U	
<u>Phyla nodiflora</u> (L.) Greene	X	U	Abandoned country road
Zygophyllaceae			
<u>Tribulus terrestris</u> L. Puncture vine	X	LC	Roadside

*Nomenclature of flowering plants and gymnosperms follows St. John 1973 List and Summary of the Flowering Plants in the Hawaiian Islands. Nomenclature of ferns and fern allies follows C.H. Lamoureux (unpublished).

Symbols

Status

- E - Endemic, native only to the Hawaiian Islands
- I - Indigenous, native to the Hawaiian Islands and elsewhere
- P - Polynesian introduction, not native to the Hawaiian Islands
- X - Exotic, introduced, not native to the Hawaiian Islands

Abundance

- A = abundant
- C = common
- O = occasional
- U = uncommon
- R = rare
- LC = locally common

APPENDIX E

Wildlife Survey
Keolonahihi State Historical Park

March 6, 1986

Wildlife Survey of Kamo Point State Historical Park.
North Kona, Hawaii (12 acres)

by
Ronald Bachman

On March 3 & 4, 1986 I visited Kamo Point with Wildlife Management Assistant V Clyde Saragosa.

Observations of Wildlife were conducted both days and during peak activity periods of late afternoon and early morning. Aural and visual (flashlight) observations were conducted after dark.

1. Wildlife species present:

Saffron finch - Sicalis flaveola
House finch - Carpodacus menicannus
House sparrow - Passer domesticus
White eye - Zosterops japonicus
Northern cardinal - Cardinalis cardinalis
Zebra dove - Geopelia striata
Yellowbilled cardinal - Paroaria capitata
Common mynah - Acridotheres tristis
Spotted dove - Streptopelia chinensis
Java sparrow - Padda oryzivora

All of the listed wildlife are introduced species. None of the species observed were Polynesian, endemic nor indigenous.

Java sparrows, observed at a private bird feeder, are reported in the 1984 edition of Hawaii's Birds, Hawaii Audubon Society as being on Oahu only. The species is established in this area of Kona with six to eight individuals being at the feeder at any time.

The feeder is one of two backyard bird feeders in the neighbor's premises as shown in Exhibit I. Birds were at these stations throughout the daylight hours flying from and back into trees in the historical park site.

Mongoose and feral cats were observed in adjacent properties although none were seen at Kamo Point State Park. Attention was given to detecting the presence of rats. Fallen coconuts were inspected for rat gnawings with no evidence to be found. The night survey should have detected any that were in the trees but none were seen. Other nocturnal creatures, the hoary bat and owls were also not found. Interviews of two residents of the area revealed that they have both made infrequent sightings of bats and one has seen a barn owl with some regularity at the park.

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SARAGOSA
03

Curiously, no shore birds were found although they were sought out. The rocky shoreline appears remote enough to eliminate human disturbance as a factor for their absence. Fecal deposits were not detected as would have suggested even a casual presence.

2. Sensitive Wildlife Areas:

Birds in the area were seen feeding on fruit of a variety of plant species. Even though all birds species were introduced if their continued presence in the park is desired certain upper story trees should be left for nesting and feeding. Larger fruit bearing opiuma (Pithecellobium dulce) are particularly necessary as well as both Ficus species.

Birds (doves) observed drinking from the pond which is the only fresh (brackish) water source in the area. Inordinate wave action during the previous weekend caused debris to further encroach upon the pond area. Approximately one-third of the original pond seems covered by ocean deposits. The pond should be cleaned and cleared.

3. Attention to presence of Endangered Species:

No endangered species were observed during this trip. The suspected presence of the hoary bat should be investigated further. The larger trees including palms and pandanus are important habitats and warrant saving.

4. Recommendations for Mitigation and Management:

- A. The pond - Tilapia have been stocked in the brackish pool. Undoubtedly this is why no native fresh water shrimp (opae) remain although their presence is found in similar ponds throughout Kona. Tilapia should be removed by netting them. The pond is too brackish for mosquito larvae to survive if this is why tilapia were introduced in the first place. Opae can be restocked from ponds at the Keauhou Beach Hotel nearby.
- B. Undergrowth - A dense understory of exotic plant species competes and discourages growth of seedlings of upper canopy trees. The larger trees provide feed and nesting sites for birds but lack succession. Undesirable understory plantlife should be removed.
- C. Shoreline Recession - A coconut tree stump ten feet seaward of the vegetation zone is evidence of a severely eroded shoreline near the pond. Immediate steps should be made to stabilize the shoreline by planting wave resistant species that will vegetate the area and hold the soil.

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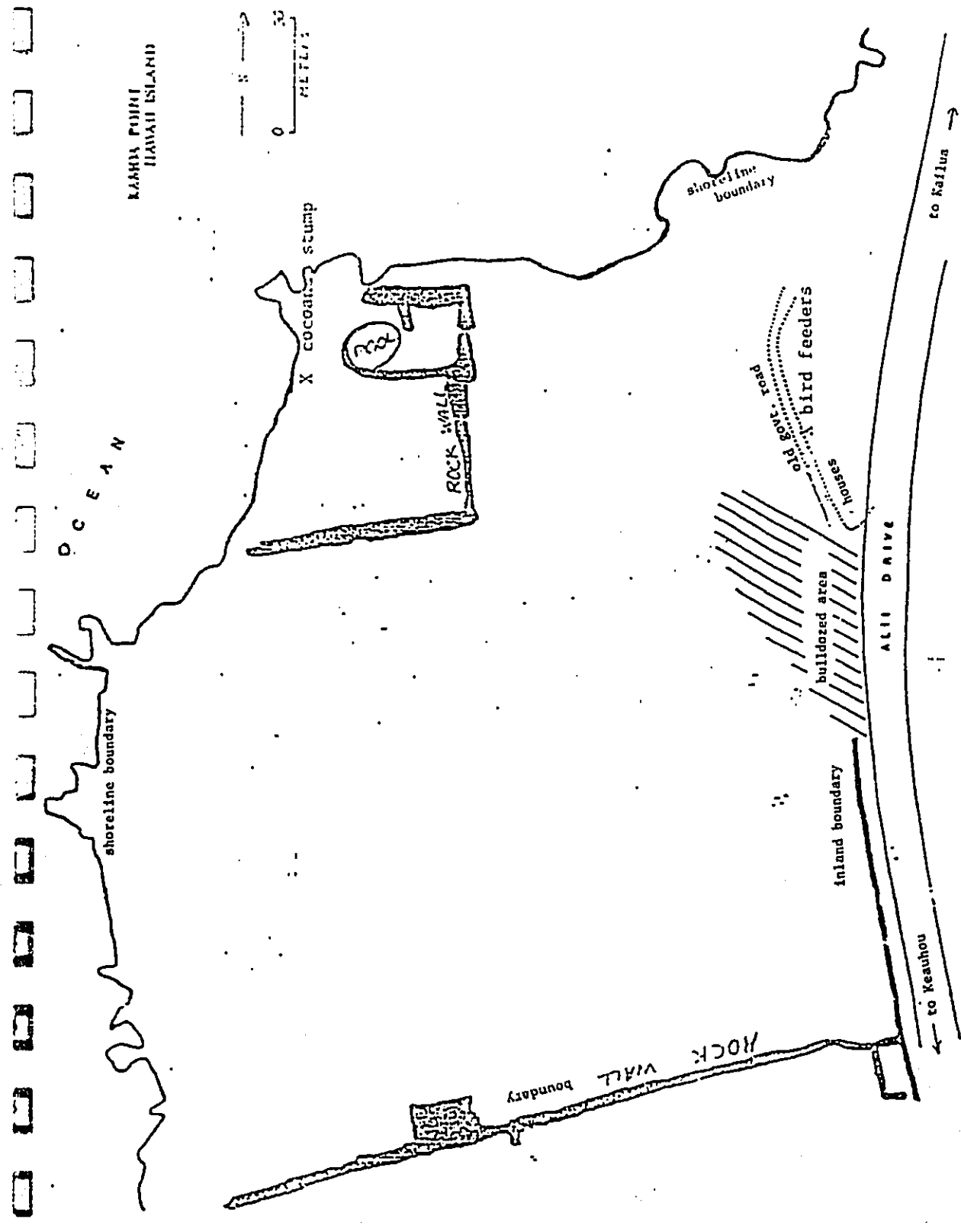


EXHIBIT I

Pool area and bird feeders (X)

APPENDIX F

Overview of Aquatic Resources
Keolonahihi State Historical Park

February 13, 1986

DIVISION OF
STATE PARKS

MEMORANDUM

TO: Alvin Z. Katekaru; Chief, Marine Section
FROM: Robert T. Nishimoto; Aquatic Biologist-Hawaii
RE: Aquatic survey for State Parks Division

RECEIVED
FEB 13 1986
Division of
AQUATIC RESOURCES

On January 8, I accompanied State Parks Personnel to conduct an aquatic survey of 2 ponds at Kaawaloa Falts (adjoining Kealakekua Bay). The survey was conducted during the high low tide and consequently the first pond closest to the cliff was dry. The second pond encompassed a much larger area but was almost totally covered with the pickle weed, Batis ² maritima ². The isolated pools of water, ranging from 0.5 ft to 10 ft, were about 3 in. deep. The air temperature was 91^o F and the water temperature was 84^o F.

The organisms observed were moderate densities of the gastropod, Melania, and an amphipod species. Although Halocaridna was reported from this pond, I did not observe any specimen. This species and other sympatric crustaceans are considered to be part of the hypogeal community and consequently below ground during low tide. Another survey during high tide would be necessary to provide a more complete aquatic survey of the ponds.

The anchialine pools at the Napoopoo village was severely degraded in the form of human litter, i.e., old automobile tires, plastic bags, and was highly turbid from nutrient enrichment, as reported by Maciolek & Brock, 1974. The organisms observed were the gastropod, Melania, the water boatman, Notonectus, and mosquito larvae. The densities of all 3 species were relatively high. The air temperature was 82^o F and the water was 80^o F. About 85% of the pond surface was covered by a thick algal mat.

On January 10, I surveyed the pond at Kamo Point, a proposed State historical park, just south of Kailua, Kona. The diver survey was done between 1000-1045, at approximately 0.0 tide. The air temperature (in the shade) was 78° F while the water was 72° F. The pool averaged 30" in. in depth, clear water, with approximately 40% of the bottom covered with sediment. The sediment layer ranged from 4-12 in deep.

I observed the following organisms;

1. Fish

- a. approximately 100 Sarotherodon mossambica (tilapia), ranging from 2-6 in. total length and averaging 5 in.
- b. 1 large Kuhlia sandiwencis (aholehole) measuring 9 in total length.
- c. 3, 4 in. long Mugil cephalus (mullet)
- d. 3 Eleotris sandwicensis (o'opu akupa), averaging 2-3 in. long.

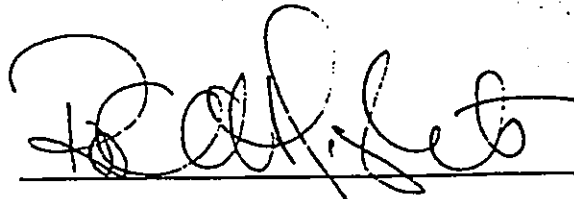
2. Crustacean

- a. 2 Metograpsus thukuhar (grapsid crab)
- b. 1 Palaeomon debilis (opaehuna)

3. Mollusc

a. Theodoxus cariosa (hihi kai), about 20 individuals/M² density; mean size (measured from umbo to the outer curvature of the shell lip) was 1.5 cm +/- 0.2, n=20. There were numerous white egg capsules attached to the rock and submerged tree branches. I assumed they were T. cariosa eggs.

Please send a copy of this report to the Division of State Parks,
c/o Martha Yent.



ROBERT T. NISHIMOTO
Aquatic Biologist

Literature Cited

Maciolek, J.A. & R.E. Brock. 1974. Aquatic survey of the Kona coast ponds, Hawaii Island. University of Hawaii Sea Grant Report, UNIHI-SEAGRANT-AR-74-04. 1-73.

Memo to Ralston H. Nagata
May 2, 1985
Page 2

From 40-50 feet, the bottom is part sand and part solid rock; the wave surge and stress are less, with corals (such as Porites lobata, P. compressa and Pocillopora meandrina) covering up to 80% of the substrate. Molluscs (augers and miters) are generally abundant in the sand, sponges and other encrusting invertebrates in crevices and on vertical faces; the fishes above remain common, plus Klein's butterfly, weke and Potter's angel.

Kamoa Point is used by shore casters and other pole fishermen. The Inventory and Atlas report "good" limu picking along this shore. Holualoa Bay is used by surfers.

Our Big Island Aquatic Biologist, through communication with other Departmental personnel, confirmed there is no perennial pond. No further special surveys or management of aquatic resources seem to be needed at this time. Should the opportunity present itself, we would conduct surveys and provide additional reports for your use.


HENRY M. SAKUDA

APPENDIX G

Archaeological Investigations
Keolonahihi State Historical Park

**PRELIMINARY
ARCHAEOLOGICAL INVESTIGATIONS
KEOLONAHIHI STATE HISTORICAL PARK
(CULTURAL SITE)
HOLUALOA 4, NORTH KONA, ISLAND OF
HAWAII**

(TMK: 7-7-04: 12, 51, and 52)

**Prepared by:
Martha Yent, Archaeologist
Division of State Parks
Department of Land and Natural Resources**

**Prepared for:
Division of State Parks
Department of Land and Natural Resources
State of Hawaii**

APRIL, 1995

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INTRODUCTION

Keolonahihi State Historical Park (Cultural Site) encompasses 12 acres along the Kona coast in the *ahupua`a* of Holualoa, *ili* of Palau`eka (Holualoa 4) in the district of North Kona on the island of Hawaii (Fig. 1). The site is located on the *makai* side of Ali'i Drive and on the northern end of the peninsula referred to as Kamoia Point (Photo I). The southern portion of the peninsula is in the *ahupua`a* of Kaumalumalu and the two *ahupua`a* are separated by a large rock wall that defines the southern boundary of the park. To the north of the site is Holualoa Bay. As in the past, this bay is an important surfing site. Kamoia Point is situated approximately 2.5 miles south of Kailua-Kona town and 2.5 miles north of Keauhou. The park area is identified as Tax Map Key 7-7-04: 12, 51, and 52 (Fig. 2).

Keolonahihi State Historical Park (Cultural Site)

The State of Hawaii purchased the 12-acre property in 1980 for the purpose of preserving the traditional Hawaiian sites within the area. Originally, the site was referred to as Kamoia Point State Historical Park based on the place name recorded on the USGS map. However, oral histories and historical research indicated that the traditional name for the land area is Keolonahihi. Therefore, the name was changed to Keolonahihi State Historical Park in 1988. Because of community concerns, consideration is now being given to designating the site a cultural site rather than a historical park. To avoid confusion in the use of the term site for both the park area and the archaeological sites, park will continue to be used in this report when discussing the state-owned parcel.

An advisory committee was formed in 1982. This committee consisted of community representatives, governmental representatives, and interested individuals who were active in the public acquisition of the property. The purpose of the committee was to present the community's recommendations for the park area to the State, including management, maintenance, and interpretation. Their work has also contributed to the oral history information for the site area.

Since the work of the advisory committee, State Parks has been compiling the historical and cultural background information needed to plan the facilities and programs for the park in balance with the cultural values and historical nature of the complex. These projects include the historical research (McEldowney, 1986), preparation of an archaeological research design (Yent, 1988), development of an interpretive plan (Mortimore, 1988), development of a preliminary plan addressing facilities and public use (Mortimore, 1989), and development of a conceptual plan from the perspective of the Hawaiian community (Kanahele, 1993).

There were no structures or improvements on the property when it was acquired by the State. There is documentation of one historic housesite, circa 1890s, which resulted in some alteration of the sites in the northeastern portion of the property. Afterwards, the property was used for ranching which probably accounts for the

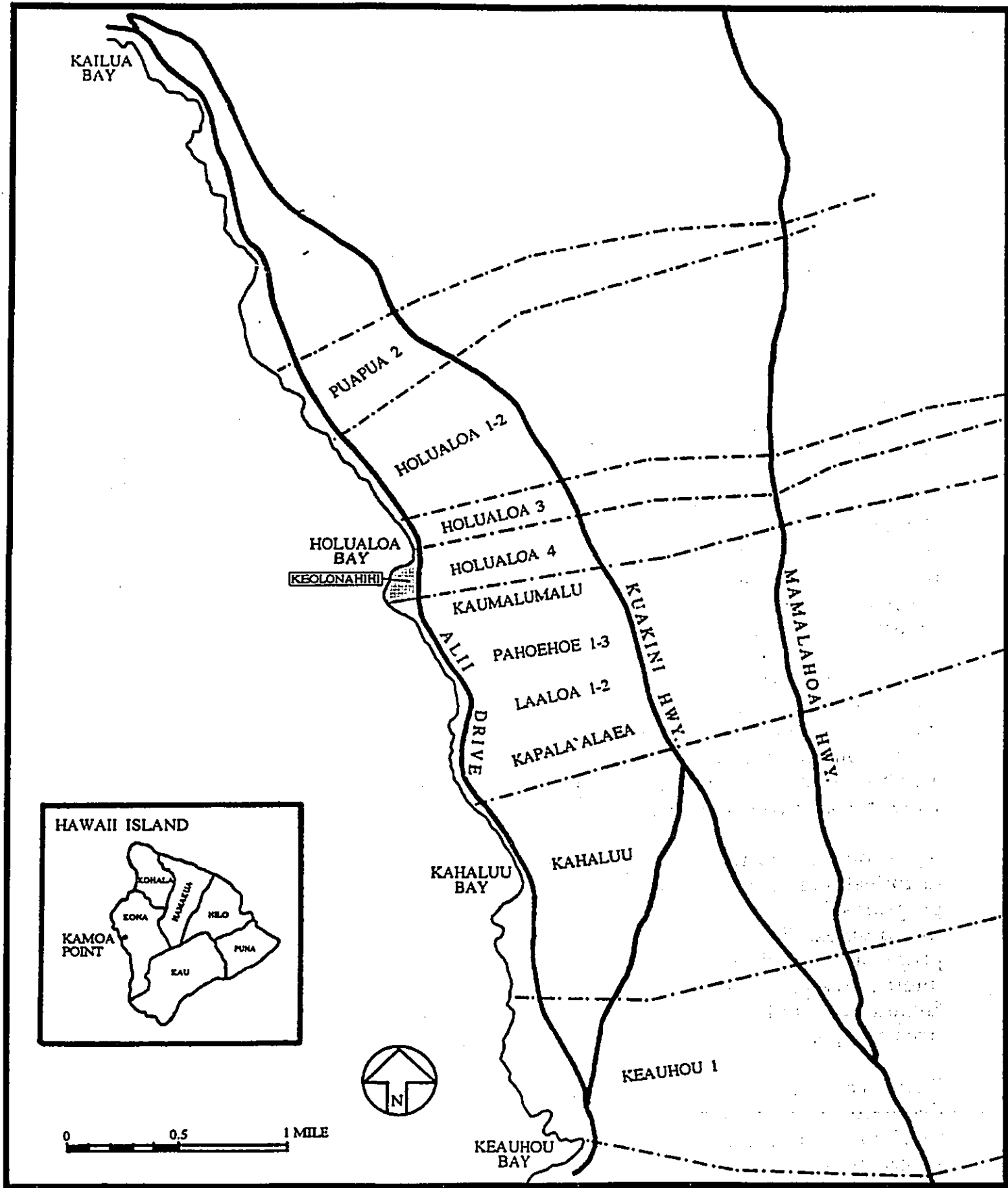


FIG. 1 - Location of Keolonahihi SHP (Cultural Site), Holualoa, North Kona.

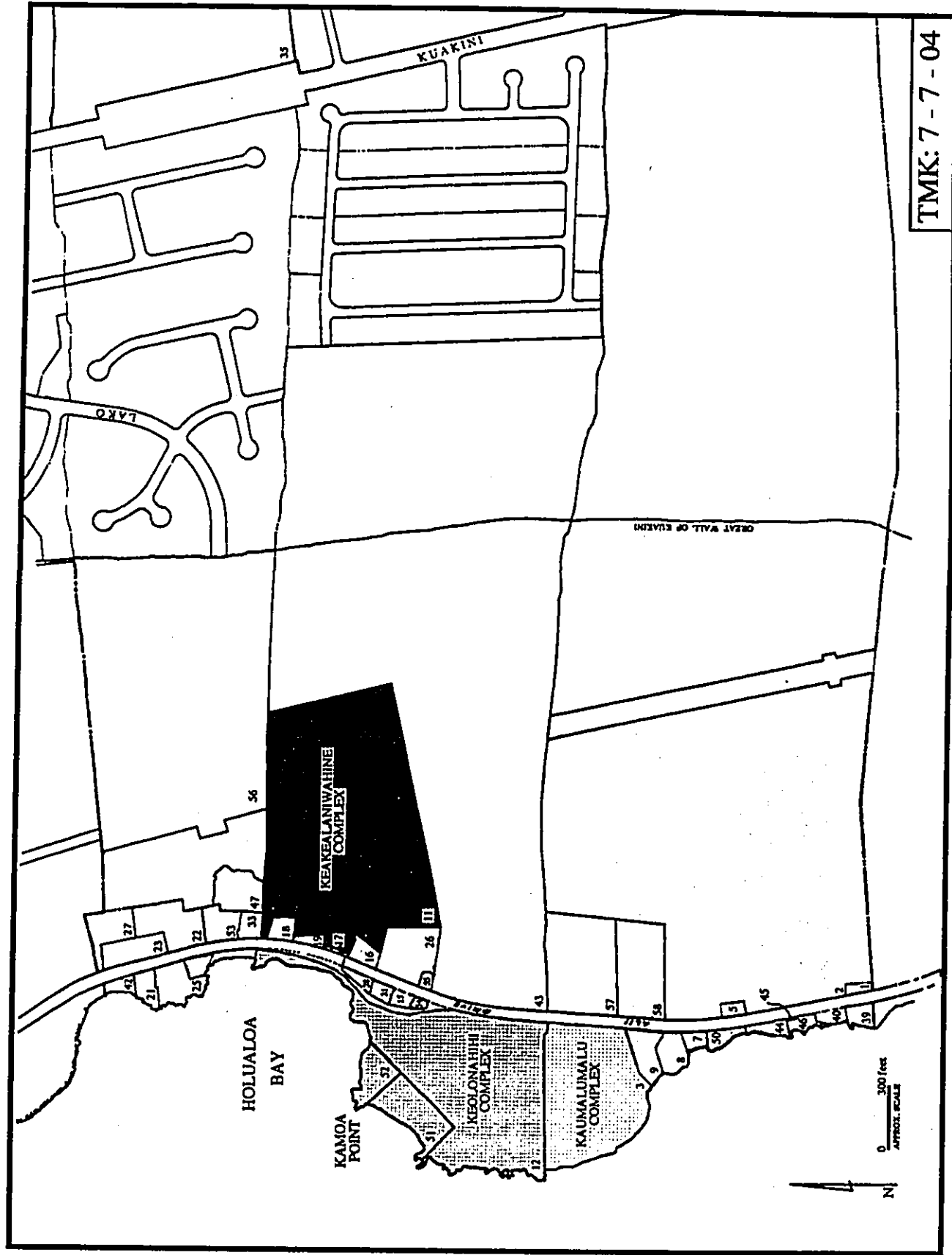


FIG. 2 - Location of Keolonahihi by Tax Map Key. Also indicates the location of the other archaeological complexes.

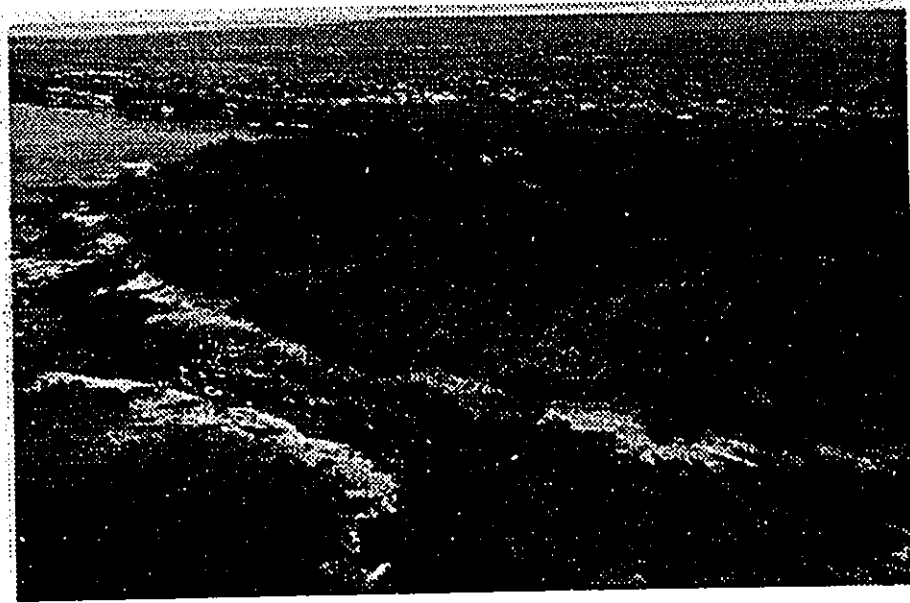


PHOTO I
Kamoa Point and surrounding area with Holualoa Bay to the north and
Kaumalumu to the south (foreground). View is to the north. January, 1990.

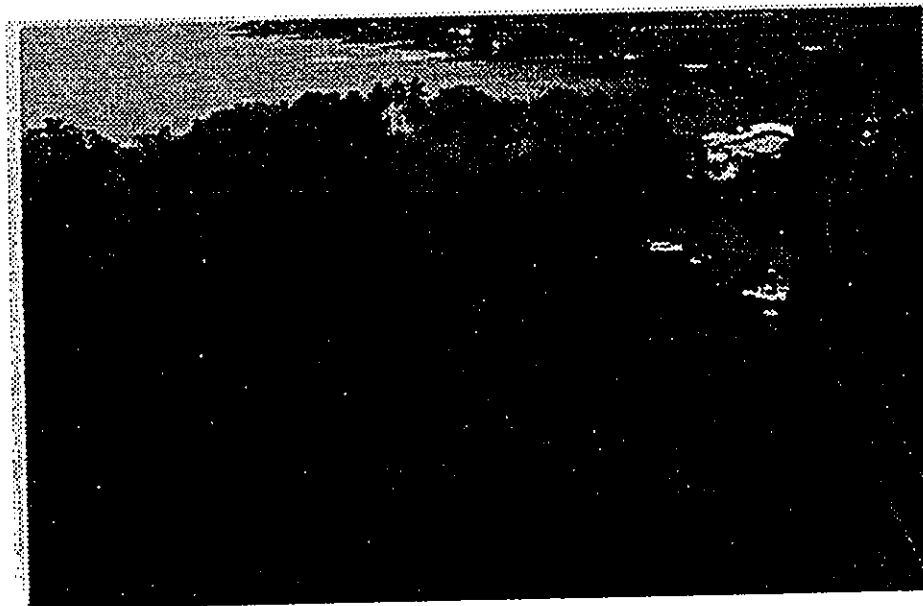


PHOTO II
Detail of the northeastern portion of Keolonahihi with Ali'i Drive and the 4
residences. View is to the north. January, 1990.

exotic vegetation that include *kiawe*, *opiuma*, and *koa haole*. There was some bulldozing and placement of boulders in the northern portion of the parcel in the 1970s but the major portion of the Keolonahihi Complex remains intact. At present, the site remains covered by a dense growth of vegetation and the area has not been opened to public visitation. Four modern housesites exist between the northeastern corner of the park and Ali'i Drive (Photo II).

Site Significance

Holualoa is recognized as one of seven ruling centers located along the Kona coast from Honaunau to Kailua. Keolonahihi served as a chiefly residence for at least five consecutive generations of highest ranking chiefs and chiefesses in the dynastic line of Hawaii Island. John Papa I'i states:

"It was in the Holualoa lands of Kona that the chiefs dwelt in olden times, from the time of Keakamahana, the great kapu chiefess of Hawaii, and earlier. Where the large stone wall is located above Keolonahihi was Keakealaniwahine's dwelling place, for her parents, Keakamahana and Iwikauikaua, resided there. These were lands occupied by the chiefs because the surfing there was good, and the food abundant in ancient times. There Kamehameha learned to surf and to glide with a canoe over the waves, guarded by the Kaikunane of Keaka, in accordance with her demands."
(1959: 6)

The chiefesses associated with the site are Keakamahana and her daughter, Keakealaniwahine who lived at Keolonahihi during the 17th Century. It was at Holualoa Bay that Kamehameha I learned to surf and canoe as a young boy. He would return later and place his war god, Kukailimoku, at the *heiau* of Hale o Kaili at Keolonahihi. It may be that Keolonahihi functioned more in the religious realm, rather than as a chiefly residence, during the time of Kamehameha I.

Oral traditions indicate that the complex was first constructed by the chiefess Keolonahihi, daughter or niece of Pa'ao, circa A.D. 1200 (Advisory Committee, 1982: 2; George Pinehaka Nelson, 1974). Along with her husband, Aka, they built a complex for the training of warriors in the southern portion of the site area. The northern portion of the complex, however, was a women's area and included a *hale pe'a*, a *heiau*, a *palama* (sacred enclosure for women), and Keolonahihi's housesite.

Keolonahihi comprises the *makai* portion of the Holualoa ruling center (Fig. 2). The *mauka* portion of the chiefly compound is known as Keakealaniwahine's Residence. The compound was split into these 2 sections when Ali'i Drive was constructed. The Kaumalumu Complex to the south of the Holualoa compound is believed to be outside the boundaries of the chiefly compound and associated *pu`uhonua*. The *makai* portion of Kaumalumu (TMK: 7-7-04: 3) has been bulldozed twice in the last year resulting in the loss of archaeological sites on this 5.3-acre parcel.

Based largely on selected written historical documents and oral histories, 4 broad periods of occupation at the Holualoa ruling center have been proposed:

- A.D. 1200 - Construction of the makai women's sites by chiefess Keolonahihi, including the *heiau*, *palama*, and *hale pe'a*. Her husband Aka, constructed the sports and training *heiau* at the southern end of the Keolonahihi Complex.
- A.D. 1600 - Expansion of the complex *mauka* by chiefess Keakamahana and her daughter Keakealaniwahine, including residential compound, *pu`uhonua*, and *heiau*.
- A.D. 1780s - Construction of Hale o Kaili and Hale o Ke Kupua *heiau* by Kamehameha I in the *makai* portion of the compound.
- A.D. 1890s - Construction of housesite, roadway, watertank, and waterpump in the northeastern portion of Keolonahihi.

Kamoa Point Archaeological Complex

The Kamoa Point Archaeological Complex consists of sixteen (16) sites and most of these sites consist of several features. The traditional Hawaiian component of the complex includes five (5) *heiau*, walls, well sites, a pond, and an eroding cultural deposit. The historic period components include features associated with the housesite from the 1890s, such as the house platform, the watertank enclosure, a walled enclosure, and the roadway. The sites that comprise the archaeological complex are shown in Table 1 and Figure 3.

The Kamoa Point Archaeological Complex (State site #50-10-37-2059) was originally listed on the Hawaii Register of Historic Places in 1973. However, the complex was removed from the register in 1980 as a result of a technical problem in the registration process. The significance of Keolonahihi as a ruling center was recognized when the complex was again listed on the Hawaii and National Registers of Historic Places in 1983. The nomination form also recognized the generally good condition of the sites and the minimal amount of historic disturbance in the area.

Overview of Archaeological Investigations

As part of the initial background research at the park, archaeological investigations were initiated in 1983. Previous maps of the complex were used in developing the site inventory and evaluating the current condition of the sites. These maps included the 1950 map of the complex by Kekahuna and Kelsey, the 1969 topographic map by Island Survey, and the 1977 map of the archaeological sites by Bishop Museum.

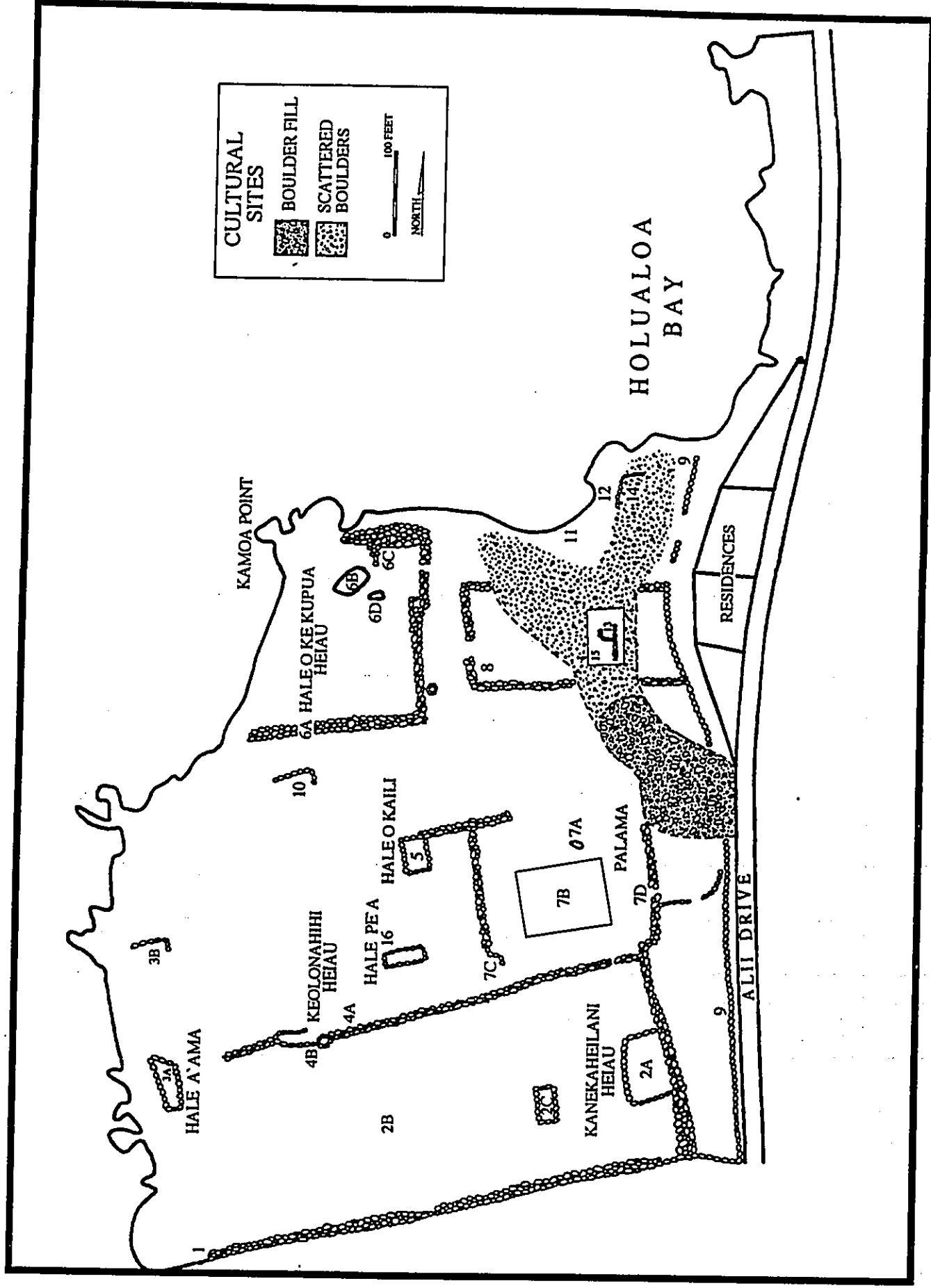


FIG. 3 - Sites that comprise the Kamo'a Point Archaeological Complex.

TABLE 1
SITES COMPRISING THE KAMOA POINT ARCHAEOLOGICAL COMPLEX

SITE #	SITE NAME	DESCRIPTION
1		E-W wall that separates Holualoa and Kaumalumu.
2	Kanekaheilani (a) Haleokekupua (b)	Heiau site consisting of heiau platform (2A), stone paving (2B), and kahuna's house platform (2C). Associated with the training of warriors.
3	Hale A`ama	Surfing heiau along western shoreline consisting of boulder platform (3A) with collapse of northern extension (3B) from high surf.
4	Keolonahihi (a)	Heiau complex consisting of an E-W running terraced wall (4A) with an associated spring (4B).
5	Hale O Kaili (a)	Heiau platform where Kamahemaha stored his war god Kukailimoku.
6	Hale O Ke Kupua (a) Keolonahihi (b)	Heiau within a walled enclosure (6A) at NW corner consisting of pond (6B), grandstand feature (6C) and pond (6D).
7	Palama (a)	Complex of women's sites within walled enclosure, including well site with ramp (7A), low platform (7B), enclosure wall (7C) and entry marked by 2 upright slabs with petroglyphs (7D).
8		Walled enclosure associated with historic pumphouse and water tank. Bulldozer breaks in the wall.
9		Wall running along the makai side of the old beach road and Alii Drive on the east side of the park.
10		Foundation stones and wall remnant - possibly from a former enclosure site.
11		Wall remnants along northern shoreline. May be remnants of canoe halau recorded by Kekahuna and Kelsey.
12		Eroding cultural deposit on northern shoreline fronting Holualoa Bay.
13		Water tank? Stone and mortar structure within site #8.
14		Mo'i's house platform from late 1800s.
15	Keolonahihi's House Platform (a)	Located underneath site #13, this low platform is defined by boulder alignment and ili`ili paving.
16	Hale Pe`a (a)	Small, raised platform that may be associated with Keolonahihi Heiau (site #4).

Sources:

(a) Kekahuna and Kelsey, 1950.

(b) Stokes, 1906

Test excavations were conducted in 1985, 1988, and 1989 to evaluate the subsurface cultural deposits associated with the structural features of the complex. Three test pits were excavated in 1985 by State Parks archaeologist Yent and Cleghorn to evaluate the impact of the historic activities in the northeastern portion of the complex. Additional testing was conducted in 1988 by State Parks archaeologists Yent and Smith in conjunction with the proposed removal of six (6) large Moreton Bay Fig trees from archaeological site areas. This testing consisted of the excavation of six test units in the northwestern portion of the complex. Other testing in 1988 included two test units in vicinity of the historic features in the northeast portion of the complex. These units were excavated to document the transition from the prehistoric to historic components. Because of the active erosion along the bank facing Holualoa Bay, another test unit was placed near the bank in 1989 to sample and record the eroding cultural deposit.

This report presents the findings from the excavation of these 12 test units. This work should be considered preliminary as further archaeological testing is anticipated in the future in conjunction with site stabilization/restoration, proposed park facilities, and vegetation clearing. Additional testing may be conducted to expand our knowledge about this historical complex and to assist with the development of an interpretive program. Other testing may be recommended to develop resource management strategies.

ENVIRONMENTAL SETTING

Keolonahihi is representative of the environmental setting found throughout most of the West Hawaii coastline. Being the leeward side of the island, Kona is characterized as dry and hot. The Kona coast has an average annual temperature of 75 degrees and an average rainfall of 27 inches.

Geology and Soils

Keolonahihi consists of a relatively flat foundation of basalt from the prehistoric lava flows of the Hualalai volcanic series. The topographic relief of Kamo Point varies from 5 feet above sea level at the shoreline to 15 feet above sea level at a distance of 600 feet *mauka* of the shoreline. This increase in elevation represents a gradual incline from the shoreline, *mauka* to Ali'i Drive. There is a steep incline to an elevation 20 feet in the vicinity of the private residences between the park and Ali'i Drive in the northeastern portion of the site. This elevation is a result of the boulders that were dumped during a construction project along Ali'i Drive in the 1970s (Fig. 4).

Keolonahihi is characterized by the Kaimu soil series which is an extremely stony peat with 6-20% slope. The Kaimu series consists of well-drained, thin organic soils, approximately 60cm in thickness, over *a'a* lava. The *a'a*, varying from gravel to cobble size, generally comprises 50-80% of the volume with the soil matrix constituting the remainder. These rocky, sandy loam soils have been judged to be unsuitable for cultivation and are generally in use as pasture. The southern half of the park area is marked by a stonier, thinner solid with exposed outcrops of *a'a* lava. The northeastern corner of the site is marked by a sandy deposit suggesting marine deposition along Holualoa Bay (Fig. 4). Huge basalt boulders were placed atop this sandy fill for erosion control during the 1960s and 1970s.

The coastline is defined by the bench of weathered lava and a beach of waterworn basalt and coral cobbles and boulders overlying the lava foundation. The basalt cobbles dominate the Holualoa Bay shoreline while coral cobbles dominate the shoreline on the west side of the peninsula. There are no sandy beaches along the coastline of the site but there are sandy pockets at the high surf mark and underlying some of the coral boulder areas.

Water and Pond Resources

The water table at Keolonahihi is shallow, slightly above sea level, and water permeates rapidly through the soil and *a'a* to the water table. This accounts for the numerous ponds, springs, and wells at the site. There are no water courses or defined water channels through the park area and slopewash appears minimal since the construction of Ali'i Drive. Numerous springs have been mapped in the complex but not all have been verified during recent surveys (Fig. 4).

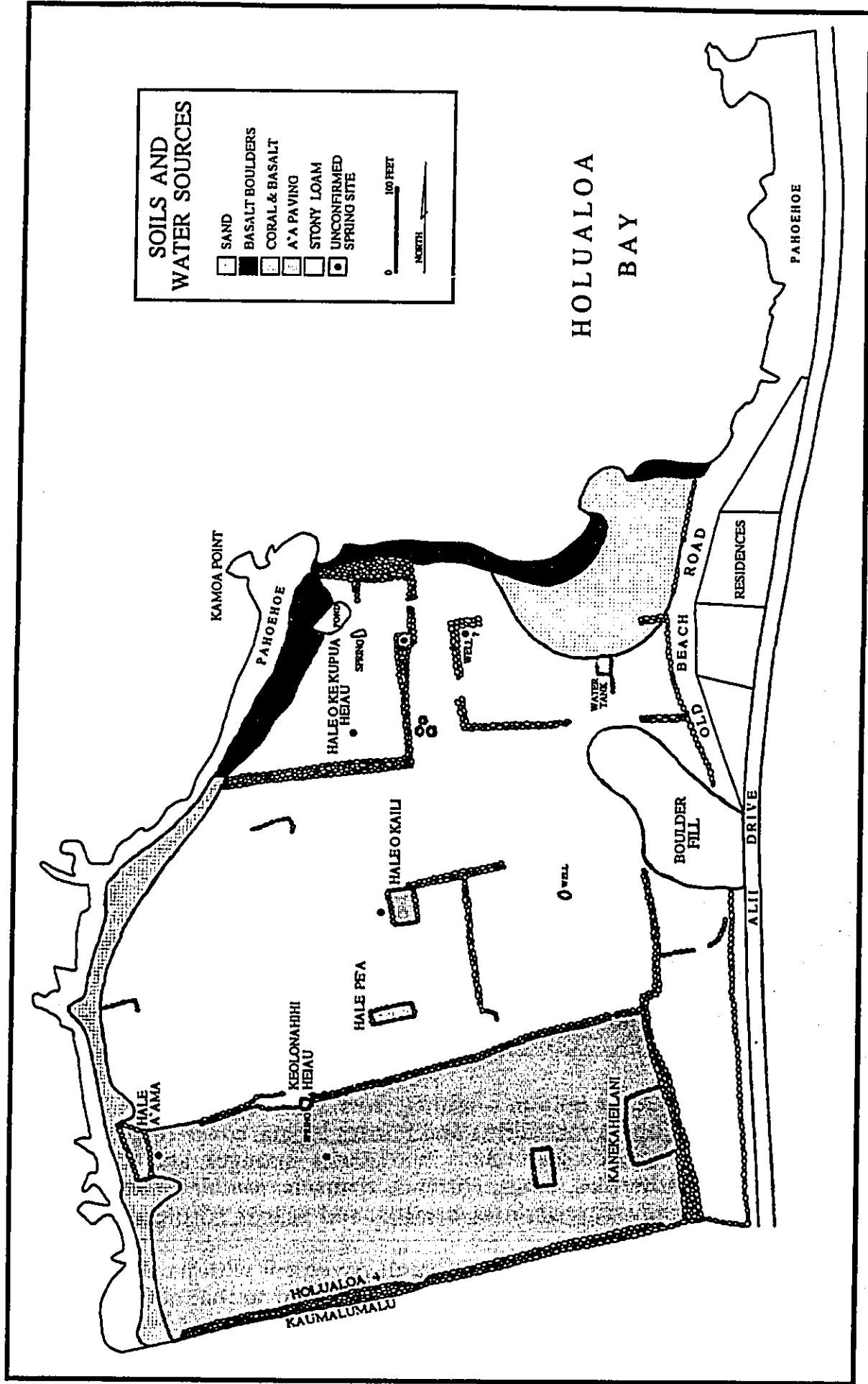


FIG. 4 - Soils, springs, and well sites within the Keolonahihi Site.

The brackish water pond in the northwest corner of the complex is the most prominent water feature. The pond in 1950 measured approximately 40 by 20 feet (Kekahuna and Kelsey map). However, the size has been reduced by the deposition of wave deposited boulders and cobbles along the *makai* side. The water depth reaches a maximum of 2 feet but fluctuates with the tide.

The resources in the pond include fish, crustaceans, and molluscs (Nishimoto, 1986). The dominant fish is talapia, a recent introduction. Other fish noted in the pond are *aholehole*, mullet, and *o'opu akupa*. The crustaceans recorded in the pond are the grapsid crab and *opaehuna*. The mollusc is limited to the Theodoxus cariosa (*hihi kai*).

Vegetation Pattern

The 12-acre site is dominated by exotic vegetation (Corn, 1985). The area is characterized as a *kiawe* and *opiuma* forest. *Koa haole* is abundant but the growth has been thinned out considerably by the mite investation in Kona. There are scattered Ficus (Morteton Bay Fig and Chinese Banyan), monkeypod (*Samanea*), beach heliotrope (*Messerschmidia*), and octopus (*Brassaia*) trees. The dominate ground cover plants are Guinea grass and rouge plants.

The only endemic vegetation on the site is two *loulou* palms located to the south of the pond. The Polynesian introduced vegetation is limited to small numbers of coconut, *hau*, *milo*, *hala*, and *kou*. Indigenous species that are common at the site include *naupaka*, beach morning glory, peperomia, plumbago, and *uhaloa*. It is interesting to note in the 1890s photograph of Keolonahihi that the dominant vegetation is coconut and loulou (Photo III). This indicates that there has been a major shift in the vegetation pattern between 1900 and the present.

Marine Environment

Holualoa Bay is a small, semi-protected embayment formed by an extension of lava at Kamoia Point. The bottom is sand with scattered basalt outcrops. On the east side of Holualoa Bay, along Ali'i Drive, is the exposed *pahoehoe* bench with numerous small, shallow tidal pools. Dominant on the wave-washed *pahoehoe* surface is the sea urchin *Colobocentrotus* and several varieties of *limu* (West Hawaii Coral Reef Inventory, 1981: 247-249).

Between the 5-15 foot depths, the bottom is entirely rock with 3-8 foot relief. The corals, dominated by Pocillopora meandrina and Porites lobata, cover 10-20% of the bottom. The invertebrates include sea urchins, hoof shells, sponges, and tunicates. The common fishes are butterflies, tangs, chromis, damsels, *manini*, *maiko*, wrasses, *humuhumu lei*, *omilu*, Paracirrhites arcatus, and Scarus sordidus.

Between the 20-30 foot depths, the bottom is a basalt pavement with patches of sand and a 5-20% cover of coral. The aquatic community is similar to that noted above.

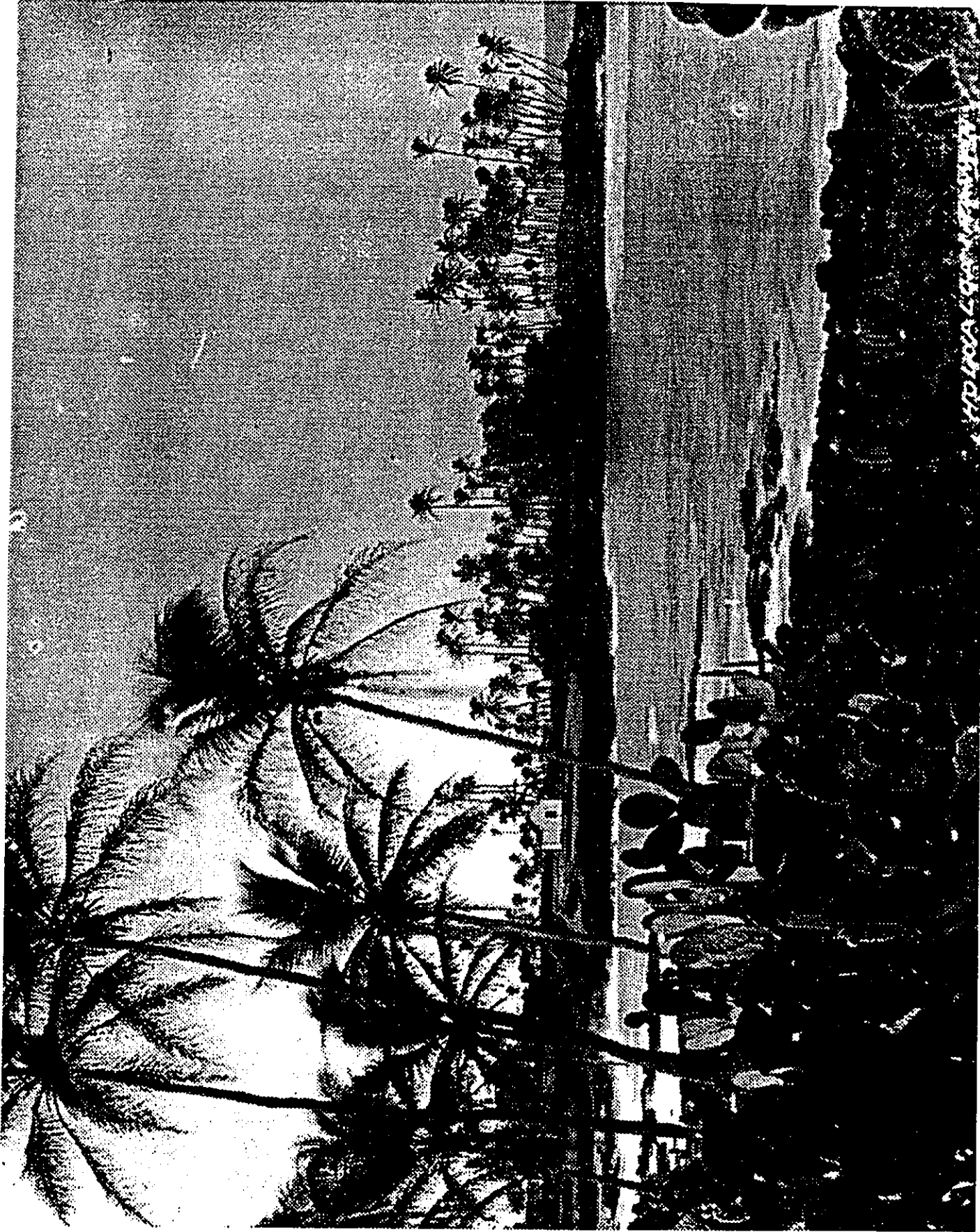


PHOTO III - View south of Keolonahihi from Holualoa Bay, circa 1890.

The 40-50 depths are marked by a bottom that is part sand and part solid rock. The corals comprise upto 80% of the substrate because of reduced wave surge. Molluscs include augers and miters in the sandy areas.

The winter months in Kona are marked by high surf and offshore storms. The western coastline of the site fronts the ocean and is susceptible to these high surf conditions. There is evidence that the surf has impacted several archaeological sites along the shoreline and continues to do so. The northern portion of the park which faces Holualoa Bay, is subject to less extensive seasonal surf damage and rock deposition.

HISTORICAL OVERVIEW

The historical research conducted for the park involved a comprehensive search through the written documents, legends, traditional stories, and land records (McEldowney, 1986). These resources indicate that the sites at Kamoia are the remains of a chiefly residence and the complex is unique for its association with female *ali'i* during the 17th and 18th Centuries. In the 19th Century, there are references to Kamehameha I spending time at Keolonahihi, first for surfing and canoeing and later for religious purposes.

Many of the historical references for the area incorporate oral histories. The major references for Keolonahihi are:

- 1800s - John Papa I'i wrote of his personal recollections from the early 1800s. He recorded that the *ali'i* lived at Holualoa from the time of Keakamahana and earlier because the surfing was good and the food abundant. Identified Keakealaniwahine's residence, the surf of Kamoia at Keolonahihi, and Kamehameha's sometimes residence at Holualoa.
- 1823 - William Ellis, a missionary, took a tour of Hawaii Island and from informants, he located Pahika *heiau* and Kanekaheilani *heiau* in the Kamoia Point vicinity.
- 1950 - Kekahuna and Kelsey surveyed a number of historic sites in Kona during the late 1940s and early 1950s and recorded both historical and archaeological information. They drew a detailed map of the 12-acre complex at Keolonahihi which provided site names and functional descriptions. They located six *heiau* (Ka-Hala-o-Mapuana, Hale A'ama, Kane-ka-hei-lani, Keolonahihi, Hale-o-Kaili, and Hale-o-ke-kupua) along with associated house platforms (*kahuahale*), canoe sheds, wells/springs/pond, and the grandstand feature. Historical and cultural information was obtained from informant Naluahine.
- 1974 - George Pinehaka Nelson, a resident of Kona, reiterated much of Kekahuna and Kelsey in an effort to protect the site from development in the 1970s.

Legendary References

Two legends dealing with the Keolonahihi area have been recorded. Although the legends may not be specifically located at Keolonahihi, there appears to be an association with features at Keolonahihi and the vicinity of Keolonahihi.

One legend involves the giant named Maukaleoleo. Reverend Ellis in 1823 recorded a place named for the giant within the village of Kaluaokalani in Holualoa (Ellis, 1969: 118). The giant was an attendant and warrior of 'Umi-a-Liloa who was a Hawaii Island chief in the 15th century. Ellis associated Kaluaokalani with the large

enclosure that encompassed the residential complex of Keakealaniwahine. This complex is on the *mauka* side of Ali'i Drive and just east of Kamoā Point.

The other legend involves a sorcery *kahuna* whose deeds are generally associated with Kona. There were nine stone images called Hawa'e, one of which was said to be a hidden cave close to the *heiau* called Hailualani in Holualoa 4. This *heiau* may be the same as Haulelani which is believed to have been located somewhere to the northeast of Keolonahihi.

Keolonahihi

The story of Kamiki (Kaaō Hoonina Puuwai no Kamiki) was published in the Hawaiian language magazine Ke Au Hou between 1910 and 1912. In this reference, Keolonahihi is referred to as an *ali'iwahine* who lived in the *lele* of Palua'eka, now known as Holualoa 4 (McEldowney, 1986: 86). There is a pattern of personifying place names in this serial and Kamiki is the earliest document found which applies the name Keolonahihi to a mythical character instead of a place or feature.

A sequence of the references to Keolonahihi suggests this shift from Keolonahihi as a place name to Keolonahihi as a character:

John Papa Ii (1800s) - Keolonahihi referred to the land or complex near Kamoā Point. Ii places Keolonahihi directly south of Holualoa Bay and describes a surf called Kamoā which runs toward the north of Keolonahihi and Pu'u.

Board of Genealogy (1880s) - Refers to the Heiau of Keolonahihi where Keakealaniwahine conducted ceremonies.

John Stokes (1906) - Keolonahihi is the name of a *heiau* located at the northwest tip of Kamoā Point.

Kamiki (1910) - Keolonahihi is a mythical character who lived along the coast of Holualoa 4.

Reinecke & informant Kahulamu (1929) - Keolonahihi is a male, husband of Kahalu'u and father of a daughter named Makole'a.

Kekahuna & Kelsey (1950) - Keolonahihi is a young chiefess living at Kamoā.

Pinehaka (1974) - Keolonahihi is the daughter of the priest Pa'ao and the Kamoā Point Complex is named after her.

Advisory Committee (1982) - Keolonahihi is the daughter or niece of Pa'ao who lived 22 generations before Kamehameha I and along with her husband, Keolonahihi built the complex at Kamoā.

Traditional Histories

Traditional histories involve the exploits and customs of the dynastic families in Hawaii over a number of generations. The historical records indicate that Keolonahihi in Holualoa 4 served as a chiefly residence during the reign of at least five consecutive generations of paramount *ali'i* in this dynastic line (I'i, 1959). Several prominent *ali'i* in this genealogical line associated with Keolonahihi were Keakamahana (circa 1600 A.D.) and her daughter Keakealaniwahine (circa 1630 A.D.).

Keakamahana and Keakealaniwahine

The traditional stories and genealogies associate the women Keakamahana and her daughter Keakealaniwahine with a residence at Holualoa. The rule of both of these *ali'i* women is thought to have been nominal in secular affairs with political and economic power limited to Kona. However, their religious obligations encompassed the entirety of Hawaii Island. Keakealaniwahine is the only woman known to have conducted ceremonies associated with a *luakini heiau* with the exception of rituals involving the eating by the male priests and chiefs. Keakealaniwahine is the traditional figure most strongly related with the chiefly residential land in Holualoa 4 by the 19th Century Hawaiians.

The residence of Keakamahana and Keakealaniwahine is believed to be the large walled enclosure on the *mauka* side of Ali'i Drive. The residence is recorded by Ellis and I'i as being on an elevation above Keolonahihi in Holualoa (I'i, 1959: 159). Keakamahana is the first named *ali'i* known to have resided near the Kamo Point Complex. Keakamahana was of the highest rank (*pi'o*) an *ali'i* could achieve and also the most senior *ali'i* of her generation. Keakamahana married the warrior Iwikauikaua and they were the parents of Keakealaniwahine.

Keakealaniwahine succeeded her mother as the highest ranking *ali'i* of the dynastic family. Battles between the Kona and Hilo chiefs marked her reign and resulted in her banishment to Moloka'i for several years. Besides the residence at Holualoa, Keakealaniwahine is associated with the *Heiau* of Keolonahihi, possibly referring to the location rather than the proper name of the *heiau*. However, Stokes recorded a *heiau* named Keolonahihi in the northwestern corner of the Kamo Point complex.

Kamehameha I

John Papa I'i recorded that Kamehameha lived with his mother Kekuiapoiwa II and his guardians, Keaka and Luluka, at Pu'u in Holualoa during the rule of Kalaniopu'u. At Holualoa, Kamehameha learned to excel in board and canoe surfing. Later, Kalaniopu'u took Kamehameha to Ka'u. There is no strong evidence that Kamehameha maintained a residence at Holualoa during his reign. Instead, Kamehameha used the area for religious purposes and is given credit for the construction of two *heiau*, Hale o Kaili and Kanekaheilani (Ellis, 1969). Ellis

described Kanekaheilani as being 200 feet square with a clear pool of brackish water which was the favorite bathing place of Kamehameha and which he allowed no other person to use. Hale o Kaili was built by Kamehameha soon after he had assumed the government of the island and numerous images were apparent in this *heiau*, although Ellis only recorded one damaged image still standing in 1823. Ellis recorded the two *heiau* as being 50 yards apart.

Ruling Centers of Kona

A ruler usually had a favored residence while the others were used periodically when the high chief was touring a district or island to fulfill ritual obligations, for warfare, to reduce the threat of rebellion, to make use of localized resources, or for pleasure. The prominence given to a residence varied with the chief, their rank, political authority, and religious prerogatives. There would also be variations regarding the geographic extent, internal configuration, and function of physical features or specific areas in the use of these ruling centers over time by different chiefs. The number of chiefs and *kahuna* living within or adjacent to the chiefly residence would also vary depending on the prominence of the highest ranking resident, the number of family members attached to the resident, and/or the ability of the surrounding populace to support this chiefly complex.

The historical references, particularly John Papa I'i (1959: 6), mention the land of Keolonahihi and Pu'u at Holualoa in Kona as the dwelling place of chiefs. Chiefs associated with this residence in Holualoa include Keakamahana, her daughter Keakealaniwahine, and Kamehemeha I. The only structure mentioned by I'i is the large stone wall enclosure which encompassed the dwelling of Keakealaniwahine. This structure is still present on the *mauka* side of Ali'i Drive across from the park area. The enclosure measures approximately 270 by 210 feet and the walls are 10-12 feet high and 13-14 feet thick. Inside the enclosure wall are paved areas, house platforms, and probable graves. The selection of sites for chiefly residences was based on food supplies and coastal areas were often selected for the surf conditions and canoe landings. There were seven (7) ruling centers in use in Kona at the time of Western contact.

1. Kamakahonu, Kailua - Occupied by Kamehameha I between 1813 and 1819.
2. Keolonahihi and Pu'u, Holualoa - Area with numerous *heiau* and good surf. Associated with Keakamahana and Keakealaniwahine in 17th Century and Kamehameha I in the 18th Century.
3. Kahalu'u - Complex of ten *heiau* surrounding Kahaluu Bay with a traditional breakwater. Named for the chiefess Kahalu'u.
4. Keauhou - This area is noted for the largest *holua* slide in Hawaii, the surf called Kaulu, and numerous *heiau*.

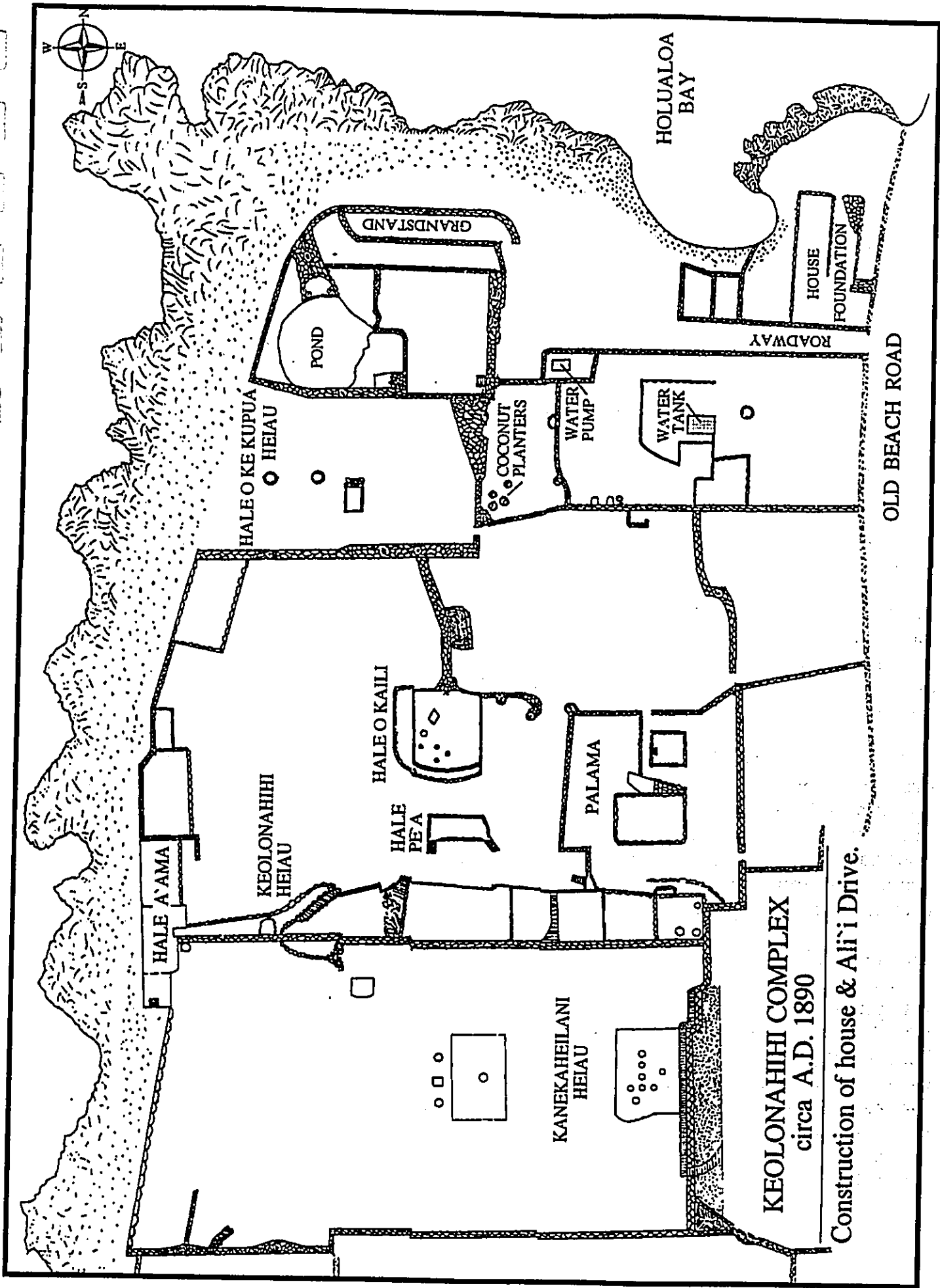


FIG. 5 - Historic changes at Keolonahihi, circa 1890s.

5. Ka`awaloa - This residential complex was occupied by Kalaniopu`u when Captain Cook arrived at Kealakekua Bay in 1779.
6. Kealakekua - Hikiau *heiau* located here and associated with Kalaniopu`u's residence at Ka`awaloa. Kamehameha I resided at Napo`opo`o when Vancouver visited at Kealakekua Bay in 1792. Surf of Napo`opo`o known as Kapahukapu.
7. Honaunau - Recorded as a chiefly residence since the 16th Century. Features associated with the complex are a *pu`uhonua*, two *holua* slides, and numerous *heiau*, including Hale o Keawe.

Historic Land Use

The earliest land records for Keolonahihi come from the Great Mahele of 1848. The 638 acres of Holualoa 4 were awarded to a woman named Lo`e. The land came to her through her husband Ka`iama who died in 1842 but had received the land from the king prior to this time. Lo`e died in 1898 and the lands of Holualoa 4 passed to her children.

In the native testimony for the land court awards, 8 houselots were recorded on the *mauka* side of the old beach road within the *ahupua`a* of Holualoa 4. There were no claims within the Kamoia Point Complex. Cultivation of selected trees was also mentioned in these native testimonies. Some of the more numerous trees mentioned for Holualoa 4 were *loulou* (native palm), *kou*, *hala*, and coconut (*niu*). The testimonies for Holualoa 4 also indicate a pattern of taro, bananas, and breadfruit being grown in the uplands with sweet potato being the dominant crop in the lowlands.

In 1884, Queen Kapiolani purchased a 2/3 interest in the property of Lo'e while a descendant of Lo'e named Mo`i Kalani retained the other 1/3. It is Mo`i's house that appears in the 1890s photograph of Keolonahihi (Photo III). The house was located in the northeastern corner of the park area and adjacent to Holualoa Bay. Associated with the house were several stacked basalt walls, a pumphouse and water tank, and a roadway (Fig. 5). The photograph indicates a predominance of coconut and *loulou* palms within the complex during this time.

The lands of Holualoa 4 were sold to the Kona Sugar Company in 1899 but it appears that sugar growing only took place in the upland portions. In 1933, the land was purchased by Thomas White who used the land for grazing cattle. The land was then bought in 1956 by Frank Kent who had plans to build a hotel on the beachfront parcel. It was during the late 1960s and early 1970s, when Kent owned the land, that the boulders were dumped in the northeastern corner of the park area for erosion control. From the maps drawn circa 1969, it appears that a bulldozer was used to place these boulders and several areas of bulldozer disturbance can be distinguished (Fig. 6). The State of Hawaii purchased the land in 1980 to preserve this culturally and historically significant complex.

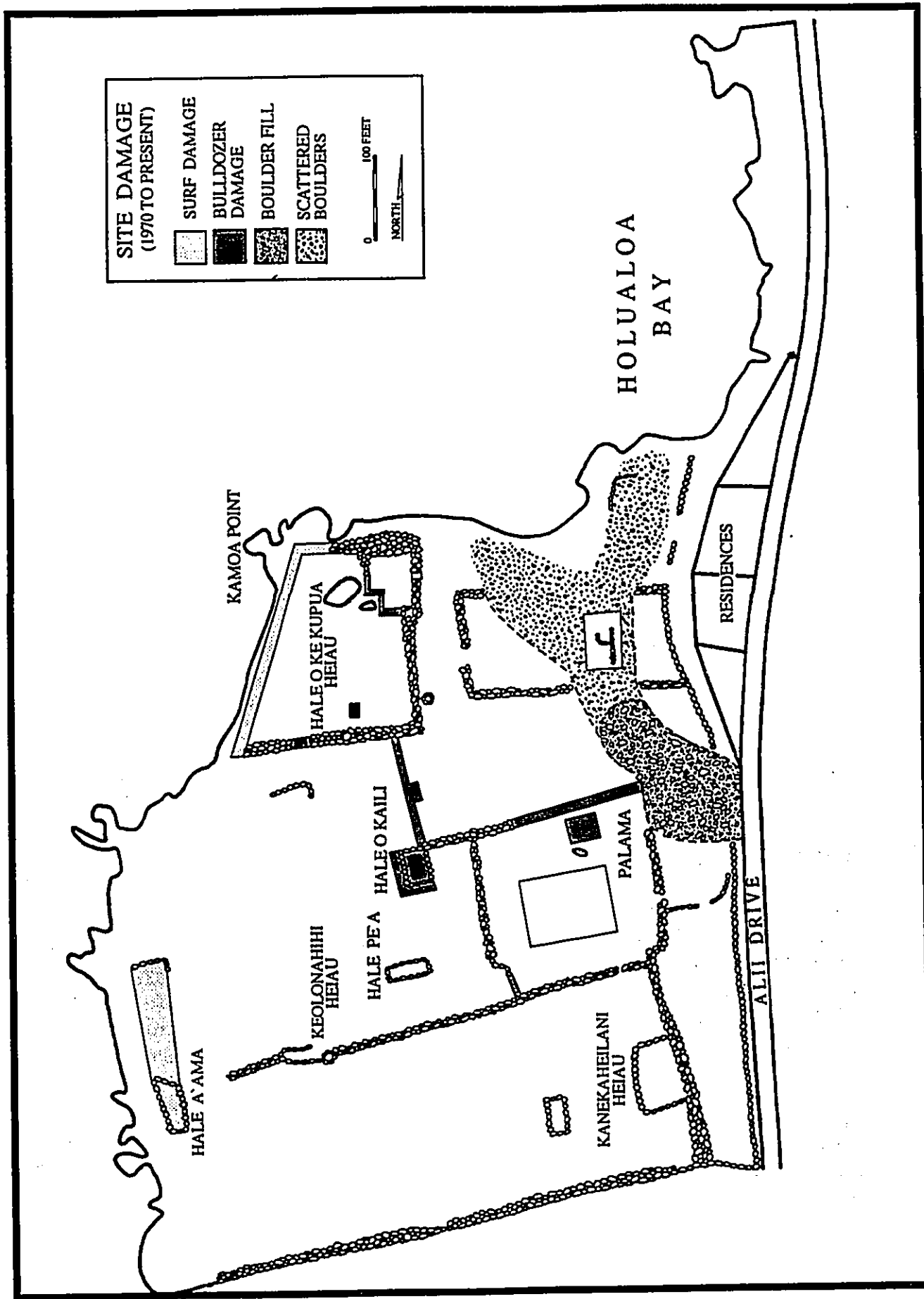


FIG. 6 - Areas of probable bulldozer damage within the Keolonahihi Complex.

PREVIOUS ARCHAEOLOGY

The archaeological work at Keolonahihi prior to this testing was centered around the recordation and mapping of the sites that comprise the Holualoa chiefly complex. As such, this discussion will consider the Keolonahihi Complex within the existing park boundaries, the Keakealaniwahine Complex across Ali'i Drive from the park, and the Kaumalumu Complex to the south of the park. The early archaeological surveys, such as Stokes (1906) and Reinecke (1929) did not include site maps, which created confusion about site names and locations. The historical research project conducted by McEldowney (1986) attempted to clarify the records.

Keolonahihi Complex

- 1906 - John Stokes of Bishop Museum conducted a survey of *heiau* and located 3 *heiau* in the Kamoia Point vicinity: Keolonahihi, Hale A`ama, and Halekekupa. Information was obtained from informant John Bull.
- 1929 - John Reinecke of Bishop Museum surveyed the archaeological sites in West Hawaii. He located the 2 *heiau* identified by Stokes (Keolonahihi and Hale A`ama), as well as, *Pu`uhonua* of Haulelani. Recent research indicates that Reinecke mislocated sites. Some information was provided by informant Thomas Kahulamu.
- 1950 - Kekahuna and Kelsey drew a detailed map of the 12-acre complex at Keolonahihi which provided site names and functional descriptions. They located 6 *heiau* (Ka-Hala-o-Mapuana, Hale A`ama, Kane-ka-hei-lani, Keolonahihi, Hale-o-Kaili, and Hale-o-ke-kupua) along with associated house platforms (*kahuahale*), canoe sheds, wells/springs/pond, and the grandstand feature (Fig. 7). Information was obtained from informant Naluahine.
- 1970 - Statewide Inventory of Historic Places surveyed the island of Hawaii and relocated the Kamoia Point Complex based on earlier records. The Keolonahihi complex was designated site #2059 (Kamoia Point Archaeological Complex) with the adjacent area being designated site #2058 (Kaumalumu Complex). The register form followed Reinecke's survey and in doing so, appears to have again mislocated the site of Haulelani by placing it on the *makai* side of Ali'i Drive. Both complexes were originally listed on the Hawaii Register of Historic Places in 1973 and relisted in 1983.
- 1977 - Aki Sinoto of Bishop Museum conducted an archaeological survey of the sites within the 12-acre area for owner Skipper Kent. The surface features and remains were mapped with compass and tape. In comparing the maps drafted by Sinoto and Kekahuna and Kelsey, there appears to have been some damage to the sites between 1950 and 1977.

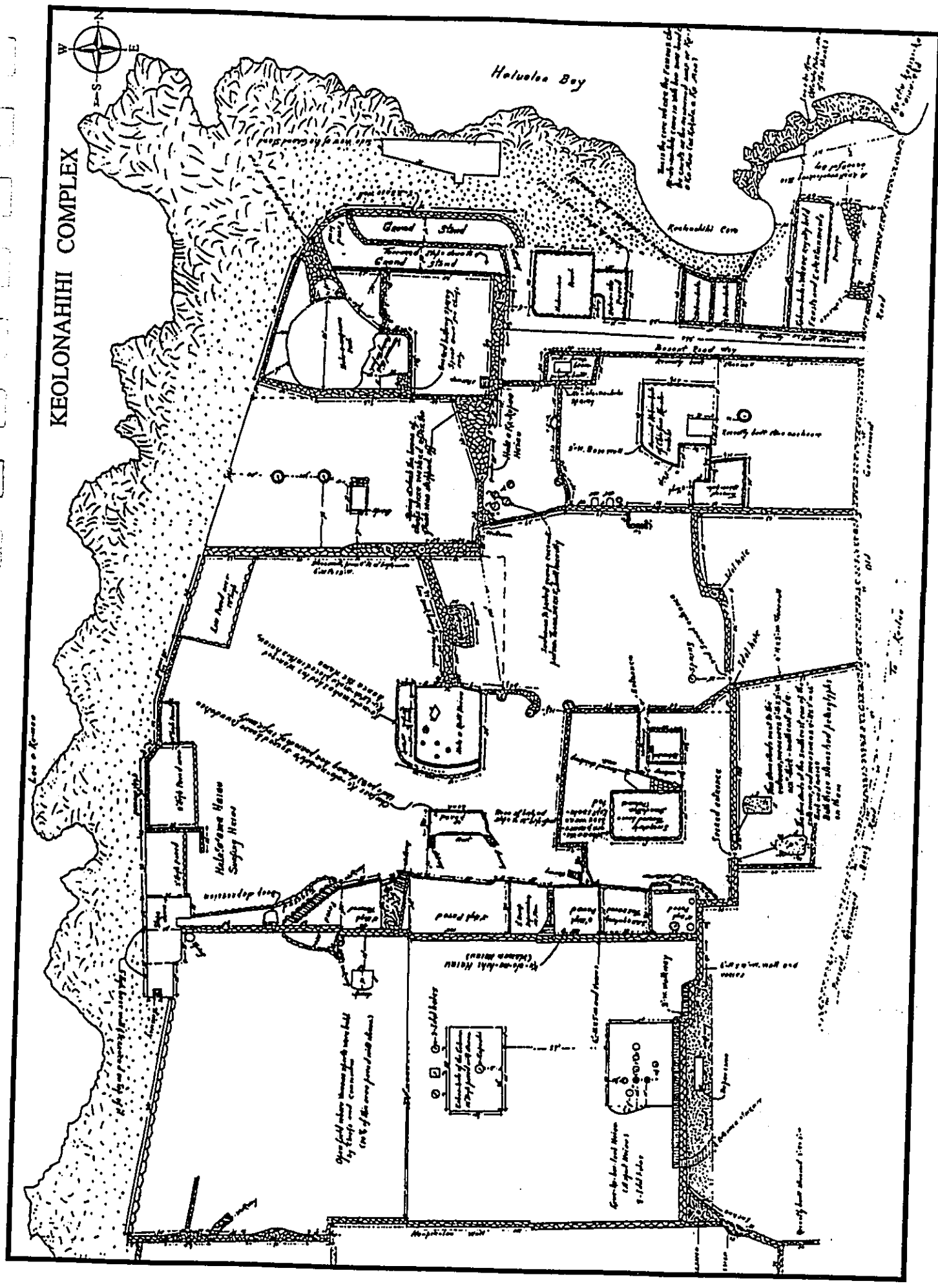


FIG. 7 - Keolonahihi Complex as mapped by Kekahuna and Kelsey, 1950.

Keakealaniwahine Complex

The major portion of this complex is situated within the 16-acre parcel identified as TMK: 7-7-04: 11. Prior to the subdivision and new configuration of these 2 parcels in 1990, the Keakealaniwahine Complex was located in both parcels 11 and 43.

Together, the Keolonahihi and Keakealaniwahine Complexes comprised the Holualoa chiefly residence but the construction of Ali'i Drive has separated the larger compound into the 2 complexes. Approximately 100 feet to the east (*mauka*) of the Keakealaniwahine Complex is the north-south running Kuakini Wall.

The Keakealaniwahine Complex has not been given a State site number but many of the sites that comprise the complex have State site numbers. The archaeological surveys of the Keakealaniwahine Complex have been limited to the following:

- 1950 - Kekahuna and Kelsey also drew a detailed map of the Keakealaniwahine Complex providing site names and functional descriptions (Fig. 8). Within the complex they identified Pakiha enclosure (10-37-3831), 2 named *heiau* (Mo`ipe and Hualani), one unnamed burial *heiau* (10-37-6327), and a *pu`uhonua*.
- 1973 - The archaeological survey for the proposed Ali'i Drive realignment by Francis Ching located additional sites associated with the complex: Sites 10-37-6319, -6320, -6328, and -6376 (house platforms), 10-37-6340 (Holualoa 3/4 *ahupua`a* wall), and 10-37-6375 (burial platform).
- 1980 - Archaeological reconnaissance survey of TMK: 7-7-04: 43 by Lloyd Soehrens. The schematic mapping with narrative site descriptions included sites in that portion of the parcel connecting Keakealaniwahine and Keolonahihi.
- 1990 - Archaeological inventory survey by Cultural Surveys Hawaii (Hammatt, 1990) of TMK: 7-7-04: 43 (64 acres) which is south and east of the Keakealaniwahine Complex. This survey recorded smaller sites, such as paved areas, burial sites, and habitation structures, that connected the Keakealaniwahine and Keolonahihi Complexes. However, the larger structures appear to be confined to the 16 acre parcel (TMK: 7-7-04: 11) being delineated as Keakealaniwahine's residence.
- 1994 - Cultural Surveys Hawaii (Hammatt, 1994) conducted an archaeological reconnaissance survey of the 16-acre parcel encompassing the Keakealaniwahine Complex. In addition to the already identified sites, they recorded and mapped numerous walled corrals in conjunction with the ranching activities from the early 1900s.

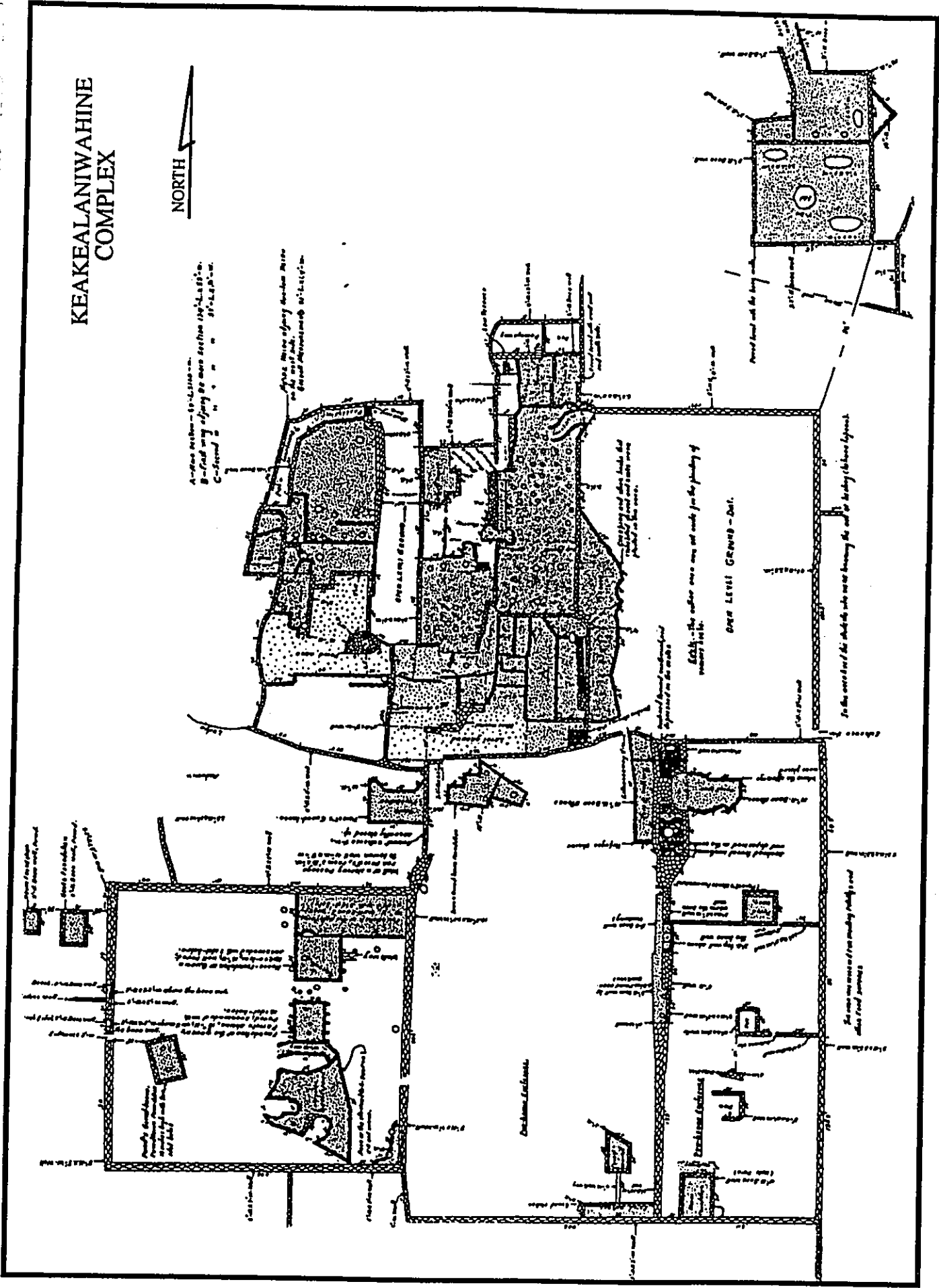


FIG. 8 - Keakealaniwahine Complex as mapped by Kekahuna and Kelsey, 1950.

Kaumalumalu Complex

This complex is identified as the 5-acre parcel (TMK: 7-7-04: 3) on the *makai* side of Ali'i Drive and to the south of the park. Located in the *ahupua`a* of Kaumalumalu, this complex is separated from Keolonahihi by the large wall constructed along the *ahupua`a* boundary. In conjunction with the proposed development of the parcel, 2 archaeological projects were conducted.

- 1973 - An archaeological survey with mapping and testing was conducted by Bishop Museum (Rosendahl, 1974). A total of 24 structural features were located, included walls, walled enclosures, and platforms. The testing indicated a historic age for these features. Only limited evidence for a prehistoric component was found.
- 1979 - An assessment of the archaeological and historical resources of Kaumalumalu *makai* was made by Hawaii Marine Research, Inc. (Hommon, 1980). This project involved additional testing with the excavation of 6 units associated with various structural features. The hydration-rind dating indicated historic and late prehistoric/historic components. The excavation of one platform suggested that it was the housesite occupied in the mid 1800s by the school teacher Wi who owned and occupied a portion of this parcel.
- 1982 - Archaeological survey and testing conducted on the portion of Kaumalumalu on the *mauka* side of Ali'i Drive by Science Management Inc. (Hommon, 1982).

ARCHAEOLOGICAL SITE INVENTORY

The base maps recording the archaeological sites at Keolonahihi were prepared by Kekahuna and Kelsey in 1950, Island Survey in 1969, and the Bishop Museum in 1977. As part of the 1986 historical research, an attempt was made to correlate the sites recorded in the various historical and archaeological surveys. Originally, 13 sites were identified within the Kamoia Point Complex (State Site #2059) in the 1983 register nomination form. Several sites reflect the cultural association of features indicated on the Kekahuna and Kelsey map. However, additional sites are being added as more researched is conducted and the inventory now includes 16 sites (Fig. 3).

Site 1: Massive wall which separates the *ahupua`a* of Holualoa 4 from Kaumalumu. The wall measures 4 meters in height and runs east-west for a length of 100 meters. This wall has been called a *pu`uhonua* wall but this may be due to the mislocation of Haulelani in the park area by Reinecke and the Statewide Inventory. The historical records indicate that the *pu`uhonua* was located *mauka* of Ali`i Drive and not within the Kamoia Point Complex.

Site 2: *Heiau* complex on the south end of the complex. Labelled Kane-ka-hei-lani *heiau* by Kekahuna & Kelsey who associated it the training of warriors. Stokes referred to this site as Hale-o-Kaili. Features associated with this site include:

2A: Raised platform referred to as the *heiau* structure in the historical documents. Platform measures 25 by 15 meters with numerous depression and pits on surface recorded as idol holes.

2B: Paving of subangular basalt cobbles over an area approximately 75 by 150 meters.

2C: Raised platform measuring 12 by 6 meters referred to as *kahuna's* house platform.

2D: Raised platform adjacent to N face of wall #1. Measures 10 by 15 meters and 50cm in height.

2E: Ramp on east side of platform 2A from ground level to surface of platform.

2F: Eroding midden deposit on western edge (*makai*) of site 2.

Site 3: Surfing *heiau* called Hale A`ama and located along the western coastline of the complex. Original *heiau* platform measured approximately 70 by 7 meters but has been damaged by surf. Raised platform of the structure now measures approximately 8 by 25 meters.

Site 4: *Heiau* complex located near the center of the complex. The site was referred to as Keolonahihi *Heiau* by Kekahuna & Kelsey and was dedicated to the worship of female deities. Associated features include:

- 4A: East-west wall measuring 150 meters in length.
- 4B: Terraced platform contiguous along the length of wall 4A with several features incorporated into the platform.
- 4C: Lined pit or enclosure within the platform that measures 8 by 8 meters and 1 meter in depth.
- 4D: Ramp constructed through feature 4A on the eastern end of the structure.
- 4E: Lined pit with feature 4A and referred to as a spring. Measures 1.5 meter in diameter.
- 4F: Lined pit or enclosure contiguous with north face of wall feature 4A on the western end of the structure. Measures 5 by 10 meters.

Site 5: *Heiau* near the center of the complex and to the west of site 4. *Heiau* was labelled Hale-o-Kaili by Kekahuna & Kelsey who stated that this was where Kamehameha I placed his war god Kukailimoku. Raised platform measures approximately 9 by 12 meters but sides are collapsed.

Site 6: *Heiau* complex in the northwest corner of the complex. Site is referred to as Hale-o-ke-kupua by Kekahuna & Kelsey, as Keolonahihi by Stokes, and as Kanekaheilani by Ellis. The complex is defined by a wall enclosing an area 75 by 60 meters with the wall on 3 of the 4 sides. Features within the complex include:

- 6A: Southern portion of the wall averaging 2 meters in height with several depressions atop the wall. A break located 20 meters from west end of the wall appears to be a historic disturbance.
- 6B: Walled pond with wall collapse from high surf. Water is brackish and tidal. Said to have been used for bathing by *ali'i*.
- 6C: Wall on the north of the complex averages 2 meters in height but collapse on north face and west end from high surf. Upright slab on south face. Called a Grandstand for viewing surfing events in Holualoa Bay.
- 6D: Walled pit defining a spring adjacent to the pond.
- 6E: Platform referred to as a *heiau* within the east wall construction.

Site 7: Enclosure complex referred to as a *palama* or sacred area for women. Features associated with the complex include:

- 7A: Walled pit or well contiguous with platform 7B. Measures 4 by 2 meters and is 2 meters in depth.
- 7B: Platform paved with subangular basalt cobbles and small boulders.
- 7C: Enclosure wall defining an area 55 by 60 meters. Wall has been disturbed along north side.
- 7D: Entry to enclosure defined by 2 upright slabs with petroglyphs (Photo IV).

Site 8: Walled enclosure that appears to correspond to the historic enclosure associated with the pumphouse and well to the south of the historic housesite. Central portion of the enclosure has been bulldozed, circa 1969.

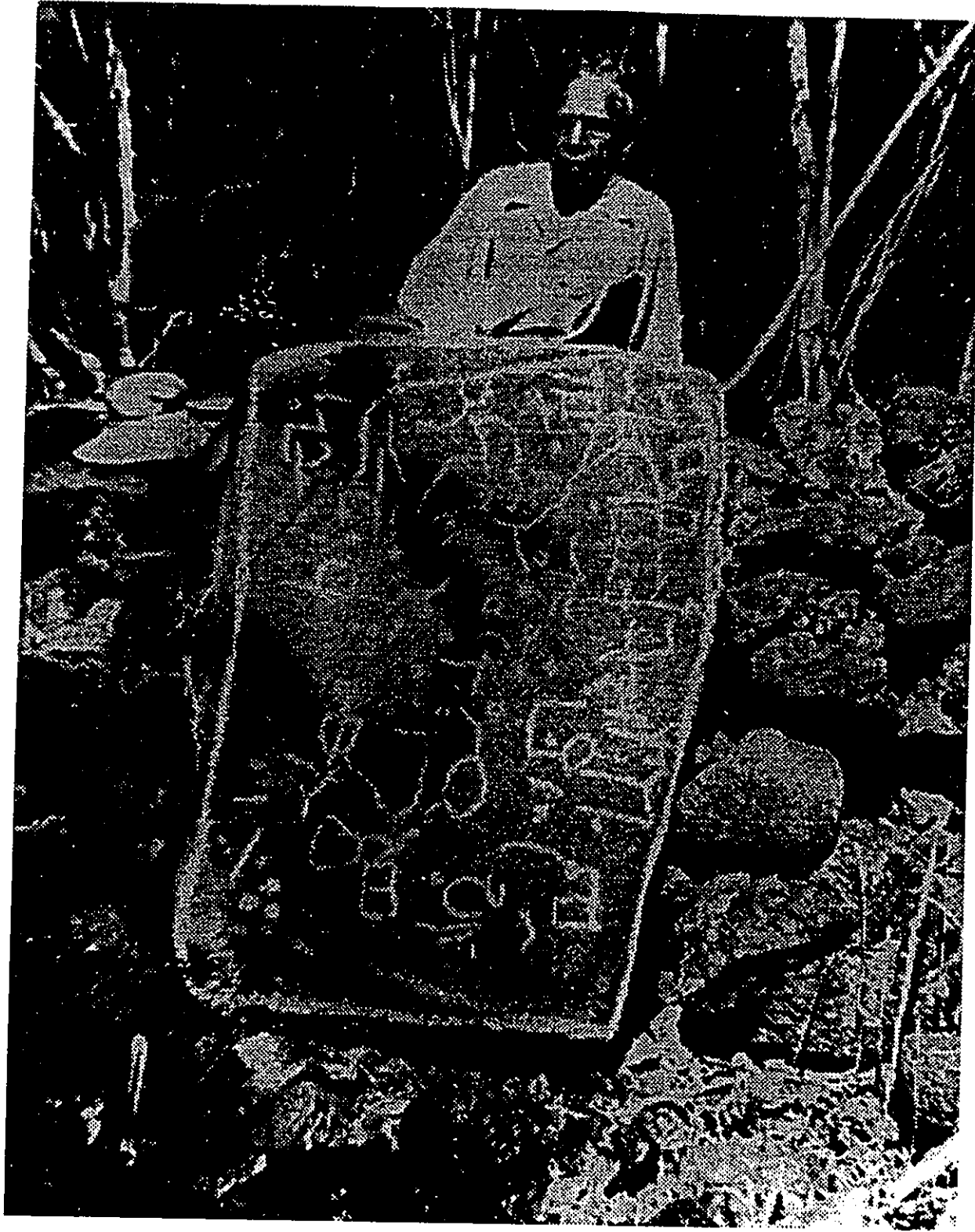


PHOTO IV
Detail of petroglyph slab at entry to the *palama* (site 7D).
Photograph taken with Henry Kekahuna, September 12, 1950.
Negative on file at the Kauai Historical Society.

- Site 9: Wall remnant alongside Ali'i Drive on the east side of the park. Probably historic and built along the *makai* side of the old beach road. This wall on the north end now separates the park area from the four residences.
- Site 10: Foundation stones and the remnant of a wall suggestive of an enclosure feature that has been disturbed, possibly by bulldozing.
- Site 11: Wall remnants along the northern coastline fronting Holualoa Bay. May be remnants of the former canoe houses mentioned by Kekahuna & Kelsey.
- Site 12: Eroding midden site on the northern bank fronting Holualoa Bay. Additional archaeological testing has indicated the extensiveness of these sandy cultural deposits in the northeast portion of the complex.
- Site 13: Historic boulder and cement structure within enclosure site 8 that probably housed the water tank associated with the historic housesite.
- Site 14: Historic house platform (Mo'i's housesite, circa late 1800s). Stone alignment on west (5m length) and north (2m length) defines platform that is now covered with boulders placed on-site in the 1970s.
- Site 15: Paved platform underlying site 13. Referred to as a house platform on earlier maps.
- Site 16: Raised platform which measures 6 by 15 meters and one meter in height. Located to the north of wall 4A. Referred to as a *hale pe'a* on earlier maps.
- In considering culturally significant areas, 2 other sites should be addressed. However, these sites lack physical remains used to identify archaeological sites.
- Site 17: Cove along Holualoa Bay important in the legends of the area and for surfing (surfboards stored nearby).
- Site 18: Surfing site in Holualoa Bay.

An effort has been made to correlate these sites as recorded in the different surveys conducted at Keolonahihi. An initial correlation based on the researched conducted by McEldowney, 1986 is shown in Table 2. The early surveys (Stokes, 1906 and Reinecke, 1929) only inventoried 3 sites within the complex. However, the work of Kekahuna and Kelsey in 1950 greatly expanded the site inventory to include 10 sites. The work of Pinehaka (1974) and the Advisory Committee (1982) reference the informant Naluahine who was also used by Kekahuna and Kelsey. Therefore, there is a close similarity between the inventory of sites prepared by these 3 sources.

TABLE 2
CORRELATION OF SITES WITHIN THE KAMO A COMPLEX

SITE # (FIGURE 3)	STOKES (1906)	REINECKE (1929)	KEKAHUNA- KELSEY (1950)	INVENTORY (1970)	COMMITTEE (1982)	REGISTER (1983)
2	Haleokekupa Heiau	Pu`uhonua of Hauelani	Kanekaheilani Heiau	Pu`uhonua of Hauelani	Kanekaheilani Heiau	Kanekaheilani Heiau
3	Hale A`ama	Hale A`ama	Hale A`ama	Hale A`ama	Hale A`ama	Hale A`ama
4				Keolonahihi Heiau	Keolonahihi Heiau	Keolonahihi Heiau
5				Hale o Ka`ili	Hale o Ka`ili	Hale o Kaili
6 (site)	Keolonahihi Heiau	Keolonahihi Heiau		Keolonahihi Heiau	Haleokekupa Heiau	Haleokekupua Heiau
6a (wall)			Haleokekupua Heiau			
6b (pond)			Hala o Mapuana		Hala o Mapuana	
7			Palama		Palama	Palama
11				Halau waa	Halau waa	Wall remnants
13			Keolonahihi's Kahuahale		Keolonahihi's Kahuahale	Keolonahihi's Kahuahale
14			Kahuahale for Royal Feasts and Entertaining		Kahuahale for Royal Feasts and Entertaining	Historic (Moi's) Housesite
16			Hale Pe`a		Hale Pe`a	Hale Pe`a

The only consistency in site name and function between all these sources is Hale A`ama, the surfing *heiau*, referenced as site 3 in the complex. For the other sites, there is either variation in the site name or new information about a site is recorded from the previous surveys. Several of the sites recorded by Kekahuna and Kelsey indicate function, rather than proper site name. Examples include *hale pe`a* (menstrual house) and *palama* (sacred enclosure for women).

RESEARCH OBJECTIVES AND QUESTIONS

The initial archaeological investigations conducted at Keolonahihi are closely associated with the development of interpretive programs and resource management strategies at the park. It is anticipated that additional archaeological work will be conducted in conjunction with site stabilization/restoration, resource management, and park planning for facilities (eg. interpretive trails, lookouts, restrooms, and interpretive shelters).

Research Objectives

The archaeological research conducted as part of park planning was initiated with an updated inventory of the cultural resources and an effort to correlate these archaeological sites with the historical records and previous archaeological surveys. Archaeological excavations were begun in 1985 to assess the research potential and address such research concerns as cultural history, site age and function, and the identification of resource management needs.

Inventory

The inventory has concentrated on the archaeological and historical sites within the park but also seeks to understand the relationship of these sites to the other historic sites in the vicinity. The archaeological mapping and historical research conducted to-date has provided the baseline information for determining the kinds of sites present, the distribution of these sites, and the current condition of the sites. The cultural significance of the complex has also been assessed through the preliminary research. However, the full research potential, interpretive potential, site integrity, and cultural values will be evaluated through further excavations and research.

The presence of the site referred to as "Keakealaniwahine's Residence" is especially relevant to the sites within the park area. "Keakealaniwahine's Residence" is located *mauka* of the park and just across Ali'i Drive (TMK: 7-7-04: 11 and 43). The site consists of an enclosure defined by a massive wall. Within this enclosure was the housesite and family *heiau* of Keakealaniwahine and her mother Keakamahana. Contiguous with the residential enclosure is the *pu`uhonua* enclosure, housesites of the *kahuna*, a medicinal *heiau*, and a *hooulu`ai heiau*. In close proximity to the residential enclosure is a burial *heiau* and an area for training in the art of healing. Historical documents indicate a direct association between "Keakealaniwahine's Residence" and the Kamoia Complex, circa 1600s. The

complex is in good condition and has not be altered or damaged by historic activities.

The Kaumalumu section of the peninsula to the south of the park has also been evaluated for its historical and cultural association with the Kamoia Complex (TMK: 7-7-04: 3). The massive wall at the *ahupua`a* boundary suggests that Kaumalumu was not part of the central chiefly residence but may have supported the chiefly compound. Previously archaeological investigations at Kaumalumu indicated a post-contact age for most of the sites on this parcel (Hommon, 1980). The 5-acre parcel of Kaumalumu was grubbed and graded in the mid-1980s.

Archaeological and Historical Correlation

An understanding of the historical events at the site assists in the interpretation of the archaeological findings. The historical research indicates the use of the area as a chiefly residence with the dominant sites being identified as heiau, house platforms, a paved training area for warriors, a pond, and a grandstand for sitting to observe surfing in Holualoa Bay. The archaeological remains associated with such site types will likely include cultural deposits with artifacts, midden, and features indicative of habitation and religious activities. However, the presence, distribution, and extensiveness of such cultural deposits can only be determined through excavation.

The Kekahuna and Kelsey map provides labels of site function based on information from oral informants. This map, then, provides a basis for developing research questions about site age and function that can be tested archaeologically. The ethnographic documentation of Keolonahihi as a chiefly residence also provides a basis for developing research questions regarding specific site function relative to a chiefly residence.

The other aspect is chronological. The dating of archaeological deposits can provide the chronological framework for the construction of sites, their period of use, and contribute to the development of the cultural history. The traditional history has indicated a basic chronological framework for the site based on the association with certain personages. Archaeological dating can often provide a more precise chronology and test the historical chronology.

Cultural History

A cultural history incorporates the archaeological, historical, and ethnographical information into a chronological framework of cultural change and development. The historical research conducted to-date suggests at least 4 periods of cultural use at Keolonahihi: A.D. 1200 (Keolonahihi), A.D. 1600s (Keakamahana and Keakealaniwahine), A.D. 1780s (Kamehameha I), and A.D. 1890s. The archaeological research can provide information to indicate which structures were built during which period, how the function and structure of sites might have changed over time, and associated cultural activities.

Park Planning. Cultural Resources Management and Interpretation

The 16 archaeological sites within the Kamoia Complex vary in their age, function, and significance. For park planning purposes, it is necessary to evaluate each of the sites individually as well as the complex as a whole. This evaluation will make it possible to determine the best location of park facilities and programs as well as delineating the research needs for each site, study area, and the complex.

To protect and preserve the cultural resources, site condition and susceptibility to damage must be evaluated. Archaeological investigations can indicate the sensitivity of sites to public visitation and make recommendations that may protect and preserve the resources as part of a park program. This sensitivity might address the proximity of cultural deposits to the surface in areas where public traffic may potentially impact these deposits and the susceptibility of structures to collapse and erosion. In addition, there are cultural sensitivities relating to the complex and the religious/sacred nature of many of the sites.

A second aspect of resource management is stabilization of eroding or collapsed structures. Several sites along the shoreline are being actively damaged by high surf (sites 3, 6B, 6C, and 12). Other sites are being damaged by the growth of vegetation, especially the large Ficus trees (sites 2A, 3B, 6A, and 7B). Consequently, archaeological research is recommended to evaluate site construction, degree of site damage, and recommended course of action.

As a historical park, the interpretation of historical events and site function is the basis of the park program. Therefore, the previous research objectives become incorporated into the development of an interpretive program.

Theoretical Orientation

In developing research questions to be tested through archaeological investigations, it is important to recognize the assumptions made about the sites present in the complex.

1. Sites remain at Keolonahihi that date from the pre-contact period.
 - a. The age and function of these sites can be determined through archaeological analysis and dating methods.
 - b. The sites within the complex may reflect different periods of construction and modification over time that can be detected through archaeological excavations and analysis.
 - c. The construction and use of the majority of sites within the complex are associated with the prehistoric occupation of the area.
2. Sites remain at Keolonahihi that reflect the traditional cultural patterns

associated with a chiefly residence.

- a. As a chiefly residence, the sites at Keolonahihi reflect the lifestyle of the *ali'i* class and not a full cross-section of traditional Hawaiian culture.
 - b. Inferences about the cultural practices at the complex can be made through archaeological analysis and a study of other chiefly residences in Kona.
3. Sites remain at Keolonahihi that date from the historic period that reflect acculturation.
- a. A comparison of archaeological deposits from the prehistoric and historic periods will indicate changes in subsistence patterns, technology, and cultural practices.
 - b. Archaeological excavations may detect historic modifications within the complex.

Research Questions

The research conducted to-date suggests the following research questions should be addressed in the archaeological investigations conducted at Keolonahihi:

Settlement-Subsistence

- Historical documents suggest that the Keolonahihi area was selected for its abundant food resources: Is there archaeological evidence of these food resources and the subsistence ecology?
- Are there cultural deposits with datable materials associated with the surface structures that indicate the time of construction and the period of use?
- Can a trade pattern be discerned through a source analysis for materials not locally available at the site?
- Are there cultural materials that suggest the function and cultural activities associated with the structures?

Social Organization

- Are there cultural materials that would indicate social distinctions and the use of this complex by the alii class? This might include variations in house size at Keolonahihi from those recorded in neighboring areas.
- Is it possible to estimate the population at Keolonahihi based on the number structures occupied at a given time and the associated cultural materials?

METHODOLOGY

The archaeological methods used at Keolonahihi are outlined below in an effort to standardize recordation. A brief overview of the inventory data is provided with a more detailed description available in the research design (Yent, 1988).

Site Inventory

Site Number Designation. The Kamoia Complex is referenced by State site number 50-10-37-2059. Within the complex, there are currently 16 inventoried sites and many of these sites consist of 2 or more features. The sites have been consecutive numbered and the features are designated alphanumerically. For example, 7A designates the well feature (A) of enclosure site 7.

Site Recordation. Complete recordation of each site and feature has been hampered by the dense vegetation in the area. Detailed recordation, including narrative descriptions, measurements, maps, and photographs, is still in progress.

Site Typology. A formal typology has been initiated as a basis for describing the stylistic and structural form of the sites. A functional typology, based on site use and function, was suggested in the mapping of the complex by Kekahuna and Kelsey. Because the 2 typologies reflect different sources and levels of information, they are being kept separate until archaeological research can assist in evaluating site function assigned by Kekahuna and Kelsey.

The formal site types represented at Keolonahihi are walls, walled enclosures, pavings, platforms, alignments, pits, depressions, mounds, and exposed cultural deposits. The functional site types suggested from the Kekahuna and Kelsey map are boundary walls, habitation sites, *heiau*, springs/wells, *hale pe'a*, grandstand seating to view surfing events, canoe shed, and *palama* (sacred enclosure).

Site Age. The oral traditions suggest that the entire complex was built by chiefess Keolonahihi, circa A.D. 1200. However, it seems likely that structures were modified or added by different chiefs/chiefesses over time. Archaeological excavations and chronometric dating offer the opportunity to differentiate the periods of construction of sites within the complex.

Data Recovery

The excavation of selected test units has been conducted to evaluate the research potential, including the presence/absence of subsurface cultural deposits, the variations in these deposits, the geographical extent, and the degree of historic disturbance to earlier deposits. Each test unit was numbered consecutively as it was excavated. For example, test pit 1 was excavated first and test pit 12 was excavated last. All the excavations were initiated as one meter by one meter units and several of these units were expanded to 1m by 2m units when a significant cultural feature

was encountered. There has been no grid established for the area but each unit was oriented to magnetic north.

Excavations were conducted in 10cm levels within natural strata. All excavated material was screened through 1/8" mesh screen because of the high sand content in the northern portion of the complex and the anticipated midden component. By using 1/8", rather than 1/4" mesh, a better quantitative sample of such materials as fish scale and bone, urchin spines, and volcanic glass was possible. Large basalt rocks and coral were removed from the screen and the remaining fine fraction was bagged for analysis. Artifacts were bagged separately and labelled with the provenience. Charcoal samples were taken wherever possible.

During excavation; features were mapped in plan-view and cross-section. Features were excavated, screened, and bagged separate from the layer fill. Each unit was excavated to bedrock or weathering bedrock. Upon completion of the excavation, stratigraphic profiles for one or more of the unit walls were recorded. Soil color and texture were included with the stratigraphic profiles. In a few instances, soil samples were taken. All units were backfilled.

To locate the test units as accurately as possible, they were mapped by transit from the same datum. A total of 13 separate excavation units were excavated and 2 of these units were expanded to 1m by 2m units during excavation. The depth of the test units varied from 14cm to 75cm.

Analyses

In the lab, the bagged materials were washed, sorted, and weighed. These materials included marine molluscs and crustaceans, fish bone and scales, echinoderms, brackish water molluscs, mammal bone, charcoal, and artifactual materials.

Midden Analysis. The excavated materials were sorted by species of molluscs, species of echinoderm, and family of fish. The fish mouth part were the most indicative of family. The fish bone and scale are being stored for more detailed identification. After sorting, the materials were weighed and recorded. The percentage of each species/family in the midden component was calculated. This data will be used to evaluate diet and subsistence ecology.

Feature Analysis. The majority of features are pits, some of which are firepits. An analysis of the kind and distribution of these features can assist in determining site function and associated cultural activities.

Artifact Analysis. The artifacts are indicative of technology, trade, and site function. The provenience of each artifact was recorded to assist in evaluating cultural associations and changes over time in artifacts styles and materials used. The component of artifact forms from a given locality can assist in determining the function of the associated surfact structure. The presence of volcanic glass indicates

the possibility of trade with the source areas and this sourcing needs to be conducted for the materials at Keolonahihi.

Stratigraphic Correlation. A correlation of the layers between test units is important in defining the horizontal distribution of a cultural deposit and the contemporaneity of these deposits/structures. The initial finding is that the northern area of the complex contains at least 4 distinct cultural layers: 1 historic period (post-1778) and 3 prehistoric (pre-1778). The most extensive cultural deposits is in the sandy deposit in the northeastern portion of the complex.

Dating. Three charcoal samples, each from a different test unit, have been submitted for dating. Additional dating is recommended for better chronological control of the stratigraphic sequences and correlation between units.

ARCHAEOLOGICAL EXCAVATIONS (STRATIGRAPHY)

The 12 test units excavated to-date at Keolonahihi have been placed within several distinction site areas in the northern portion of the complex (Fig. 9). Two test pits (TP1 and TP2) were located at the base of the boulder mound along the eastern edge of the complex to assess the historically disturbed area. Three test pits (TP3, TP10, and TP11) were placed in the vicinity of sites 13 and 15 to assess the sandy deposit in the area of the historic housesite. Six test pits (TP4 through TP9) were excavated within site 6 to evaluate the potential impact of the tree removal on the subsurface cultural deposits. One test pit (TP12) was situated at site 12 to sample the eroding cultural deposits along Holualoa Bay. The observations and findings from each of these test pits is discussed below.

TP1, TP2, and TP3 were excavated in February, 1985 by State Parks archaeologists Martha Yent and June Cleghorn. TP4 through TP9 were excavated in June and September, 1988 by State Parks archaeologists Martha Yent and Marc Smith. Testing continued with the excavation of TP10 and TP11 in November, 1988 and TP12 in December, 1989.

Test Pit 1 (TP1)

TP1 was located approximately 7 meters west of the boulder mound adjacent to Alii Drive in the northeastern portion of the complex. The surface of the 1m by 1m unit is relatively level and covered by a layer of basalt cobbles and small boulders. The recorded stratigraphic profile is as follows: (depth is below surface)

Surface	Paving?	Subangular basalt cobbles and small boulders; no soil; <i>koa haole</i> and rouge plants.
0-10cm	Layer 1	Dark reddish brown (10YR3/3) silty loam; crumb structure; friable; slightly plastic and slightly sticky; high in basalt cobbles; high in land snails; organic include <i>koa haole</i> seeds, <i>opiuma</i> leaves, and roots; scattered waterworn coral pebbles and cobbles; one <i>kukui</i> shell; wavy boundary.
10-20cm	Layer 2A	Dark brown (10YR2/2) silty loam; crumb structure; friable to hard; slightly sticky and slightly plastic; coral pebbles and basalt cobbles; land snails; roots; worked bone fragment; wavy boundary.
20-30cm	Layer 2B	Dark brown (10YR2/2) sandy loam; crumb to fine grain structure; decrease in size of basalt cobbles; coral pebbles; several varieties of land snails; charcoal flecks and charcoal staining; marine shells (<i>conus</i> , <i>brachidontes</i> , <i>isognomon</i>); mammal bone; rat bone; wavy boundary.
30-40cm	Layer 3	Brown (10YR5/3) fine to medium grain calcareous sand; single grain and loose; charcoal flecks; marine shell fragments; wavy boundary.

40-50cm Layer 4 Dark reddish brown (5YR3/2) clayey loam; crumb to blocky structure; friable and moist; sticky and plastic; high subangular basalt cobble content (weathering bedrock) that covers most of the unit; no cultural materials.

50cm Base of excavation.

No features or artifacts were recovered from this unit. The charcoal was not of sufficient quantity for dating.

Test Pit 2 (TP2)

TP2 was located approximately 2 meters south of the boulder mound and southeast of TP1. The surface of the 1m by 1m unit was relatively level with scattered subangular basalt boulders. The stratigraphic profile was as follows: (depth below datum at surface in NW corner)

0-3cm	O horizon	Rouge plants with layer of <i>koa haole</i> seeds and <i>opiuma</i> leaves.
3-25cm	Layer 1	Dark reddish brown (10YR3/3) silty loam; <i>koa haole</i> roots; high amount of subangular basalt cobbles and boulders; wavy boundary to
25-60cm	Layer 2	Dark brown (10YR2/2) sandy loam; charcoal, marine shell, echinoderms, fish bone, mammal bone, and coral; volcanic glass; high in basalt pebbles mixed in sandy matrix; <i>koa haole</i> roots and stumps.
60-62cm	Layer 3	Dusky red (2.5YR3/2) clayey loam; crumb to blocky structure; friable to hard; scattered basalt cobbles; culturally sterile.
62cm		Base of excavation. Weathering basalt bedrock encompasses about 3/4 of the unit.

No features or artifacts were recovered from this unit. The charcoal was not of sufficient quantity for dating.

Test Pit 3 (TP3)

TP3 was located in the sandy area between sites 12 and 13 and adjacent to the boulder fill. The area is marked by a growth of *kiawe* trees and Guinea grass. TP3 is approximately 70 meters north of TP1. The surface of TP3 slopes down to the west.

TP3 contained at least 5 distinct but contiguous cultural layers. Each deposit was marked by high densities of midden consisting of marine shell, fish bone, echinoderms, and some mammal bone. Varying densities of basalt cobbles were intermixed with the sandy loam matrix of these layers. These cultural layers also contained a number of firepit and pit features. The historic materials are restricted to the upper 20cm identified as Layer 1. The lack of historic materials in the lower deposits suggests a pre-contact age for these layers.

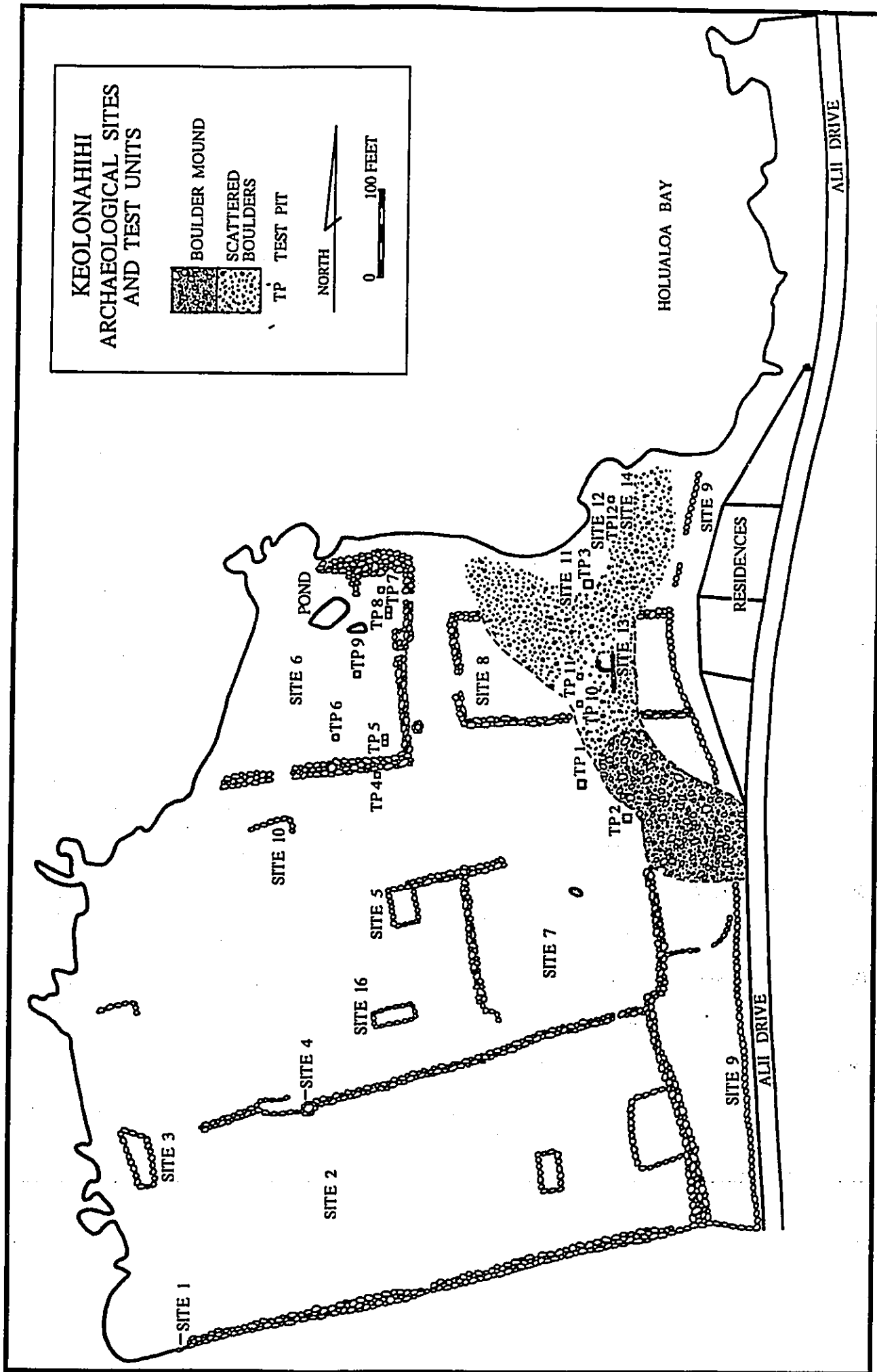


FIG. 9 - Test units excavated in the northern portion of the Keolonahihi Complex.

The stratigraphy was as follows: (depth below datum at surface in northeast corner)

0-3cm	O horizon	Surface cover of Guinea grass with layer of <i>koa haole</i> and <i>kiawe</i> leaves; scatter of coral and basalt cobbles on surface.
3-25cm	Layer 1	Dark grayish brown (10YR4/2) sandy loam; loose, single grain; fine to medium grain calcareous sand; subangular basalt cobbles scattered throughout (about 1/2 soil matrix and 1/2 rock); scattered coral pebbles; marine shells (cowry, planaxis, and <i>pipipi</i> dominant with conus, <i>opihi</i> , and <i>isognomon</i> present); mammal bone; few fish bone; few <i>kukui</i> nut shell fragments; charcoal flecks, volcanic glass; historic materials in upper 5cm (metal, glass, ceramics, metal button); grass and <i>koa haole</i> roots; wavy boundary.
20-25cm	Feature 1	Firepit marked by circular pit with charcoal staining (10YR3/2) and flecking in E 1/2 of unit; measures 40cm in diameter; fill of sandy loam and subangular basalt cobbles; some shell and bone.
25-30cm	Feature 2	Firepit marked by circular area of charcoal staining and flecking; about 15cm in diameter.
25-30cm	Feature 3	Firepit marked by ovoid area of charcoal concentration; about 20cm in length in NW quad.
25-35cm	Feature 4	Pit feature in SW corner; fill of Layer 1 and excavated into Layer 2; sandy loam with charcoal staining; shell.
25-30cm	Layer 2	Brown (10YR5/3) very sandy loam; high number of basalt cobbles in fill; wavy boundary.
30-50cm	Layer 3	Dark grayish brown (10YR4/2) sandy loam; higher amount of angular basalt cobbles than Layer 2; dense amounts of <i>wana</i> and marine shell (less planaxis and <i>pipipi</i> than upper layers); fish bone; mammal bone; charcoal flecks; many volcanic glass flakes; basalt flakes; coral abrader.
35-45cm	Feature 5	Pit feature along west wall marked by concentration of <i>wana</i> spines, <i>isognomon</i> , and <i>brachidontes</i> in a very sandy loam fill (mottled 10YR4/2 and 10YR6/3); scattered basalt cobbles in pit fill.
45-50cm	Feature 6	Firepit marked by concentration of charcoal flecks and chunks with charcoal staining of the sandy loam fill (10YR3/2); measures about 18cm in diameter; basalt cobbles in pit fill; charcoal sample collected.
50-60cm	Layer 4	Brown (10YR5/3) very sandy loam; fine to medium grain calcareous sand; basalt cobbles not as dense as in Layer 3; white film on cobbles (weathering); larger marine shell fragments (pencil urchin, cowry, and <i>isognomon</i> predominant); fish bone; volcanic glass.
50-56cm	Feature 7	Firepit marked by concentration of charcoal flecking and staining; about 15cm in diameter.
51-56cm	Feature 8	Shallow pit with fill similar to Layer 3; basalt cobbles at base of the pit.

60-70cm	Feature 9	Pit feature in SW quad; fill of 10YR4/2 sandy loam with high amounts of <i>wana</i> spine and isognomon; basalt cobbles in fill.
60-70cm	Layer 5	Dark grayish brown (10YR4/2) sandy loam; weathering basalt cobbles and boulders; high in pencil urchin spines and body parts; fish bone; contact with Layer 6 gradual and marked by concentration of <i>wana</i> .
70-76cm	Layer 6	Reddish brown (5YR4/3) silty loam; powdery and loose; culturally sterile.
76cm	Bedrock	Basalt floor.

Test Pit 4 (TP4)

TP4 was located along the southern face of the south wall (6A) of the enclosure (site 6) which has been labelled the Heiau of Keolonahihi. The NW corner of TP4 is 11.5 meters west of the SE corner of the enclosure wall and 25cm south of the wall. The stratigraphy of TP4 was as follows:

0-7 cm	O horizon	Organic, decomposing wood and leaves; scattered coral chunks on the surface; large basalt rock along west side of the unit; wavy boundary.
7-15cm	Layer 1	Very dark grey (10YR 3/1) silty loam; single grain to crumb structure; nonsticky and nonplastic; angular to subangular basalt pebbles and cobbles present; marine shell fragments; volcanic glass; gradual, wavy boundary.
15-21cm	Layer 2	Very dark greyish brown (10YR 3/2, very moist) sandy clay loam; crumb and single grain; slightly sticky and slightly plastic; no cultural material; uneven boundary with weathering bedrock.
21cm		Base of excavation; weathering <i>pahoehoe</i> basalt.

The soil deposition along the south side of site 6 appears to a relatively thin layer resting atop the weathering *pahoehoe*. However, there is a cultural layer present with small amounts of cultural materials. There were no artifacts or features uncovered in this unit.

Test Pit 5 (TP5)

TP5 was located within the southeast quadrant of enclosure site 6. The northwest corner of the unit is 6.4m to the north of the south wall (6A) and 4.7m west of the east wall. The ground surface is relatively level with a cover of rouge plants. The unit was placed in proximity to the large Moreton Bay Fig tree atop wall 6A to evaluate the potential impacts of tree removal on the surrounding area. The unit was initially excavated as a 1m by 1m pit but was extended another meter to the north to evaluate the depositional layers and features encountered. The two units were designated TP5S and TP5N. The stratigraphy was as follows: (depth below datum at surface in NW corner of TP5S)

0-6cm	O horizon	Organic, decomposing wood and leaves; scattered subangular, small cobbles of both basalt and coral with few broken waterworn basalt cobbles; wavy boundary.
6-38cm	Layer 1	Very dark grayish brown (10YR3/2) sandy loam; loose, dry and single grain; nonsticky and nonplastic; small, subangular basalt cobbles throughout matrix with scattered coral pebbles; many roots (<i>koa haole</i> and <i>opiuma</i>); shell midden (cowry with conus, brachidontes, isognomon, auger, <i>pipipi</i> , and urchin), mammal and fish bone; cultural materials (basalt flakes, volcanic glass, bird bone point); burnt gourd at 30-35cm; many pit features; land snails; contact of Layers 1 and 2 at about 38cm in W half of unit and 44cm in E half; wavy boundary.
15-22cm (TP5S)	Feature 1	Firepit marked by concentration of charcoal along west wall; compacted charcoal-stained fill with charcoal flecks and rock; charcoal sample taken.
18-35cm (TP5N)	Feature 10	Pit feature along N wall measuring 40cm x 30cm; fill of 10YR3/1 powdery sandy loam and concentration of <i>wana</i> and pencil urchin spines;
27-38cm (TP5S)	Feature 2	Firepit marked by compacted loam, charcoal-stained with charcoal flecks and fire-cracked basalt cobbles, shell fragments, and bone; indistinct borders - may represent several, intermixed firepits; charcoal sample taken.
27-30cm (TP5N)	Feature 11	Small, circular pit feature, about 10cm in diameter, along south wall; fill is gray (10YR4/1) and ashy with <i>wana</i> spines.
27-30cm (TP5N)	Feature 12	Small, circular pit feature, about 10cm in diameter, along east wall; fill of ashy sandy with small coral chunks.
27-32cm (TP5N)	Feature 13	Small, circular pit feature, about 15cm in diameter, in NW quadrant of unit; fill is sandy, light gray (10YR6/1), and high in <i>wana</i> spines; no charcoal.
30-33cm (TP5N)	Feature 14	Small, circular pit feature, about 10cm in diameter, near center of unit; sandy fill high in <i>wana</i> spines and coral chunks.
34-44cm (TP5N)	Feature 16	Small, circular pit feature, about 20cm in diameter, in NW corner; fill of ash and charcoal; charcoal sample.
40-52cm (TP5N)	Feature 15	Circular pit feature along east wall, about 45cm in diameter; sandy fill high in shell and urchin spines; volcanic glass.
41-49cm (TP5N)	Feature 17	Small, circular pit feature, about 15cm in diameter; fill of dark grayish brown (10YR3/2) sandy loam.
43-48cm (TP5S)	Feature 3	Firepit consisting of black (10YR2/1) charcoal-stained fill with charcoal flecks; measures about 30cm in diameter and roughly circular.
43-56cm (TP5S)	Feature 4	Pit feature consisting of Layer 1 fill and excavated into Layer 2; sandy loam with concentration of small shell fragments and <i>wana</i> spines; charcoal flecking and volcanic glass; circular and about 25cm in diameter;

		vesicular basalt cobbles with subangular basalt pebbles.
40-44cm (TP5S)	Feature 5	Firepit in SE corner; charcoal-stained fill and charcoal flecking; about 30cm in diameter.
42-48cm (TP5S)	Feature 6	Firepit in NE corner; charcoal-stained fill; cross-section of feature disturbed by large Ficus root.
42-56cm (TP5S)	Feature 7	Firepit along W wall; measures about 30cm in diameter.
42-50cm (TP5S)	Feature 8	Pit feature consisting of Layer 1 fill; measures about 40cm in diameter; disturbed by large Ficus root.
43-52cm (TP5S)	Feature 9	Circular pit feature about 20cm in diameter; Layer 1 fill including small shell fragments and <i>wana</i> spines.
38-55cm	Layer 2	Dark reddish brown (5YR3/2) silty loam; compact, friable, crumb structure; slightly sticky and slight plastic; dense amount of subangular basalt cobbles; large Ficus root at contact of Layers 1 and 2; no cultural material.
55cm	Base of excavation.	

Test Pit 6 (TP6)

This test pit is located within the southern half of enclosure site 6, approximately 8.1 meters north of the south wall, 20 meters west of the east wall, and 15 meters west of TP5. It is under the canopy of a large Moreton Bay Fig that is to be removed with a ground cover of rouge plants, koa haole, and Guinea grass. The surface is generally level with an outcrop of pahoehoe on the surface of the unit. The stratigraphy was as follows: (depth below datum at surface in SE corner)

0-6cm	O Horizon	Organic, decomposing wood and leaves; angular to round basalt pebbles; roots; shell and volcanic glass fragments present.
6-12cm	Layer 1	Black (10YR 2/1) silty loam; crumb and single grain; nonsticky and nonplastic; subangular basalt pebbles and cobbles; coral fragments; charcoal; shell midden; volcanic glass flakes.
12-18cm	Layer 2	Very dark gray (10YR 3/1) sandy loam; crumb and single grain; nonsticky and nonplastic; very rocky with angular to rounded basalt pebbles and cobbles; shell fragments and urchin spines; charcoal flecks.
18-30cm	Layer 3	Light yellowish brown (10YR 6/4) fine to medium grain sand; loose, single grain; nonsticky and nonplastic; shell fragments and urchin spines; no cultural material under bedrock outcrops and large basalt boulders.
30cm	Base of excavation.	

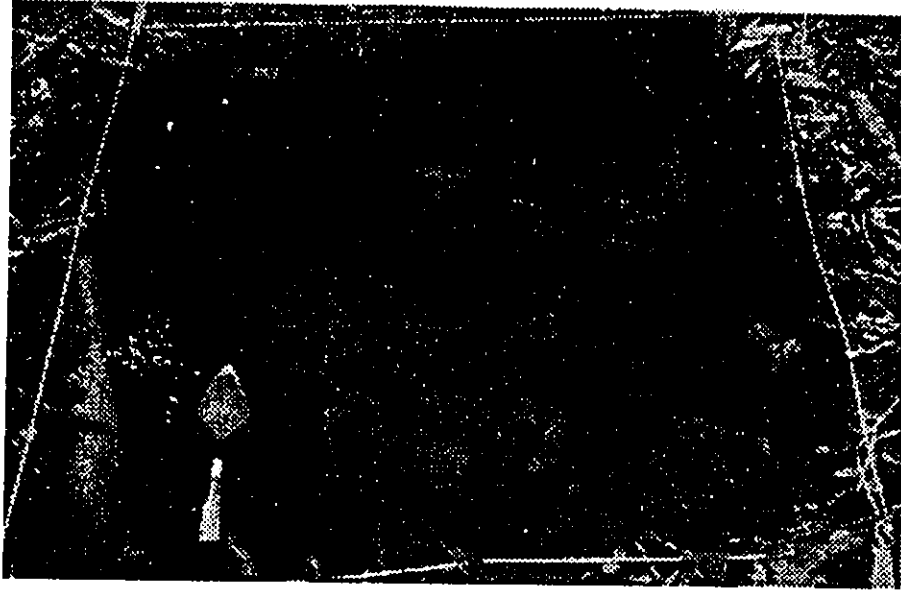


PHOTO V
Excavation of Test Pit 6. Bedrock exposed at 30cm below datum.
View to the North. Excavation conducted in June, 1988.

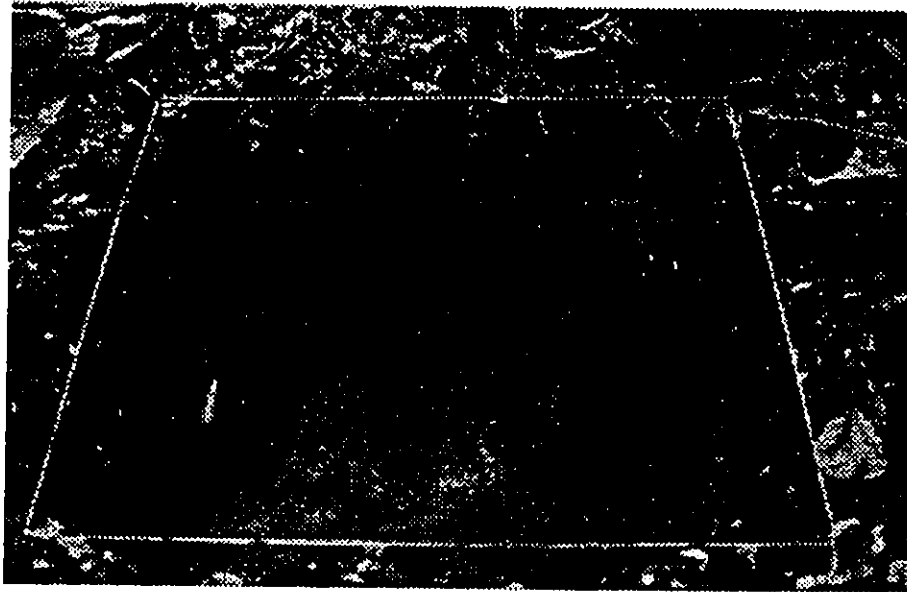


PHOTO VI
Excavation of Test Pit 7 with boulders at contact of layers 1 and 2.
View to the North. Excavation conducted in June, 1988.

Test Pit 7 (TP7)

TP7 is located in the northeast quadrant of enclosure site 6 and to the northeast of the pond (6B). The unit is situated 3.8 meters south of the grandstand wall (6C), 9 meters west of the east enclosure wall. The unit was placed in proximity to the two large Moreton Bay Fig trees just north of the pond to evaluate the impact of tree removal on the surrounding area. The stratigraphic profile was as follows: (depth below datum at surface in NW corner)

0-6cm	O horizon	Organic, decomposing wood and leaves mixed with charcoal chunks; subangular basalt cobbles; roots; shell fragments on surface.
6-30cm	Layer 1	Very dark gray (10YR3/1) sandy loam; loose, single grain to crumb structure; nonsticky and nonplastic; rocky with cobbles of vesicular, subangular basalt; high in roots (<i>Ficus</i> and <i>kamani</i>); scattered charcoal flecks; few waterworn pebbles and coral; midden of shells (<i>cowry</i> , <i>wana</i>), mammal bone and teeth, fish bone and scales; basalt flakes and volcanic glass; wavy boundary with many boulders at contact with Layer 2.
30-50cm	Feature 1	Pit feature with Layer 1 fill and excavated into Layer 2; ovoid in shape and about 80cm in length; charcoal flecking with rock.
30-36cm	Layer 2	Dark gray (10YR4/1) loamy sand; fine to medium grain; moist and loose; nonsticky and nonplastic; high in subangular basalt cobbles and boulders; many roots; pig and fish bone abundant; shell and branch coral; scattered charcoal flecks; wavy boundary.
36-55+cm	Feature 2	Pit feature in NW corner of unit; Layer 2 fill and excavated into Layer 3; water table at 55cm.
36-55cm	Layer 3	Light yellowish brown (10YR6/4) sand; fine to medium grain; moist to wet and loose; numerous vesicular, subangular basalt cobbles; no charcoal or cultural material.
55cm	Base of excavation: water table.	

Test Pit 8 (TP8)

This test pit is located in the NE quadrant of enclosure site 6, approximately 15 meters east of the pond (6B). The unit is 6 meters west of the east enclosure wall, 12 meters south of the grandstand wall (6C), and 8 meters southeast of TP7. The unit is within a grove of young false *kamani* trees with a surface of *kamani* leaves and fruit.

During excavation, a buried alignment or stone facing was located on the south side of the unit. The top of the stones were exposed just below the surface with the base on the stones at 60cm below the surface. The base of the wall is below the water table at high tide.

The unit was extended to the north (TP8N) to uncover an articulated pig skeleton visible along the north side of TP8. Another stone alignment paralling the alignment/facing in TP8 was exposed in the northern unit. To the south of the alignment was a fill of `ili`ili pebbles in a sandy loam matrix. Furthur excavation revealed that this cobble and `ili`ili paving was at the contact of Layers 1 and 2 and would have been constructed after the alignment in TP8 and after the deposition of the pig skeleton.

The pig skeleton was encountered at approximately 30cm below surface. The skeleton was flexed, on its left side, with the head pointed *mauka* (east). The bone was very fragile and water logged since it sits in water during high tide. The skull and mandible of the pig were badly broken and appear to have been crushed by the large waterworn basalt boulder placed on top of the skull. In the area of the head, the vertebrae dorsal spines were almost vertical, and the left and right legs were articulated to the scapula and descended at a very steep angle. The vertebral column was torqued to the right in a hard twist, so that the lumbar vertebra were almost upside down. The left and right ribs were no longer articulated to the vertebra, but many were still in proper anatomical position in relation to each other, lying side by side. It was interesting in that the ribs of the right side had been moved over the back of the skeleton, and were under the left ribs with the proximal ends near the vertebra, so the skeleton was lying on its left side on top of the right ribs. The articulated lower legs bones recovered in TP8 were flexed towards the head.

Two fist sized water worn cobbles, one basalt the other coral, were inside the thoracic cavity, resting on the left ribs. A polished flake was collected from the area of the cervical vertebra. The matrix surrounding the burial was a silty loam with coarse sand, and abundant small `ili`ili pebbles.

The stratigraphic profile was as follows: (depth below datum at surface in NE corner)

0-4cm	O horizon	Organic, decomposing leaves and fruit from <i>kamani</i> ; charcoal chunks; rounded basalt boulders on surface.
4-12cm	Layer 1	Very dark brown (10YR 2/2); silty loam; crumb and single grain; slightly sticky and slightly plastic; very rocky with angular to well-rounded basalt pebbles and cobbles, some coral; shell midden; adze flakes.
10-12cm	Lens A (Feature 1)	Lens of basalt `ili`ili pebbles in SE quarter of TP8N; sand intermixed with pebbles.
12-25cm	Layer 2	Dark brown (10YR 3/3), sandy silt loam; crumb and single grain; nonsticky and nonplastic; shell fragments, urchin spines, fish bone and scales, bird bone, and pig skeleton; basalt adze flake; charcoal flecking; bottom of layer waterlogged at high tide; wavy boundary.
	Feature 2	Pig burial.

25-45cm	Layer 3	Very dark grayish brown (10YR 3/2) loamy wet sand; crumb and single grain; nonsticky and nonplastic; very rocky with angular to subangular basalt pebbles and cobbles; shell fragments; charocal staining; wavy boundary.
45-60cm	Layer 4	Light yellowish brown (10YR 6/4) medium wet sand; crumb and single grain; nonsticky and nonplastic; very rocky with subangular basalt cobbles; roots.
60cm	Base of excavation at water table.	

Test Pit 9 (TP9)

TP9 is located in the central portion of enclosure site 6 and south of the pond (6B). The unit is located 12 meters west of east enclosure wall and 22 meters southwest of TP8. The unit is at the transition between the grove of false *kamani* in the northern half of the enclosure and the *koa haole* in the southern half. The stratigraphic profile was as follows: (depth below datum at surface in NW corner)

0-3cm	O horizon	Surface of <i>kamani</i> leaves and fruit intermixed with sandy loam; scatter of subangular, vesicular basalt cobbles; charcoal flecks.
3-30cm	Layer 1	Very dark grayish brown (10YR3/2) silty loam; loose to crumb; friable; slightly sticky and slightly plastic; high in roots; land snails abundant; rocky with small cobbles and pebbles of <i>a`a</i> ; shell fragments (cowry and <i>pipipi</i>), urchin spines, fish bone; volcanic glass; scattered coral pebbles; wavy boundary.
30-45cm	Layer 2	Dark grayish brown (10YR4/2) sandy loam; loose with fine to medium grain coralline sand; weathering <i>pahoehoe</i> cobbles; found in northern half of the unit; no cultural material.
30-45cm	Layer 3	Dark brown (7.5YR3/4) clayey loam; friable; slightly sticky and slightly plastic; overlies weathering <i>pahoehoe</i> bedrock; found in southern half of unit; no cultural material.
45cm	Base of excavation: extensive bedrock across the unit.	

TP 9 lacks the quantity of cultural material that was evident in TP7 and TP8 located to the north of TP9. The sandiness of Layer 2 probably reflects the proximity of the unit to the shoreline and deposition is a result of high surf and tsunami. The lack of a Layer 2 deposit in the south half and the lack of a Layer 3 deposit in the north half of the unit indicates disconformities that may result from a tsunami.

Test Pit 10 (TP10)

TP10 was located on the south side of the pumphouse (site 13) and 2.5 meters south of the southern edge of the platform that underlies the pumphouse. The wall of enclosure site 8 is about 6 meters to the south of the unit. There has been some previous disturbance in the area from bulldozing and the wall of site 8 has been

breached near the pumphouse.

The stratigraphic profile was as follows: (depth below datum at surface in NW corner)

0-3cm	O horizon	Surface of <i>koa haole</i> and rouge plants with decaying leaf litter; scatter of subangular and rounded basalt pebbles and small cobbles; scatter of coral pebbles; sandy loam high in coralline medium grain sand.
3-10cm	Layer 1	Very dark grayish brown (10YR3/2) sandy loam; loose, medium grain coralline sand; high in basalt subangular pebbles with scatter of rounded basalt and coral pebbles; nonsticky and nonplastic; wavy boundary.
10-30cm	Layer 2	Dark grayish brown (10YR4/2) silty loam; compact, friable; slightly sticky and slightly plastic; dense subangular basalt cobbles and pebbles with gravel of subangular and rounded basalt located between cobbles and boulders; increase in subangular basalt boulders at 20cm; historic materials (bottle glass, metal, ceramics, and earthenware); scattered shell (cowry dominates); volcanic glass; high in roots; wavy boundary.
27-32cm	Feature 1	Pit feature in NE corner with light gray (10YR7/2) sandy fill with charcoal flecks; lacks the density of rock associated with Layer 2, high in shell content (cowry, isognomon, pipipi, conus, and urchin).
27-35cm	Feature 2	Pit feature in NW corner; dark charcoal staining but few charcoal flecks; possible firepit.
30-60cm	Layer 3	Dark brown (10YR3/3) sandy loam; loose to small crumb with coralline sand; rocks not as dense or tightly packed as in Layer 2; small amount of shell (cowry, isognomon, pipipi, conus and urchin); land snails; adze flakes; absence of historic materials; wavy boundary.
60-75+cm	Feature 3	Pit feature at contact of Layers 3 and 4; fill of light gray (10YR7/2) sandy loam with charcoal flecking; shell (isognomon and urchin); 2 boulders in the feature at 60cm; excavation of the feature was not completed because of the extensive boulder fill in the unit.
60-65cm	Layer 4	Dark reddish brown (5YR3/3) silty loam; high density of subangular basalt cobbles; no cultural materials.
65cm		Base of excavation: extensive boulder fill prevented further excavation.

* Layers tend to slope down to the south and therefore, contact of layers recorded at lower elevation in southern half of unit.

The location for TP10 was selected to determine the impact of the historic housesite on the earlier cultural deposits and the extent of the remains association with this historic occupation. The excavation indicated the presence of an earlier deposit (Layer 3) that is probably associated with the cultural deposits associated in test pits 3 through 9. As expected, there is a historic deposit associated with the housesite.

Test Pit 11 (TP11)

TP11 was located approximately 5 m west of the pumphouse and atop the rock-paved platform that underlies the pumphouse. This test unit was placed to evaluate the age and function of the platform since Kekahuna and Kelsey indicate that this platform was the housesite of Keolonahihi. The surface of the platform is paved with rounded basalt and coral pebbles and is generally level with a cover of guinea grass, rouge plant, and haole koa.

The stratigraphic profile was as follows: (depth below datum at surface in NE corner)

0-4 cm	O horizon	Organic, decomposing plant material with historic materials (glass and ceramic fragments) and shell.
4-20 cm	Layer 1	Very dark grayish brown (10YR 3/2) silty loam; crumb and single grain; slightly sticky and slightly plastic; very rocky with angular to rounded basalt and coral pebbles and cobbles; land snails abundant; midden includes shell, urchin spines, fish and mammal bone; basalt and volcanic glass flakes; historic materials (ceramic and glass fragments, forged nails, shell and plastic buttons); charcoal chunks; wavy boundary.
20-30cm	Layer 2	Dark gray (10YR 4/1) sandy loam; crumb and single grain; nonsticky and nonplastic; rocky with angular basalt cobbles and boulders; shell and urchin spines; volcanic glass; charcoal chunks; wavy boundary.
30-48 cm	Layer 3	Dark reddish brown (5YR 3/3, moist) silty loam; crumb and single grain, slightly sticky and slightly plastic; very rocky with angular basalt pebbles and cobbles; no cultural materials.
48cm	Base of excavation: Bedrock.	

The stratigraphic sequence of TP11 was very similar to TP10. In both units there is a historic deposit, associated with the nearby historic housesite, overlying an earlier deposit that lack the historic materials. TP11 suggests that the platform under the pumphouse is a historic construction. The intact paving of basalt and coral pebbles on the surface of the platform does not support the idea that the platform was an earlier structure that was disturbed by the historic construction of the pumphouse. The types of historic materials found in Layer 1 are consistent with a family housesite. These materials include dishes (ceramic and earthenware), bottles, clothing (buttons), and building materials (nails).

Test Pit 12 (TP12)

TP12 was placed adjacent to the eroding bank of site 12 at the southeastern portion of Holualoa Bay. The unit is contiguous with the rock platform that supported the historic housesite. The east face of the unit corresponds to the western edge of the platform as defined by a boulder alignment. The unit was excavated to record the stratigraphic profile of site 12 as the bank is actively eroding and information about

the site is being lost. In addition, it was anticipated that the unit would provide additional information about the historic occupation of this portion of the complex.

The stratigraphic profile was as follows: (depth below datum at surface in NE corner)

0-3cm	O horizon	Grass cover on surface with scatter of shell, coral, and rounded basalt pebbles.
3-10cm	Layer 1	Very dark gray (10YR3/1) sandy silt; dry, powdery, and loose with medium grain coralline sand; slightly sticky and slightly plastic; dense waterworn basalt pebbles (<i>'ili'ili</i> paving?); charcoal staining and flecking; recent historic materials (coins, beer bottle glass, plastic, ceramics); few shell fragments (<i>pipipi</i> and cowry), fish bone, and coral; land snails and <i>kukui</i> nut fragments; fine roots; wavy boundary.
10-40cm	Layer 2	Dark grayish brown (10YR4/2) silty sand; dry, loose, single grain with mostly medium grain coralline sand; high density of waterworn basalt gravel along west wall at 30-40cm; nonsticky and nonplastic; some coral and waterworn shell; shell increases with depth (high in planaxis with cowry, <i>isognomon</i> , <i>brachidontes</i> , and urchin); charcoal staining and flecking; historic glass fragments; volcanic glass and reworked adze (36cm B.D.); large roots; wavy boundary.
40-70cm	Layer 3	Very dark grayish brown (10YR3/2) silty sand with medium grain coralline sand; loose to crumb structure; slightly sticky and slightly plastic; dense charcoal flecking; basalt boulders and cobbles getting larger and denser with depth; waterworn coral and cowry lips; other shell is not waterworn (mostly <i>isognomon</i> and urchin with some planaxis, <i>brachidontes</i> , <i>pipipi</i> , and conus); mammal bone and teeth; fish bone and scales; wavy boundary.
70-80cm	Layer 4	Light yellowish brown (10YR6/4) medium grain coralline sand with some basalt grains; loose and moist to dry; nonsticky and nonplastic; scattered coral; shell (high in urchin); few basalt cobbles and pebbles; fish bone.
80cm	Base of excavation due to extensive boulder fill.	

The sequence of an upper historic deposit overlying and earlier deposit that lacked the historic materials was again encountered in TP12. However, the density of boulders encountered in the 1m by 1m area at 80cm prevented excavation to a culturally sterile deposit. Therefore, additional excavation in a larger unit is recommended. In addition to the reworked adze located in Layer 2, several other adze fragments have been located in the eroding face. These remains, plus the midden content, suggest a high research potential for site 12.

Summary of Stratigraphy

The stratigraphic sequences recorded in the 12 test units in the northern portion of Keolonahihi reflect both natural deposition and cultural occupation of the area. The units located closest to the shoreline (TP3, TP7, TP8, and TP12) have a high

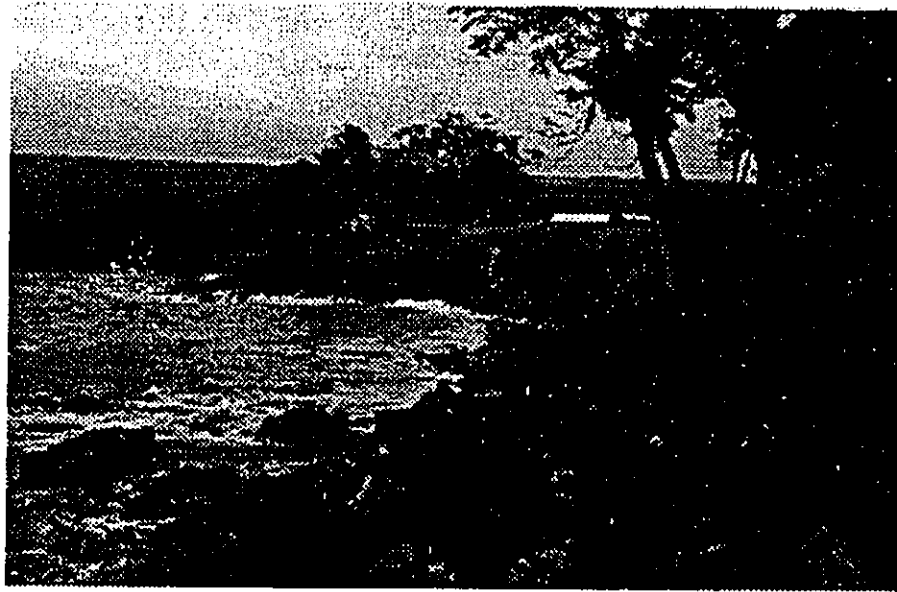


PHOTO VII
Test Pit 12 location along bank fronting Holualoa Bay. View to the east.

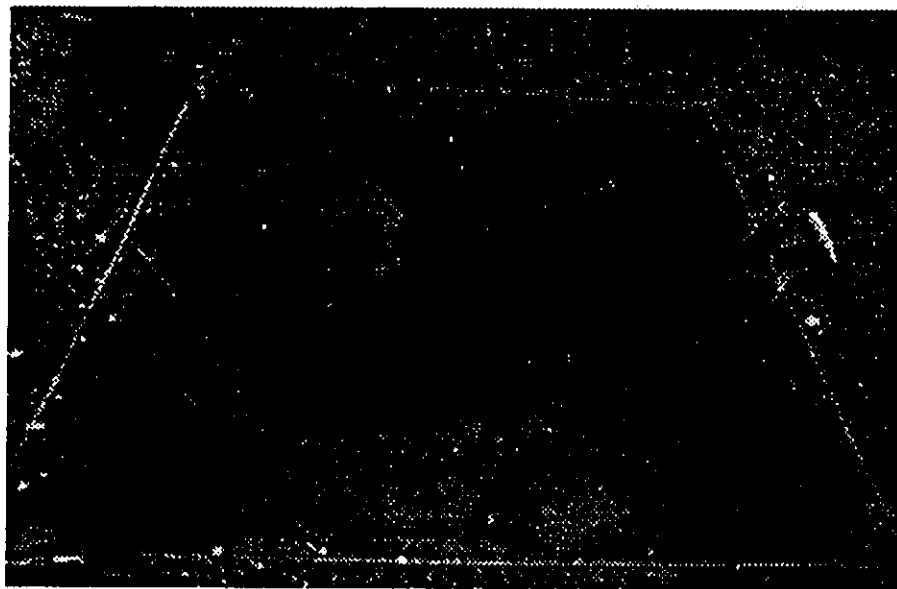


PHOTO VIII
Excavation of Test Pit 12 at 60cm below datum (Layer 3).
View to the South. Excavation conducted December, 1989.

content of medium grain coralline sand intermixed with alluvial silts. The units located slightly inland (TP4, TP5, TP6, TP9, TP10, and TP11) have a lower sand content but there is still an intermixing of the sands and silts to create sandy to silty loams. These units also tend to be rocky with varying densities of subangular basalt cobbles and boulders. The two inland units (TP1 and TP2) lack the sand content and tend to be very rocky, shallow soil deposits atop the *pahoehoe* bedrock. A correlation of the stratigraphic sequences within the test pits is shown in Fig. 10. Based on this correlation, 4 components or phases of occupation have been identified.

Component I

A historic cultural deposit was located in those test pits placed in proximity to the historic housesite built in the northeastern corner of Keolonahihi (TP3, TP10, TP11, and TP12). This historic deposit is characterized by historic materials associated with the occupation of the housesite circa the late 1800s. These materials include bottle glass, metal nails and buttons, ceramic fragments, earthenware fragments, and shell buttons. The more recent historic materials, circa 1960s-1990s, are limited to the area of TP12 and are associated with the current use of the shoreline by surfers.

Component II

A 'late prehistoric' cultural deposit was recorded in many of the test units. This deposit is believed to be prehistoric based on the lack of historic materials and the radiocarbon dates received from firepit features in TP3 and TP7. This cultural component is marked by firepit and pit features, midden consisting of shell, fish bone, and mammal bone, and traditional Hawaiian artifact forms.

Component III

A second 'prehistoric' cultural deposit underlies the 'late prehistoric' cultural deposit in many of the test pits (TP3, TP6, TP7, and TP8). This occupation is marked midden consisting of pig bone, fish bone, bird bone, and shell (urchin). Hawaiian artifacts are limited in number and kind.

This cultural component corresponds to the brown sand layer that underlies the Component II loam layer in 4 of the test pits. The distribution of the Component III layer is scattered across the northern portion and the site and the appearance of the layer is not consistent. For example, the layer is found in TP3 but not in the other 3 test pits that are located in the NE portion of the site. Where the Component III layer is present, it underlies the Component II deposit.

Component IV

The lowermost cultural deposit from the test units excavated to-date is not as well-defined and appears to be inconsistent in the test pits excavated. The yellow sand

KEOLONAHIHI STRATIGRAPHIC CORRELATIONS

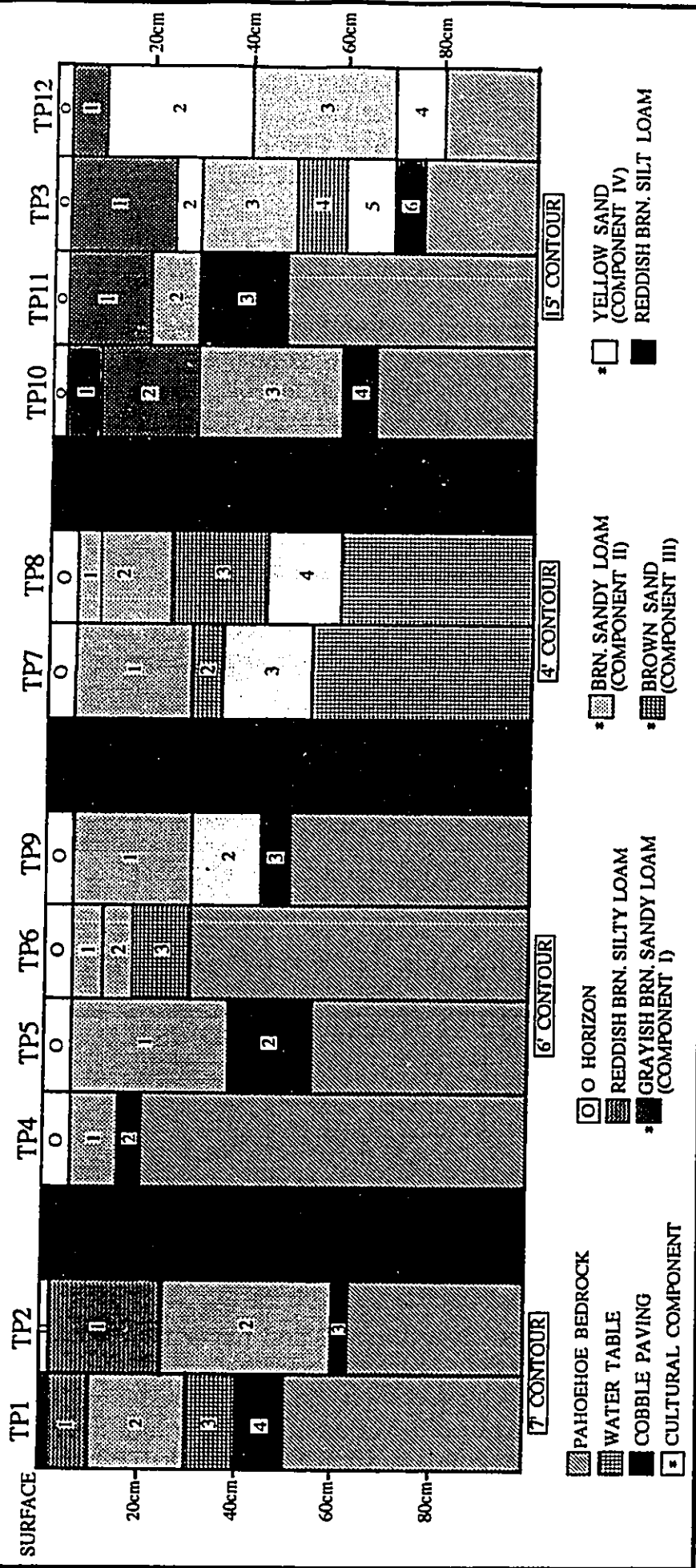


FIG. 10 - Correlation of cultural deposits from the 12 test units at Keolonahihi.

deposit lacks the charcoal staining that marks the other cultural deposits. However, the presence of small amounts of shell midden and artifacts indicates a cultural occupation. This cultural deposit is situated atop *pahoehoe* bedrock or a sterile clay loam suggesting the earliest occupation of the site that remains intact stratigraphically.

ANALYSES OF ARCHAEOLOGICAL MATERIALS

The analyses conducted on the excavated materials recovered from Keolonahihi include feature analysis, midden analysis, artifact analysis, and radiocarbon dating. The findings from the analyses based on the archaeological materials recovered from the limited scope of the excavations conducted to-date indicate trends and cultural patterns that should be tested with future excavations. Both the excavations and analyses have proven valuable for indicating the research potential of Keolonahihi.

Radiocarbon Dating

Three charcoal samples were submitted to Beta Analytic, Inc. for radiocarbon dating and carbon 13 analyses. The 3 samples were taken from deposits believed to be 'prehistoric' in age based on the artifact content.

Sample #1 - TP3, Layer 3, Feature 6 (firepit with charcoal concentration)

Sample #2 - TP5, Layer 1, Feature 1 (firepit with charcoal concentration)

Sample #3 - TP7, Layer 1, Feature 1 (pit feature with charcoal flecks)

TABLE 3
RADIOCARBON DATES FOR KEOLONAHIHI

SAMPLE	RADIOCARBON DATE	C13/C12	ADJUSTED AGE	CALENDAR AGE
#1	180 ± 50 BP	-23.4 0/00	210 ± 50 BP	1690 - 1790
#2	100.5 ± 0.8 (modern)	-29.6 0/00	101.5 ± 0.8 (modern)	(modern)
#3	250 ± 60 BP	-25.3 0/00	250 ± 60 BP	1640 - 1760

Stratigraphically, it appears that Layer 3 in TP3 and Layer 1 in TP7 are the same and the radiocarbon dates from these 2 layers support their contemporaneity. The cultural occupation represented by this sandy to silty loam deposit is late prehistoric in age based on both the stratigraphic position of the layer and the radiocarbon dates. This occupational deposit corresponds to Component II. In TP3, this 'late

prehistoric' cultural layer is overlain a 'historic' occupation layer. In both TP3 and TP7 the 'late prehistoric' cultural layer is underlain by the brown sand cultural deposit indicating a cultural occupation that is earlier and would appear to predate A.D. 1700.

Sample #2 is stratigraphically from the same 'late prehistoric' cultural occupation. However, the sample showed an activity that was statistically indistinguishable from that of the modern standard (Tamers, 1989).

Artifact Analysis

The correlation of the stratigraphic layers into 4 cultural components is the basis for analyzing the distribution of artifacts recovered from the test pits at Keolonahihi.

Component I - Historic occupation, circa late 1800s
- TP3, Layer 1 / TP 10, Layers 1 & 2 / TP11, Layer 1 / TP12, Layers 1 & 2
- Marked by Euro-American items: metal, glass, ceramics

Component II - Late Prehistoric occupation, circa A.D. 1690 - 1790
- TP1, Layer 2
- TP2, Layer 2
- TP3, Layers 2 & 3
- TP4, Layer 1
- TP5, Layer 1
- TP6, Layers 1 & 2
- TP7, Layer 1
- TP8, Layers 1 & 2
- TP9, Layer 1
- TP10, Layer 3
- TP11, Layer 2
- TP12, Layer 3
- Marked by traditional Hawaiian artifacts: fishhooks, abraders, flakes

Component III - Prehistoric occupation, circa pre-1700
- TP3, Layer 4
- TP6, Layer 3
- TP7, Layer 2
- TP8, Layer 3
- Marked by traditional Hawaiian artifacts: fishhooks, flakes

Component IV - Prehistoric occupation, circa pre-1700
- TP3, Layer 5
- TP8, Layer 4
- TP12, Layer 4
- Marked by traditional Hawaiian artifacts: abraders, flakes, perforated bone

The distribution of artifact types by test pit is detailed in Appendix A. Table 4 summarizes the distribution of artifacts by component.

Surface Collection

Site 12 is an eroding cultural deposit from the steep bank face along the southeastern side of Holualoa Bay (refer to Fig. 3). During various fieldchecks of the complex, artifacts were collected in the area of site 12. The excavation of TP12 near this

TABLE 4
ARTIFACT INVENTORY BY COMPONENT

ARTIFACT TYPE	SURFACE	COMPONENT I	COMPONENT II	COMPONENT III	COMPONENT IV
FISHING GEAR					
Bone Fishhook					
1-piece fishhook				1	
cut bone				1	
Pearlshell Fishhook					
1-piece fishhook			1		
2-piece fishhook					
cut pearlshell			2		
TOOLS					
Abraders					
coral	1		1		
urchin		1	4		1
basalt			3		
Files - coral		2	2		
Cutting/scraping tools					
basalt flakes	3	1	12	1	
volcanic glass flakes	3	45	334	46	2
shell scraper				1	
Adze					
fragment			1		
reworked adze	2		1	1	
flakes		1	12	4	1
Hematite		1			
DOMESTIC IMPLEMENTS					
Awls/picks					
Shell gourd stopper				1	
ORNAMENTALS					
Perforated bone					1
Perforated tusk					1
EURO-AMERICAN ITEMS					
Ceramic/Earthenware	2	170	1*		
Glass		54	1*		
Metal					
fragments		10		1*	
button		2			
coins		2			
Plastic		1			
Shell buttons		2			
Slate		1			
TOTAL ARTIFACT COUNT	11	293	375	57	6

* Probably intrusive from the upper historic layer.

eroding bank, indicated 3 cultural layers in the deposit. Therefore, it could not be determined which cultural layer was the context for the recovered artifacts and they have been recorded as a surface collection.

Component I

The historic component of the site is the upper cultural deposit in the 4 test pits located in the vicinity of the historic housesite (Site 14). The deposit is a grayish brown sandy loam marked by a large amount of Euro-American artifacts and a small amount of traditional Hawaiian artifact forms. The Euro-American artifacts constitute 83% of the assemblage for this historic component. There is a predominance of ceramic fragments (58% of the component assemblage) with lesser amounts of glass (18%), metal fragments (3%), metal coins, metal and shell buttons, plastic, and slate (PHOTO III and IV). The traditional Hawaiian artifact forms are dominated by flakes of volcanic glass (15% of the component assemblage) with small amounts of adze flakes, basalt flakes, coral files, and urchin abraders.

The artifact assemblage of Component I indicates a shift to Western goods and materials by the late 1800s. Although a Hawaiian family lived in the house during this time, the style of the house based on the photograph and the artifacts support this shift to the Western economy and lifestyle. They used ceramic plates and bowls, glass bottles, and Western clothing as suggested by the buttons.

Component II

Based on the radiocarbon dates, this component corresponds to the late prehistoric occupation of the site, circa the late 1600s to late 1700s. Stratigraphically, this component is identified as the brown sandy to silty loam deposit found in all 12 of the test pits excavated. In the 4 test pits where historic Component I is present, this late prehistoric deposit directly underlies the historic one. In the case of TP3 and TP12, the two cultural deposits are separated by a sand deposit.

The artifact assemblage supports this late prehistoric timeframe. The 2 historic artifacts are found near the top of the late prehistoric deposit and may be intrusive from the overlying historic deposit. Otherwise, Component II is marked by traditional Hawaiian artifact forms. The assemblage is dominated by flakes of volcanic glass (89% of the Component II assemblage) with basalt flakes (3%), adze flakes (3%), urchin abraders (1%), basalt abraders (1%), and lesser amounts pearlshell fishhooks, coral abraders and files, and reworked adzes and adze fragments (PHOTO V through X).

Component III

Component III is also marked by traditional Hawaiian artifact forms. Like Component II, the assemblage is dominated by flakes of volcanic glass (81% of the Component III assemblage) with adze flakes (7%), basalt flakes (2%), and a reworked

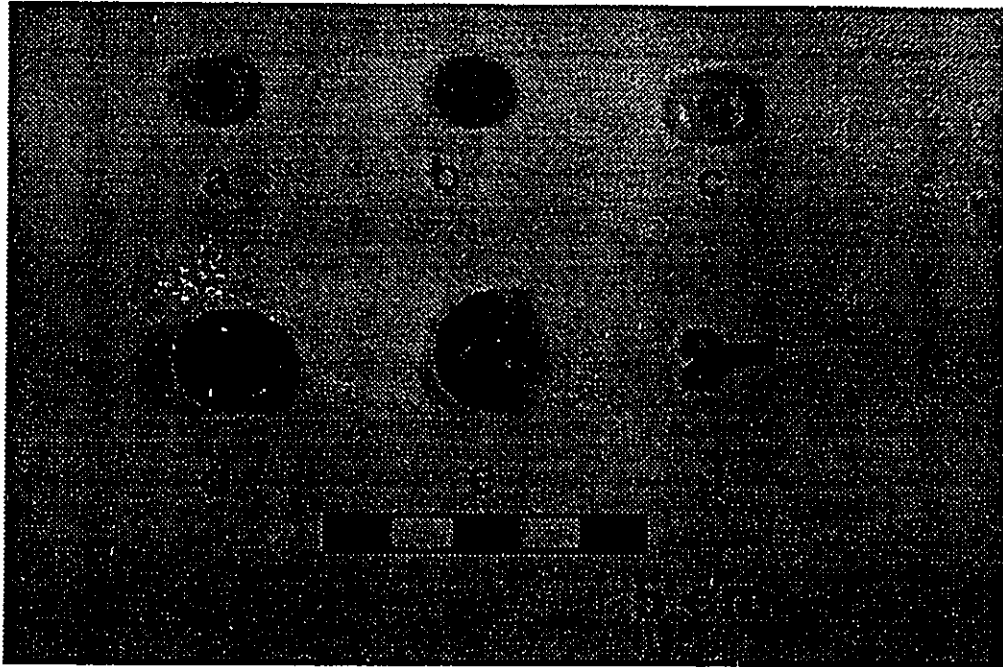


PHOTO IX
Component I Artifacts: Clothing Items.
a-b, Shell buttons; c, Plastic button; d-e, Metal buttons; f, Metal hook.

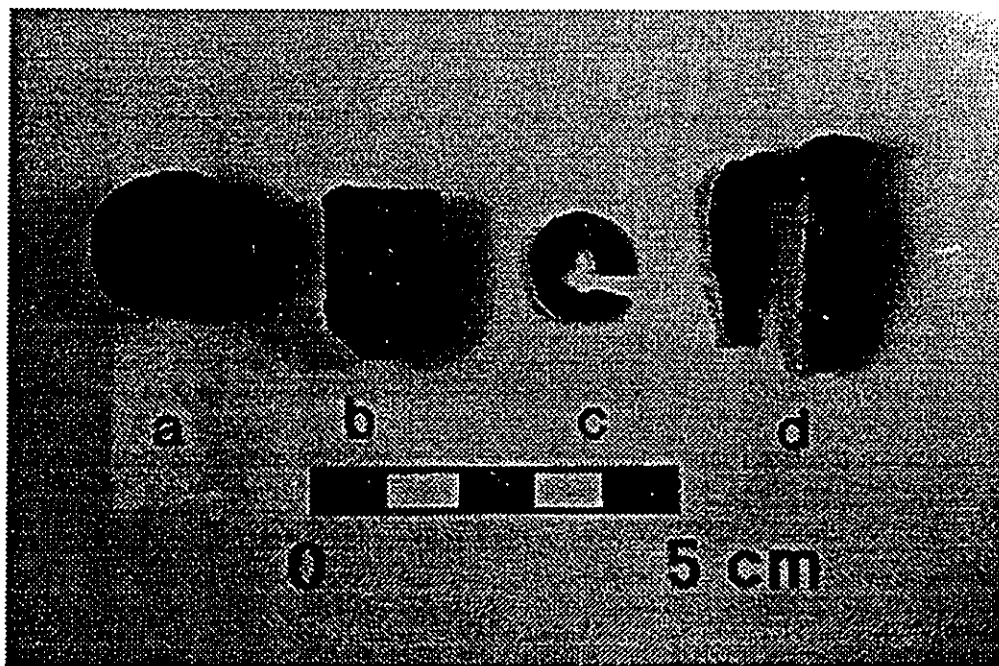


PHOTO X
Component I Artifacts: Metal Items.
a, Metal ball; b, Metal slug; c, Metal washer; d, Metal nails.

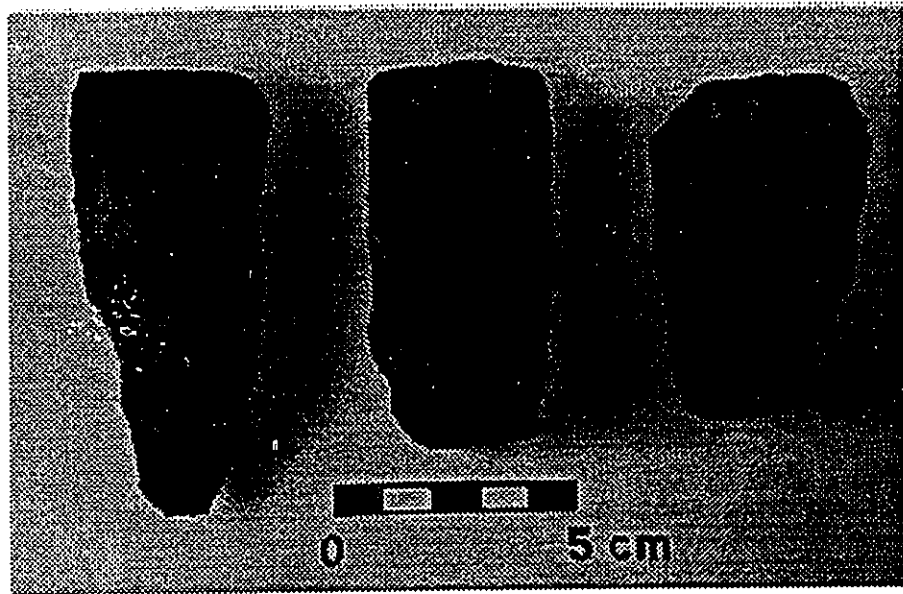


PHOTO XI
Component II Artifacts: Basalt Adzes.

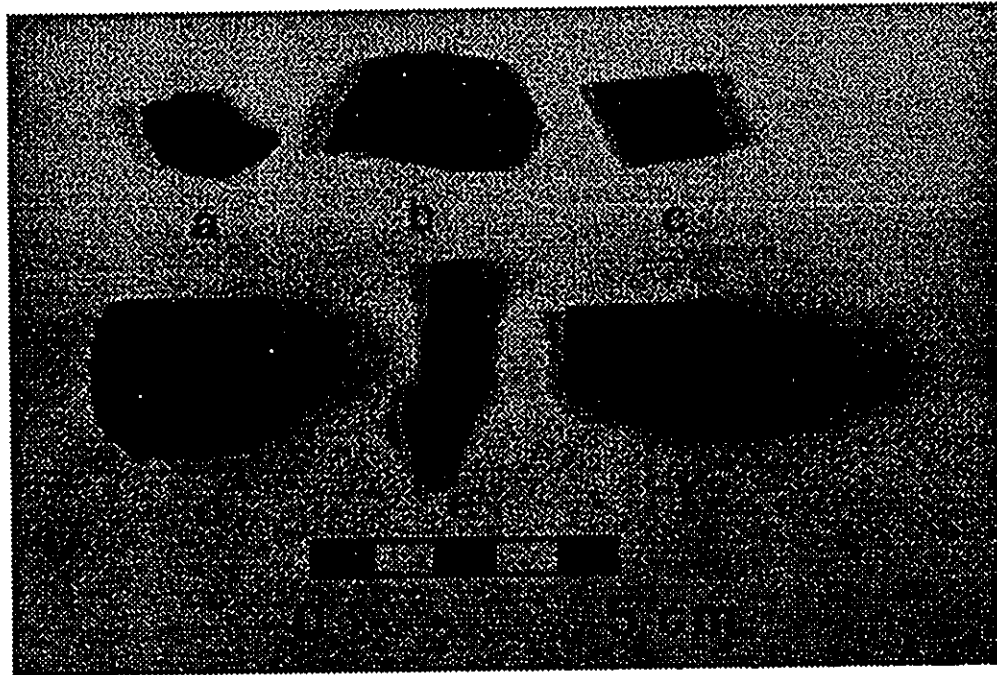


PHOTO XII
Component II Artifacts: Cutting Tools.
a, Volcanic glass flake; b, Basalt flake; c, Adze flake;
d, Volcanic glass core; e, Basalt blade; f, Basalt flake.

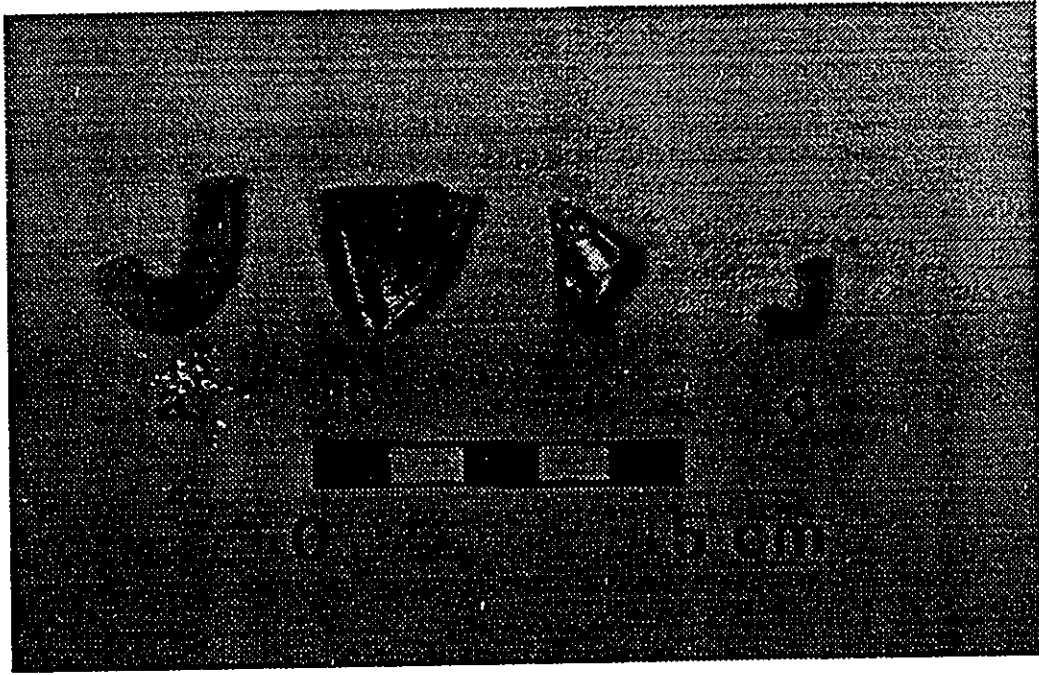


PHOTO XIII
Component II Artifacts: Fishing Implements.
a, One-piece pearlshell hook; b-c, Cut pearlshell; d, One-piece bone hook.

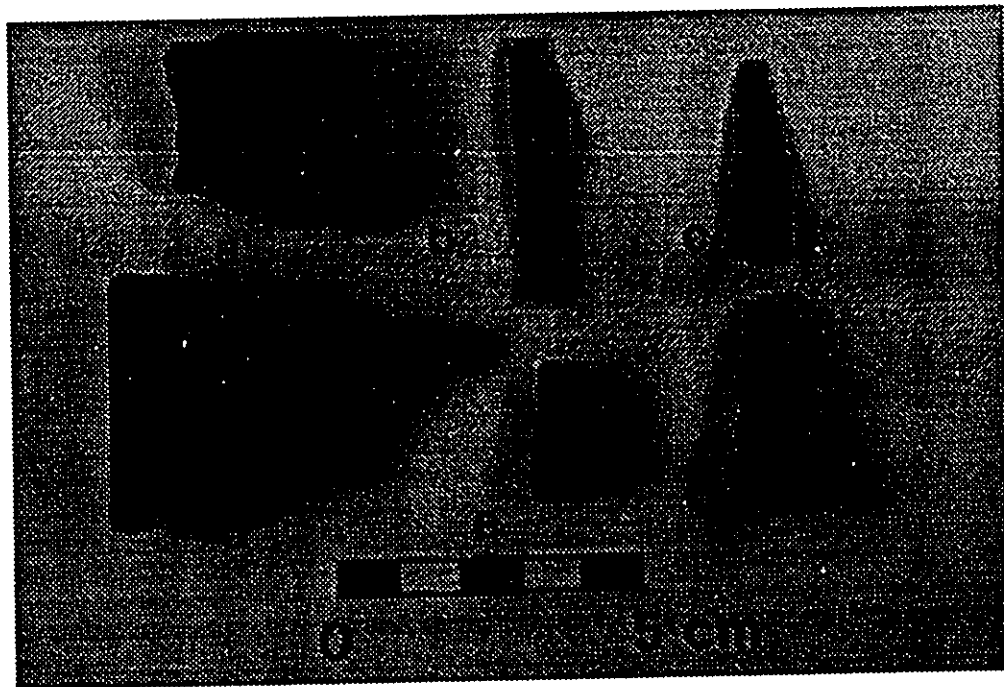


PHOTO XIV
Component II Artifacts: Abrading Tools.
a, Basalt abrader, b-c, echinoid spine abrader; d, Basalt abrader; e-f, Basalt files.

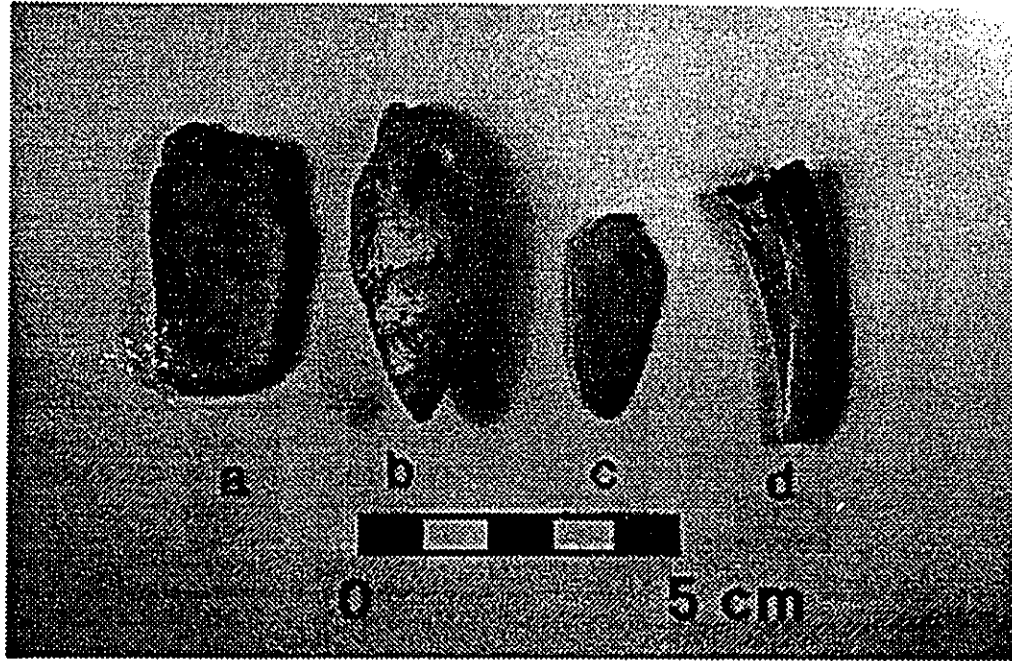


PHOTO XV
Component II Artifacts: Ornaments and Domestic Implements.
a, Shell scraper; b, Gourd stopper; c, Perforated bone; d, Perforated pig tusk.

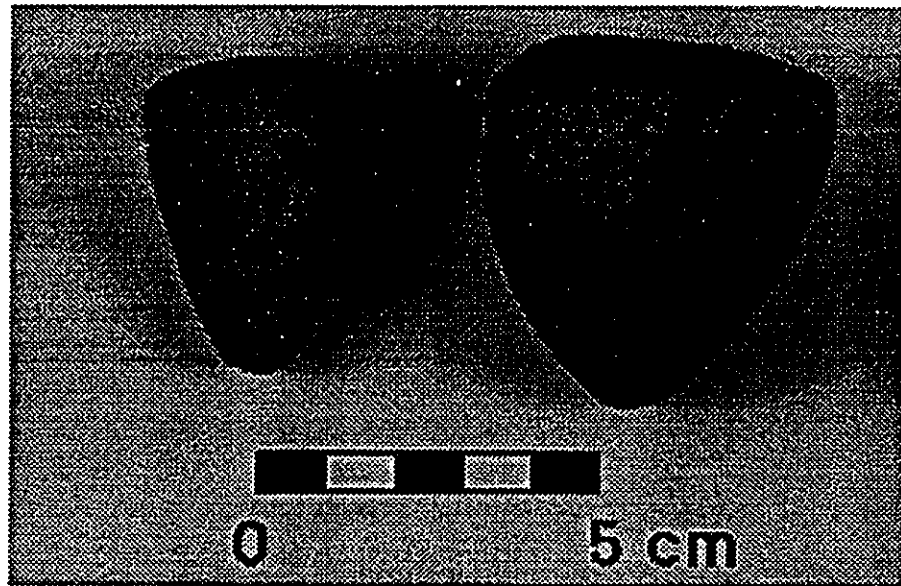


PHOTO XVI
Component II Artifacts: Coral Tops.

adze (2%). The only bone fishhook recovered during these excavations came from this component (TP12). Also recovered from this component were a shell scraper and shell gourd stopper.

Since there are no radiocarbon dates from Component III, it is difficult to determine if Component III and Component II represent separate occupations or a continuity in occupation. The artifacts suggest a continuity in the artifact types between these 2 components.

Component IV

This component is identified by the presence of shell midden and a small number of artifacts in the yellow sand deposit. Component IV underlies the Component III layer where it is present (TP9 and TP12). Otherwise, Component IV underlies the Component II layer (TP3, TP7, and TP8). The presence of midden and artifacts is not consistent in the yellow sand deposit across the site. All of the Component IV artifacts were recovered from TP8 located adjacent to the pond in the northwestern corner of the site.

The artifact assemblage associated with Component IV is very limited in number and kind. The 2 volcanic glass flakes constitute 33% of the Component IV assemblage while the other artifacts are 1 urchin abrader, 1 adze flake, 1 perforated bone, and 1 perforated pig tusk.

Summary

The prehistoric to historic occupation sequence at Keolonahihi is reflected in the artifact assemblages associated with the 4 components. The traditional Hawaiian artifact assemblage in Components II, III, and IV relates to the prehistoric occupation of the site. Additional research is recommended to determine if these 3 occupations reflect a continuity of occupation or separate, distinct phases of occupation. The lack of sterile stratigraphic deposits between the cultural layers would suggest a continuity in occupation. The sand deposit between the Components I and II layers in 2 test pits suggests a break in occupation between the late prehistoric and historic periods. This sand deposit in TP3 and TP12 appears to be a natural deposition and reflects the proximity of these units to the shoreline.

Midden Analysis

The midden at Keolonahihi is predominantly shell but also includes fish bone, mammal bone, and bird bone. Because Keolonahihi is located along the Kona shoreline, a high utilization of the marine resources would be predicted. The marine resources available along the shoreline of Holualoa Bay are outlined in Table 5. Most of these resources are found along the rocky basalt shoreline, tidal pools within the *pahoehoe* outcropping, the reef, and the shallow, inshore waters.

TABLE 5
MARINE RESOURCES LIST FOR KEOLONAHIHI

CLASS	GENUS/SPECIES	COMMON/HAWN	HABITAT
GASTROPODA			
Conidae	Conus	cone	reef
Cypraeidae	Cypraea caputserpentis	cowry (small)	shallow rocky areas, benches and reefs
	Cypraea mauritiana	cowry (large); leho	shallow rocky areas, benches and reefs
Hipponicidae	Hipponix spp.	hoof	shallow water, fringing reef
Littorinidae	Littorina pintado	periwinkle; akolea	rocky shorelines; supratidal
Melampidae	Melampus castaneus		supraspray zone under rocks
Neritidae	Nerita picea	pipipi	rocky substrates, splash; to high water
	Nerita polita	kupe e	sandy areas among boulders at high-tide line
	Theodoxus cariosus		brackish pools along shoreline
Patellidae	Cellana exerata	opihi	basalt shorelines; surge zone
Planaxidae	Planaxis labiosa	cluster winks	rocky shorelines; brackish water
Strombidae	Strombus maculatus	spotted stromb	intertidal solution benches
Thaididae	Drupa ricina	spotted drupe	intertidal, rocky areas
	Morula granulata	makaloa	intertidal zone
	Neothais harpa		high splash zone
Trochidae	Trochus intextus	Hawaiian top	shallow sandy areas amongst rocks
Terebridae	Terebra spp.	auger	shallow, sandy areas
BIVALVIA			
Isognomonidae	Isognomon incisum	pearl shells	rocky areas in tidal pools and on reefs
Mytilidae	Brachidontes crebisiatus	striate mussel	shoreline reefs; brackish water
Veneridae	Periglypta reticulata		shallow water
Tellinidae	Tellina palatam		silty sand; inshore on fringing reef
ECHINODERMATA			
	Colobocentrotus atrata	helmet urchin; ha'uke'uke	reefs and rocky areas; shallow or deep water
	Echinometra mathaei	'ina'kea	reefs and holes within shallow water
	Echinothrix diadema	wana	reef and deeper water
	Heterocentrotus mammillatus	pencil urchin	reef and deeper water
FISH			
Scaridae	Scarus	parrotfish	reef and inshore waters
	Calotomus	parrotfish	reef and inshore waters
Labridae		wrasses	reef and inshore waters

From the 12 test pits excavated, TP3 located in the northeastern corner of the site appears to be the most "complete" in that all 4 of the cultural components are represented. Using TP3 as a representative sample of the general trends in the midden, Table 6 shows the distribution of the major midden elements by layer while Table 7 shows the distribution of midden from TP3 by component. These trends in midden are reflective of changes in subsistence patterns and utilization of the environment over time. Table 8 summarizes the midden distribution by component based on data from all 12 of the test pits. In comparison, TP3 is a fairly accurate representation of the overall midden pattern but with several discrepancies. For example, *Conus* appears to be under-represented in Components I and II of TP3 while urchins (Echinoderms) and isognomon are over-represented in Components I, II and III.

The midden distribution by individual test pit is detailed in Appendix B. The detailed midden distribution by components is found in Appendix C.

General Midden Assemblage

The midden assemblage in all 4 components is dominated by molluscs and echinoderms, the major marine resources. However, the ratio of these 2 resources varies with time. The mollusc category of all 4 components is dominated by *Cypraea* (cowry) with fair amounts of *conus*, isognomon, *nerita* (*pipipi*), *planaxis*, *drupa*, and *tellina*. The other mollusc species constitute much smaller quantities.

The Echinoderms (urchins) are proportionately the second largest element in the midden assemblage. Many of the remains are body parts that are not easily identifiable as to species. However, the spines were sorted into the 4 major species shown in Table 6. The *Heterocentrotus mammilatus* (pencil urchins) have much larger spines than the other species and therefore, the predominance of the pencil urchins is in part, a reflection of their greater weight per individual.

Fish bone is the other major marine resource. However, fish is poorly represented in all the components of Keolonahihi. Fish bone only averages 1% of the midden total by weight in all 4 of the components. The presence of *Calotomus* (parrotfish), *Scarus* (parrotfish), *Labridae* (wrasse), and shark were confirmed by the jaw pieces and teeth. Crustacea, as represented by crab shell fragments, is scarce to absent throughout the sequence at Keolonahihi.

Mammal remains include pig, dog, and horse/cow. Although located in the upper portion of the Component II deposit, the one horse/cow tooth is believed to be associated with the historic occupation of the site when ranching activities were ongoing. Both pig and dog bones and teeth are found throughout the sequence. The high quantity of pig bone in Component III is related to the pig burial feature in TP8. Bird bone is scarce and only appears in the "prehistoric" components.

TABLE 6
DISTRIBUTION OF MIDDEN IN TP3 BY LAYER

MIDDEN TYPE	LAYER	1		2		3		4		5	
	WT.*	%	WT.	%	WT.	%	WT.	%	WT.	%	
Brachidontes	4.5	1.0%	4.5	4.4%	25.0	1.7%	4.0	1.7%	6.5	1.2%	
Conus	20.2	4.2%	0	0	23.5	1.6%	1.3	0.5%	1.0	0.2%	
Cypraea	242.2	50.8%	34.5	33.5%	391.0	27.4%	58.3	25.0%	70.0	13.2%	
Isognomon	33.8	7.1%	24.6	24.0%	230.9	16.2%	30.0	12.9%	26.0	5.0%	
Nerita	22.3	4.7%	1.6	1.5%	10.8	0.8%	2.5	1.0%	2.5	0.5%	
Planaxis	71.8	15.1%	4.0	3.8%	17.2	1.2%	2.1	1.0%	0	0	
Echinodermata	72.8	15.3%	28.1	27.4%	705.2	49.4%	133.9	57.2%	411.7	77.7%	
Fish Bone	2.6	0.5%	1.7	1.6%	15.3	1.2%	1.5	0.5%	8.5	1.6%	
Mammal	6.3	1.3%	4.0	3.8%	6.9	0.5%	0.6	0.2%	3.5	0.6%	
TOTAL	476.5	100%	103.0	100%	1425.8	100%	234.2	100%	529.7	100%	

* Weight in grams.

TABLE 7
DISTRIBUTION OF MIDDEN IN TP3 BY COMPONENT

COMPONENT	LAYER	HIGH (>30%)	MEDIUM (5-30%)	LOW (1-5%)	SCARCE (<1%)
I	1	Cypraea (50%)	Planaxis (15%) Urchin (15%) Isognomon (7%)	Conus (4%) Nerita (4%) Brachidontes (1%) Mammal (1%)	Fish (0.5%)
	2	Cypraea (33%)	Urchin (27%) Isognomon (23%)	Brachidontes (4%) Planaxis (4%) Mammal (4%) Nerita (1%) Fish (1%)	
II	3	Urchin (49%)	Cypraea (27%) Isognomon (16%)	Brachidontes (1%) Conus (1%) Nerita (1%) Planaxis (1%) Fish (1%) Mammal (1%)	
III	4	Urchin (57%)	Cypraea (25%) Isognomon (13%)	Brachidontes (2%) Nerita (1%) Planaxis (1%)	Conus (0.5%) Fish (0.5%) Mammal (0.2%)
IV	5	Urchin (78%)	Cypraea (13%) Isognomon (5%)	Fish (2%) Brachidontes (1%)	Conus (0.2%) Nerita (0.5%) Mammal (0.5%)

* Percentages are based on the midden weight total for the layer.

Component I

This historic period component is marked by a high percentage of molluscs (88%). Within the mollusc category, the dominant species is *Cypraea* (cowry) at +50% of the midden total with fair amounts of conus, planaxis, nerita, urchin, and isognomon. The other molluscs, mammal and fish comprise a small portion of the midden total. The urchin category (~10%) is represented by remains from the 4 major species: *Colobocentrotus*, *Echinometra*, *Echinothrix*, and *Heterocentrotus*. However, the pencil urchins (*Heterocentrotus mammilatus*) make up the greatest portion by weight.

Component II

The major portion of the midden recovered from the testing at Keolonahihi came from the cultural layers representing this component. The large quantity of midden is a reflection of the presence of this component in many of the test units and the fact that this component appears to represent the most intensive or long-term occupation of the site. This late prehistoric component is also marked by a high percentage of molluscs (75%). Within the mollusc category, *Cypraea* (cowry) is dominant (50%). *Isognomon* comprises a larger percentage of the mollusc category (11%) than in the later Component I (5%) or the earlier Component III (~7%). Fair amounts of conus and nerita are found in this component. Urchins comprise 20% of the midden by weight in Component II which is about double the relative amount in Component I but less than the ~30% in the earlier Component III. The dominant urchin species is *Heterocentrotus mammilatus*. The species *Echinometra mathaei* is dominant in TP3 but not the component overall.

Component III

In this component, the molluscs only comprise 50% of the midden total by weight. *Cypraea* (cowry) is the dominant mollusc constituting 35% of the midden total with fair amounts of conus and isognomon. The lower ratio of molluscs is offset by the high ratio (~30%) of urchins in Component III. Again, *Heterocentrotus mammilatus* is the dominant urchin species. The greatest quantity of mammal bone is found in Component III where it comprises ~20% of the midden total by weight. Most of the bone is pig from TP8.

Component IV

This component is only represented in 3 of the test units and therefore, the quantity of midden is the lowest for all the components present at Keolonahihi. This component is dominated by the Echinoderms which comprise over 70% of the midden total by weight. And as in the other components, *Heterocentrotus mammilatus* is dominant. The molluscs only comprise 25% of the midden total by weight but *Cypraea* remains dominant with a fair amount of isognomon. The bone, both fish and mammal, is poorly represented.

TABLE 8
MIDDEN DISTRIBUTION BY COMPONENT: ALL TEST PITS

	COMPONENT I		COMPONENT II		COMPONENT III		COMPONENT IV	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA								
<i>Cellana exarata</i>	27.50	1.70%	14.50	0.30%	1.60	0.15%	0.20	0.05%
<i>Conus</i>	198.30	12.20%	313.00	5.70%	33.00	3.10%	5.00	0.80%
<i>Cymatium</i>	2.90	0.15%						
<i>Cypraea</i>	867.10	53.60%	2708.00	49.80%	373.00	34.70%	92.10	15.60%
<i>Drupa ricina</i>	38.40	2.40%	98.70	1.80%	13.10	1.20%		
<i>Hipponicidae</i>	3.70	0.20%	7.40	0.10%	0.50	0.05%	1.30	0.20%
<i>Littorina</i>	0.40	0.05%						
<i>Morula</i>	6.90	0.40%	14.60	0.30%	5.10	0.50%	2.50	0.40%
<i>Melampus</i>	1.70	0.10%	12.40	0.20%	0.40	0.05%	1.20	0.20%
<i>Nerita picea</i>	58.20	3.60%	117.20	2.10%	5.60	0.50%	0.80	0.15%
<i>Nerita polita</i>	6.00	0.40%	31.90	0.60%	6.60	0.60%	3.10	0.50%
<i>Planaxis</i>	93.10	5.70%	29.90	0.50%	2.10	0.20%	0.40	0.05%
<i>Strombus maculatus</i>	4.90	0.30%	9.40	0.20%	3.90	0.40%		
<i>Terebra</i>	3.10	0.20%	14.60	0.30%	1.20	0.10%		
<i>Thais</i>	2.40	0.15%	4.60	0.10%	2.10	0.20%		
<i>Theodoxus cariosa</i>			1.90	0.05%				
<i>Trochus intextus</i>	2.50	0.15%	14.90	0.30%	7.90	0.75%	0.70	0.10%
BIVALVIA								
<i>Brachidontes</i>	19.00	1.20%	48.30	0.90%	4.20	0.40%	7.70	1.30%
<i>Isognomon (Pearlshell)</i>	79.20	4.90%	598.00	11.00%	72.40	6.70%	35.00	6.00%
<i>Periglypta reticulata</i>	7.10	0.40%	14.50	0.30%	5.60	0.50%		
<i>Tellina palatam</i>	11.40	0.70%	25.90	0.50%	7.90	0.75%		
MOLLUSC SUBTOTAL	1433.80	88.59%	4079.70	74.99%	546.20	50.81%	150.00	25.48%
ECHINODERMATA	62.90	3.90%	341.30	6.30%	96.00	8.90%	128.00	21.75%
<i>Colobocentrotus atrata</i>	1.20	0.10%	3.30	0.05%				
<i>Echinometra mathaei</i>	8.10	0.50%	149.10	2.70%	11.80	1.10%	9.50	1.60%
<i>Echinothrix diadema</i>	5.80	0.40%	12.10	0.20%	6.00	0.50%	4.50	0.80%
<i>Heterocentrotus mammillatus</i>	76.40	4.70%	586.90	10.80%	188.30	17.50%	280.70	47.75%
ECHINODERM SUBTOTAL	154.40	9.54%	1092.70	20.09%	302.10	28.10%	422.70	71.81%
CRUSTACEA								
<i>FISH BONE</i>	16.10	1.00%	7.00	0.10%			0.20	0.05%
<i>BIRD BONE</i>			54.40	1.00%	12.00	1.10%	9.70	1.65%
MAMMAL BONE								
<i>Fig Teeth</i>	14.10	0.90%	172.30	3.20%	180.70	16.80%	5.00	0.85%
<i>Dog Teeth</i>			27.10	0.50%	30.70	2.90%		
MAMMAL BONE SUBTOTAL	14.10	0.87%	201.00	3.69%	214.10	19.92%	5.00	0.85%
TOTAL	1618.40		5440.00		1075.00		588.60	

Midden Trends Over Time and the Subsistence Base

The midden trends are summarized in Table 9. The molluscs (gastropods and bivalves) increase substantially over time to the point of comprising almost 90% of the midden total by weight in Component I. The Echinoderms, on the other hand, tend to decrease with time. In the earliest occupation represented by Component IV, urchins comprise 70% of the midden total by weight while in the historic Component I, urchins only comprise about 10% of the midden total. It appears that the ratio of these 2 resources is closely related in the subsistence base.

TABLE 9
MIDDEN TRENDS AT KEOLONAHIHI

	COMPONENT I	COMPONENT II	COMPONENT III	COMPONENT IV
MOLLUSCS	88%	75%	51%	25%
ECHINODERMS	10%	20%	28%	72%
FISH BONE	1%	1%	1%	2%
MAMMAL BONE	1%	4%	20%	1%

Fish bone averages only 1% of the midden total by weight throughout the sequence. Although fish bone is light in weight, the quantity of fish bone observed during excavation appeared relatively low for a coastal occupation.

In Component III, mammal bone comprises almost 20% of the midden total by weight. As mentioned above, this quantity of mammal bone appears to be associated with the pig burial feature that extends into the Component III deposit in TP8. However, the pig burial remains were weighed separated and is not reflected in the mammal bone weights for Components II or III. In the other components, mammal remains only average 1% of the midden total which is probably a more accurate reflection of the role of mammal in the diet.

Based on the location of Keolonahihi along the shoreline, a dependence of marine resources in the diet would be expected. All of the marine resources represented in the midden are available along the Holualoa shoreline and inshore waters. It is surprising, however, that fish is so poorly represented in the midden assemblage. The small number of fishing related artifacts, especially the paucity of fishhooks and hook fragments, would seem to support the notion that fish were not a substantial part of the diet or the fish were caught in nets and discarded elsewhere.

Feature Analysis

A total of 34 features were inventoried during the excavation of the 12 test pits. The features fall into 4 major types:

Firepits - These pit features are marked by a concentration of charcoal flecking and staining. In some cases, fire-cracked rock or basalt cobbles are found within the pit fill. These firepits average 5cm in thickness and 20cm in diameter. None of the firepits were rock-lined.

Refuse pits - These pit features lack the concentration of charcoal that denote firepits. These pits are recognized by the difference in soil fill and are often marked by a concentration of midden in the fill. In one case, rock was found at the base of the pit.

Pig Burial - One pig burial was located in TP8. The burial was articulated and found within a pit fill of coarse sand and coral.

Pavings - Concentration of waterworn basalt pebbles (*'ili'ili*) across a surface suggestive of a living floor or occupation surface.

The distribution of the features by test pit is shown in Table 10. Many of the features are located in TP3 and TP5. There appears to be a fairly equal distribution of refuse pits and firepits in these units.

TABLE 10
FEATURE DISTRIBUTION BY TEST PIT

	FIREPIT	REFUSE PIT	OTHER	TOTAL
TP1			Paving?	1
TP2				0
TP3	5	4		9
TP4				0
TP5	6	10		16
TP6				0
TP7	0	2		2
TP8			1 Pig Burial 1 Paving?	2
TP9				0
TP10	1	2		3
TP11				0
TP12			Paving?	1

The distribution of features by component is shown in Table 11. The majority of features are associated with Component II. Within Component II, the ratio of refuse pits to firepits is about 2:1.

TABLE 11
DISTRIBUTION OF FEATURES BY COMPONENT

	FIREPITS	REFUSE PITS	PIG BURIAL	PAVING	TOTAL
COMP. I	3	3		3	9
COMP. II	7	13	1		21
COMP. III	1	3			4
COMP. IV					0

Analysis Summary

A consideration of the artifacts, midden, and features from each of the 4 components, suggests that Component II, a late prehistoric occupation, represents the most intensive and long-term occupation of Keolonahihi. This component is represented in the majority of the test pits in the northern portion of Keolonahihi. The component is marked by the highest quantity and diversity of features, midden, and artifacts.

Component I, the historic occupation of Keolonahihi, reflects the occupation of the housesite in the northeastern corner of the site by one family. Evidence of this occupation is limited to that area modified for the housesite, roadway, and water features.

Components III and IV represent the earlier occupation of the Keolonahihi site. Because the testing has been confined to the northern portion of the site, it is difficult to know if the deposits associated with these 2 components are remnants of what may have been a more intensive occupation that has since been eroded or disturbed by natural factors such as high surf and tsunami.

Comparison with the Kaumalumu Complex

Test excavations were conducted at several sites in the 5-acre *makai* parcel of Kaumalumu in 1973 and 1979 (Rosendahl, 1974 and Hommon, 1980). Four units were excavated in the southern portion of the complex in 1973 and an additional 6 units were excavated within structural features in 1979 (Fig. 11). The excavations indicated 2 cultural components: a historic period occupation and a late prehistoric to historic transitional period. A prehistoric component is not well-defined.

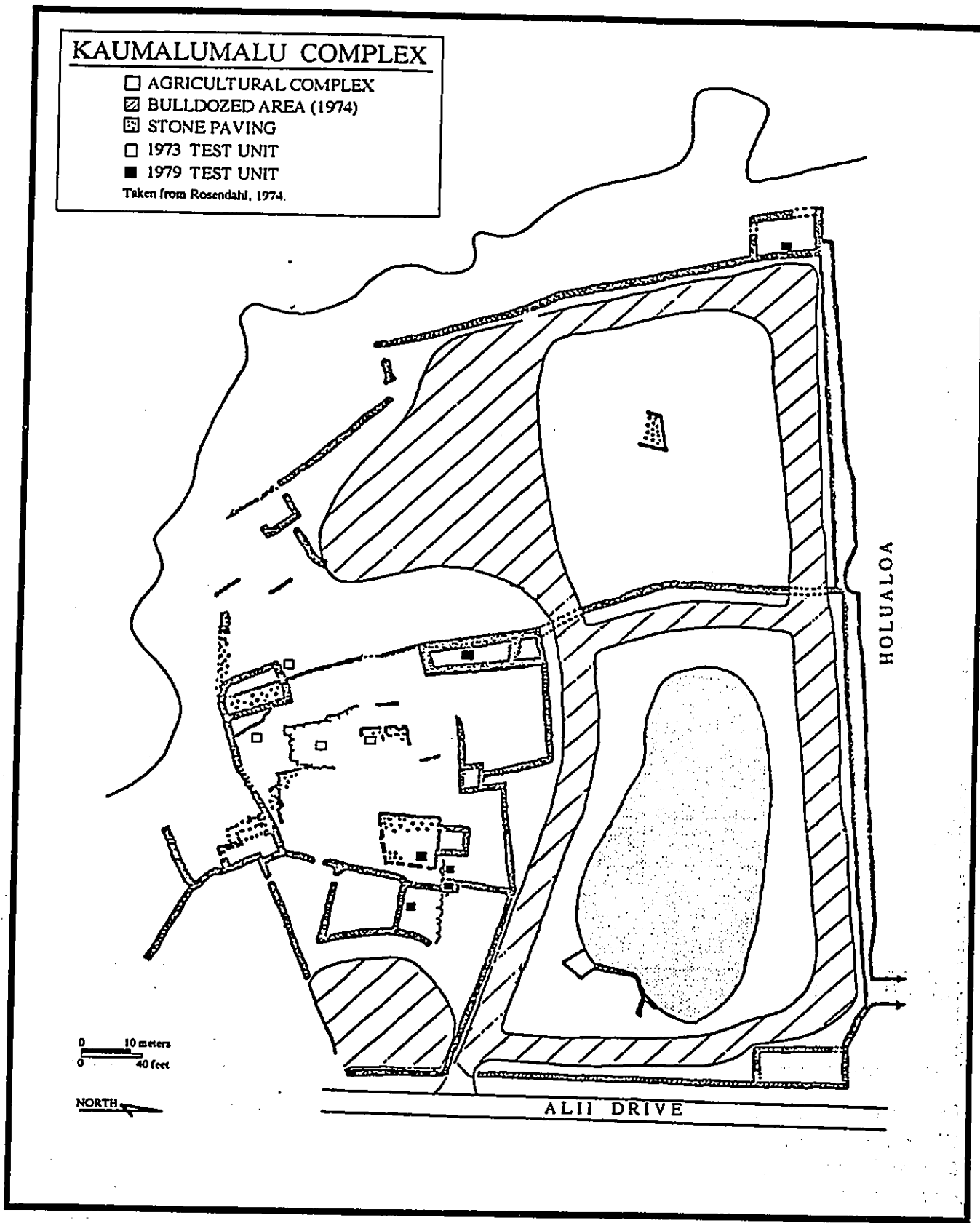


FIG. 11 - Distribution of excavation units at Kaumalumalu. Reflects the work conducted by Rosendahl, 1974 and Hommon, 1980.

Stratigraphic Comparison

The excavations at Kaumalumalu indicated a deposit consisting of an upper reddish brown silty-clay loam underlain by a gray sandy/silty loam resting atop either a clay loam or pahoehoe bedrock. The sand content of the soil varied with proximity to the shoreline. The sandy/silty loam includes a mix of historic and traditional Hawaiian artifacts, shell midden, and charcoal flecks. This deposit denotes the late prehistoric to historic transition.

Chronology

There was no dating conducted in 1973 and the age of the cultural deposits was based on artifact forms. In 1979, hydration-rind dating on 16 volcanic glass flakes from each of the test units provided 15 dates that can be separated into the 3 components. The dates are summarized in Table 12.

TABLE 12
SUMMARY OF HYDRATION-RIND DATES FROM KAUMALUMALU

	PERIOD	DATE RANGE (A.D.)
COMPONENT I	Historic	1894 - 1956? 1878 - 1934 1876 - 1936 1881 - 1927 1869 - 1927 1867 - 1927 1874 - 1918
COMPONENT II	Prehistoric to Historic	1809 - 1885 1820 - 1868 1814 - 1868 1804 - 1868 1810 - 1856
COMPONENT III?	Prehistoric?	1774 - 1834 1767 - 1829 1708 - 1782

In comparison, there is a historic component, circa late 1800s, represented at both Kaumalumalu and Keolonahihi. The dating of the ceramics and bottles from Kaumalumalu suggests that this historic occupation continued into the early 20th Century, circa 1930. The prehistoric component represented in all the units excavated at Keolonahihi is not well-represented at Kaumalumalu. It would appear to be more likely that this is a result of natural factors, such as tsunami and high surf, rather than an actual pattern of settlement during the prehistoric period.

Artifact Comparison

The artifact assemblage from the excavations at Kaumalumu is dominated by Euro-American items, including ceramics, metal, and glass. These historic period artifacts comprise about 70% of the artifact total. The traditional Hawaiian artifact forms include abraders, adze fragments, and volcanic glass. A similar pattern is noted for the historic component at Keolonahihi.

Midden Comparison

The general midden trends for Kaumalumu are shown in Table 13.

TABLE 13
MIDDEN TRENDS AT KAUMALUMU

HIGH	MEDIUM	LOW
Cypraea (cowry) Nerita (<i>pipipi</i>) Conus Cellana (<i>opih</i>)	Drupa Isognomon Echinodermata (<i>Heterocentrotus mammilatus</i>)	Fish bone Mammal bone Crustacea

The types of midden at Kaumalumu and Keolonahihi are very similar with a predominance of molluscs and echinoderms and small quantities of fish bone, mammal bone, and crustacea. With the exception of the Nerita, the overall trends in midden distribution are very similar between Kaumalumu and Keolonahihi. The Nerita comprises a significant portion of the midden total at Kaumalumu but is found in low quantities at Keolonahihi. In both cases, Cypraea is the dominant mollusc in the midden assemblage during the historic and late prehistoric components. It is in the earliest prehistoric component represented at Keolonahihi that Echinodermata becomes dominant over the molluscs and specifically, Cypraea. This early prehistoric component is not represented at Kaumalumu.

Summary

The historic component represented at Kaumalumu and Keolonahihi shows a strong similarity in the artifacts and midden. The artifacts and historical records indicate that this historic occupation occurred from the mid 1800s to the early 1900s with at least one known housesite in each complex. This historic occupation is marked by a dominance of Euro-American material goods with the retention of selected Hawaiian artifact forms.

The late prehistoric component at Keolonahihi is identified as a distinct layer separate from the historic occupation. However, at Kaumalumu the deposit underlying the historic layer appears to be transitional from late prehistoric to historic and not distinctly late prehistoric. As a result, the prehistoric component is not distinct and well-defined at Kaumalumu.

SUMMARY AND RECOMMENDATIONS

The excavation of 12 test units in the northern portion of Keolonahihi provided preliminary findings about the cultural occupation of Keolonahihi and insight into the research potential of this site complex. Despite evidence of some historic disturbance to the pre-contact Hawaiian cultural complex, much of the complex remains intact with a high potential to yield significant information about the Holualoa ruling center and its role in Kona's history.

The lack of any archaeological testing in the southern portion of the complex means that many questions still exist regarding the research potential and the presence/absence of subsurface cultural deposits in this part of the complex.

Research Potential

The thickness of the soil deposit in the northern portion of Keolonahihi ranges from 50cm in the more central portion of the complex to 80cm in the northern portion. Within this soil deposit, the presence of subsurface cultural deposits indicates the research potential and the opportunity for developing a cultural history with a more complete understanding of the cultural occupation and use of the Keolonahihi site over time.

Occupation Sequence

The excavations indicated the presence of 4 cultural components, including an upper post-contact occupation and 3 phases of pre-contact occupation. The archaeological testing to-date has not located a cultural deposit associated with the proposed early settlement of the site, circa A.D. 1200, that has been suggested by the oral traditions. However, the presence of datable materials has indicated that a pre-contact cultural deposit dating to the 17th Century is well-represented.

The lack of sterile deposits between the cultural layers suggests that much of the occupation was contiguous rather than a series of occupation and abandonment. The analyses of the artifacts, midden, and features associated with these various components has suggested both continuity and change over time in the settlement and subsistence pattern.

Site Function

Archaeological excavations at Keolonahihi also offer an opportunity to test the site function labels applied by Kekahuna and Kelsey, 1950. It must be recognized that not all the cultural practices will be reflected by the archaeological remains. In addition, site function may change over time. However, archaeological excavations hold the potential to yield information for a greater insight into site function and changes over time.

Construction Sequences

Closely related to site function is the potential to evaluate construction sequences at various sites that would be indicative of modification and expansion over time. Some of these changes can be detected by observing the construction details and noting variations in construction style, method, or materials used. By dating these construction phases, it may be possible to associate a site or a building phase with given chiefs or chiefesses. For example, oral traditions such that certain sites were constructed by a given chief or chiefess. Archaeological testing with the recovery of datable materials may be able to ascertain when selected sites were constructed and produce a development model for the complex.

Resource Management

The archaeological excavations found that the historic component of the site is very near the surface in the northeastern portion of the complex. Likewise, the pre-contact component is very near the surface in the northwestern portion of the complex. This proximity of the cultural deposits to the surface raises concerns for site protection and the potential for damage and disturbance by future activities, such as vegetation clearing, removal of the introduced boulders, and visitor traffic.

In addition, the shoreline erosion and high surf along Holualoa Bay are threats to the preservation of these cultural deposits and coastal sites. Therefore, site stabilization and implementation of an effective resource management program are critical needs to insure site protection and preservation.

Recommendations for Future Archaeological Research

As outlined above, the 2 major reasons were recommending future archaeological research are interpretation and resource management. Interpretation is the presentation of information about the site to the visitor. This information may come from a number of sources, such as oral histories, written documents, and archaeological excavations. Therefore, interpretation seeks to answer research questions regarding cultural history, site use and function, site chronology, and changes in the complex over time. As more is learned about the site, more information can be shared which in turn, promotes understanding and respect for this significant cultural complex.

Testing directed towards resource management concerns may address sites being impacted by erosion, sites subject to impacts that are not easily mitigated, and the need to obtain information about site construction for accurate stabilization and restoration. The goal of this testing is to obtain sufficient information before it is lost that can be used for both interpretation and developing resource protection measures.

South Portion of the Complex

As mentioned above, testing in the southern portion of the complex is recommended in order to evaluate the research potential and the resource management needs. Research questions include:

- Is the stone paving of Site 2 a naturally rocky surface that has been modified culturally? Since one source (George Pinehaka Nelson) suggests that this is one of the oldest sites in the complex, are there any materials that can be used to date this site and test this model?
- How do the stratigraphic profiles vary in the southern portion since the sand deposits are believed to be absent? How many cultural components exist in the southern portion of the complex? How do these components correlate with the 4 cultural components in the northern portion?

Shoreline Sites

Three sites are presently threatened by high surf and shoreline erosion: the grandstand feature (Site 6C), Hale A`ama Heiau (Site 3), and Site 12. Additional archaeological research is recommended at these 3 sites to obtain valuable information that is currently being lost during periods of high surf.

Sites 6C and 3 are stacked rock features that will require stabilization and restoration to repair the damage that has occurred to-date. In addition, it is anticipated that the location of these structures along the shoreline may require an ongoing program of restoration to repair surf damage that cannot be avoided. Testing is recommended at both of these structures to record and determine (1) the foundation and extent of these structures, (2) the construction style and details (eg. height, width, slope), and (3) the materials used.

One test unit (TP12) was placed at Site 12 to evaluate the cultural layers being eroded when high surf hits this bank. This test pit indicated a thick, sandy deposit with 3 of the 4 cultural components represented. In addition, surface collections have been made along this bank since 1980 indicating that this erosion is ongoing. However, the amount of material lost over the last 15 years has not been determined. Recognizing the difficulty in stabilizing this bank, additional testing is recommended to recover information that will likely be lost during future periods of high surf.

Site Age and Function

Research directed towards site age and function is applicable to all the sites in the Keolonahihi Complex. In the testing conducted to-date, TP10 and TP11 were placed in proximity to Site 15. This site is recorded to be Keolonahihi's house platform by Kekahuna and Kelsey but the testing suggested that this structure is of post-contact

period construction, probably in conjunction with the stone and mortar built on top of the platform. TP5 through TP9 were placed within Site 6 which is recorded as Hale o Ke Kupua Heiau by Kekahuna and Kelsey. Only the pig burial in TP8 was suggestive of a religious function and associated cultural practices.

Developmental Model

Selected oral sources and written references suggest 3 major phases of development. During these phases, modifications to the complex were made and sites were constructed by various rulers and chiefs. Archaeological research at these sites with sufficient dating is recommended to test this model.

- A.D. 1200 George Pinehaka Nelson states that chiefess Keolonahihi and her husband built the Keolonahihi Complex around this time. The sites included Kanekaheilani Heiau (Site 2), the women's sites (Site 4, Site 7, Site 16), and Keolonahihi's house platform (Site 15).
- A.D. 1600 Construction of portions of the *mauka* complex by chiefesses Keakamahana and Keakealaniwahine.
- A.D. 1780s Kamehameha I is credited with the construction of Hale o Kaili (Site 5) and Hale o Ke Kupua Heiau (portion of Site 6).

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APPENDIX A
ARTIFACTS BY TEST UNIT

ARTIFACT INVENTORY FOR TEST PIT # 1

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer 1	Layer	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes				
shell scraper				
Adze				
fragment				
reworked adze				
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware	1			
Glass				
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT	1			

ARTIFACT INVENTORY FOR TEST PIT # 2

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer 1	Layer	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes	3			
shell scraper				
Adze				
fragment				
reworked adze				
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass	1			
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT	4			

ARTIFACT INVENTORY FOR TEST PIT # 3

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer 1	Layer 3	Layer 4	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral		1		
urchin				
basalt				
Files - coral	1			
Cutting/scraping tools				
basalt flakes	1	4	1	
volcanic glass flakes	30	97	41	
shell scraper				
Adze				
fragment				
reworked adze				
flakes		3	1	
Hematite	1			
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware	2			
Glass	1			
Metal				
fragments	2			
button	1			
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT	34	105	43	

ARTIFACT INVENTORY FOR TEST PIT # 4

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer	Layer 1	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes		3		
shell scraper				
Adze				
fragment				
reworked adze				
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass				
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT		3		

ARTIFACT INVENTORY FOR TEST PIT # 5S (5N)

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer	Layer 1	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook		1		
2-piece fishhook		2		
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin		(2)		
basalt		3		
Files - coral		(1)		
Cutting/scraping tools				
basalt flakes		4		
volcanic glass flakes		115 (93)		
shell scraper				
Adze				
fragment		1		
reworked adze				
flakes		5 (3)		
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass				
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT		131 (99)		

ARTIFACT INVENTORY FOR TEST PIT # 6

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer	Layer 2	Layer 3	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes			1	
shell scraper				
Adze				
fragment				
reworked adze				
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass		1		
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT		1	1	

ARTIFACT INVENTORY FOR TEST PIT # 7

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer 1	Layer 2	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin	1			
basalt				
Files - coral	1			
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes	9	1		
shell scraper				
Adze				
fragment				
reworked adze				
flakes	1			
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass				
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT	12	1		

ARTIFACT INVENTORY FOR TEST PIT # 8 (8N)

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer	Layer 1	Layer 2	Layer 3
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				(1)
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				(1)
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes		1	1	1 (1)
shell scraper			1	
Adze				
fragment				
reworked adze				
flakes			3	(1)
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper			1	
ORNAMENTALS				
Perforated bone				1
Perforated tusk				1
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass				
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT		1	6	3 (4)

ARTIFACT INVENTORY FOR TEST PIT # 9

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer	Layer 1	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes		4		
shell scraper				
Adze				
fragment				
reworked adze				
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware				
Glass				
Metal				
fragments				
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT		4		

ARTIFACT INVENTORY FOR TEST PIT # 10

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layers 1 & 2	Layer 3	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin				
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes		3		
volcanic glass flakes		4		
shell scraper				
Adze				
fragment				
reworked adze				
flakes		1		
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware	159			
Glass	41			
Metal				
fragments	2			
button				
coins				
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT	202	8		

ARTIFACT INVENTORY FOR TEST PIT # 11

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer 1	Layer 2	Layer	Layer
FISHING GEAR				
Bone Fishhook				
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin		1		
basalt				
Files - coral				
Cutting/scraping tools				
basalt flakes				
volcanic glass flakes	2	7		
shell scraper				
Adze				
fragment				
reworked adze				
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware	6			
Glass	10			
Metal				
fragments	6			
button	1			
coins				
Plastic	1			
Shell button	2			
Slate	1			
TOTAL ARTIFACT COUNT	29	8		

ARTIFACT INVENTORY FOR TEST PIT # 12

ARTIFACT TYPE	COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4
	Layer 1	Layer 2	Layer 3	Layer
FISHING GEAR				
Bone Fishhook			1	
1-piece fishhook				
cut bone				
Pearlshell Fishhook				
1-piece fishhook				
2-piece fishhook				
cut pearlshell				
TOOLS				
Abraders				
coral				
urchin		1		
basalt				
Files - coral		1		
Cutting/scraping tools				
basalt flakes		1		
volcanic glass flakes	1	9	3	
shell scraper				
Adze				
fragment				
reworked adze		1	1	
flakes				
Hematite				
DOMESTIC IMPLEMENTS				
Awls/picks				
Shell gourd stopper				
ORNAMENTALS				
Perforated bone				
Perforated tusk				
EURO-AMERICAN ITEMS				
Ceramic/Earthenware	2	1		
Glass	1			
Metal				
fragments			1	
button				
coins	2			
Plastic				
Shell button				
Slate				
TOTAL ARTIFACT COUNT	6	14	6	

APPENDIX B
MIDDEN TABLES BY TEST UNIT

MIDDEN DISTRIBUTION: TEST PIT #1

TEST PIT #1	COMPONENT I LAYER 1		COMPONENT II LAYER 2		COMPONENT III LAYER 3		COMPONENT IV LAYER 4		COMPONENT V LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata										
Conus			0.20	0.30%						
Cymatium										
Cypraea			15.80	22.80%						
Drupa ricina										
Hipponicidae			0.20	0.30%						
Littorina										
Morula			0.80	1.10%						
Melampus			0.40	0.60%						
Nerita picea			0.30	0.40%						
Nerita polita										
Planaxis			2.00	3.00%						
Strombus maculatus										
Terebra										
Thais										
Theodoxus cariosa										
Trochus intextus			0.10	0.10%						
BIVALVIA										
Brachidontes			0.20	0.30%						
Isognomon (Pearlshell)			14.70	19.80%						
Periglypta reticulata										
Tellina palatam										
ECHINODERMATA			20.00	29.00%						
Colobocentrotus atrata										
Echinometra mathaei			2.30	3.30%						
Echinothrix diadema			1.20	1.70%						
Heterocentrotus mammilatus			2.70	4.00%						
CRUSTACEA										
FISH BONE			0.90	1.30%						
BIRD BONE										
MAMMAL BONE			8.30	12.00%						
Pig Teeth										
Dog Teeth										
Cow/Horse Teeth										
TOTAL			70.10	100%						

MIDDEN DISTRIBUTION: TEST PIT #2

TEST PIT #2	COMPONENT LAYER 1		COMPONENT II LAYER 2		COMPONENT LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata										
Conus										
Cymatium			13.10	46.60%						
Cypraea										
Drupa ricina										
Hipponicidae										
Littorina										
Morula										
Melampus										
Nerita picea										
Nerita polita										
Planaxis										
Strombus maculatus			0.80	2.90%						
Terebra										
Thais										
Theodoxus cariosa										
Trochus intextus										
BIVALVIA										
Brachidontes										
Isognomon (Pearlshell)			4.60	16.40%						
Periglypta reticulata										
Tellina palatam										
ECHINODERMATA										
Colobocentrotus atrata										
Echinometra mathaei										
Echinothrix diadema										
Heterocentrotus mammilatus										
CRUSTACEA										
FISH BONE			1.30	4.60%						
BIRD BONE										
MAMMAL BONE			2.50	8.90%						
Pig Teeth										
Dog Teeth										
Cow/Horse Teeth										
TOTAL			28.10	100%						

MIDDEN DISTRIBUTION: TEST PIT #3

TEST PIT #3	COMPONENT I LAYER 1		COMPONENT II LAYER 2		COMPONENT II LAYER 3		COMPONENT III LAYER 4		COMPONENT IV LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
<i>Cellana exarata</i>	2.30	0.40%	0.80	0.80%	3.30	0.30%	0.50	0.15%		
<i>Conus</i>	20.20	4.00%			23.50	2.00%	1.30	0.40%	1.00	0.20%
<i>Cymatium</i>										
<i>Cypraea</i>	242.20	48.10%	34.50	32.80%	391.00	33.40%	58.30	18.60%	70.00	13.10%
<i>Drupa ricina</i>	9.20	1.80%			14.80	1.30%				
Hipponicidae										
<i>Littorina</i>	1.40	0.30%			1.80	0.15%				
<i>Morula</i>	0.40	0.10%								
<i>Melampus</i>	2.20	0.40%	0.80	0.80%	8.20	0.70%	4.00	1.30%	2.50	0.50%
<i>Nerita picea</i>	1.30	0.30%			2.70	0.25%	0.40	0.10%	1.20	0.20%
<i>Nerita polita</i>	22.30	4.40%	1.60	1.50%	10.80	0.90%	2.50	0.80%		
<i>Planaxis</i>										
<i>Strombus maculatus</i>	71.80	14.30%	4.00	3.80%	17.20	1.50%	2.10	0.70%		
<i>Terebra</i>	1.40	0.30%			1.00	0.05%	0.40	0.10%		
<i>Thais</i>	1.80	0.40%	0.50	0.50%	1.40	0.10%	0.50	0.15%		
<i>Theodoxus cariosa</i>	1.00	0.20%			4.10	0.40%	2.10	0.70%		
<i>Trochus intextus</i>										
BIVALVIA										
<i>Brachidontes</i>	0.50	0.10%			1.90	0.20%	1.50	0.45%	0.70	0.10%
<i>Isognomon (Pearshell)</i>	4.50	0.80%	4.50	4.30%	25.00	2.10%	4.00	1.30%	6.50	1.20%
<i>Periglypta reticulata</i>	33.80	6.70%	24.60	23.40%	230.90	19.70%	30.00	9.60%	26.00	4.90%
<i>Tellina palatam</i>										
ECHINODERMATA										
<i>Colobocentrotus atrata</i>	6.00	1.20%			3.10	0.30%	0.90	0.30%		
<i>Echinometra mathaei</i>	26.50	5.30%	12.20	11.60%	49.50	4.20%	79.00	25.20%	122.00	22.90%
<i>Echinothrix diadema</i>	1.10	0.20%	0.60	0.50%						
<i>Heterocentrotus mammillatus</i>	7.60	1.50%	1.60	1.60%	129.20	11.00%	11.80	3.80%	7.50	1.40%
CRUSTACEA										
<i>FISH BONE</i>	2.70	0.50%	0.70	0.50%	1.30	0.10%	5.80	1.80%	4.00	0.75%
<i>BIRD BONE</i>	34.80	6.90%	13.00	12.40%	225.30	19.20%	106.00	33.80%	278.20	52.20%
<i>MAMMAL BONE</i>	2.60	0.50%	1.70	1.70%	2.40	0.20%	1.50	0.50%	0.20	0.05%
<i>Pig Teeth</i>	6.30	1.30%	4.00	3.80%	1.10	0.05%	0.20	0.05%	1.00	0.20%
<i>Dog Teeth</i>					6.90	0.60%	0.60	0.20%	3.50	0.70%
<i>Cow/Horse Teeth</i>										
TOTAL	503.90	100.00%	105.10	100.00%	1171.70	100.00%	313.40	100.00%	532.80	100.00%

MIDDEN DISTRIBUTION: TEST PIT #4

TEST PIT #4	COMPONENT II LAYER 1		COMPONENT LAYER 2		COMPONENT LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata	3.00	13.20%								
Conus	2.80	12.30%								
Cymatium										
Cypraea	9.30	41.00%								
Drupa ricina										
Hipponicidae	0.10	0.40%								
Littorina										
Morula										
Melampus										
Nerita picea										
Nerita polita										
Planaxis										
Strombus maculatus										
Terebra										
Thais										
Theodoxus cariosa										
Trochus intextus										
BIVALVIA										
Brachidontes										
Isognomon (Pearshell)	2.30	10.10%								
Periglypta reticulata										
Tellina palatam	3.60	15.90%								
ECHINODERMATA										
Colobocentrotus atrata										
Echinometra mathaei										
Echinothrix diadema										
Heterocentrotus mammillatus										
CRUSTACEA										
FISH BONE										
BIRD BONE										
MAMMAL BONE										
Pig Teeth	1.60	7.10%								
Dog Teeth										
Cow/Horse Teeth										
TOTAL	22.70	100.00%								

0 10 20 30 40 50 60 70 80 90 100

MIDDEN DISTRIBUTION: TEST PIT #6

TEST PIT #6	COMPONENT II LAYER 1		COMPONENT II LAYER 2		COMPONENT III LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata										
Conus			12.50	17.00%	15.30	8.40%				
Cymatium										
Cypraea			53.50	72.60%	91.20	50.00%				
Drupa ricina					7.50	4.10%				
Hipponicidae					0.10	0.05%				
Littorina										
Morula	1.00	90.90%								
Melampus			0.20	0.30%						
Nerita picea			0.20	0.30%	1.40	0.80%				
Nerita polita					0.90	0.60%				
Planaxis										
Sitrombus maculatus			1.70	2.30%						
Terebra					0.20	0.10%				
Thais										
Theodoxus cariosa										
Trochus intextus			1.20	1.60%						
BIVALVIA										
Brachidontes										
Isognomon (Pearlshell)	0.10	9.10%	2.20	2.90%	8.80	4.80%				
Periglypta reticulata					1.00	0.60%				
Tellina palatam					1.50	0.80%				
ECHINODERMATA					5.30	2.90%				
Colobocentrotus atrata										
Echinometra mathaei										
Echinothrix diadema					0.20	0.10%				
Heterocentrotus mammillatus			2.00	2.70%	47.50	26.10%				
CRUSTACEA										
FISH BONE					0.20	0.10%				
BIRD BONE										
MAMMAL BONE			0.20	0.30%	1.10	0.60%				
Pig Teeth										
Dog Teeth										
Cow/Horse Teeth										
TOTAL	1.10	100.00%	73.70	100.00%	182.20	100.05%				

MIDDEN DISTRIBUTION: TEST PIT #7

TEST PIT #7	COMPONENT II LAYER 1		COMPONENT III LAYER 2		COMPONENT LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata	0.50	0.20%								
Conus	4.70	2.00%	0.60	0.60%						
Cymatium										
Cypraea	77.70	32.60%	41.50	39.80%						
Drupa ricina			1.80	1.70%						
Hipponicidae			0.20	0.20%						
Littorina										
Morula			0.60	0.60%						
Melampus	3.00	1.20%								
Nerita picea	4.50	1.90%	1.40	1.30%						
Nerita polita	0.30	0.10%	0.20	0.20%						
Planaxis										
Strombus maculatus										
Terebra	1.90	0.80%								
Thais										
Theodoxus cariosa										
Trochus intextus										
BIVALVIA										
Brachidontes	0.20	0.10%								
Isognomon (Pearshell)	8.00	3.40%	10.20	9.80%						
Periglypta reticulata			2.60	2.50%						
Tellina palatam										
ECHINODERMATA	14.10	5.90%	6.50	6.20%						
Colobocentrotus atrata										
Echinometra mathaei										
Echinothrix diadema										
Heterocentrotus mammillatus	21.90	9.20%	12.60	12.10%						
CRUSTACEA	0.30	0.10%								
FISH BONE	7.70	3.20%	3.90	3.70%						
BIRD BONE	3.60	1.50%	0.40	0.40%						
MAMMAL BONE	78.30	32.90%	21.80	20.90%						
Pig Teeth	11.60	4.90%								
Dog Teeth										
Cow/Horse Teeth										
TOTAL	238.30	100.00%	104.30	100.00%						

MIDDEN DISTRIBUTION: TEST PIT #8N

TEST PIT #8N	COMPONENT II LAYER 1		COMPONENT II LAYER 2		COMPONENT III LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata										
Conus			12.50	13.60%	7.60	2.60%				
Cymatium										
Cypraea			54.70	59.40%	85.20	29.20%				
Drupa ricina			0.20	0.20%	2.00	0.70%				
Hipponicidae			0.30	0.30%	0.20	0.10%				
Littorina										
Morula					0.50	0.20%				
Melampus			0.80	0.90%						
Nerita picea					0.30	0.10%				
Nerita polita					1.50	0.50%				
Planaxis										
Strombus maculatus										
Terebra										
Thais										
Theodoxus cariosa										
Trochus intextus										
BIVALVIA										
Brachidontes										
Isognomon (Pearlshell)			0.30	0.30%	8.70	3.00%				
Periglypta reticulata					0.50	0.20%				
Tellina palatam			1.40	1.50%	3.70	1.30%				
ECHINODERMATA										
Colobocentrotus atrata					2.30	0.80%				
Echinometra mathaei										
Echinothrix diadema										
Heterocentrotus mammillatus			0.50	0.50%	7.40	2.50%				
CRUSTACEA										
FISH BONE										
			0.40	0.40%	2.30	0.80%				
BIRD BONE										
			0.20	0.20%						
MAMMAL BONE										
Fig Teeth			15.70	17.00%	135.20	46.50%				
Dog Teeth			4.20	4.60%	30.70	10.50%				
Cow/Horse Teeth			1.00	1.10%	2.70	1.00%				
TOTAL	40.40	100.00%	92.20	100.00%	290.80	100.00%				

MIDDEN DISTRIBUTION: TEST PIT #8S

TEST PIT #8S	COMPONENT II LAYER 1		COMPONENT II LAYER 2		COMPONENT III LAYER 3		COMPONENT IV LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata			0.40	0.20%	1.10	0.60%	0.20	0.60%		
Conus			6.70	3.90%	8.20	4.40%	4.00	11.00%		
Cymatium										
Cypraea			140.30	81.85%	96.80	52.60%	20.30	55.70%		
Drupa ricina			1.10	0.60%	1.80	1.00%				
Hipponicidae										
Littorina										
Morula			0.60	0.40%						
Melampus			0.30	0.20%						
Nerita picea										
Nerita polita					4.00	2.10%	3.10	8.50%		
Planaxis										
Strombus maculatus					3.50	1.90%				
Terebra					0.50	0.30%				
Thais										
Theodoxus cariosa										
Trochus intextus					6.40	3.50%				
BIVALVIA										
Brachidontes					0.20	0.10%				
Isognomon (Pearlshell)			7.80	4.55%	14.70	8.00%	5.50	15.10%		
Periglypta reticulata					1.50	0.80%				
Tellina palatam			0.70	0.40%	1.80	1.00%				
ECHINODERMATA					2.90	1.60%				
Colobocentrotus atrata										
Echinometra mathaei							0.10	0.30%		
Echinothrix diadema										
Heterocentrotus mammillatus	1.80	100.00%	1.50	0.90%	14.80	8.00%	1.70	4.70%		
CRUSTACEA										
FISH BONE			0.20	0.10%	4.10	2.10%				
BIRD BONE										
MAMMAL BONE			11.80	6.90%	22.00	12.00%	1.50	4.10%		
Pig Teeth										
Dog Teeth										
Cow/Horse Teeth										
TOTAL	1.80	100.00%	171.40	100.00%	184.30	100.00%	36.40	100.00%		

MIDDEN DISTRIBUTION: TEST PIT #10

TEST PIT #10	COMPONENT I LAYER 1		COMPONENT I LAYER 2		COMPONENT II LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata			0.10	0.05%						
Conus	4.50	12.70%	27.10	14.40%	6.40	5.60%				
Cymatium	2.20	6.20%	0.70	0.40%						
Cypraea	28.50	80.30%	147.00	78.40%	63.00	55.40%				
Drupa ricina			1.00	0.50%	1.00	0.90%				
Hipponicidae			0.10	0.05%						
Littorina										
Morula										
Melampus										
Nerita picea	0.30	0.80%	0.90	0.50%	3.90	3.40%				
Nerita polita										
Planaxis			0.20	0.10%	0.20	0.20%				
Strombus maculatus					1.20	1.00%				
Terebra					5.60	5.00%				
Thais										
Theodoxus cariosa										
Trochus intextus					0.10	0.10%				
BIVALVIA										
Brachidontes										
Isognomon (Pearlshell)			3.20	1.70%	9.30	8.20%				
Periglypta reticulata			0.70	0.40%						
Tellina palatam					0.70	0.60%				
ECHINODERMATA			2.00	1.10%	10.40	9.20%				
Colobocentrotus atrata										
Echinometra mathaei										
Echinothrix diadema										
Heterocentrotus mammillatus			3.40	1.80%	9.90	8.70%				
CRUSTACEA					0.20	0.20%				
FISH BONE			0.20	0.10%	0.70	0.60%				
BIRD BONE										
MAMMAL BONE			0.90	0.50%	0.10	0.10%				
Pig Teeth					0.90	0.80%				
Dog Teeth										
Cow/Horse Teeth										
TOTAL	35.50	100.00%	187.50	100.00%	113.60	100.00%				

MIDDEN DISTRIBUTION: TEST PIT #11

TEST PIT #11	COMPONENT I LAYER 1		COMPONENT II LAYER 2		COMPONENT LAYER 3		COMPONENT LAYER 4		COMPONENT LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata	9.80	2.40%	0.50	0.15%						
Conus	89.80	22.20%	12.60	4.30%						
Cymatium										
Cypraea	217.90	53.80%	154.50	52.70%						
Drupa ricina	10.00	2.50%	5.20	1.80%						
Hipponicidae	1.90	0.50%	0.40	0.10%						
Littorina										
Morula	1.90	0.50%								
Melampus										
Nerita picea	22.20	5.40%	12.10	4.10%						
Nerita polita	4.50	1.10%	1.40	0.50%						
Planaxis			0.60	0.20%						
Strombus maculatus	3.20	0.80%	0.80	0.30%						
Terebra	0.80	0.20%								
Thais	1.40	0.30%								
Theodoxus cariosa										
Trochus intextus	2.00	0.50%	1.60	0.55%						
BIVALVIA										
Brachidontes			4.90	1.70%						
Isognomon (Pearshell)	8.80	2.20%	51.50	17.60%						
Periglypta reticulata	6.20	1.50%	2.50	0.90%						
Tellina palatam	4.80	1.20%	3.50	1.20%						
ECHINODERMATA										
Colobocentrotus atrata	2.20	0.50%	17.30	5.90%						
Echinometra mathaei										
Echinothrix diadema			0.10	0.05%						
Heterocentrotus mammillatus	11.00	2.70%	13.70	4.70%						
CRUSTACEA										
FISH BONE	3.70	0.90%	0.40	0.10%						
BIRD BONE										
MAMMAL BONE										
Pig Teeth	0.40	0.10%	5.60	1.90%						
Dog Teeth	0.80	0.20%	3.10	1.00%						
Cow/Horse Teeth	2.00	0.50%	0.60	0.20%						
TOTAL	405.30	100.00%	293.00	100.00%						

MIDDEN DISTRIBUTION: TEST PIT #12

	COMPONENT I		COMPONENT I		COMPONENT I		COMPONENT II		COMPONENT IV		COMPONENT	
	LAYER 1		LAYER 2		LAYER 3		LAYER 4		LAYER 5		LAYER 5	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA												
Cellana exarata	7.80	12.20%	7.50	1.80%	0.30	0.05%						
Conus	5.90	9.20%	50.80	12.00%	4.60	1.10%						
Cymatium												
Cypraea	20.00	31.30%	211.50	49.80%	167.70	40.80%	1.80	9.30%				
Drupa ricina	15.50	24.20%	2.70	0.60%								
Hipponicidae			0.30	0.05%	3.50	0.80%	1.30	6.70%				
Littorina												
Morula			2.80	0.60%								
Melampus	0.10	0.10%	0.30	0.05%	1.30	0.30%						
Nerita picea	7.00	10.90%	5.50	1.30%	4.00	1.00%	0.80	4.10%				
Nerita polita			1.50	0.40%								
Planaxis	0.90	1.40%	20.20	4.80%	3.40	0.80%	0.40	2.10%				
Strombus maculatus			0.30	0.05%	1.50	0.40%						
Terebra			0.50	0.10%	0.20	0.05%						
Thais												
Theodoxus cariosa					0.80	0.20%						
Trochus intextus					1.10	0.30%						
BIVALVIA												
Brachidontes			14.50	3.40%	7.40	1.80%	1.20	6.20%				
Isoognomon (Pearlshell)	1.90	3.00%	31.50	7.40%	45.70	11.10%	3.50	18.00%				
Periglypta reticulata			0.20	0.05%								
Tellina palatam			0.60	0.10%	0.80	0.20%						
ECHINODERMATA												
Colobocentrotus atrata	1.20	1.90%	31.00	7.30%	103.80	25.30%	6.00	30.90%				
Echinometra mathaei	0.10	0.10%	0.40	0.10%	15.00	3.60%	1.90	9.80%				
Echinothrix diadema	0.20	0.30%	2.90	0.70%	5.20	1.30%	0.50	2.60%				
Heterocentrotus mammilatus	2.20	3.40%	25.00	5.90%	15.10	3.70%	0.80	4.10%				
CRUSTACEA												
FISH BONE	1.20	1.90%	8.40	2.00%	17.90	4.40%	1.20	6.20%				
BIRD BONE												
MAMMAL BONE												
Pig Teeth			6.50	1.50%	9.10	2.20%						
Dog Teeth												
Cow/Horse Teeth												
TOTAL	64.10	100.00%	424.90	100.00%	411.10	100.00%	19.40	100.00%				

APPENDIX C
MIDDEN TABLES BY COMPONENT

COMPONENT I	TP3 - LAYER 1		TP 10 - LAYERS 1 & 2		TP 11 - LAYER 1		TP12 - LAYERS 1 & 2		AVERAGE	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
<i>Cellana exarata</i>	2.30	0.40%	0.10	0.05%	9.80	2.40%	15.30	3.10%	27.50	1.70%
<i>Conus</i>	20.20	4.00%	31.60	14.20%	89.80	22.30%	56.70	11.60%	198.30	12.20%
<i>Cymatium</i>			2.90	1.30%					2.90	0.15%
<i>Cypraea</i>	242.20	48.10%	175.50	78.70%	217.90	54.00%	231.50	47.30%	867.10	53.60%
<i>Drupa ricina</i>	9.20	1.80%	1.00	0.50%	10.00	2.50%	18.20	3.70%	38.40	2.40%
<i>Hipponicidae</i>	1.40	0.30%	0.10	0.05%	1.90	0.50%	0.30	0.05%	3.70	0.20%
<i>Littorina</i>	0.40	0.10%							0.40	0.05%
<i>Morula</i>	2.20	0.40%			1.90	0.50%	2.80	0.60%	6.90	0.40%
<i>Melampus</i>	1.30	0.30%					0.40	0.10%	1.70	0.10%
<i>Nerita picea</i>	22.30	4.40%	1.20	0.50%	22.20	5.40%	12.50	2.60%	58.20	3.60%
<i>Nerita polita</i>					4.50	1.10%	1.50	0.30%	6.00	0.40%
<i>Planaxis</i>	71.80	14.30%	0.20	0.10%			21.10	4.30%	93.10	5.70%
<i>Strombus maculatus</i>	1.40	0.30%			3.20	0.80%	0.30	0.05%	4.90	0.30%
<i>Terebra</i>	1.80	0.40%			0.80	0.20%	0.50	0.10%	3.10	0.20%
<i>Thais</i>	1.00	0.20%			1.40	0.30%			2.40	0.15%
<i>Theodoxus cariosa</i>										
<i>Trochus intextus</i>	0.50	0.10%			2.00	0.50%			2.50	0.15%
BIVALVIA										
<i>Brachidontes</i>	4.50	0.80%					14.50	3.00%	19.00	1.20%
<i>Isognomon (Pearlshell)</i>	33.80	6.70%	3.20	1.40%	8.80	2.20%	33.40	6.80%	79.20	4.90%
<i>Periglypta reticulata</i>			0.70	0.30%	6.20	1.50%	0.20	0.05%	7.10	0.40%
<i>Tellina palatam</i>	6.00	1.20%			4.80	1.20%	0.60	0.10%	11.40	0.70%
ECHINODERMATA	26.50	5.30%	2.00	0.90%	2.20	0.50%	32.20	6.60%	62.90	3.90%
<i>Colobocentrotus atrata</i>	1.10	0.20%					0.10	0.05%	1.20	0.10%
<i>Echinometra mathaei</i>	7.60	1.50%					0.50	0.10%	8.10	0.50%
<i>Echinothrix diadema</i>	2.70	0.50%					3.10	0.60%	5.80	0.40%
<i>Heterocentrotus mammilatus</i>	34.80	6.90%	3.40	1.50%	11.00	2.70%	27.20	5.60%	76.40	4.70%
CRUSTACEA										
FISH BONE	2.60	0.50%	0.20	0.10%	3.70	0.90%	9.60	2.00%	16.10	1.00%
BIRD BONE										
MAMMAL BONE	6.30	1.30%	0.90	0.40%	0.40	0.10%	6.50	1.30%	14.10	0.90%
Pig Teeth										
Dog Teeth										
Cow/Horse Teeth										
TOTAL	503.90	100%	223.00	100%	402.50	100%	489.00	100.00%	1618.40	100.00%

COMPONENT II (PART 1)	TP1 - LAYER 2		TP2 - LAYER 2		TP3 - LAYERS 2 & 3		TP4 - LAYER 1		TP5N & 5S - LAYER 1	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata					4.10	0.30%	3.00	13.20%	5.70	0.20%
Conus	0.20	0.30%			23.50	1.80%	2.80	12.30%	226.00	8.50%
Cymatium										
Cypraea	15.80	22.80%	13.10	46.60%	425.50	33.30%	9.30	41.00%	1547.20	58.40%
Drupa ricina					14.80	1.20%			76.40	2.90%
Hipponicidae	0.20	0.30%			1.80	0.15%	0.10	0.40%	1.10	0.05%
Littorina										
Morula	0.80	1.10%			9.00	0.70%			3.20	0.10%
Melampus	0.40	0.60%			2.70	0.20%			1.20	0.05%
Nerita picea	0.30	0.40%			12.40	1.00%			78.70	3.00%
Nerita polita									29.20	1.10%
Planaxis	2.00	3.00%			21.20	1.60%			2.50	0.05%
Strombus maculatus					1.00	0.10%			3.20	0.10%
Terebra			0.80	2.90%	1.90	0.15%			4.20	0.15%
Thais					4.10	0.30%			0.50	0.01%
Theodoxus cariosa									1.90	0.05%
Trochus intextus	0.10	0.10%			1.90	0.15%			8.60	0.30%
BIVALVIA										
Brachidontes	0.20	0.30%			29.50	2.30%			6.10	0.20%
Isognomon (Pearlshell)	14.70	19.80%	4.60	16.40%	255.50	20.00%	2.30	10.10%	193.60	7.30%
Periglypta reticulata									11.70	0.45%
Tellina palatam					3.10	0.20%	3.60	15.90%	11.80	0.45%
ECHINODERMATA	20.00	29.00%	5.80	20.60%	61.70	4.80%			108.00	4.10%
Colobocentrotus atrata					0.60	0.05%				
Echinometra mathaei	2.30	3.30%			130.80	10.20%			1.00	0.05%
Echinothrix diadema	1.20	1.70%			2.00	0.20%			3.60	0.10%
Heterocentrotus mammilatus	2.70	4.00%			238.30	18.70%			277.30	10.50%
CRUSTACEA					2.40	0.20%			4.00	0.15%
FISH BONE	0.90	1.30%	1.30	4.60%	17.00	1.30%			7.90	0.30%
BIRD BONE					1.10	0.10%			0.30	0.05%
MAMMAL BONE	8.30	12.00%	2.50	8.90%	10.90	0.80%	1.60	7.10%	28.20	1.10%
Pig Teeth									7.30	0.30%
Dog Teeth										
Cow/Horse Teeth										
TOTAL	70.10	100%	28.10	100%	1276.80	100%	22.70	100%	2650.40	100.01%

COMPONENT II (PART 2)	TP6 - LAYERS 1 & 2		TP7 - LAYER 1		TP8N & 8S - LAYER 2		TP9 - LAYER 1		TP10 - LAYER 3	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata			0.50	0.20%	0.40	0.20%				
Conus	12.50	16.70%	4.70	2.00%	19.20	8.50%	0.50	1.50%	6.40	5.60%
Cymatium										
Cypraea	53.50	71.50%	77.70	32.60%	159.00	69.30%	21.70	66.80%	63.00	55.40%
Drupa ricina					1.30	0.60%			1.00	0.90%
Hipponicidae					0.30	0.10%				
Littorina										
Morula	1.00	1.30%			0.60	0.30%				
Melampus	0.20	0.30%	3.00	1.20%	1.10	0.40%	2.50	7.70%		
Nerita picea	0.20	0.30%	4.50	1.90%			1.10	3.40%	3.90	3.40%
Nerita polita			0.30	0.10%			1.00	3.10%		
Planaxis										
Strombus maculatus	1.70	2.20%							0.20	0.20%
Terebra			1.90	0.80%					1.20	1.00%
Thais									5.60	5.00%
Theodoxus cariosa										
Trochus intextus	1.20	1.60%					0.30	0.90%	0.10	0.10%
BIVALVIA										
Brachidontes			0.20	0.10%						
Isognomon (Pearlshell)	2.30	3.10%	8.00	3.40%	8.10	3.50%	2.40	7.40%	9.30	8.20%
Periglypta reticulata							0.30	0.90%		
Tellina palatam			14.10	5.90%	2.10	0.90%	0.30	0.90%	0.70	0.60%
ECHINODERMATA										
Colobocentrotus atrata										
Echinometra mathaei										
Echinothrix diadema										
Heterocentrotus mammillatus	2.00	2.70%	21.90	9.20%	3.80	1.60%	2.20	6.80%	9.90	8.70%
CRUSTACEA			0.30	0.10%					0.20	0.20%
FISH BONE			7.70	3.20%	0.60	0.30%			0.70	0.60%
BIRD BONE			3.60	1.50%	0.20	0.10%				
MAMMAL BONE	0.20	0.30%	78.30	32.90%	27.50	12.00%			0.10	0.10%
Pig Teeth			11.60	4.90%	4.20	1.80%			0.90	0.80%
Dog Teeth					1.00	0.40%				
Cow/Horse Teeth										
TOTAL	74.80	100%	238.30	100%	229.40	100%	32.50	100%	113.60	100%

COMPONENT II (PART 3)	TP11 - LAYER 2		TP12 - LAYER 3		AVERAGE	
	Wt.	%	Wt.	%	Wt.	%
GASTROPODA						
Cellana exarata	0.50	0.15%	0.30	0.05%	14.50	0.30%
Conus	12.60	4.30%	4.60	1.10%	313.00	5.70%
Cymatium						
Cypraea	154.50	52.70%	167.70	40.80%	2708.00	49.80%
Drupa ricina	5.20	1.80%			98.70	1.80%
Hipponicidae	0.40	0.10%	3.50	0.80%	7.40	0.10%
Littorina						
Morula					14.60	0.30%
Melampus			1.30	0.30%	12.40	0.20%
Nerita picea	12.10	4.10%	4.00	1.00%	117.20	2.10%
Nerita polita	1.40	0.50%			31.90	0.60%
Planaxis	0.60	0.20%	3.40	0.80%	29.90	0.50%
Strombus maculatus	0.80	0.30%	1.50	0.40%	9.40	0.20%
Terebra			0.20	0.05%	14.60	0.30%
Thais					4.60	0.10%
Theodoxus cariosa			0.80	0.20%	2.70	0.05%
Trochus intextus	1.60	0.55%	1.10	0.30%	14.90	0.30%
BIVALVIA						
Brachidontes	4.90	1.70%	7.40	1.80%	48.30	0.90%
Isognomon (Pearlshell)	51.50	17.60%	45.70	11.10%	598.00	11.00%
Periglypta reticulata	2.50	0.90%			14.50	0.30%
Tellina palatam	3.50	1.20%	0.80	0.20%	25.90	0.50%
ECHINODERMATA	17.30	5.90%	103.80	25.30%	341.30	6.30%
Colobocentrotus atrata			2.70	0.60%	3.30	0.05%
Echinometra mathaei			15.00	3.60%	149.10	2.70%
Echinothrix diadema	0.10	0.05%	5.20	1.30%	12.10	0.20%
Heterocentrotus mammillatus	13.70	4.70%	15.10	3.70%	586.90	10.80%
CRUSTACEA	0.10	0.05%			7.00	0.10%
FISH BONE	0.40	0.10%	17.90	4.40%	54.40	1.00%
BIRD BONE					5.20	0.10%
MAMMAL BONE	5.60	1.90%	9.10	2.20%	172.30	3.20%
Pig Teeth	3.10	1.00%			27.10	0.50%
Dog Teeth	0.60	0.20%			1.60	0.05%
Cow/Horse Teeth						
TOTAL	293.00	100%	411.10	100%	5440.80	100.05%

COMPONENT III	TP3 - LAYER 4		TP6 - LAYER 3		TP7 - LAYER 2		TP8N & 8S - LAYER 3		AVERAGE	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA										
Cellana exarata	0.50	0.15%					1.10	0.20%	1.60	0.15%
Conus	1.30	0.40%	15.30	8.40%	0.60	0.60%	15.80	3.30%	33.00	3.10%
Cymatium										
Cypraea	58.30	18.60%	91.20	50.00%	41.50	39.80%	182.00	38.30%	373.00	34.70%
Drupa ricina			7.50	4.10%	1.80	1.70%	3.80	0.80%	13.10	1.20%
Hipponicidae			0.10	0.05%	0.20	0.20%	0.20	0.05%	0.50	0.05%
Littorina										
Morula	4.00	1.30%			0.60	0.60%	0.50	0.10%	5.10	0.50%
Melampus	0.40	0.10%							0.40	0.05%
Nerita picea	2.50	0.80%	1.40	0.80%	1.40	1.30%	0.30	0.05%	5.60	0.50%
Nerita polita			0.90	0.60%	0.20	0.20%	5.50	1.20%	6.60	0.60%
Planaxis	2.10	0.70%							2.10	0.20%
Strombus maculatus	0.40	0.10%					3.50	0.70%	3.90	0.40%
Terebra	0.50	0.15%	0.20	0.10%			0.50	0.10%	1.20	0.10%
Thais	2.10	0.70%							2.10	0.20%
Theodoxus cariosa										
Trochus intextus	1.50	0.45%					6.40	1.30%	7.90	0.75%
BIVALVIA										
Brachidontes	4.00	1.30%					0.20	0.05%	4.20	0.40%
Isognomon (Pearlshell)	30.00	9.60%	8.80	4.80%	10.20	9.80%	23.40	4.90%	72.40	6.70%
Periglypta reticulata			1.00	0.60%	2.60	2.50%	2.00	0.40%	5.60	0.50%
Tellina palatam	0.90	0.30%	1.50	0.80%			5.50	1.20%	7.90	0.75%
ECHINODERMATA	79.00	25.20%	5.30	2.90%	6.50	6.20%	5.20	1.15%	96.00	8.90%
Colobocentrotus atrata										
Echinometra mathaei	11.80	3.80%							11.80	1.10%
Echinothrix diadema	5.80	1.80%	0.20	0.10%					6.00	0.50%
Heterocentrotus mammillatus	106.00	33.80%	47.50	26.10%	12.60	12.10%	22.20	4.70%	188.30	17.50%
CRUSTACEA										
FISH BONE	1.50	0.50%	0.20	0.10%	3.90	3.70%	6.40	1.30%	12.00	1.10%
BIRD BONE	0.20	0.05%			0.40	0.40%			0.60	0.05%
MAMMAL BONE	0.60	0.20%	1.10	0.60%	21.80	20.90%	157.20	33.10%	180.70	16.80%
Pig Teeth							30.70	6.50%	30.70	2.90%
Dog Teeth							2.70	0.60%	2.70	0.30%
Cow/Horse Teeth										
TOTAL	313.40	100%	182.20	100%	104.30	100%	475.10	100%	1075.00	100.00%

COMPONENT IV	TP3 - LAYER 5		TP8S - LAYER 4		TP12 - LAYER 4		AVERAGE	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%
GASTROPODA								
Cellana exarata			0.20	0.60%			0.20	0.05%
Conus	1.00	0.20%	4.00	11.00%			5.00	0.80%
Cymatium								
Cypraea	70.00	13.10%	20.30	55.70%	1.80	9.30%	92.10	15.60%
Drupa ricina								
Hipponicidae					1.30	6.70%	1.30	0.20%
Littorina								
Morula	2.50	0.50%					2.50	0.40%
Melampus	1.20	0.20%					1.20	0.20%
Nerita picea					0.80	4.10%	0.80	0.15%
Nerita polita			3.10	8.50%			3.10	0.50%
Planaxis					0.40	2.10%	0.40	0.05%
Strombus maculatus								
Terebra								
Thais								
Theodoxus cariosa								
Trochus intextus	0.70	0.10%					0.70	0.10%
BIVALVIA								
Brachidontes	6.50	1.20%			1.20	6.20%	7.70	1.30%
Isognomon (Pearlshell)	26.00	4.90%	5.50	15.10%	3.50	18.00%	35.00	6.00%
Periglypta reticulata								
Tellina palatam								
ECHINODERMATA	122.00	22.90%			6.00	30.90%	128.00	21.75%
Colobocentrotus atrata								
Echinometra mathaei	7.50	1.40%	0.10	0.30%	1.90	9.80%	9.50	1.60%
Echinothrix diadema	4.00	0.75%			0.50	2.60%	4.50	0.80%
Heterocentrotus mammilatus	278.20	52.20%	1.70	4.70%	0.80	4.10%	280.70	47.75%
CRUSTACEA	0.20	0.05%					0.20	0.05%
FISH BONE	8.50	1.60%			1.20	6.20%	9.70	1.65%
BIRD BONE	1.00	0.20%					1.00	0.20%
MAMMAL BONE	3.50	0.70%	1.50	4.10%			5.00	0.85%
Pig Teeth								
Dog Teeth								
Cow/Horse Teeth								
TOTAL	532.80	100%	36.40	100%	19.40	100%	588.60	100.00%

APPENDIX H

**Conceptual Plan from the Hawaiian Perspective
Keolonahihi State Historical Park**

Fifth Progress Report of a
Conceptual Plan with the Hawaiian Community
for
KEOLONAHIHI

State Historical Park, North Kona, Island of Hawaii

Prepared for:

State of Hawai'i
Department of Land and Natural Resources
Division of State Parks

Prepared by:

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Submitted:
February 16, 1993

DEVELOPMENT PROPOSAL

I considered many issues before deciding that work should proceed towards the goal of cultural renaissance for this unique Native Hawaiian cultural site. One of my concerns addresses Keolonahihi's uses and values in contrast with the idea of Keolonahihi being exhibited as a traditional park.

At this time I wish to digress and provide a brief historical review that pertains to my next thought. Keolonahihi has been disfunctional for at least the last 150 years. Some contributing factors were:

1. The introduction of western political, social and religious beliefs and practices.
2. The neglect of the 'ahupua'a of Holualoa due to rapid population decline, Christian influence, centralization of political authority in the Hawaiian Kingdom.
3. Extensive multi-cultural multi-ethnic impact upon native Hawaiian culture.

4. A general diminution of Hawaiian cultural beliefs and practices such as in native Hawaiian religion, style of clothing and dress, native Hawaiian language replacement, removal of traditional native Hawaiian political practices change in native Hawaiian educational practices and land use culture.

Yet despite this litany of trauma to the host culture it is a tribute to the native Hawaiian that much of the rituals, ceremonies, beliefs, values and practices in all facets of the host culture are alive and well. The Keolonahihi program should serve as a matrix for re-examining, retranslating and re-instituting the values and practices most efficacious in light of the generation long development among native Hawaiian to reemphasize the renaissance of cultural and spiritual essence of oral tradition transmitted through ancestral memory.

Native Hawaiians demand that their corpus of knowledge be respected and used by themselves and honored by non-Hawaiians. Some important areas of consideration are:

1. Awareness of lineal descendants and genealogy.
2. The development of the group or in this case the Hawaiian race.
3. The integration of the past-present-future as a part of lokahi.
4. The relationship of the society to the sea, the land, the spaces above and below.

Much more can be added but it is cogent to say that the native Hawaiian's lifestyle, as an example of the human experience, should demand that the Keolonahihi program promote life and living (or a holistic life experience) that is to be experienced. In other words a living culture to be experienced not to be merely observed!

Keolonahihi contains several heiau and other sacred sites which are threatened by the proximity of rapid urbanization of nearby land development. It is apropos to state that adjacent private lands would never have been used in their current state had Keolonahihi not suffered a 150 years of dysfunction.

However, I realize that a more expedient proposal must address private land use vis-a-vis the intended program structure of Keolonahihi today. With this in mind the cultural programs must be provided the maximum spatial integrity as possible. The Keolonahihi/Holualoa Cultural Learning Center should be free of compromising and intrusive environments that would retard and reduce the effectiveness of the Center's purposes. Accordingly, I suggest that the following measures be implemented:

1. Kaumalumu land section of six acres be added to the Center. This acquisition would almost complete the total integration of the peninsula into the complex and would honor the meaning of Kaumalumu which is protection.
2. The acquisition of the land and structures of the four

private owners on the old government road extension that is ma kai of Ali'i Drive and directly on the east border of Keolonahihi parcel.

3. Resource management strategy as well as the holistic value of lokahi impels action that the ma uka portion of the Keolonahihi complex be purchased. Keolonahihi is incomplete without it!

The full development of the ma kai and ma uka portions of Keolonahihi are the ultimate goals. I recommend that these areas be restored to its functional state. Within the context of full development I recommend that presentation of certain sites be a part of the restoration ethic, that is, the greater part of Keolonahihi ma uka and ma kai be restored but some temple sites may need only preservation treatment because of its sacred status.

I recommend that full development include the following:

1. Significant religious features be preserved.
2. Other areas should be restored through re construction.
3. A visitors center must be included.
4. An education center must be included.
5. A genealogical and records component must be included.
6. Programs of cultural education, values and practices must be established.
7. Visiting protocols and protocols for philosophical

exchanges should be established and used.

8. Demonstration areas should be established.
9. Lecture pods must be provided.
10. Walkways that do not disturb the site must be provided.
11. Human need facilities such as restroom stations should be provided.
12. A maintenance facility should be provided.
13. A non-profit management entity be established.
14. An Advisory Council should be constituted.
15. A practicing Kahu should be empowered.

The Kahu or Director, State Officials, Cultural experts, the Friends of Keolonahihi and a non-profit entity need to work to achieve compatibility and consensus. At first blush so many different centers would make it seem that coming together would be a Herculean task however the host culture frequently conducted major initiatives through its council of chiefs. Our diverse chiefs were able to arrive at consensus that affected whole islands perhaps we can achieve a momentum to affect the Kona district.

were 'Alapa'i, Kamehameha, his mother Keku'ipoiwa, Keakamahana, Keakealani and her children. Keakamahana and Keakealani were of the pi'o status, a rank of the kapu moe. This rank gave them the privilege of being honored through a human sacrifice. This may account for the Hale o Ka'ili situated at Keolonahihi.

KEOLONAHIHI, A SHORT HISTORY

According to Henry Kekahuna and his mentor Maluahine Ka'opua, Keolonahihi was one of the first residences of this complex. Keolonahihi is recorded as a relative of Pa'ao although the relationship is a generation or two after the famous priest. Pa'ao's direct genealogy does not seem to reflect this particular name. It is thought that she maintained the work of Pa'ao in continuing pure ali'i blood lines. The name of Keolonahihi may be a title for her responsibilities or it may also be a name which ascribed to her duties and became attached to her. If it is a title, more research has to be put into the connection of her function with Kukaniloko and Kahihiohalani.

Her chiefly mates were Aka and Kahalu'u. A surfing chant was composed in Aka's honor which alludes to his surfing skills and habits. Keolonahihi was also a renown surfer and would be seen riding the feathering ridge of the wave known as Kakala o Kamoa. This feature of the wave soon took on the name, Kakala o Kamoa.

Other notable ali'i associated with Holualoa/Keolonahihi

Another Hale o Ka'ili is located in Kohala and according to folklore and oral tradition was directly associated with Kamehameha and his plans to acquire Maui. These are the only Hale o Ka'ili I was able to locate and substantiate according to local oral tradition. The condition of Hale o Ka'ili at the Keolonahihi site in comparison with the Kohala site is much more superior in its structural integrity, preservation and placement.

During the time of the Great Mahele, in 1848, the 'ili, Palau'eka was awarded to Lo'e. She passed this parcel onto her four children. In 1888 Kekaulike purchased 2/3 of this land and the other 1/3 was used by the last of Lo'e's descendants. Mo'i Kalani lived there from 1898 to 1892. After Mo'i Kalani's death Kekaulike passed the land on to Jonah K. Kalaniana'ole and David Kawanakoa. At the time of annexation the land was bought by Kona Sugar Company then was re-sold many times to other sugar companies. In 1933 the site was acquired by Thomas White who utilized the space for ranching. Frank Kent purchased this land for a hotel but encountered strong opposition from the community.

Theodore Kelsey and Henry Kekahuna wrote news paper articles to help educate and raise the community's conscience regarding the Keolonahihi site and its impending development.

KEOLONAHIHI, A SITE DESCRIPTION

The Keolonahihi complex is the ma kai section of the Holualoa ahupua'a in North Kona, Hawaii. It is commonly called Kamao Point and is situated between Kaumalumu ahupua'a to the south and Holualoa Bay to the north. The immediate 'ili is known as Palau'eka which is often referred to as Holualoa 4.

The four adjacent sites bordering Keolonahihi are 1) Kaumalumu, 2) the property to the east of Keolonahihi across Ali'i Drive, 3) the private properties/four homes, between the east boundary of Keolonahihi and Ali'i Drive and 4) the surrounding ocean.

Kaumalumu is the parcel immediately south of the border of the complex. It's actual traditional use is unclear, however the meanings of it's names are, 1) to place a protection or shade, 2) to overlook one's faults, are significant. These definitions suggests it can or was used in connection to Keolonahihi heiau complex. Kaumalumu can serve as a buffer zone for Keolonahihi

since it shares the same peninsula. Keolonahihi ali'i complexes, like the heiau required some lateral spatial protection around it.

The second land area of concern is directly ma uka of Keolonahihi complex and Ali'i Drive. This large site includes the residence of ali'i wahine Keakealani, Mo'i'pe Heiau, Hualani Heiau, a burial site, a mahi'ai or planting complex and other significant sites, of interest. This ma uka site is an integral part of Keolonahihi ma kai and should function as one. The ma uka site is the actual residence and the ma kai area functions as a growing experiential site.

In regards to the four home between the present Keolonahihi parcel and Ali'i Drive I recommend that these homeowners be informed of the re-establishment of the heiau complex and that future plans call for expansion through the inclusion of these properties. Their residences will be incompatible with the purposes and goals of the Keolonahihi program.

The present Keolonahihi site is probably the one used continuously from the coming of the earliest Hawaiian up to modern times. The ocean surrounds this complex on the north or Holualoa Bay and the great Pacific Ocean to the west. The Kamao and Kaulehua surfs are immediately to the west of the point. The rich coral reef and fishing areas have survived however, the reefs of Kona are now part of the ciguatera problem.

Keolonahihi consists of twelve acres from Ali'i Drive to the western most point of this complex site. The terrain gradually moves from sea level to 21 ft. elevation at Ali'i Drive. The highway construction of Ali'i Drive accounts for the 21 ft. elevation. The coast line consists of jagged rocky terrain interspersed with basalt, coral cobbles, small boulders and patches of coral and basalt sand.

The area is overgrown with dense vegetation. The larger population of vegetation consists of exotic varieties such as kiawe, opiuma, false kamani, koa haoie, and banyan as well as other shrubs and weeds. The native vegetation identified on site are niu, milo, loulou, hala, kou and 'ilima.

The complex accounts for small heiau(s) or worship platforms such as Kanekahellani (sports heiau), Keolonahihi's wahine heiau, Hale o Ka'ili, Hale 'A'ama just to name a few. Keolonahihi's house site was located in this complex. A unique viewing platform to watch ocean activity was built at the point and still remains. Small fresh or brackish water pools, springs and a well are also part of the site and no doubt added to the comforts of life at Keolonahihi.

Considering the amount of time that the site was uninhabited, I am impressed that the stone structures are relatively well preserved. Destruction or deterioration have been caused by encroaching vegetation, the constant wave action, the material and

machinery used for constructing Ali'i Drive, complex used as cattle pen by the ranchers and total culture neglect by land owners. The shoreline is used by surfers, fishermen and the general public. Current shoreline erosion requires a resource protection and management plan immediately.

KEOLONAHIHI 1993

During my research and analysis of various Hawaiian cultural sites and restorative attempts, I did not find a plan which accounted for a site renaissance. The purpose of many proposals emphasized visitor impact, staffing, affected environment and the preservation/restoration of the site.

My research has revealed the use of the prefix "ancient Hawaiian" in many park or promotional labels. At this site this prefix should be used parsimoniously or not at all. In our social climate of 1993 native Hawaiians will brook no innuendo that diminishes the living culture of native Hawaiians. This park should promote and publicize the living native Hawaiian culture of today through judicial practice of the evolutionary native Hawaiian culture of the past. It is imperative from the native Hawaiian perspective that care be taken in recognizing that this site becomes a working functional entity that will not insult or aggravate the native Hawaiian who are now in the midst of a powerful social, political and cultural swirl of sovereignty.

Keolonahihi is a cultural site displaying a very comprehensive family cycle. The native Hawaiian purpose were to encourage: 1) procreation 2) recognize the life cycle from conception to birth, 3) to promote religious teachings, 4) sex education, 5) training for war, 6) mating expectations, 7) making political decisions 8) to promote the Ali'i's responsibility of maintaining blood line, 9) to promote the responsibility of passing traditions or knowledge 10) to promote final preparation of the chief's bones for burial and deification.

The lifestyle described above is not so different from the obligations of life today and although the ali'i who occupied and utilized Keolonahihi have been replaced by modern native Hawaiians who are influenced by modern multi-cultural contact it is pertinent to understand that native Hawaiian recognize and honor those past practices and values by becoming practitioners themselves in this time period. These developments are recognized as worthy of reestablishment at this site and we should encourage this native Hawaiian cultural renaissance at Keolonahihi. To help implement these cultural values and practices an educational/cultural center with a working Kahu and a Advisory Council to oversee the activities should be established to allow the continuity of cultural generational practices at Keolonahihi. The working knowledge of the past integrates into the present and the future is a necessity for a living cultural experience.

I agree with Holly McEldowney's argument stating that Keolonahihi was not uniquely responsible for the ceremony of "oki ka piko" or severing the navel. Many ali'i residential and religious sites were places that were used for this practice. Chants were composed stating the place where the piko was severed, specific locations for piko safe keeping were mentioned, the planting of the placenta and the genealogical line of the child. These rituals of birthing insured the child a proper entrance into life and some assurance of safe keeping and this also establishes a sense of place for the child.

The birthing rituals were common practices. Despite social changes such as the introduction of Christianity or the overthrow of the monarchy, birthing rituals and practices did not vanish and these cultural practices continue among the native Hawaiians today. Places used for safe keeping of the piko are becoming scarce with the diverse and aggressive land developments. A place set aside at Keolonahihi for this native Hawaiian purpose would enhance Keolonahihi as a living cultural site rather than having a museum like ambiance.

Any family requesting participation in these rituals must be able to trace their genealogy to ali'i members who occupied this heiau complex. These precautions should also extend to the subsequent generations of these families.

The practice of maintaining ones genealogy is definitely

related to Keolonahihi. Although the purpose of genealogical study and search are somewhat different in 1993 the zest for maintaining genealogy knowledge among many people remain intense for diverse reasons. The application of Keolonahihi's educational/cultural center will prove beneficial to the native Hawaiian community of Kona, the native Hawaiian of the State of Hawai'i and all others of Hawaiian ancestry.

The birth of an ali'i child warranted a chant composition describing the condition or honors under which the child is born. The process which enables the child to pass through different stages of life are also impetus for other chant compositions as well as significant events and changes, were deemed to be a part of the person's life history. The child was frequently honored by oral presentations of his life records.

The following is a portion of the chant for Laka-a-Wahielea which celebrates the importance of the person by revealing the sites where afterbirth materials were deposited. This is an excellent example of the types of chant that were composed to honor an individual.

WA LAKA A WAHIELOA KA MELE

'O Laka-a-Wahielea ke ali'i o Kipahulu
I hanau no i Hilo
I ka ua i Hailimanu i 'Ola'a

I ke one uli, i ke one kea
I mahina uli, i mahina kea
I ke one laua a Kane
'O Honokawailani kahua
'O 'Ohele i Kaipalaoa ka 'ewe
'O Makoalanakila i Kuaua ka pu
'O Kolopulepule ka piko
I uka i Waianuenue ke 'a'a

Laka of Wahielea was the chief of Kipahulu

Born indeed at Hilo

In the rain of Hailimanu at 'Ola'a

On the dark sand, on the light sand

On the dark moon, on the light moon

The sand of Kane

Honokawailani is the foundation

'Ohele at Kaipalaoa is the placenta

Makoalanakila at Kuaua is the bundle

Kolopulepule is the piko

The cord is at upper Waianuenue.

This chant extols the line of Laka a Wahielea a chief of equal rank as 'Alapa'inui. The 'Alapa'inui, of Holualoa/Keolonahihi, line does not stop with his son Keave'opala because many native Hawaiian genealogists continue their work through composition however few put them into poetic form as is found in the Kumulipo. The Keolonahihi educational/cultural center will

encourage this practice of chant composition that allows oral delivery of genealogy in a traditional fashion. The continuation of this modern native Hawaiian practice using compositions of Holualoa as one of the themes will be a boon to the Kona community specifically and the State wide community in general because chant composition and delivery will be in the Hawaiian language.

As we all know 1993 focused upon the native Hawaiian culture and also the issue of native Hawaiian rights in a modern context. Keolonahihi must be above the fray but not ignorant or unconscious of the important changes among the present native Hawaiians. Such recognition by the Keolonahihi programs should only enhance strong ties to the host culture, enhance pride among native Hawaiians, enhance native Hawaiian support of native Hawaiian programs at Keolonahihi and generate assistance by the Keolonahihi programs to cultivate racial pride and the spirit of lokahi that is beneficial to all people of Hawai'i through sovereign justice to the native Hawaiian host culture.

The following are traditional themes once used at Keolonahihi and are applicable today. These traditions should continue, be taught and experienced at the educational/cultural center of Holualoa/Keolonahihi.

1. The 'ahupua'a seen through the value of lokahi.

2. A value of lokahi linking; of humans, god and land
3. The linking of grandparents, parents and children as the value of lokahi
4. The value of maintaining genealogical lines as well as establishing genealogical center servicing the Kona community.
5. Providing education regarding all levels of war, sexual conduct, sports and its purpose, occupational rank, etiquette, duties of Hawaiians to their culture, and to other Hawaiians and non-Hawaiians.
6. The establishment of an educational cadre knowledgeable in determining the use of space, construction and placement of objects upon the ground.
7. The role of oral tradition and oral culture in yesterday's, today's, and tomorrow's world.
8. The cultural importance of naming people and places and the concepts and meanings attached to names.
9. A sense of place, for example using Kalani'opu'u and Ka'u, 'Alapa'i and Kona, Kamehameha and Kohala.
10. Hale o Ka'ili in comparison to Pu'u Kohola and its other relationships such as Ka'ili with Keakealanivahine, 'Alapa'i and Kamehameha.
11. The recognition of the major role of the ho'omau keiki culture structure at Holualoa/Keolonahihi for yesterday and today.
12. The recognition of the major role of funerary functions at Keolonahihi and the practice of reburial today with the

KEOLONAHIHI, FULL RE-DIGNIFICATION

ACQUISITION OF LANDS

Kona is a rapidly growing community with needs for expansion. The subdivisions, shopping centers, hotel and condominium growth demands land space. The most desirable of Hawai'i's real estate is ocean front property. The most desirable of the ocean front property is one with a white sand beach or a small peninsula or surfing and swimming areas. Keolonahihi possesses some of these features therefore is one of the most desirable real estate in Kona.

However, the value of Keolonahihi's cultural uniqueness totally outweighs any argument for a housing development on or near that property. The mana it possesses is because of it's association with Deities and with the beliefs and practices of our Hawaiian ancestors. The vast amount of ancestral memory that comes out of and was put into Keolonahihi are immeasurable.

The goal for maximum re-establishment depends on the acquisition

of more land. Land must be acquired before further encroachment of development from Kailua or from Keauhou intrudes onto Holualoa. The population increase is predictable. The following chart shows the increase over the last 40 years:

PLACE NAME	1950	1970	1990
State of Hawai'i	499,794	769,913	1,108,229
Hawai'i Island	68,350	63,468	120,317
North Kona		4,832	22,284
Kailua	326		9,126
Holualoa	475		3,834

In the case of the State of Hawai'i and Hawai'i island, the population of both has doubled. Within the last 20 years North Kona has increase approximately 440 per cent. The intense population increase in the above areas will impact upon the targeted area of Holualoa which has increased 770 percent according to population statistics. This knowledge of population growth should inform us that land acquisition is an immediate priority. The tremendous demands for land and the competition for

Only a minimal level perimeter walkway to allow public visitor access should be constructed. No cultural areas or learning pods will be built.

Fencing off the area may be necessary for this alternative no action plan. This fencing and locked gate will discourage after hour sight seeing and intruders from climbing over the stone walls and into the sacred areas. During the day hours the gate will be open to kama'aina and visitors, however to guard against unwarranted destruction and danger to the site and to people safeguards such as on site private security or on site public security or frequent police patrols should be implemented.

The State would still have jurisdiction over Keolonahihi and over the land and water use rights. A part time park worker from the State should be assigned to this site in order to continue minimum maintenance.

This plan is not viable, therefore not recommended.

KEOLONAHIHI MINIMUM REDEVELOPMENT PLAN

Keolonahihi minimum redevelopment plan is made with incremental progress in mind eventually arriving at the full redevelopment program.

The advantages to this program would be modest budget demands and relatively cost effective because land acquisitions are not immediately implicated.

Keolonahihi during this process will eradicate all the exotic vegetation. After the vegetation is cleared the preservation/restoration plan decided on by the Advisory Committee will be put into effect.

I will recommend to the Advisory Council to restore the filled area abutting Ali'i Drive and the entrance to Keolonahihi and the stone wall built by the ranch must be removed and a protective fence be installed for security purposes. A grassy gentle slope will be created between the entrance to Keolonahihi

return of native Hawaiian ancestral bones.

13. The importance of the sports complex at Keolonahihi including the surfing areas.

14. The recognition that Holualoa/Keolonahihi is unique by being especially relevant for today's society. Unlike other sites such as the village/fishing area of Lapakahi or the religious site of Mo'okini Heiau, Holualoa/Keolonahihi is a site that deals with family life, with everyday living, with a family residence, with private worship shrines or heiau, with sports and physical conditioning, with sustenance and with final rites or in other words those conditions of life that we in modern times deem as relevant and functional. Keolonahihi programs must stress these ideas and concepts as being integrated and interrelated with each other.

Like the Keolonahihi complex the native Hawaiian host culture has been buffeted by the traumatic winds of change and the radical impacts upon Keolonahihi, as the land, and the native Hawaiian, as its first people. Like the native Hawaiian as the indigenous people, who are traveling on the road of cultural and social renaissance and sovereignty and justice so to Keolonahihi must travel that road that projects reality and independence, as cultural truth. The Keolonahihi/Holualoa program must be part of a link to the native Hawaiian people and our culture as thoroughly as any body part is related to the body. It is this living modern-traditional living culture that must be functional at Keolonahihi, a site of the cultural renaissance.

KEOLONAHIHI RE-ESTABLISHMENT PLAN, NO ACTION

The no action plan will see little significant changes. The purpose for this plan would be to maintain the site by preventing further erosion and wall damages by vegetation encroachment. This alternative would require the clearing of all exotic vegetation. Clearing a walkway around the perimeter of Keolonahihi to allow some kama'aina and visitors the opportunity to view the site will be a minimal task for the state or hired clean-up crew.

Under this no action plan infrastructure, parking area, visitor's center or other structures will not be considered. A story board or interpreter's sign will be provided for visitors, as well as on site brochure in a weather proof box. An effort to protect the site from vandalism or other destructive forces must be initiated at the beginning of the clearing process. This security level should be maintained. Publicity to raise any further awareness of the site should not be initiated.

and Ali'i Drive. All the material used to fill the entrance area due to the improvement program for Ali'i Drive will be removed and sold.

This plan has no space for parking or building proper structures suitable for quality interpretive programs for kama'aina and visitors. The learning pods will be utilized for lectures, workshops, classes, protocol, viewing platform and other activities. The resurrection of a halau wa'a can serve as a temporary visitors and information center. If the halau wa'a is used as a working shed and visitors center a board walk must be built from the entrance area to the halau wa'a. An interpreter will be present to see to the needs and questions of the visitors.

A portable bathroom will be installed at the Holualoa Bay end of the old government road for use by employees and emptied by county or State workers at least three times a week.

Those sites slated for preservation by the Advisory Council will be shored up to prevent it from further damages by natural or human impact. The sites for restoration will be done with advice from cultural experts and state selected official. The restored sites may or may not be used by contemporary practitioner upon the advice of the Advisory Council.

A story board or interpretive signs will be placed in areas allowed for self or guided tours. Other kinds of information will be placed in a rack at the halau wa'a. The safeguard of the materials placed in the halau wa'a during the day will be the responsibility of the Interpreter.

This plan is not recommended due to the fact that it is simply an exhibition and not functional. Information and pictures can be gotten from books however the need for cultural renaissance will not be attained. We have museums. We need an ambitious, visionary and new living approach to cultural sites and their functions. However with incremental progress in mind this plan is workable.

A Hawaiian proverb alludes to this concept of allowing things to live by actively teaching and involving people in the process of growth:

If you prepare for a year, plant taro.

If you prepare for 10 years, plant koa.

If you prepare for a lifetime, teach the children.

space will reduce the open areas needed for Keolonahihi's outer perimeter.

The Kaumalumu property will provide the amount of space needed for parking space, an education/culture center, a visitor's orientation center and a genealogical library. The acquisition of Kaumalumu is pertinent for the full redevelopment program for Keolonahihi. This parcel will allow for proper presentation of the complex without encroachment for a visitors facility or the education center therefore the acquisition of Kaumalumu is recommended. Kaumalumu was a resting place for canoe landing, therefore a halau wa'a is appropriate there.

The ma uka property housing Keakealani's house site, Haulani heiau, Hoipe heiau and the other adjacent sites as well as the surrounding ocean are necessary for a holistic understanding of the life cycle which integrates land and people. This ma uka property in conjunction with Keolonahihi site and the ocean will order a well structured native Hawaiian cultural approach to the revival and sharing of those special cultural points that focus upon the essence of Hawaiian among the host culture. Keolonahihi will offer the chance for native Hawaiian people to revive and reconstitute the cultural and spiritual degradation suffered by native Hawaiians. This cultural imperative as well as the significant holistic grounds are the *raison d'être* to the ma uka acquisition.

SITE FACILITIES

The full redevelopment program depends upon acquisition of those properties. The facilities planned for these adjacent parcels will not interfere with the historical site but enhance, support and protect Keolonahihi. All contemporary building will be outside of the walled area except for the learning pods which will be located in specific selected sites. These sites for the learning pods will be located within the Keolonahihi complex and the sites will be chosen by an Advisory Council. The proposed facilities at Kaumalumu will consist of 1) a visitor orientation center 2) an education/cultural center 3) a small parking lot 4) a halau wa'a 5) a security residence and 6) a maintenance facility.

The proposed visitor orientation center will exist mainly to provide information for the visitors. The center will orientate the visitors to specific sites within the complex area. This center will take advantage of the ocean breeze and will be more in the style of a large lanai. Interpreters will act as guides for the cultural sites and will address the needs of the visitors. The center will display a model of Keolonahihi and the ma uka site with all of their features. It will also have a brochure tray, a map of the Kona and a map of the Holualoa area and a genealogical chart of Ali'i who occupied this area. Other

future or relative displays will be welcomed and accepted dependent upon advice from the Advisory Council. The structure's actual design will be based upon suggestions from the Advisory Council.

The educational/culture center will be constructed to blend into the natural environment and to accent and compliment the functions of Keolonahihi. This educational/culture center will include a genealogical collection of diverse Hawaiian lineage with a special emphasis of linkages with Keolonahihi. The Keolonahihi program will be utilized as a place for acquiring the following skills:

1. Carving
 - a) functions and purposes of carving in the earlier society
 - b) functions and purposes of carving now
 - c) carve ki'i for Keolonahihi and ma uka site
 - d) as a mode of practicing, wood selection techniques and standards
 - e) replanting methodology
 - f) ceremonies for planting and carving
2. Chanting
 - a) learning chant styles
 - b) composition of chants
 - c) purposeful continuation of genealogical chants and

stories

- d) index existing chants
- e) the ceremonial chants

3. Traditional military skills

- a) physical training
- b) mental training
- c) advance physical development
 - a) surfing and distance swimming
 - b) sham battles
 - c) distance running
 - d) cliff climbing and leaping

4. Kapa

- a) planting and growing wauke in the mauka area
- b) stripping wauke
- c) soaking and pounding
- d) kapa tools (function of carving learning process)
- e) kapa ceremonies

5. Wa'a

- a) a ocean going people
- b) canoe ceremonies
- c) kaula making

This list names a few of the skills intended for the cultural experience renaissance. The list also reveals the individual commitment one should possess prior to one's involvement in the learning process of this center. Hawaiian

KEOLONAHIHI HEIAU COMPLEX FULL RE-ESTABLISHMENT

values through integration of self and the environment are a prerequisite. Study of the extended family will be part of the curriculum.

This center would also house an administration office. A halawai (meeting) space will be provided for formal lectures, tour lectures, workshops, or educational lectures. A small genealogical library with microfilms, fiches and space for research will be included. Spaces should also be provided to accommodate all practitioner based education.

The learning pods in and around Keolonahihi will also serve as a lecture platform, working area, viewing platform and mini theatre for outdoor interpretive programs both night and day. The pods will also be utilized for protocol ceremonies and welcoming other native people to Hawai'i.

Restroom facilities will be found in the educational/culture center and also in the parking lot area. The restrooms will be located within reach of the visitors and participants of the cultural activities. A storage area will be situated close to the maintenance building. The maintenance building will consist of a small work area, tool closet, locker and restroom. Vehicle access to the maintenance building is vital. A small residence for security purposes is an important feature.

A proposed restoration, preservation and interpretation program will be the responsibility of and planned for by the Advisory Council. The Council will decide which sites are to be preserved and which are suitable for restoration. Eradication of exotic vegetation and the method by which they are eradicated will also be part of the restoration/preservation initiative. The eradication of exotic vegetation will be a priority following the State's accepting the program and the allocation of funds.

My recommendation to the Advisory Council for immediate restoration following the removal of the exotic plants is the removal of the filled in area abutting Ali'i Drive and the entrance to Keolonahihi. The stone wall put up by the ranch must also be removed and a gentle, grassy slope from Ali'i Drive to the entrance bordered by the large upright pohaku be restored. Unrestricted access by the general public must not be allowed thus a protective fence will be constructed.

I suggest that all of the material deposited into that cultural site by the last road improvement program be sold and the funds will be utilized for restoration purposes.

I will also recommend to the Advisory Council that restoration of the grandstand, the halau wa'a, the site used for

entertainment by the ali'i and the Hale 'Olo be priorities.

I will also recommend to the Advisory Council that portable board walk corridors be constructed for proper interpretation of Keolonahihi.

No new construction is proposed inside of the Keolonahihi complex except for the learning pods.

KEOLONAHIHI ADVISORY COUNCIL

These considerations are relevant in selecting the Advisory Council for Keolonahihi:

1. Persons directly and continuously involved with the project, displaying sincere and genuine aloha towards the care and re-establishment of Keolonahihi.
2. Person(s) from the Kona community having been raised, or are in some way connected to Maluahine Ka'opua, the source from which contemporary information was acquired.
3. Young Hawaiians between the age of thirty and forty committed to promoting and maintaining different aspects of the Hawaiian culture and are interested in the re-establishment of Keolonahihi.
4. Person(s) considered experts in the Hawaiian Culture.
5. Person(s) already engaged in the area of establishing Hawaiian educational/cultural learning centers for the promotion, teaching, learning, revival and maintaining

cultural integrity.

6. Person(s) to act as liaison between the project and the State.
8. Person considered expert in budgetary affairs.
9. Person(s) who have been in support of Keolonahihi from the early revival days of the site.
10. Person(s) with expertise in land acquisitions.

The above list will regulate the criteria for members of the Advisory Council for Keolonahihi. Criteria must be considered for other area experts necessary for the re-establishment and revival of Keolonahihi. The following areas of expertise will only be utilized when occasion warrants their help and opinion. The following may or may not be compensated depending on the depth of their work, whether or not they want to donate their time and upon advise from the Advisory Council. Other areas of expertise may be added to the bottom list as needs arise.

The criteria are as follows:

1. Person or persons with expertise in rock wall building without use of cement or other unnatural elements.
2. Person or persons with expertise in archeology.
3. Person or persons with expertise in Hawaiian genealogy.
4. Person or persons with expertise in water use.

- a. In the area of the surf, its formation, names for surfs, direction, wind impact, etc.
- b. Canoe building, Halau Wa'a, landing and putting the wa'a to sea.

Other areas of concern is that of ongoing funds to match the State's annual fund in order for Keolonahihi to progress towards full re-establishment. I recommend that we utilize an organization whose intent and purpose is to establish Hawaiian cultural/educational learning centers. And whose purpose is to promote the integrity of Hawaiian sacred sites. Ka Piko Lokahi is a branch off of Friends of the Future and focuses upon the island of Hawai'i's cultural sites to maintain. The above description is compatible with the by laws of Ka Piko Lokahi. This organization is well balance with native Hawaiians and non-native Hawaiians. Ka Piko Lokahi is in the process and negotiation with two sites for cultural centers. Ka Piko Lokahi is a non-profit organization. I recommend that this organization play a role is the re-establishing Keolonahihi complex.

With these criteria as guideline, I recommend the following names for Advisory Council with possible changes upon refusal or regrets by the person or persons recommended.

1. Maile Akimsau, -member of Friends of Keolonahihi
-Kana'aina family from Kona
-Respected kupuna in the Hawaiian

- community
- Employed by Alu Like for her
 - Ho'oponopono skills
2. Francis Schoebel, member of Friends of Keolonahihi
- Long time member of the Kona Community
 - Expert in the field of Hawaiian plants
 - Employed by the Hawai'i National Park, Honaunau, for her skill in Hawaiian Plant.
3. Luika Ka'uhane, -Kona kama'aina kupuna
- A grandchild of Maluahine Ka'opua
 - Is very interested in the project and has shown her interest by attending meeting
 - member of 'Imiola no na Kupuna.
4. Gloria Muraki, -Kama'aina and resident of Kona
- Young Hawaiian interested in Hawaiian in developing culture learning center
 - member of Ka Piko Lokahi
 - member of Ka Piko Lokahi
5. John DeFries, -Kama'aina and resident of Kona
- Interested in maintaining Hawn sites
 - Respected young entrepreneur
- Formally employed by Landmark Hotels as special assistant to the Pres,
- Self employed consultant
6. Sophie Robertson, -Director for Friends of the Future
- Admin. for Ka Piko Lokahi
 - Resides in Puako
7. Francine Duncan, -Vice President of Maunalani Resort
- Expert in land acquisition
 - Expert in budget and development
 - Resides and kama'aina of Waimea
8. Pualani Kanahale, -Employed by Hawai'i Community College
- Knowledgeable in Hawaiian Culture
 - Kumu Hula
9. Tvo Kona Kupuna, -to be added
10. Kala Mossman, -Has done graduate work in focusing on Keolonahihi
- Has done ocean survey on the area around Keolonahihi
 - Is a young Hawaiian who has culture and academic interest in the site
 - Resides in Hilo
 - Employed by Hawai'i Fire Dept.

These are the names of people who are familiar with Keolonahihi and has shown a great deal of interest in the re-establishment of it. The State's liaison person(s) will be left up to the State to decide. However, I would prefer along with yourself the involvement of Mr. Edward Ayau or Mr. Nathan Napoka.

RECOMMENDATIONS FOR KEOLONAHIHI

In order to arrive at a fully functional and comprehensive site we must seriously adopt an aggressive mode for re-establishing Keolonahihi. The aggressive mode will produce the ground work for the revitalization and re-establishing of sites, practices, a restored history of Holoalos/Keolonahihi, the family unity and its existence, race consciousness, the cyclic interaction of man, land, sea and finally understanding that ali'i (hierarchy) and lokahi (harmoniously co-existence) were the key factors for the survival of the Hawaiian race in the middle of the Pacific.

The following recommendations, I believe, is the formula by which we shall commence with re-establishing process:

I - FULL REDEVELOPMENT. A TEN YEAR PLAN

1. I recommend the acquisition of Kaumalumu, the nature of acquisition is by purchase, land

exchange or condemnation.

2. I recommend the acquisition of the four homes adjacent to Keolonahihi, the nature of acquisition is by purchase, land exchange or condemnation.
3. I recommend the acquisition of the ma uka site as mentioned in the report, the nature of acquisition is by purchase, land exchange or condemnation.
4. I recommend the construction of a visitors center at Kaumalumalu, this center to be built in the style of a large lanai with open sides.
5. I recommend the construction of an educational/cultural site at Kaumalumalu, its design to be decided on by the Advisory Council.
6. I recommend a maintenance structure at Kaumalumalu.
7. I recommend a limited parking lot at Kaumalumalu with a larger parking lot at the ma uka property.
8. I recommend the building of a permanent Halau Wa'a at Kaumalumalu.
9. I recommend that a genealogical component be included in the educational/cultural center.
10. I recommend that a preservation/restoration program begin for the ma uka site.

II - MINIMAL RE-ESTABLISHMENT, A FIVE YEAR PLAN

11. I recommend the immediate selection of an Advisory Council according to criteria. The Advisory Council should consist of not less than eight and not more than twelve people.
12. I recommend the immediate clearing of all exotic vegetation at Keolonahihi.
13. I recommend the immediate clearing of rubble and boulders from the construction of All'i Drive be removed with the help of an archeologist.
14. I recommend the construction of a walkway with minimal or no impact upon the complex.
15. I recommend the immediate installation of a non-profit organization whose functions is to see into the construction of educational/cultural site and to maintain sacred sites.
16. I recommend the construction of three learning/demonstration pods be built within the complex area.
17. I recommend a temporary Halau wa'a structure be built within the complex to house a visitor/educational/cultural center.
18. I recommend restroom facility for the employees be placed on the old government road.
19. I recommend a preservation/restoration program be put into action immediately by the Advisory Council.
20. I recommend a Kahu be empowered immediately to

maintain the cultural integrity of Keolonahihi.

21. I recommend along with the Kahu an interpreter be hired immediately.

22. I recommend a maintenance person be hired immediately.

23. I recommend the values and practices taught and used at Keolonahihi reflect the initial use and purposes for Keolonahihi.

24. I recommend that more research for Keolonahihi be done.

COMMUNITY INPUT

In addition to the list of individuals submitted in the fourth report, I have also received consensus on this report from the following groups and or individuals:

1. Friends of Keolonahihi
2. Kona Civic Club
3. Ka Piko Lokahi
4. Friends of the Future
5. Edith Kanaka'ole Foundation
6. 'Imiola No Na Kupuna o Kona
7. Francine Duncan
Vice President of the
Maunalani Resorts.
8. Sophie Robertson
Director for Friends of
the Future
9. Kihalani Springer-Tomich
Kama'aina of Kona

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KEOLONAHIHI
Fifth Submittal Addendum

PLANTINGS:

After reviewing my previous Submittals I see no need to change the planting recommendations. The indigenous and endemic vegetation known to have existed at Keolonahihi as well as found there now should be allowed to remain in Keolonahihi. We should not allow any other plants to be installed in Keolonahihi beyond what is already there.

My initial recommendation was to propagate the "Hawaiian" plants known to have grown in Keolonahihi in the past and the present. These plants survive well in that environment and are culturally functional. I also recommended that all other vegetation be removed as soon as possible.

However, future programs at Keolonahihi may determine that other plantings not already in place may be needed, but the advisory committee to Keolonahihi should have the final decision as to what and why new permanent flora would be installed at that time. If the notion is accepted that Keolonahihi services a living native Hawaiian culture firmly anchored in its long history of ethics and values then some possible modifications to the recommended plantings may be considered for the purpose of cultural enhancements and promotion.

STRUCTURES:

I have recommended that in the Park's early stage of development that the temporary and portable visitor reception structure be placed on the areas that have already been disturbed by road construction tailings and other like debris. I have also recommended that in the interim between the months after Park start up and the acquisition of Kaunaluanu, that a private home directly across of the so-called government road directly mauka of the "stone wall" be acquired to serve as a temporary Park headquarters and visitor reception area. This action should not only turn away the criticism of having a Park-visitor center physically and psychically upon Keolonahihi but also show sensitivity by the institution toward the native Hawaiian culture.

I will clarify the question about the learning pods or paepae. I intend that in regards to the design that the pods or platforms should be approximately twenty feet in diameter made out of native wood situated upon post and pier, be convenient to set up, be portable and easily transported and stored. There should be no walls but it should have a safety guard rail since the paepae would be elevated a foot above the ground. A wooden bench would approximate the outside radius and provide a comfortable seating height for adults and children. The paepae should also have a easily removed roof that provides shelter from the intense sun of Kona and occasional rains.

Four paepae should be located at strategic points that provide view plains to most if not all of the Park. Portable elevated walkways that is easily set up, transported and storable with appropriate safety features should guide the visitor along these paths and discourage unguided excursions into the Park.

One of the paepae should be temporarily located at a position at the area where road construction debris is dumped that is immediately adjacent to Ali'i Drive and this paepae should overlook the Park. This paepae should be double the size of the others and would function as a reception area for ceremonial and ritual welcoming areas for local as well as overseas groups or dignitaries.

The purpose and function for all four paepae are to facilitate the educational duties inherent in this type of Park and to promote the host culture that is an integral part of Keolonahihi Park.

METHODOLOGY:

The methodology that I have used in my reports have generally been based upon the tried and true historical method however, I did not want to be locked into any type of method that would limit the development of the Keolonahihi reports. I have used the many and various historical sources in the research and the reporting. I have also used culturally sensitive and culturally correct interactive behaviors with native Hawaiians that should not be categorized by a methodology as used in a western academic sense such as in an anthropological or sociological approaches.

In those cases that I interacted with native Hawaiians individually and native Hawaiians on a group basis then I say that my methodology was a "native Hawaiian culture" model. If my interaction with native Hawaiians involved praying or using ceremony or using ritual or receiving private family information then the "native Hawaiian cultural" methods used will fit the information gained and the report transmitted and satisfy the Keolonahihi planning.

Fourth Progress Report of a
Conceptual Plan with the Hawaiian Community
for
KEOLONAHIHI

State Historical Park, North Kona, Island of Hawaii

Prepared for:

State of Hawai'i
Department of Land and Natural Resources
Division of State Parks

Prepared by:

Pualani Kanaka'ole Kanahele
696 Railroad Avenue, P.O. Box A-7
Hilo, Hawaii 96720

Submitted:
March 3, 1992

PROPERTY ACQUISITIONS AND PRIORITY:

It is quite difficult to place a top-of-the-list priority on acquiring Kaunalumalu over the Keakealani sites just mauka of Keolonahihi. Each site is as important as the other. Nevertheless I realize that funding is not unlimited and a piece by piece acquisition will probably be the case and not the exception. I recommend that the acquisition of Kaunalumalu be the State's first and that the Keakealani site be acquired soon after.

I believe that it is imperative to move forward with Keolonahihi. Progress will be greatly affected with the acquisition of Kaunalumalu. The temporary structures that will sit on Keolonahihi proper during the Park's formative stages can be appropriately sited on Kaunalumalu. Public accommodations for Park enjoyment, education, and human needs can be appropriately better placed on Kaunalumalu. But above all the Park's first steps toward fruition can get started.

Keolonahihi and Keakealani's house site and the ancillary sites connected with Keakealani's house site are complementary with each other. These sites are connected and they give the modern world a physical and spiritual view of the past. One can not tell the whole story without the other. The mauka and makai sites are the only ones of its kind in existence today. This reason alone attributes a priceless nature upon these sites thus timeliness of acquisition is imperative.

If we consider all other examples of Hawaiian cultural sites existing today none display the near complete quality of wholeness and in fact other sites exist as isolated fragments of the Hawaiian culture. The story at these sites are incomplete and culturally incorrect but at the Keolonahihi, Kaunalumalu and the Keakealani sites we have a holistic sense of the lives of our ancestors.

CONCEPTUAL PLAN FOR KEOLONAHIHI

INTRODUCTION

The visual presentation of Keolonahihi, at the onset, must be impressive to kama'aina and malihini alike. This can only be possible if all visual advantages are addressed and used for the purpose of aesthetics without diminishing the original majesty of the complex. The Park must portray the past material, physical, moral and ethical values through the living host culture of the present. If it is done with care, respectfully and through the host culture it will be a success.

FACILITIES: Visitors' Center Location

The relatively small size of Keolonahihi is an advantage because it is possible to view the heiau complex in it's entirety from the highest location. The point which I strongly suggest for this structure is directly west of the existing houses on the ma kai side of Ali'i Drive.

This was the approximate site of Keolonahihi's dwelling area.

This area was filled with material and is somewhat more elevated than the disturbed area located directly south off of Ali'i Drive.

Because of this site's disturbed nature I have two recommendations;

- 1) the visitor's center be placed on this site and 2) this center be a portable structure. My reasoning for number one is the fact that this is the highest ground and the size of the complex will allow one to view the entire area from this vantage point. Another reason concerns the limited parking area. The slightly curious visitor will stop and have a short yet complete view

of the site without having to walk through the area and leave being satisfied with just seeing Keolonahihi and for the more serious visitor the overview allows quick personal choices. Another reason for this particular choice is the fact that, except for some disturbed walls and heavy vegetated areas, every other place is at least distinguishably intact.

Reason two, addresses the concern of disturbed areas and the possibility of restoration for these sites. The recommended portable visitors' center structure is a hopeful endeavor leading to the restoration of the original Keolonahihi house site at some future date. This idea also suggests that a Park extension be acquired, possibly across the street or condemnation of the private property just mauka of the site to house a permanent visitors center.

I believe the condemnation of these private properties are a necessary feature in any Keolonahihi Park plan. The native Hawaiians who are concerned about Keolonahihi Park have expressed their displeasure of any plan that permits new structures upon Park grounds. But I see the portable visitors' center as a good faith short term compromise on the part of the State in that the State acknowledges the concerns of local native Hawaiians and however there is a need to recognize competing local concerns. There are the concerns of native Hawaiians that can be addressed by condemning adjacent private property and then moving the portable visitors' center away from the "original" park grounds in timely manner and there are the concerns of other local residents that a Park be established as soon as possible for local benefit as well as benefitting the visitor industry.

Proposed Structure

The visitors center should be a low rambling structure in a stylized version of the sugar plantation camp worker housing architecture which characterized the rural character of living prior to World War II in Hawai'i. These structures were usually built on post and pier with board and batten siding and corrugated metal roofing. This kind of structure typifies the thought of a more relaxed homey nostalgic era that seems less complex but more Hawaiian in feeling. Although, the characterization of the emotion associated with the era is open to opinion I believe there are ties to: 1. the generation which now are the "establishment". 2. the local adults that are now the main economic contributors in this state, 3. the local working class that now sees the plantation era including its architecture as part of their history/culture and 4. this type of building is low keyed and not garish as well as inexpensive to construct. The stylized sugar plantation structure will give one a feeling of space that complements the Keolonahihi peninsula and utilizes the off/onshore breezes to cool the building. The south and west walls of this structure will fold open to ventilate the building and will provide a feeling of expansiveness and permitting the panoramic view of the complex and the ocean although it is also possible to have three sides of the structure fold open at as extra cost option.

The site allows space for a 20' X 36' floor space that will

Page 4.

contain two 10' X 10' rooms and a 20' X 26' display/reception area. The structure will have a 8' wide lanai on the west, south and part of the east side of the structure. This building would be oriented so that the west lanai would also have a northwest view bias so that Holualoa Bay would also be seen. The structure would have a simple 3/12 or 4/12 gable roof pitch with a 2/12 shed roof style covering the lanai and a 4' eave overhang. The building materials for this wood frame structure should be modern fire and insect resistance materials. The construction would be double wall with finished paneling for low maintenance considerations. Site elevations for the visitors' center would take into account the view planes, the portability of the center and the access ramps. First floor elevation would be approximately five feet in height as its lowest point.

One of the smaller rooms would serve as an office and the other as a storeroom. The reception/display room must have: 1) a model of the area as it may have appeared during the 1500's, 2) a television corner to give the visitor a video drama of the history of Keolonahihi, 3) a brochure rack and 4) a desk or counter for the staff. The enclosed conceptual plan "B" is not the structure I am describing in this report but as it is drawn it shows a bird's eye view of the buildings location, it's size in relation to the surrounding area and it's basic layout.

Rest Rooms

Rest rooms are a necessity and a problem because of the sacredness of the area. This is a major concern for some of the people whom we

Page 5.

consider influential figures of the Keolonahihi movement. My suggestion is to look into portable toilets which can be emptied everyday or three or four times a week. One of the facilities considered are portable toilets with a wash basin, lights, fans and other amenities on par with the toilets installed in airliners. The restrooms should be fenced in. The fenced area would have access for emptying purposes and for entrance/exit by the visitors and staff. The location of the restroom may be adjacent to the parking lot and not at the visitors' center. The fenced in area around the toilets may also house the garbage bin.

Class and Lecture Spaces

I've stated in my third report that the visitors' center should not be used for the purpose of cultural activities or small group lectures. The center is too small and will be too busy to accommodate these functions. Alternative sites must be identified for these purposes. The weather in Kona must be taken advantage of therefore two small platform structures will be perfect. The platforms will be inexpensive, comfortable and will promote learning. It is excellent for informal meetings and formal Hawaiian protocol for visiting dignitaries.

The uses of the platform will be negatively impacted by the noise and disruption of nearby Ali'i Drive. Therefore the location for such a platform space will be somewhere near the grandstand or the beach

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area. This placement is far enough from traffic to minimize the distraction. The shade of the existing trees and the onshore breezes will add to the comfort of the lecturers, the students and the different invitees to the learning platforms.

These class-spaces will be circular and of wood pier and post construction two steps above ground level. It will also have two tiered built-in benches and supporting railings for safety. These spaces should be able to accommodate approximately thirty children or twenty adults comfortably. These structures like the visitors' center should be designed and built as easy removeable portable structures.

Parking Area

Keolonahihi does not have the necessary space for extensive parking. Part of the reason for the use of the area near the Keolonahihi house site for the visitors' center is to maximize the disturbed area off of Ali'i Drive for parking. Plan "B" gives the general area which will accommodate parking. No more than twenty parking stalls should be provided. An absolute parking limit of sixty minutes metered parking should be strictly enforced through ticketing and tow aways if this is possible. Strict parking rules are necessary to protect the cultural sensitivities associated with the Park. The cultural sensitivities are those that are maintained and accepted by the native Hawaiian community. Indiscriminate or

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continuous use of the parking by the transient ocean user will cause a reaction from the concerned community.

The group of houses adjacent to Keolonahihi makes it difficult to see the parking area when arriving from Kailua. This problem can be solved with a sign announcing the turn off to Keolonahihi or situating the parking area to benefit the driver approaching from the north.

LANDSCAPING: Vegetation

I read the botanical report for Kamao Point by Dr. Carolyn A. Corn. I concur with Dr. Corn's statement which encourages the continuance of indigenous, endemic and Polynesian vegetation found growing at Keolonahihi now.

I especially encourage the planting of the native type of trees that are found there now. Another hala tree should be planted in the same area where the old hala tree stands. Kou is an excellent shade tree and thrives in Kona with little or no care thus more kou should be planted on the Holuuloa Bay side of the peninsula. Milo and hau exists in this same Kou habitate and grows with little or no care. The wood of these trees were also utilized for bowls and other utensils therefore valued for their multiple purposes.

Loulu, niu and noni should be replanted and encouraged in the areas where they are found now. Laua'e and other ground cover such as 'ata'alawainui should also be replanted and maintained. All other exotics must be eliminated as soon as possible.

There are places within the compound which did not have

vegetation. In order to maintain the wonderful stone work that carpeted some areas vegetation was not permitted. The areas which housed heiau(s) or kuahu discouraged the growth of flora. Therefore most of the indigenous, endemic and Polynesian flora which Dr. Corn mentions are towards the northern end of the Keolonahihi peninsula. Clearing the land of exotics should begin on the southern end of the compound bordering Kaumalumu. Almost all of the vegetation on this end are exotics. Kaumalumu was bulldozed several months ago consequently permission may be acquired from the owner of this property to allow the hauling away of the exotics from the southern end of Keolonahihi. This is an advantage which should be utilized as soon as possible. Other cuttings may be hauled from the disturbed area bordering Ali'i Drive.

Most of the walls at Keolonahihi are still intact and because of this fact clearing the large trees from Keolonahihi is a dilemma. The Kaumalumu disposal route gives us an alternative haul out path.

Once the exotics are cleared from the southern portion of this peninsula the native trees can be clearly seen. At this point a sharper picture emerges on how we can intergrate established native trees with those native species we intend to plant in our landscaping efforts.

The landscaping effort is culturally and historically based with visitor or staff comfort an ancillary benefit from planted vegetation. I am recommending that new trees be planted that fit the cultural or

historical mode of the Park. The Park is not a temple in an of itself but it does contain living areas that go hand in hand with certain life style activities that require domesticated vegetation. As indicated earlier new vegetation such as kou, milo, puhala and laua'e should be planted or not planted depending upon the cultural site. Vegetation is appropriate at living sites but not appropriate on heiau or on rock carpeted areas such as the sports field. The exact placement of new vegetation should properly wait until the exotic ground cover, shrubs and trees are removed from the Park grounds.

Maintenance is an area of concern since our landscaping efforts shall be culturally and historically based but given this fact we should recognize that there are a limited number of personnel that will support the Park or allowed to support the Park. In this case I would recommend that modern devices such as weed eaters, herbicides such as "Roundup" and limited amount of commercially produced fertilizers be used. Areas that have been disturbed such as the area of the proposed visitors' center or the parking area would benefit from grass planting since these areas are already disturbed, the ambiance of a lawn would benefit the local and nonlocal visitor experience and we would have some dust control especially in view of our open air facilities. Areas that should not be grassed would be most of the Park including the living areas, the heiau, the ceremonial areas, the walls and the sport areas. Ground cover such as laua'e would be appropriate near living areas but again the exact placement

should wait until the exotics are cleared.

Restoring and Preserving the Rock Structures

The walls, kuahu, heiau, grandstand and other man-made structures at Keolonahihi are deemed sacred. The kuahu, heiau and some of the hale were residence for Deities of the ali'i. The sacredness would be the energy or mana which accompanied the Deities and to a lesser degree the ali'i possessed it. Other areas of this complex were endowed with residual mana. Therefore the levels of sacredness depended upon the structure, the entity involved and their uses.

The entire Keolonahihi complex possesses all levels of mana. While surveying the diverse structures for restoration or preservation purposes the past uses will be a vital consideration. The decision for restoration or preservation will depend on who had the right to use it and what it was used for. If it was Deity possessed through rites and we were able to find a person or persons who had the knowledge and authority to perform and administer the rite and agreed to do so, then and only then will we be able to restore. However if we are not able to produce such an authority then we will preserve with the right to stabilize the structure.

Restoration may be desirable for areas used by ali'i, kahuna or maka'ainana such as the grandstand, surfing or other areas. A cultural board maybe organized to make recommendations and decide on restoration and in the process answering questions such as why, who, when and where.

The survey for restoration and preservation should also begin from the southern end of the complex. The conditions of the current structures are better on this end resulting in easier and clearer decisions. The survey for restoration and preservation would naturally follow the clearing process. Please review the section on overall recommendations for the individuals who may be of assistance in helping us to plan restoration/stabilization.

STAFF FOR KEOLONAHIHI

Except for the Volcano National Park, Hawai'i's west coast has all of the other culturally connected parks. The State Parks system has authority over Mo'okini Heiau, Hikiau at Napo'opo'o and Lapakahi Park. The National Parks system administer and supervise the activities of Pu'u Kohola, Honaunau, and Kaloko-Honokohau. The State Parks system normally provides maintenance, a minimal interpretive program, printed materials and at Lapakahi an onsite staff person.

The National Parks on the other hand presents a more well rounded approach. The National Parks have well staffed and implemented interpretative programs. Special tours, lectures, evening programs, weekend events and planned intergrative park sponsored community centered programs which are standout features of the Federal parks. These parks serve many tourists, of course, but the malihini and kama'aina resident are also well serviced. The reasons for this differential are rather obvious with the federal money heading the list.

Keolonahihi presents us with a unique opportunity to upgrade our State Park because of the raw materials, the site itself, the location in the midst of the community and the Hawaiian and non-Hawaiian community members as our living resource. The Park can be presented as a living entity not only focusing on the past culture but reestablishing the living culture by using the past and allowing the present to bring it to life through activities. Some of these activities can be presented by nonprofit organizations who can work closely with the staff of the park. These kinds of organizations can be beneficial to the overall theme of the Park through the promotion of an educational program. In a nutshell, a living culture motif enhanced by the ambiance of a living-functional park would lead to a surefire success model.

Keolonahihi's past deserves to live through an active Interpretive Program. This cannot happen with a brochure rack. Unlike all of the other parks that have been mentioned Keolonahihi is part of a growing community and takes no great effort to reach. Locals are able to walk, jog, and ride their bicycles to Keolonahihi. This complex will encourage them to come, visit the sites many times, be educated in the ways of the early inhabitants of this complex as well as listen to lecture on the many aspect of Keolonahihi, receive personnel and courteous information from the staff. This will be a neighborhood educational center:

The same warm, friendly and courteous welcome will be extended to the tourist visitor. With proper staffing Keolonahihi will be

refurbished and will live again instead of refurbished and continue to be only a thing of the past.

The disadvantage of being a neighborhood center is security and therefore this service is of utmost importance. Following the initial construction and landscaping the necessary full-time staff members needed to maintain this facility will be; a kahu, an interpreter, an administrator with interpretive skills, a maintenance person and an assistant who will double as gardener and a trained security person.

The kahu is an absolute necessity for Keolonahihi. The community demands a kahu who will be the living embodiment of the spiritual essence and mana of the site. The kahu carries upon his/her shoulders the ancestors of the host culture and their links with the past and the progeny of the present. The kahu performs the rituals and ceremonies that bring to life the cultural ties that modern residents despair of experiencing and accepting them in their lifestyle again. The kahu offers a deep and convincing connection through his knowledge, through his mana and through his blood ties to ancient native Hawaiians. The kahu provides the personal commitment to continue on-going research of the complex, translate material from Hawaiian to English to Hawaiian when necessary, give lectures and demonstrations, promote the complex, conduct special tours, prepare the interpretive program, see to the overall well being of the complex, administer cultural details, act as a cultural advisor and must be fluent in reading, writing and speaking the Hawaiian and the

English language. The kahu handles the rituals and ceremonies of Keolonahihi.

The clerk-steno's duties will be covered by the central park administration.

The interpreter/administrator will assist the kahu with all of his duties. The major responsibilities of this assistant will be to proactively implement and manage the details of the regular tours, special tours, interpretive program and be prepared to conduct the arts and crafts workshops. The interpreter/administrator shall also assist the kahu in promoting community involvement and liaisons with the Hawai'i community. The interpreter/administrator will also administer to the budget and finance of the center.

The interpreters should be proficient in the Hawaiian and English languages. This assistant must also be skilled in some form of Hawaiian arts and crafts. This individual should interact with the local and nonlocal visitors through the interpretive program and the arts and crafts offered at this Park. This individual also performs community service through interaction guided by the kahu and administrator. This individual should also be able to perform some office duties, typing or word processing and filing.

The maintenance person will keep facilities and the general park area clean. This person must have an understanding of the cultural and ethnological value of the site and be able to behave accordingly. The gardener will assist the maintenance person but his/her special responsibility will be to maintain and enhance the landscape with the

native foliage and the development of the native flora.

The security is most necessary when the complex is closed.

The evenings and early morning hours would demand security presence.

The State security should have an understanding of the cultural and ethnological value of the site and be able to behave accordingly. I view security as a vital key in Park operations.

The minimum number of staff needed for the success of the

Keolonahihi complex and its programs and spiritual life are the kahu, the administrator/interpreter, the assistant/interpreter, a general maintenance person, the gardner

1) The disturbed area near the proximity of Keolonahihi's house site will be the approximate location of the temporary Visitors' Center. The structure must be portable with clear physical evidence of this capability.

2) The restrooms should be portable and adjacent to the parking lot. The restrooms should conform to the dignity and high status of this Park and should not look like a cleptrap nor operate like one in a stoop labor farm operation.

3) The parking lot should occupy the larger disturbed area just south of the houses. The parking lot should also display its temporary nature by being constructed with a rolled one inch minus base coarse and grassed top layer.

4) The indigenous, endemic and Polynesian vegetation growing in the complex be encouraged and keiki of these same specie be replanted. The exact new plantings locations should be done after the exotics are thoroughly cleared from Park grounds.

5) Clearing of exotics should begin at the Kaumalumu end of the complex to take advantage of the bulldozed area there. The owner of Kaumalumu should be approached for permission to transport the exotics through his property.

6) Preservation and stabilization of certain areas should begin immediately after clearing. Restoration should be made to areas recommended by a Cultural Board. I suggest that the following Hawaii'i island residents are qualified to sit on this Board that will advise on restoration/preservation:

- a. Herb Kane, Kona
- b. Mauna Roy, Kona
- c. Maile Akimseu, Kona/Hilo
- d. Puou Kuneva, Kona
- e. Iris Napaepae, Kona
- f. Francis Kuailani, Hana/Kona
- g. Malani Kanaka'ole, Hilo
- h. John Defries, Kona
- i. Pele Hano'a, Ka'u
- j. Sonny Kinney, Puna
- k. Kia Fronda, Kona/Hanalei
- l. Ulunui Garmon, Kohala

7) The initial presentation of Keolonahihi must be done with a beginning staff of five people in order for it to be successful. A

Kahu is an essential part of this success. The Kahu activates the programs and functions of Keolonahihi, upholds the cultural integrity, maintains and understands the unique traditions of this complex.

8. I recommend that the State acquire additional land areas in order to complete the Keolonahihi complex. These areas are:

A. The associated archeological and cultural complex directly mauka of Keolonahihi that is part of the Hoolaloa district. The area is approximately 75-100 acres in size. This area is a continuation of the present Keolonahihi area and is artificially separated from the present Park by Ali'i Drive. It makes no sense spiritually, culturally and value wise to not recognize these mauka and makai pieces as being the whole complex and to unite them into a comprehensive and integral Park.

B. The area that contains the residences directly adjacent to the Park. The Park's portable visitor center and some employee and visitor parking should be relocated to this area as soon as possible. The planned acquisition of these properties followed by rapid physical acquisition will win the confidence of the Kona native Hawaiians, the Friends of Keolonahihi and other concern residents that the State is culturally sensitive and caring. Residences this close to the Park are not conducive to Park operations nor do they contribute to the activities of the Park.

C. The Kaumalumu section should be acquired as a buffer between the Park and residences to the south. A larger visitor parking area can be constructed in this area. A permanent visitor center larger in size than the temporary visitor center now planned which can house an modern and ancient artifact collection, an arts and crafts display, a diorama display, a Keolonahihi genealogical space and study area, a ceremonial and ritual public preparation area (for those ritual and ceremony components that can be viewed by the public) and future space needs for Park administration and storage.

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- National Park Service, Hawai'i. 1991. Statement For Management. Pu'uhoanua o Honaunau Honaunau
- Shimoda, Jerry Y. 1991. Position Mandement Plan, Pu'ukohola Heiau National Historic Site. Hawai'i

List of Kona people interviewed concerning Keolonahihi, it's significance and preservation and restoration status:

1. John De Fries
Special Assistant and Cultural Advisor to the President of Landmark Hotels
Resident of Kona
2. Mr. and Mrs. Samuel Kalele
Kama'aina of the Holualoa Ahupua'a
3. Mrs. Kahala Ann Gibson
Lawyer, Resides in the house at Kaumalualu adjacent to Keolonahihi
4. Mr. George Naope
Hula and Cultural expert resides in Kona
5. Mrs. Gloria Ann Muraki
A kama'aina of Kona, resides in Holualoa Ahupua'a
6. Mr. Kahea Beckley
Works at the Hulihe'e Palace, a Hawaiian Culture expert, a resident of Kona
7. Mr. Gordon Leslie (He was preoccupied with Napo'opo'o and Kealahou.)
A fisherman, a kama'aina of Napo'opo'o
8. Mrs. Lehua Anzai
Resides in Kona, teaches Hawaiian Culture and Language at the Community College
9. Mrs. Mikahala Genovia
A Kama'aina of Kona, a Cultural expert.
10. Mr. Herb Kane
A resident of Kona, a Cultural expert, an Author and a Painter of Hawaiian History Imagery.
11. Mr. David Roy
A Kama'aina of Kona, a Language and Cultural expert, teaches Hawaiian Language.
12. Mrs. Ruby McDonald
Employee of Office of Hawaiian Affairs, Kona. A Kama'aina of Kona.
13. Mrs. Eleanor Makita
A Kama'aina of Kona, knowledgeable with the cultural history of Kona.

Third Progress Report of a
Conceptual Plan with the Hawaiian Community
for
KEOLONAHIHI

State Historical Park, North Kona, Island of Hawaii

Prepared for:

State of Hawaii
Department of Land and Natural Resources
Division of State Parks

Prepared by:

Pualani Kanaka'ole Kanahele
696 Railroad Avenue, P.O. Box A-7
Hilo, Hawaii 96720

Submitted:
September 30, 1991

14. Mrs. Maile Akimseu
Kama'aina of Kona, lives in Hilo. she is a member of the on-going Friends of Keolonahihi and Hui Ho'onaau.
15. Ms. Francis Schobel
Resident of Kona, employed by the Honaunau Park Service, is a member of Friends of Keolonahihi.
16. Mrs. Luika Ka'uhane
A Kupuna of Kona, member of Friends of Keolonahihi and granddaughter of the old man Kaopua.
17. Mrs. Teckleberry
A Kupuna of Kona, a member of Friends of Keolonahihi.
18. Mr. Pu'ou Kunewa
Employed by the Kona Village, former employee of the National Park Service. Kama'aina of Kona. He is interested in the development of Keolonahihi. His grandmother's interest sparked his interest.
19. Nalei Napaepe Kunewa
Kama'aina of Kona, Kumu Hula and chanter. Culture expert and has shown interest in the redevelopment of Keolonahihi.
20. Jerry Shimoda
Superintendent of Hawai'i National Parks, Honaunau and Pu'ukohola.
21. Francis Kuailani
Superintendent of Kaloko-Honokohau National Park.
22. Daniel Kawaiie'a
Head Ranger at Pu'ukohola National Park.
23. James Kallii
Kama'aina of Kona, Hawaiian rights activist
Leader Protect Kona 'Ohana/PKO

INTRODUCTION

The Third Submittal shall focus upon the outline of the conceptual plan, the preliminary guidelines established for landscaping, the preliminary guidelines established for architecture and any additional research findings. The approach that I shall take in formulating the content of this submittal are holistic and values based.

The conceptual plan and my interpretative scheme rested upon the preservation and restoration of the living values to be found at Keolonahihi makai, Keolonahihi mauka and the Holualoa 'ahupua'a. I feel that the modern culture of Hawai'i, as complex and diverse as it is, needs definite linkages to its host culture. Indeed, the connections that we need in 1991 must serve as articles of faith that all of us can be proud of and that all of us can speak to visitors and strangers about in an innate and knowing fashion. Yes, we have many cultures in Hawai'i but until all cultures can gain an appreciative insight into some of its own values and those of their neighbors then can we enjoy and reverence our differences.

The conceptual plan, the preliminary guidelines and the research are partial explorations of reverencing our differences and yet cementing linkages among ourselves. The conceptual outline begins with a geological section and ends with a view of the full life cycle of the ali'i. The preliminary landscaping guidelines will rely upon the idea of a modern restoration yet authentic implementation, that is, the theme should reflect the culturally proper use of native plants and their correct placement in view of this park's development. Likewise, the preliminary architecture guidelines should reflect the idea of a modern restoration that is based upon cultural values, the proper emphasis or deemphasis of modern and/or precontact structures, their intergration and their placement.

The research regarding Keolonahihi is ongoing with the focus upon the chants. This focus has been fruitful with discoveries of two previously unexplored chants and a story that refer to Keolonahihi. The chant He Mele Inoa No Ake is in the process of translation. The chant He'ole'a Ia Liholiho is being retranslated. The Peabody Story will be used as contrasting information to weight of authority that explains the context of Keolonahihi.

CONCEPTUAL OUTLINE OF THE DEVELOPMENT OF KEOLONAHIHI
STATE HISTORICAL SITE

INTRODUCTION - The Cultural Background

- I. The Heiau Communities of West Hawai'i
A narrative of the heiau complexes of this coast will be prepared.
A comparative study of the various kinds, styles, uses and locations of these heiau sites will be included.

A. Kohala

1. Mo'okini Heiau Site
 - a) Northern tip of Kohala, Pu'uope Ahupua'a
 - b) Luakini, po'okanaka style
 - c) Ali'i connected with this heiau
2. Lapakahi Site
 - a) Lapakahi Ahupua'a
 - b) Upland farming and fishing sites
 - c) Occupational worshipping sites
3. Pu'u Kohala Heiau Site
 - a) Southern Kohala
 - b) The Luakini and connecting heiaus
 - c) Uses and Ali'i connections
4. Kaloko/Honokohau Site
 - a) Northern Kona
 - b) Loko I'a community and dry land farming
 - c) Mo'o Pond
 - d) Ali'i connection
5. Kamakahonu
 - a) Kailua, Kona
 - b) Heiau and living sites
6. Keolonahihi
 - a) Holualoa
 - b) Residence, surfing, heiau complexes for ali'i
7. Keauhou
 - a) Keauhou, Kona
 - b) Residences, heiau complexes
8. Waioahuikini
 - a) Ka'u
 - b) Residence and heiau complexes for ali'i

II. The Physical Environment of Kona and the ahupua'a of Holualoa

A. Terrain of Kona

1. Mauna Loa and Hualalai's impact upon the land
 - a) Lava flows, precontact and post contact
2. The natural upland forest of Kona
3. The extensive upland farming of Kona
4. The rocky coastline of Kona
 - a) Fishing in Kona, deep sea and reef
 - b) Surfing

B. Terrain of Holualoa

1. Ahupua'a concept as it relates to Holualoa
 - a) Upland uses, ma uka
 - b) Farming areas, ma waena
 - c) Fishing and surfing areas, ma kai
2. Holualoa bay, peninsula and Kaumalumu bay
 - a) Rocky and dry coastline
 - b) Winter surf and surf at other times

III. The Setting and History of Keolonahihi.
The purpose and use of Keolonahihi according to oral tradition.

A. Keolonahihi, the relative of Pa'ao

- B. The priestess Keolonahihi and her function to continue the blood line of the ali'i

1. The life cycle

- a) The preservation of virginity of ali'iwahine and the structures befitting this process

- 1) Palama
- 2) Keolonahihi female heiau
- 3) Hale Pe'a

(a) Washing pool

(b) Exposure to other ali'i, wahine or kane, marriage and mating and the structures aiding this process

- b) Courtship
 - 1) The field of war games
 - 2) The surfing spot
- c) Death
 - 1) Washing the bones at Hale Kupua
- C. Keolonahihi, the champion surfer
 - 1. 'A'ama surfing heiau
 - 2. Hale Olo
 - 3. Keolonahihi Cove
 - 4. Grandstand for surf watching
 - 5. Bathing pool
- IV. The Kinship System. Identification of the people occupying Holualoa and Keolonahihi
 - A. The Race
 - B. The Castes at Keolonahihi
 - 1. Ali'i, senior and junior lines
 - 2. Kahuna system
 - 3. Kahu system, care takers and teachers of young ali'i
 - 4. Maka'ainana
 - C. Interrelationship of the Castes of Keolonahihi
 - D. Major genealogical lines into and out from Keolonahihi
 - 1. Keakamahana, Iwikauikaua, Keakealaniwahine, Alapa'inui
 - a) Blood ties, fostering and adoptive relationships
 - b) Husband and wife
 - c) Plural marriages
 - d) Grandparents, parents, children, grandchild
- V. The Religion. The religious structures.
 - A. The Philosophy of Keolonahihi
 - B. The Structures and their functions
 - 1. Hale o Kaili
 - 2. Women's Heiau
 - 3. Surfing Heiau
 - 4. Sports Heiau
 - 5. The House of Keakealaniwahine
 - 6. Other sacred sites

VI. Lifestyle and Customs of the Social Class residing at Keolonahihi

- A. The levels of Kapu for this family
 - 1. Kapu moe, kapu noho, kapu po'o
- B. Status and Prestige
 - 1. Obligation
 - a) Social
 - b) Political
 - c) Family
 - 2. Manners and Courtesy
 - a) Affection
 - b) Greeting
 - c) Invitation
 - d) Eating
 - e) Hospitality
 - f) Admonition

KEOLONAHIHI FROM THE MAHELE OF 1848

I. History of Keolonahihi and Ownership Change

THE PARK DEVELOPMENT IN 1991

- I. Our Society. The competing forces and groups in regarding Keolonahihi.
 - A. The Host/Hawaiian Culture
 - B. Industry, Recreation, Tourism, Local Culture
 - C. The Hawaiian Renaissance
- II. Kamao Point/Keolonahihi Millieu. The concerns of Hawaiians in Kona and in other parts of Hawai'i island.
 - A. Modern Concerns

THE PARK: PRESERVATION OR RESTORATION

- I. The Structure of the Park. Keolonahihi's configuration.
- II. Uses. The Elements of Our Society
 - A. By the Hawai'i Public
 - B. By Tourists
 - C. By Native Hawaiians As Cultural Practitioners
- III. Staffing. A fully functioning Keolonahihi.
- IV. Maintenance.
- V. Ongoing Support. The types and extent of support from the various agencies and groups that should be concerned about Keolonahihi.

PRELIMINARY GUIDELINES FOR LANDSCAPING

- I. Native Plants. Native plant backgrounds, the selection process, the uses of plants at Keolonahihi and plant displays.
 - A. Types and Usage
 - 1. Plants Associated With Hoivaloa
 - 2. Plants Associated With The Kahakai
 - 3. Plants Associated With Living Areas
 - 4. Comparative Plant Types and Area Usage
 - B. Plant Selection
 - 1. Addition of Selected Native Plants
 - 2. Keeping and Using What Is There
 - 3. Nursery As An Exhibit
 - C. Signage and Commentary
 - 1. Static Displays
 - 2. Wording and Explanations

PRELIMINARY GUIDELINES OF ARCHITECTURE

I. Native Hawaiian Structures. Preservation versus restoration in regards to native Hawaiian concerns.

A. Preservation and Restoration

1. Selected Areas
2. Rationale

B. Intergration of Native Hawaiian Structures and Modern Structures Within the Complex

1. Highly Disturbed Areas
2. Less Disturbed Areas
3. The Periphery

II. New Constructed Park Related Structures. Modern and native Hawaiian structures at Keolonahihi.

A. Placement of The Park Structures

1. What and Where
 2. Rationale
- B. Special Use

1. Native Hawaiian Cultural Practitioners

2. Selected Groups

III. Periphery Structures. The structures that surround the property.

A. Preferred Usage

B. Structure Obtrusiveness

ONGOING ADDITIONAL RESEARCH

The chants, He Mele Inoa No Aka and Ho'ole Ia Liholiho have given us additional information about the Keolonahihi milieu. Ho'ole Ia Liholiho is a chant that refers to Keolonahihi as a concept of promoting the extension of the ali'i lines, additionally, it discusses the importance of human reproduction and especially in regards to the Kamehameha line. These works are being translated but I have included the Hawaiian language version of the chants for your information.

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Second Progress Report of a
Conceptual Plan with the Hawaiian Community
for
KEOLONAHIHI

State Historical Park, North Kona, Island of Hawaii

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CULTURAL TRADITIONS AND VALUES OF KEOLONAHIHI

Na wai ho'i ka 'ole o ke akamai, he alanui i ma'a i ka
hele'ia e o'u mau makua?

(Who would not be wise on the path so long walked upon by
my ancestors?)

INTRODUCTION

The traditions and values passed on to modern Hawaiians by our ancestors are very often distorted by the influence of Western education and by other cultures. We frequently take for granted the obvious because it is the very essence of who we are. We become receptive and absorb new but alien information forgetting to parallel and measure the worth of our new information against based education with our own cultural foundation. The path of our ancestors will never be fully realized and appreciated unless we allow ourselves to walk the same path they did. To do this, we must pi'o or arch back into the foundation we are rooted in and exam the teachings and live the traditional values of our ancestors. Our problems as Hawaiians in 1991 increase because we choose to put aside the ancestral teachings instead of using them as building blocks to strengthen our foundation as the aboriginal people of Hawai'i and Hawai'i's native culture and now its host culture.

The value of kumupa'a or firmly established foundation was accomplished by listening and not questioning. Our teachers were our kupuna and our makua or parents. We saw them as the wise ones and we youngsters as the receptacles of this knowledge and wisdom. Oral tradition or mo'olelo is one of the tools used to build this foundation. Keolonahihi is a test of kumupa'a. I listened to Auntie Molly Dunaway on an audio tape provided by Herman Kunewa. Herman Kunewa interviewed her before her passing to especially ask about Keolonahihi. She spoke with conviction of mo'olelo in knowing Keolonahihi. She related the importance of mo'olelo in knowing Keolonahihi and Houloua.

I interviewed Herman and Nalei Kunewa regarding Keolonahihi. They spoke of developing plans for Keolonahihi according to the oral tradition of his grandmother, Molly Dunaway. Herman Kunewa applied the concept of pi'o or arching back and utilized his source as a building block for the welfare of Keolonahihi. Central to this interview was the factor of the oral culture of native Hawaiians.

Oral tradition or mo'olelo gives us the energy, courage and convictions to widen our foundation. The reenactment of this learning process by Herman, Nalei and others of Hawaiian ancestry brings the information back to life through each generation. The same energy, courage and conviction of the past generation can live again in the present generation. The mo'olelo or oral tradition honors the original source in other words it honors the

generation before you. The mo'olelo is seen by the Hawaiian as a continuous line from the historical past to the present and is an integral part of the Hawaiian learning process. Therefore we honor Naluahineka'opua as a major link in our value of mo'olelo.

HOLUALOA LIVING COMMUNITY: TRADITIONS AS VALUES

Hanau ka 'aina, hanau ke ali'i, hanau ke kanaka .

(The land, the chiefs, and the commoner belong together)

Holualoa was a thriving community during the time of Kamehameha. The ruling chief Alapa'i resided there with his court. Holualoa was the residence of ali'i(s) of n'apu'o rank by either naha or pi'o union. Ali'i(s) known to have resided there were Keakamahana mother of Keakealaniwahine. Keakealaniwahine also established her home at Holualoa. Keku'lapo'iwa, Kamehameha's mother also lived there during her lifetime. Keoua, Kamehameha's father introduced Kamehameha to 'Alapa'i after bringing the boy out of the mountains of Kohala. 'Alapa'i commanded that this youngster be raised in his court and gave Kamehameha into the trusted care of Keaka. 'Alapa'i's wife, Keaka, was to officiate as Kamehameha's kahu hanai. Keaka then entrusted Kamehameha to Luluka, a kaikunane or brother, of Keaka. Luluka and his wife, whose name was also Keaka, would be Kamehameha's guardians or kahu(s) and see to his needs. 'Alapa'i also arranged for Keku'apu'i'o to train Kamehameha in the way of a warrior.

According to John Papa 'I'i, the right to make sacrifices to the god is the honor of the ruling chief only. However, after the death of 'Alapa'i it was Kamehameha who was given this privilege by 'Alapa'i and not 'Alapa'i's son, Keawe'opala. 'Alapa'i's privilege and honor of offering human sacrifice was authorize through his genealogical connection to Keakealaniwahine's genealogical line. Kamehameha's mother is a relative of 'Alapa'i and a descendant of Keakealaniwahine, therefore, we have 'Alapa'i's recognition of Kamehameha's status as a potential ruling chief. 'Alapa'i recognized this same authority that he possessed, to practice that ultimate sacrifice and offering to the gods in Kamehameha. However Kamehameha was very young at that time and had not proven himself as a warrior of substantial value thus 'Alapa'i recognized the value of training and educating Kamehameha in his court and at Keolonahini.

A battle between Keawe'opala and Kalaniopu'u, the uncle of Kamehameha, was fought at Napo'opo'o. Keawe'opala won the battle and began sacrificing the battle victims to the god. Kamehameha's mother and his Kahu's were insulted that Keawe'opala

should assume this privilege of human sacrifice and usurp the honor which was not Keawe'opala's to possess. Keku'lapo'iwa, Luluku and Luluku's wife, Keaka, sent Kamehameha to Kalaniopu'u to authorize Kalaniopu'u to offer human sacrifice. Thus Kalaniopu'u gained the status necessary as the ruler of the land. After Kamehameha gave his uncle this right and privilege, it was important for Kalani'opu'u to know whether, Keku'lapo'iwa, the mother of Kamehameha knew of this transaction because it was through her genealogical line that such an authorization would be legitimized.

Another battle between the forces of Kalaniopu'u and Keawe'opala ensued in which Keawe'opala was killed. The battle's aftermath saw Kalani'opu'u returning to Ka'u, his homeland, and Kamehameha returning to his mother Keku'lapo'iwa, Luluka and Keaka at Holualoa and Keolonahini, the dwelling place of the old chiefs.

Upon the death of Keku'lapo'iwa, Kalaniopu'u and his brother, Keoua agreed that Kamehameha should reside at Kalaniopu'u's court. Kamehameha was then taken from Kona to Ka'u by his uncle, Kalaniopu'u. Kalaniopu'u assigned Kaneikapolei, his wife, to be Kamehameha's Kahu Hanai at the court. This honor was then sub assigned to Inaina ma, Kaneikapolei's kaikunane or brother.

This insight into the life of Kamehameha offers some definition of his connection to the areas of Holualoa and Ka'u. These traditions allow us the cultural association of Holualoa and Keolonahinian with an ali'i and his training to be a potential ruling chief. However, this is not just an example of a person and a place, but of a specific ruling chief and the place of concern is Keolonahini. This short history lesson utilizes several areas of cultural importance concerning Keolonahini and Holualoa.

In order to service the ruling chiefs and their court, the community must provide all the conveniences necessary for a royal life style. According to John Papa 'I'i and Maluahineka'opua, Keakealaniwahine and her parents as well as 'Alapa'i his wife and the mother of Kamehameha, Keku'lapo'iwa, lived in Holualoa ahupua'a. Therefore there were areas where food could easily be planted and harvested which is required by a royal court. Indeed, John Papa 'I'i has said the food at Holualoa was abundant in ancient times. The ali'i must also have their places of worship which were provided by the personal heiau(s) at Keolonahini.

The Hale o Ka'ili at Keolonahini is credited to Kamehameha although this notion needs further study. An interesting thought may be that this Hale o Ka'ili was built by 'Alapa'i because of his frequent residence at Holualoa. The god Ka'ili would be place in his hands as the ruling chief. The right to give sacrifice to the god, Ka'ili, would be practiced by the keeper of the god, 'Alapa'i. This right and privilege was given to Kamehameha by 'Alapa'i, thus linking Kamehameha and 'Alapa'i. Kamehameha's association with Ka'ili linked him with his uncle

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Kalaniopu'u. We can now see that at least three important historical figures are related to Keolonahihi.

These historical figures are not only associated with Hale O Ka'ili but also with other religious features. I'i has stated that, "It was the custom of the chiefs to have sports such as racing, maika throwing, diving, sham fighting and many others." The sports heiau of Kanehahailani and the surfing heiau of Hale A'ama at Keolonahihi served as places for physical fitness for the ali'i(s) residing in Holualoa.

The living space of the ruling chiefs Keakealaniwahine was just ma uka of the heiau complex of Keolonahihi. The planters' agriculture complex would be ma uka again of the residence site where the weather is cooler and where rainfall is more frequent. Another component concept relating to Keakealaniwahine is the fact that there were chiefs of ni'auipi'o rank residing at Holualoa. This is an important factor in substantiating the concept of Keolonahihi as a place of ho'omau keiki or ho'ao or foremost in the mind of procreation of the ali'i line was herself, who was related to Pa'ao, initiated this concept upon his arrival from the South. The practice of ho'ao or ho'omau keiki is closely connected with the Keolonahihi complex. Ho'omau keiki is the formalized function among ali'i leading to selective breeding. The highest priestesses, such as the likes of Keolonahihi, would be an officiate of ho'omau keiki. "This was the practice of the highest chiefs that their first born might be chiefs of the highest rank, fit to succeed to the position of ruler," said Malo.

An example of the ho'omau keiki process comes from the genealogy of Keawe Poepe and Ena. The genealogy exhibits the close family ties and intermarriages necessary for the continuation of "pure" ali'i bloodlines. The ali'i genealogy is preserved for the purpose of determining rank and fastening correct intermarriage among ali'i. The powerful tradition and value of maintaining and increasing the chiefly line was a practice associated with the Holualoa/Keolonahihi complex. The following genealogy includes those ali'i who occupied Holualoa/Keolonahihi and who are products of the ni'auipi'o, pi'o and naha selective mating unions:

Kane (K-male)	Wahine (M-female)	Keiki or Child
Keawenuiaumi	Koihalawai	Kanaloakuaana
Kanaloakuaana	Kaikilani	Ki'iloakalani (w)
		Keakealanikane (k)
		Kalanoumi (k)
Keakealanikane	Keliokalani	Keakeamahana (w)
Iwikauitaua	Keakeamahana	Keakealaniwahine (w)
Kanaloaikapulehu	Keakealaniwahine	Keawekakahali'i-Okamoku (k)

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Kaneikauiwilani	Keakealaniwahine	Kalanikauleleiaimi (w)
Keawe	Kalanikauleleiaimi	Kekuiapoiwanui (w)
		Keaumoku (k)
Keaumoku	Kamakaimoku	Kekela (w)
Haae	Kekela	Kalanikupuapalkalani-nui (keoua) (k)
Kalanikupua-Keoua	Kekuiapoiwa	Kamehameha (w)
Kamehameha	Kalanikauleleiaimi-keopulani	Liholiho (k)
		Kauikeaouli (k)
		Nahienaena (w)

In order to further elaborate the complexities of the ho'omau keiki process of interweaving of bloodlines the relationship between Maui and Kona ali'i is shown:

Kautaha	Papaikaniau	Kekaulike (k)
Kekaulike	Kekuiapoiwanui	Kamehamehanui (k)
		Katolanui (w)
		Kahakili (k)
Kalaniopuu	Kalalanui	Kiwalao (k)
Kiwalao	Lilihanui	Kalanikauleleiaimi
Kamehameha	Kalanikauleleiaimi-keopulani	Ianeokeopulani (w)
		Liholiho (k)
		Kauikeaouli (k)
		Nahienaena (w)

The relationship between Kamehameha and Kalaniopu'u:

Kuanuanuu	Umuiaikahumau	Kamakaimoku (w)
Kalaninuilamamao	Kamakaimoku	Kalaniopuu (k)
Kalaniopuu	Katoia	Kiwalao (k)
Kiwalao	Lilihanui	Kalanikauleleiaimi
Kamehameha	Kalanikauleleiaimi-keopulani	Liholiho (k)
		Kauikeaouli (k)
		Nahienaena (w)

* Spellings vary slightly in different source documents.

This genealogical presentation allows us a visible insight to the literal concept of Ke-Olo-Na-Nihi or the crossing back and forth of selective breeding in order to maintain the genealogical integrity of the ali'i line. The selective breeding process combine very close relations such as brother/sister or half brother/sister or first cousin combinations. This tradition of of such urgency to Pa'ao and the ali'i that its strength and vitality only ebbed upon the arrival of Christian missionaries. The ahupua'a land unit is organized from the ocean to

with the female side of ho'omau keiki. The Keolonahihi heiau was used by priestesses to call upon female Gods or Gods associated with females in the Gods' various capacities as healing deities or life restoring Gods. According to Malo the prospective female ali'i targeted for ho'omau keiki would be removed from her regular environment and her virginity well guarded. Her menstrual period would be observed by the priestesses/kahuna, with the belief that the most fertile time for a female was the few days immediately following her period. Before her period she was kept in the palama an enclosed lama wood area. During her period she was kept in the Hale Pe'a. The priestesses were careful in keeping a record of the length of the young ali'i's period. Following this period the young ali'i wahine would be assisted in a purification bath. After the bath the ali'i wahine was taken to the place previously prepared for the consummation of the selective mating process. The Keolonahihi heiau, the Hale Pe'a and the Palama were physically closely tied to each other.

Such an important event could only occur in a religious and ceremonial center with high status like the Keolonahihi complex. I do not want to suggest that the activities devoted to continuing the royal lines were only tied to the present parcel of land now owned by the State because such an idea would be a mistake. There were other areas throughout the islands which promoted this ritual. The difference is the fact that on this particular parcel the sites are still in tact and there is an oral tradition testifying to these facts. The male pe'a for the recovery period after birth. The female was kept there until the time that her birth discharges ceased after which she was confined for another anahulu or ten day period before the purification period was actually over with. "Since the time selected to become the mother of the high ranking child until the purification period ended after child birth the woman was continually under state of kapu or religious seclusion, abstaining from abstaining from all kinds of food that were forbidden by her own and her husbands gods," says Malo.

Another significant traditional area adding to the match making situation of Keolonahihi was the sports and games complex. The sports and games arenas served many purposes. The initial purpose was to sharpen the martial skills of the young ali'i and to exhibit leadership. The sports and games also offered an observation window to ali'i wahine and kana, young and old, for courting opportunities between the sexes not only because of the light attitudes prevalent at game time but also men and women could witness feats of strength, daring and bravado. Women often competed in surfing events along with men and both gave admiring approvals of each other's skills as well as physicals.

A note of interest concerning the sexual education of ali'i comes from Tutu Mary Kawena Puku'i who states that young male chief when physically grown and mature was given to an older ali'i wahine to receive his sex education. Puku'i also notes

that it was Kaneikapelei, Kalanio'opu's wife and Kamehameha's Kahu Hanai who was chosen as one of Kamehameha's sex education teachers. During this relationship with his Kahu Hanai he had a child, known as "the son of his beardless youth" or Ka'oleioku. Interestingly, when Kamehameha was accepted into 'Alapa'i's court, 'Alapa'i assigned one of his wives, Keaka, to be his Kahu Hanai.

This ho'ao chant or one like it was part of the ceremony before the union for ho'omau keiki:

'E'ele mamo ka lani
 'Uwe'uwehe ke ao ho'okiki'i
 Kiki'i ke ao 'opua lani e
 'Oia'olapa ka umi
 Ho'oku'i, nei, nakolokoloka heki'i
 Ke wawa kupina'i nei i Kuhalimoe
 O Ha'ihahailauea
 O na wahine i ka puoko o ke ahi
 O 'imi'imi, o naowale a loa'a
 Loa'a ho'i ka ho'oe
 Pupu'u aku o ke au o ka Ho'oilo
 Ke 'iloli nei ka lani
 Loa'a ka hale kipa maha o Hako'ilani
 Na ke aloha i kono e hui 'Olua e
 O ka hakamoa keia, ke halakau nei ka lani
 O haka, o haka, i ka lani
 O nei, o nakolo, o 'u'ina
 O nakolo iluna, o nehe i lano
 He nehe na ka 'ilili kaka'a o 'Ikuwa
 A wawa ia no he hale kanaka
 Na wai e wawa ke hale alaneo,
 Pili Olua e
 Moku ka pawa o ke ao
 Ke moakaka nei ka hikina
 Ua hiki ho'i
 Ua kapu i ka po
 A ho'oma'ama'ama i ke ao
 Ho'ao ei ua noa!
 Lele wale aku ia ka pule a ke kahuna,
 Ua ao ho'i - amama ua noa.
 Lele ulii lele wai!
 Lele wale ka pule.

The sky is covered with darkness
 The tilting clouds begin to part,
 The leaning bud-shaped clouds in the sky,
 The lightning flashes here and there
 The thunder reverberates, rumbles and roars,
 Sending echoes repeatedly to Kuhalimoe,
 To Ha'ihahailauea

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To the women in the rising flames,
There was a seeking of the lost, not it is found
A mate is found,
One to share the chills of winter.
The sky is changing
For Hako'ilani, the house of welcome where rest
is found
Love has made a plea
That you two become united
Here is a perch, a heavenly resting place,
A perch, a perch in heaven
There is a trembling, a rattling, a crackling
A rattling above, a rattling below,
A rustling of the rolling pebbles of Ikuwa
But what voices are heard in any empty house,
You two are now one,
The darkness has begun to depart,
The east is beginning to brighten
For day is here at last!
The night has been made kapu
Until the light of day arrives
You are wedded! Free to each other!
The prayer of the priest has taken flight
Day is here!
Amama, the kapu is freed!
It has flown to the darkness! Flown to the waters!
The prayer has gone its way.

A significant tradition associated with the Keolonahihi complex is that tradition connected with death. The death of an ali'i was a highly kapu event. Both Naluhineka'opua and Pinehaka mentions death ritual activity as being associated with Keolonahihi. The practice of stripping the flesh off of the bones of an ali'i at death was a way of expediting the deification of the ali'i, therefore this was practiced often. Naluhineka'opua relates that after the process of placing the body into the umu the cooked body was taken to the Hala o Mapuana pool and the flesh was stripped. The bones were then wiped and placed in the already prepared ka'ai or casket. The adjacent spring was used for cleansing. The area used for this ritual required an extremely rigid kapu. Other activities would cease because of this death ritual preparation. All those involved in the process, the place of death and the area of preparation were considered defiled and put under kapu until proper cleansing ceremony or huikala, were performed.

The previous traditional connections with Keolonahihi are basic examples of the values associated with this complex. The life cycle of ali'i are clearly shown through the ho'oua keiki process, the child development through the sports and games milieu and the closing of one's life. The cycles existing at

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Keolonahihi are interrelated. These represent the perfect examples of Iokahi. The Iokahi value is carried beyond just living members of that society since the psychic relationship between the living kin, the dead kin and the 'aumakua is shown at the Keolonahihi complex through the tradition of addressing one's full life cycle from the orchestration of the birth of ni'aupi'o to the processing of the dead.

THE SUPPORTING CHIEFS OF
HOLUALOA/KEOLONAHIHI

Holualoa/Keolonahihi housed a community of chiefs who worked to accommodate and fulfill the needs of the ruling chief in his immediate family, his extended family or his loyal friends. It was imperative to insulate the chiefly mana from others of like mana. Therefore the ruling chief surrounded himself with those of the same genealogical line as himself. It was a privilege and a position of honor to be included in the service of the alo ali'i or ruling court. Almost every aspect of the ali'i's life required the services of a skilled practitioner or kahuna. Services in the areas of personal needs, spiritual guidance, warfare, training of children, birth, death, sports, building of heiau(s), preparation of food and other matters were allotted to lesser chiefs or kaukauali'i who were skilled in accomplishing these tasks.

There were ali'i/kahuna who were endowed with intelligence, understanding and a capacity for subliminal consciousness. These ali'i did not necessarily live with the ruling chief but spent a great deal of time with him, discussing affairs of state and religion. These kahuna(s) were the Kahuna Nui, Kahuna Pule, Kahuna Mo'oku'auhau, and Kahuna Kuhikuhipu'uone to name a few. Some chiefly retainers served as war advisors and companions who fought the in battle beside the ruling chief. These chiefs were usually brothers, nephews, uncles or first cousins. Their loyalty and bravery were rewarded with land sections of their own to rule.

The chiefly retainers attending the ruling chief accepted this lesser role. The retainers served in the role of kahu for the class of the ruling chiefs and the retainers encouraged their offspring to accept this same role. The retainers diminished status in the ali'i class existed because of improper olonahihi or crossing back and forth in improper unions of their chiefly line. The retainers are the junior line to the ruling ali'i. However, genealogical ties are recognized by the senior lines or ruling chief and junior lines attend to the ruling chief as a spillover carrier, an akua carrier or caretaker, as one that will see to the clothes of the chief and one who will tend the children of ali'i(s) and teach him/her the proper etiquettes of the court.

John Papa 'i'i was from a junior line of ali'i. He worked his way up from spillover carrier to one who was being trained as the iwikuamo'o, by Papa 'i'i, for the young chief Liholiho. Luluka and Keaka, the kahu for Kamehameha in the court of Alapa'i were from this rank of ali'i. They also trained their children, Kamahauluae, Kamalo, Papa, Wawae, to maintain the traditions of kahu for the ali'i. These children went to Honolulu with Kamehameha when he was ruling chief and they were in charge of

the royal residence there.

The term iwikuamo'o is defined as backbone, and for the ruling chief, the iwikuamo'o tends to his bath, his clothes and listens to his complaints. The iwikuamo'o is indeed the personal and loyal support of his chief and his personal confidant. The story of Paka'a shows this same relationship between Paka'a and the ruling chief Keawenuiama.

As the young chief is growing there are needs for several kahu(s) in his/her lifetime. Also, as a young chief is accepted into another court he may retain his old kahu(s) but will also gain new ones. In the case of Kamehameha, his kahu's ranged from Naeole to Luluka ma then Inaina ma and also the children of Luluka were sent to him to see to his needs in Ka'u. But though a kahu saw to the needs of the chief so too the chief provided the necessities of the kahu, therefore a sense of lokahi is exercised in this relationship. A chief frequently was serviced by upto twenty kahu during his lifetime.

Although the kahu(s) are not immediate family of the chief he serves, they still have the same genealogical line. For example Luluka is from the Luahine line and eventually makes his way to Keakealanikane. Kamehameha also traces his lineage back to Keakealanikane. Papa 'i'i was the son of Luluka, who was in attendance to Kamehameha I and his son Liholiho. Here we see the complexities of the chiefly line. The olonahihi or the back and forth relationship or unions to maintain this chiefly line at every level. This activity of procreation demands constant monitoring by an kahuna-ali'i responsible for genealogy, another kahuna-ali'i who was responsible for the spiritual continuum of this godly line and a kahuna-ali'i to keep records and conduct the process of procreation. The chiefess Keolonahihi who is credited for this complex or certainly the female part of it was adjudged capable of accomplishing these tasks. Her relationship to Pa'ao, made her duty bound to carry on these transactions.

SUMMARY

I believe that the following concepts should be drawn from the established theme of traditions as values:

1. The 'ahupua'a as the value of lokahi
2. The value of lokahi linking; a. human, Gods and land b. grandparents, parents and children c. senior ali'i and junior ali'i
3. The value of maintaining genealogical lines
4. The securing of ni'aupi'o, naha and wahi offspring
5. The providing of education regarding war, sexual conduct,

P. 14.

6. sports, occupational rank, court etiquette and the duties of a ruling chief
7. The establishment of an educational cadre knowledgeable in determining the use of space, construction and placement of objects upon the ground
8. The role of oral tradition and oral culture in yesterday's, today's and tomorrow's world
9. The cultural importance of naming people and places and the concepts and meanings attached to names
10. A sense of place, within the ali'i class such as Kalanipou'u and the Ka'u district or 'Alapa'i and the Kona district, or within the kahuna or commoner classes
11. Hale O Ka'ili as a larger concept and its relationship to Keakealaniwahine, 'Alapa'i and Kamehameha
12. The recognition of the major role of women at Holualoa and Keolonahihi for yesterday and today
13. The recognition of the major role of the ho'omau keiki culture structure at Holualoa and Keolonahihi for yesterday and today
14. The recognition of the major role of funerary functions at Keolonahihi for yesterday and today
15. The recognition of the major role of genealogy at Holualoa and Keolonahihi for yesterday and today, especially in the form of a genealogical center servicing Kona
16. The importance of the sports complex at Keolonahihi including the three surfing areas
17. The recognition of the major role of the kaukauali'i or junior ali'i line and their intergrative functions at Keolonahihi and Holualoa
18. The recognition that Holualoa/Keolonahihi is unique by being especially relevant for today's society. Unlike other sites such as the village/fishing area of Lapakahi or the religious site of Mo'okini Heiau, Holualoa/Keolonahihi is a site that deals with family life, with everyday living, with a family residence, with private worship shrines or heiau, with family and physical conditioning, with sustenance and with final rites or in other words those conditions of life that we in modern times deem as relevant and functional

SOURCES

1. Samuel Amalu Genealogy
2. Bernice Pauahi Bishop Museum (Memoirs), Vol 5. #3
3. Dunaway, Molly. Audio tape, private collection of Herman Kuniwa
4. Ellis, William. Journal of William Ellis
5. Ena Genealogy
6. Finney, Ben. Surfing in Hawaii
7. Handy, E.S.C. Polynesian Religion
8. 'I'i, John Papa. Fragments of Hawaiian History
9. Keakealani, Shirley. Personal communication
10. Keawe Poepeo Genealogy
11. Kuneva, Herman. Personal communication
12. Kuneva, Nalei. Personal communication
13. Malo, David. Hawaiian Antiquities
14. McKinzie, Edith. Hawaiian Genealogies, Vol. 1
15. Puku'i, Mary Kawena. 'Olelo No'eau: Hawaiian Proverbs and Poetical Sayings
16. Puku'i, Mary Kawena. Polynesian Family System in Ka'u, Hawaii
17. Roy, David. Personal communication

APPENDIX I

Comments and Responses to the EIS Preparation Notice

COMMENTS AND RESPONSES TO THE EIS PREPRATION NOTICE

The EIS Preparation Notice (EISPN) was published in the November 23, 1994 OEQC Bulletin. This publication date triggered the start of the 30-day Consultation Period, which officially ended on December 23, 1994. The EISPN included a brief description of the project, the environmental setting, and the potential impacts and mitigation measures to enable reviewers to understand the scope of the project and provide any comments and concerns they believed should be addressed in the Draft EIS.

The EIS Consultant sent the EISPN to the agencies, organizations, and individuals listed below who may have had a potential stake or interest in the project. Those who responded with a comment that required a response are marked with a double asterik (**). Those who sent "no comment" or "no impact" letters, or merely provided information rather than raising a concern, are marked with a single asterik (*). All others without asterik(s) did not respond.

The comments received during the Consultation Period and the respective responses to those comments are reproduced in this Appendix. The "no comment" letters are grouped together at the end of this Appendix.

- 1 Federal
 - 1.1 U.S. Army Corps of Engineers, Pacific Ocean Division*
 - 1.2 U.S. Department of Interior, Fish and Wildlife Service
 - 1.3 U.S. Department of Interior, National Park Service**
- 2 State
 - 2.1 Office of Hawaiian Affairs
 - 2.2 Department of Accounting and General Services*
 - 2.3 Department of Health
 - 2.4 Department of Land and Natural Resources*
 - 2.5 Department of Transportation*
 - 2.6 Office of State Planning
- 3 County
 - 3.1 Planning Department*
 - 3.2 Department of Public Works*
 - 3.3 Department of Parks and Recreation
 - 3.4 Department of Water Supply*
 - 3.5 Fire Department*
 - 3.6 Police Department*
- 4 Organizations and Individuals
 - 4.1 Former Advisory Committee Members for Keolonahihi State Historical Park
 - 4.2 Hawaiian Organizations
 - 4.2.1 Kona Hawaiian Civic Club
 - 4.2.2 The Royal Order of Kamehameha I
 - 4.2.3 Sons and Daughters of Hawaiian Warriors
 - 4.2.4 Hale o Na Ali'i
 - 4.2.5 Ka Piko Lokahi
 - 4.2.6 Kamehameha Schools
 - 4.3 Community Organizations
 - 4.3.1 Friends of Keolonahihi & 'Imiola No Na Kupuna o Kona**
 - 4.3.2 Friends of the Future
 - 4.3.3 Public Access Shoreline Hawaii

- 4.3.4 Kona Conservation Group**
- 4.4 Legislators
 - 4.4.1 County Council
 - 4.4.1.1 Keola Childs**
 - 4.4.1.2 James Rath
 - 4.4.2 State Legislature
 - 4.4.2.1 Senator Andrew Levin
 - 4.4.2.2 Representative Virginia Isbell
- 4.5 Adjacent Landowners and other individuals
 - 4.5.1 'Alohi Kai Partnership
 - 4.5.2 Mr. Colin Love**
 - 4.5.3 Mr. Julian Silva
 - 4.5.4 Herman Kunewa & Iris Napaepae
 - 4.5.5 Ms. Hannah Reeves
 - 4.5.6 Ms. Marian Charlton



United States Department of the Interior

NATIONAL PARK SERVICE
Kaloa-Honolohau National Historical Park
73-4786 Kanehalei Street, #14
Kailua-Kona, Hawaii 96740

MAIL ROOM TO:

RECEIVED
DEC 6 1 03 PM '94

TO: DIRECTOR
ASST. DIR.:

- ADM. SERV. DIV.
- ARCH. & HIST. DIV.
- BIOL. RES. DIV.
- EDUC. & INT. RELS. DIV.
- EXT. AFF. DIV.
- FIN. & MGMT. DIV.
- GEN. INV. DIV.
- LAND ACQ. DIV.
- LEGAL COUNSEL
- PLANNING DIV.
- PROTECT. DIV.
- STATE & LOCAL AFF. DIV.
- TRAINING DIV.
- WATER RES. DIV.
- WILDLIFE DIV.

FROM: RALSTON H. NAGATA
STATE PARKS ADMINISTRATOR
DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

L7621

December 1, 1994

Ralston H. Nagata
State Parks Administrator
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Thank you for the opportunity to comment on the Draft EIS for Keolonahihi State Historical Park, TMK: 7-7-04:12,51,52

Following are comments with reference to their respective sections.

2.4 Proposed Management Plan

There should not be limited visitor and educational facilities and landscape. There should be stronger emphasis made to allow facility for interpretation and traditional Hawaiian use of Keolonahihi State Historical Park as described in 2.4.2 Facilities.

2.4.1 Stabilization, Restoration, and Reconstruction

Strong efforts should be made here for stabilization and restoration of the Cultural Resources for interpretive uses and demonstration.

2.5 Timetable, Cost and Funding

Using five years as a planning objective is a perfect idea with good community support and participation.

Thank you again for allowing me the opportunity to comment on the Draft EIS for Keolonahihi State Historical Park. Overall I support the plan.

Sincerely,

Francis I. Kailani Sr.
Francis I. Kailani Sr.
Superintendent

cc: Ron Terry and Roy Takemoto

BENJAMIN J. CAVETANO
Governor of Hawaii



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS

HONOLULU, HAWAII 96819
January 30, 1995

Chairpersons
MICHAEL D. WILSON
Sacred Land and Natural Resources

Deputy Director
GILBERT S. COLOM-AGUIAR

AGRICULTURE DEVELOPMENT
PROGRAMS
ARCHAEOLOGICAL
SOUNDING AND RESEARCH
CONSERVATION, RESTORATION,
AND RECONSTRUCTION
PROGRAMS
CULTURAL AND HISTORIC
PRESERVATION
PROGRAMS
LAND MANAGEMENT
PROGRAMS
WATER AND LAND DEVELOPMENT

Mr. Francis Kuailani, Superintendent
Kaloko-Honokohau NHP
73-4786 Kanalani Street, #14
Kailua-Kona, Hawaii 96740

Dear Mr. Kuailani:

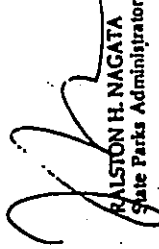
SUBJECT: KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holuaoa 4, North Kona District, Hawaii (TMK: 77-04: 12, 51, 52)
EIS Preparation Notice - Response to Comments

Thank you for your comments on the EIS Preparation Notice for Keolonahihi State Historical Park (Cultural Site). Your comments will be addressed in the Draft EIS as follows:

1. **Extent of Public Access and Facilities.** Whether and to what extent certain areas of the site must be restricted from public access due to sacred values is a major issue that will be addressed in the EIS. Based on your experience at Kaloko-Honokohau NHP, the EIS consultants may contact you for further information in support of your views that the site should be interpreted and accessible for more extensive public education and traditional Hawaiian uses.
2. **Stabilization, Restoration, and Reconstruction.** The Management Plan proposes a comprehensive effort to stabilize and restore the archaeological sites for preservation and interpretive purposes.
3. **Timetable.** We appreciate your view that the 5-year plan to develop the site, instead of rushing the development in a year or two, will enable more community participation in the details of the design and construction.

Again, thank you for taking the time and interest to comment. We hope for your continued participation in the review of the Draft EIS. We will send you a copy of the Draft EIS when it is completed.

Very truly yours,


RALSTON H. NAGATA
State Parks Administrator

Postnet Fax No	7671	Date	09/09/94	Page	2
To	E. NAGATA	From	FRANCIS J. SCHREIBER		
Company	ALU LIFE INC.	Company	FRANCIS J. SCHREIBER		
Phone		Phone			
Fax	935-6284	Fax			

Ralston H. Nagata Page Two September 9, 1994

Ralston H. Nagata, State Parks Administrator
Department of Land and Natural Resources
Honolulu, Hawaii, 96809
FAX Number 587-0311

Re: General Management Plan (GMP), August 1994, for Keolonahihi Complex, North Kona, Hawaii

Dear Mr. Nagata:

Thank you for asking once again for the thoughts and opinions of the Friends of Keolonahihi and Imiola No Na Kupuna with regards to the future of the Keolonahihi Complex. For the most part the GMP addresses many of the concerns we have made over the past twenty years.

However, we feel that your department outlines a comprehensive plan for a "park site" that imposes a tourism-oriented model upon this priceless resource. In our hearts, we feel that restrooms, parking spaces, walkways, viewing platforms with signs are modern intrusions, and as such are not acceptable.

We would agree to area stabilization and would favor the one-story, open-air inexpensive traditional 'hale' to be constructed to serve as an interpretive center for Hawaiian cultural education. This structure could accommodate a raised walk to depict the prehistoric sites within the complex; we could support 'Alternative D', page 63.

Further, we would agree to a minimal staff to oversee to the daily operations—a qualified "kahu" with knowledge of Hawaiian cultural traditions and the Hawaiian language, an interpretive specialist and two daily maintenance caretakers.

The Friends and Kupuna firmly believe careful consideration must be given to acquire Kaunakakai with the funding that is now scheduled to pay for restrooms, walkways and a parking lot; also, seriously consider to purchase the 17-acre mauka Keolonahihi Complex area that is currently for sale, instead of spending a half-million dollars to construct a temporary portable interpretive center and landscaping buffers that will require special permit if native plants are to be used.

Keolonahihi Complex has great political, religious and cultural value, and has the potential to serve as an advanced-learning and community cultural center. My can't Ph.D students earn their degrees by contributing 'sweat equity' towards stabilizing the area in exchange for an orientation to the complex? Thus, by providing a classroom for a new generation of professionals, this sacred parcel will allow for authentic interpretation and appropriate use. We feel this would provide a better service to the community than have buses delivering school children to the site every two hours for a half-hour 'look.'

Over time, as people become knowledgeable about the Keolonahihi Complex, appropriate cultural activities could take place—such as, canoe building at Kaunakakai—a traditional place for this traditional Hawaiian craft.

Respectfully submitted by *Francis J. Schreiber*
Friends of Keolonahihi & Imiola No Na Kupuna.

- Keith Aho
- William Bork
- Fred Cachola
- Joseph Castelli
- Francis Ching
- Tom Cummings
- Virginia Goldstein
- Virginia Isbell
- Sam Kaki
- Pua Karahale
- Herb Kane
- Zachary Kanaha
- Andy Levin
- Lalomi Lum
- Virgil Maeker
- Kalani Mafaecke
- Earl Neller
- Diana Nji
- David Roy
- Jerry Shimoda
- Haliaka Tackaberry
- Piia Wilson
- Martha Yent.

BENJAMIN J. CAYETANO
Governor of Hawaii



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS

PA 106 081
HONOLULU, HAWAII 96813

January 30, 1995

Ms. Frances Schobel
Friends of Keolonahihi & 'Imiola No Na Kupuna o Kona
P.O. Box 127
Honolulu, Hawaii 96726

Dear Ms. Schobel:

SUBJECT: KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holuaoa 4, North Kona District, Hawaii (TMK: 7-7-04: 12, 51, 52)
EIS Preparation Notice - Response to Comments

Thank you for your comments on the Draft Management Plan for Keolonahihi State Historical Park (Cultural Site). Your comments will be addressed in the Draft EIS as follows:

1. **Extent and Location of Facilities.** The location and extent of visitor facilities is a major issue that will be addressed in the EIS. The Draft EIS will evaluate the alternative of siting very limited facilities (no parking, walkways, or viewing platforms) in the southeastern portion of the site (Alternative D in the Management Plan).
2. **Additional Land Acquisition.** No one disputes that acquisition of Kaunalumalu and Keakalaniwahine is highly desirable. However, the funds required to acquire Kaunalumalu are greater than the amount proposed for development of the proposed visitor facilities. We are continuing to pursue alternatives for the preservation of Keakalaniwahine. The question now is how to protect and preserve the complex currently under our jurisdiction. The focus of the EIS is to address this question.
3. **Cultural Center.** The Management Plan advocates the development of a cultural and educational center as part of the operational programs for the site. The scale of the center is limited by the current land area available for facilities.

Again, thank you for taking the time and interest to comment. We hope for your continued participation in the review of the Draft EIS. We will send you a copy of the Draft EIS when it is completed.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources
Deputy Director
GILBERT S. COLEMAN
ADMINISTRATIVE DEVELOPMENT PROGRAM
ADVISORY SERVICES
SOILS AND OCEAN RECREATION
CONSTRUCTION AND
CONSERVATION AFFAIRS
FINANCIAL DEVELOPMENT
FORESTRY AND WILDLIFE
PLANNING AND
LAND MANAGEMENT
STATE PARKS
STATE AND LAND DEVELOPMENT

KONA CONSERVATION GROUP

December 22, 1994

To: Governor, State of Hawaii
o/c Office of Environmental Quality Control
220 South King Street, Suite 400
Honolulu, HI 96813

Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, HI 96809
Attention: Ralston Nagata (587-0290)

Ron Terry & Roy Takemoto
HCR 1 Box 9575
Keaau, HI 96749
Attention: Ron Terry (982-5831)

Subject: KEOLONAHIHI STATE HISTORICAL PARK

Based on the presentation by the State Parks personnel and the discussion at the meeting held at Kahakai School on December 7, 1994, we would like to offer our comments to the EIS preparation notice to insure a thorough examination of these points in the Draft EIS:

1. Consideration should be seriously given to calling this area by another designation rather than PARK. Several people commented on this. One of the main reasons seems to be that calling the area a park then necessitates certain requirements such as those under the American Disabilities Act calling for accessibility for wheel-chairs, etc. This should not be misconstrued to indicate a prejudice against the disabled; rather, it is explained by the second point below.
2. As stated by many of the Hawaiians at the meeting and in written testimony submitted by Friends of Keolonahihi, many native Hawaiians feel very strongly that the area should be restored to the fullest extent possible to the original form. This means that no modern facilities be added. We support this position.
3. Again, in support of the position expressed by several native Hawaiians, this area should be restored for the benefit of the native Hawaiians. It is they who should be encouraged to form a group and develop plans for the use of this area, whether through passive or active use.
4. As expressed by Mary Green, we agree with the request that the mauka portion across Alii Drive be aggressively investigated for acquisition and addition to the makai portion here under consideration as an integral part of this complex.

Please send us a copy of the Draft EIS for our review. Thank you.

Ri2 Tylev
for DOUGLAS BLAKE, President
c/c 3: 5: 20: 11

BENJAMIN J. CAYETANO
Governor of Hawaii



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS

PA 1000001
HONOLULU, HAWAII 96813
January 30, 1995

Mr. Douglas Blake, President
Kona Conservation Group
P.O. Box 1001
Captain Cook, Hawaii 96704

Dear Mr. Blake:

SUBJECT: KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holuoloa 4, North Kona District, Hawaii (TMK: 77-04: 12, 51, 52)
EIS Preparation Notice - Response to Comments

Thank you for your comments on the EIS Preparation Notice for Keolonahihi State Historical Park (Cultural Site). Your comments will be addressed in the Draft EIS as follows:

1. Name. The EIS will discuss the idea of changing the name to replace the word "park" with a word that emphasizes the cultural and educational values rather than recreation. Cultural Site is being considered as one option.
2. No Facilities. The EIS will discuss the alternative of restoration only without any visitor facilities.
3. Exclusive Use by Native Hawaiians. The EIS will discuss the alternative of exclusive use of the site by Native Hawaiians. Implicit in this alternative is the presumption that State Parks is not the appropriate agency to manage the site, that the majority of Native Hawaiians agree with this concept of exclusivity, and a Native Hawaiian organization is willing to manage the site.
4. Additional Land Acquisition. No one disputes that acquisition of Kaunalumalu and Keakealaniwahine is highly desirable. However, the funds required to acquire Kaunalumalu are greater than the amount proposed for development of the proposed visitor facilities. We are continuing to pursue alternatives for the preservation of Keakealaniwahine. The question now is how to protect and preserve the complex currently under our jurisdiction. The focus of the EIS is to address this question.

Again, thank you for taking the time and interest to comment. We hope for your continued participation in the review of the Draft EIS. We will send you a copy of the Draft EIS when it is completed.

Very truly yours,

Ralston H. Nagata
RALSTON H. NAGATA
State Parks Administrator

Chalgrisor
MICHAEL D. WELSON
Deputy Director
Deputy Director
GREGORY E. COLMANAGARAN

ACQUISITION DEVELOPMENT
PROVISIONS
PLANNING AND DESIGN
CONSTRUCTION AND
OPERATIONS
COMPLIANCE
CONSTITUTIONAL MATTERS
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT



KEOLA CHILDS
Councilmember

Mr. Ralston H. Nagata
December 19, 1994
Page 2

Phone: (808) 961-8266
Fax: (808) 969-3291

Kona Phone: 322-3646
Kona Fax: 322-6118

COUNTY COUNCIL
County of Hawaii
Hawaii County Building
25 August Street
Hilo, Hawaii 96720

December 19, 1994

Mr. Ralston H. Nagata
Division of State Parks
Department of Land and Natural Resources
PO Box 621
Honolulu, HI 96809

RE: EIS Preparation Notice for Keolonahihi State Historical Park
Hotulaloa, North Kona

Dear Mr. Nagata:

I have reviewed the EIS Preparation Notice, and based on its description of the draft management plan for this proposed park, I believe the draft management plan must be amended to allow reasonable public access to public property.

The proposed plan is without precedent that I am aware of in the state of Hawaii, where the general public would be virtually excluded from state owned land. The concept of the general public only being allowed to walk a dog-legged boardwalk on part of two sides is neither realistic nor, I believe constitutional.

Based on the illustrations provided, there appears to be ample room for public walkways and rest areas across the site. I find it difficult to accept the notion that the subject site is, in virtual entirety, sacred and sacred to a degree that demands public funds be expended to acquire and develop this site for the sole use of persons meeting certain religious, cultural or possibly racial tests.

The state paid a very high purchase price for this land some fifteen years ago. I have been waiting this entire period, sometimes impatiently, for the day to come when I and others would be able to walk through and enjoy this beautiful site, as well as lend a hand in its clearing and restoration. Born and raised in this fine state, I simply cannot and will not accept being excluded from a state owned facility by any of the reasons or tests mentioned above. I cannot believe that the state would find this constitutional, either. Please cite for me a historic church or shrine of any religion or culture in either the state of Hawaii or the United States of America that, on public land, (or private land for that matter) excludes the general public from its grounds or its structures during reasonable hours.

All of us who live here should be welcome to use this wonderful site. Of course, this site warrants more intensive management than the typical park - that is by its nature. Perhaps the best management of this public facility is by contract with a Hawaiian cultural organization. Perhaps the site could and should be closed from time to time under permit procedures for private cultural practices. But the general right of us who live here to visit, learn from and enjoy this park must not be abridged as the management plan and EIS now propose.

In the strongest possible terms, I must insist that you change your management plan to provide us reasonable public access through this public land. You must protect and nurture the public rights afforded in our state and federal constitutions.

Sincerely,

Keola Childs
Councilmember, 7th District



Colin L. Love
Legal and Environmental Services

Department of Land and Natural Resources
December 16, 1994
Page 2

approve of the present plans for development. To go forward with the present plan without making an in depth inquiry into the feelings of the Hawaiian community would be a serious mistake.

At this time you are preparing an environmental impact statement. I am familiar with the process and the factors that are considered in such studies. One factor that is not given adequate attention is the cultural impact. The impact that what you are contemplating will have on people with cultural connections to the property and its history.

There are also practical matters about the proposed development that must be considered. The proposal is for a low use park with limited access. But Kamaoa Point is popular now for the same reasons that it was significant to the ancients. It is the best surfing spot on the Island of Hawaii when a strong swell is running. On high surf days Alii Drive is almost impassable because of all of the surfers and observers parked along the roadway. You cannot keep the public off of the shoreline that fronts Kamaoa Point. If the vegetation is cleared from the historic site it will be an open invitation for invasion by the public in general and the Hawaiians in particular. There will be little that park rangers can do to keep them out. I will not envy the park ranger who tries to tell a Hawaiian activist that he or she cannot sit where King Kamehameha I sat to watch surfers.

As an adjoining property owner, I believe that in time the site should be developed. But it should be developed with some feeling and understanding about the wishes of the adjoining property owners. I can see no valid reason for putting public toilets directly in front of private residences. If public toilets are necessary, there is ample room for them south of the proposed parking lot. At the December 7, 1994 public meeting the Hawaiians were very vocal about their opposition to putting toilets in the heiau. I hope that someone was listening to them.

I am also concerned about the location and size of the proposed information center. You have it sited on the highest portion of the land. A 1600 square foot building will dominate the park, and be the central attraction. The Hawaiians who spoke at the December 7, 1994 public meeting made it clear that they did not want to have a foreign structure dominating a site that is so culturally important to them. Again, there is ample room for a smaller, less intrusive facility either in conjunction with or south of the proposed parking.

Wooden walkways and platforms are part of the proposed development. It was obvious from the plans that no consideration was given to access for the disabled. If you make the decision to provide access, you must provide access for all. I suggest that some consideration should be given to providing no access.

One suggestion that was made at the meeting was to simply leave the property alone for now. It was pointed out, however, that some of the trees are causing serious damage to the site. Ms. Marsha E. Yent said that when you tried to remove some of the trees a few years ago you got strong opposition from the community. That opposition did not come from the community. It came from a few well meaning, but ill informed, Caucasians who feel that they know what is best for the property. They objected to the use of helicopters because they thought the down draft might cause damage to the site.

COLIN L. LOVE
Legal and Environmental Services

Post Office Box 2072
Kailua-Kona, Hawaii 96745

Telephone and Facsimile
(808) 329-2460

December 16, 1994

Department of Land and Natural Resources
Division of State Parks
P. O. Box 621
Honolulu, HI 96709

RE: Environmental Impact Statement -- Keolonahiki State Park,
Holuaba 4, North Kona, Island of Hawaii. TMK (2) 7-7-04.12.51.52

Dear Sir or Madam:

My wife and I own one of the private residences on Kamaoa Point that adjoin the proposed Keolonahiki State Park. We have owned and occupied that residence since 1976. We were present at the dedication ceremonies at Kamaoa Point after the 13-acres were purchased by the State in the early 1980's. I can remember speakers at the ceremonies telling us that an advisory committee would be formed who would provide State Parks with community input and recommendations for the development of the park. Unfortunately many of the members of the advisory committee were not interested in obtaining public input. None of my neighbors were consulted about their concerns. I am told that none of the were ever given a copy of the advisory committee's recommendations before the recommendations were finalized and submitted. I have asked, and I cannot find anyone along this section of Alii Drive who was consulted. I have asked friends of mine in the Hawaiian community, and I can find no one who was consulted. None of the people who attended the meeting on December 7, 1994, had been consulted.

I am in a somewhat different position. I knew some of the people on the committee, and I was shown what I was told were preliminary sketches of the proposed development. I pointed out that it was very insensitive and quite inappropriate to put the bathrooms inside of the heiau, and right in front of the existing residences. I understood that final recommendation located the bathrooms and visitor center to the south of the proposed parking lot, but possibly I was misinformed.

During the twelve years since the advisory committee started its work there have been many changes in public attitude. The Hawaiian Sovereignty Movement is a reality. I am a Per Diem District Court Judge on the Island of Hawaii, and I have been assigned to handle many of the trespass cases involving members of the Hawaiian Sovereignty Movement. Their feelings are deep, and their desire to guide their own future is strong. The Keolonahiki site is significant to them, and their wishes for the property should be respected. Your failure to consider them will cause even more bitterness.

It was clear from the testimony at the December 7, 1994 public meeting that the Hawaiian community in general has not been consulted about the plans for the property. It was also clear that they do not

Hawaii Attorney 1976, No. 1798
California Bar Association 1972, No. 54003
Registered Geologist - California, 1970, No. 1332
Certified Engineering Geologist - California, 1970 No. 486
Registered Geophysicist - California, 1970, No. 331



DEPARTMENT OF THE ARMY
U S ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96861-5440

PLEASE TO
ATTENTION OF

December 22, 1994

Planning Division

Mr. Ralston H. Nagata, Administrator
State of Hawaii
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Thank you for the opportunity to review and comment on the Environmental Impact Statement Preparation Notice (EISP) for the Keolonaiki State Historical Park, Holualoa 4, North Kona, Hawaii (TMK 7-7-4: 12, 51, 52). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

- a. Our Regulatory Branch staff is currently reviewing the document and will provide their comments to your office under separate cover.
- b. The flood hazard information provided on page 18 of the EISP is correct.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering

Copy Furnished:

Messrs. Ron Terry and Roy Takemoto
HCR 1, Box 9575
Keau, Hawaii 96749

(P)2051.4

DEC 21 1994

Mr. Ralston H. Nagata
Administrator
Division of State Parks
Department of Land and
Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Subject: Keolonaiki State Historical Park
Holualoa 4, North Kona, Hawaii
EIS Preparation Notice

Thank you for the opportunity to review the subject document. The proposed project will have no impact on our facilities. Therefore, we have no comments to offer.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

Ray H. Jyo

GORDON MATSUOKA
State Public Works Engineer

RY:JY
cc: Messrs. Ron Terry and Roy Takemoto

JOHN WARD
Commissioner



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAII DISTRICT
50 MAKAALA STREET
P.O. BOX 477
HONOLOULU, HAWAII 96809
TELEPHONE (808) 535-4640 • FAX (808) 535-4738

REID JOHNSON
DIRECTOR
COUNTY DIRECTOR
KAMAHANUI
GLENNEL ODOMOTO
JAMES H. ODOMOTO
CALVIN H. TSUDA
IN REPLY REFER TO:
HWY-H
94-2-1357

Stephen K. Yamashiro
Mayor



County of Hawaii
PLANNING DEPARTMENT
25 Anapala Street, Room 109 • Hilo, Hawaii 96720-4112
(808) 941-8288 • Fax: (808) 941-9415

Virginia Goldstein
Director
Norman Olsen
Deputy Director

December 27, 1994

Mr. Ralston H. Nagata
State Parks Administrator
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Nagata:

RE: EISPN - Keolonahihi State Historical Park
TMK: 7-7-04: 12, 51 and 52; Holualoa 4, North Kona

Thank you for the opportunity to review the preparation notice for the proposal historical park on the subject properties. We do not have any comments at this time.

Sincerely,

Virginia Goldstein
Virginia Goldstein
Planning Director

ac/dms
#5804D

cc: Terry & Roy Takemoto

December 1, 1994

Ralston
Mr. Ralston H. Nagata
State Parks Administrator
State of Hawaii
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

SUBJECT: Environmental Impact Statement Preparation Notice
Keolonahihi State Historical Park, Holualoa 4,
North Kona, Island of Hawaii, TMK: 7-7-04: 12, 51, 52

Thank you for the opportunity to review the subject EIS notice.

We have no comments on the subject EIS.

Very truly yours,

Hugh Y. Ono
HUGH Y. ONO
Hawaii District Engineer

cc: R. Takemoto

RE: IMPROVING
DIP 88
PLANNING
DIVISION
COUNTY OF HAWAII
HONOLOULU, HI 96809
DEC 5 1 40 PM '94
HONOLULU/POST/STANT PM
COUNTY & REC
COUNTY PLANNING
COUNTY ENGINEER
COUNTY CLERK
COUNTY ASSESSOR
COUNTY COMMISSIONER
COUNTY ATTORNEY
COUNTY CLERK
COUNTY ENGINEER
COUNTY CLERK
COUNTY ENGINEER
COUNTY CLERK



December 5, 1994

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) 969-1421 • FAX (808) 969-6996

RECEIVED
DIVISION OF
7 11 48 AM '94

Stephen K. Yamashiro
Mayor



County of Hawaii
FIRE DEPARTMENT
444 Kumu Street • Hilo, Hawaii 96720
(808) 941-4377 • Fax (808) 941-6920

Nelson M. Tsuji
Fire Chief

December 27, 1994

State of Hawaii
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, HI 96809

Mr. Ralston H. Nagata
State Parks Administrator
Division of State Parks
Department of Land & Natural Resources
P. O. Box 621
Honolulu, HI 96809

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KEOLONAHUHI STATE HISTORICAL PARK, HOUALOA 4, NORTH KONA, ISLAND OF HAWAII
TAX MAP KEY: 7-7-4:12, 51, 52

Dear Mr. Nagata:
Subject: Environmental Impact Statement Preparation Notice
Keolonahuhi State Historical Park
Houaloa 4, North Kona, Island of Hawaii
TMK: 7-7-04:12, 51, 52

We have reviewed the subject application.

Water can be made available from an 8-inch waterline along Alii Drive.

However, the Environmental Impact Statement should include water demand requirements.

Upon review of the requirements, a determination will be made as to whether the requirements can be accommodated with or without improvements to the existing water system facilities.

[Signature]
M. Wilcox Schake, J.E.
Manager

WA

Sincerely,

[Signature]
NELSON M. TSUJI
Fire Chief

NMT/mc

cc: Ron Terry & Roy Takamoto
HCR 1, Box 9575
Keaau, HI 96749



... Water brings progress...



Stephen K. Yamashiro
Mayor



Wayne G. Carvalho
Chief of Police

County of Hawaii
POLICE DEPARTMENT
249 Kapiolani Street Hilo, Hawaii 96720-3998
(808) 941-2244 Fax (808) 941-2189

December 12, 1994

Mr. Ralston H. Nagata
State Parks Administrator
Department of Land and Natural Resources
Division of State Parks
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KEOLONAHIHI STATE HISTORICAL PARK, HONOLULU 4,
NORTH KONA, HAWAII, TMK: 7-7-04:12,, 51, & 52

The proposed application has been reviewed and we foresee no adverse effect should it be granted.

Sincerely,

Wayne G. Carvalho
WAYNE G. CARVALHO
POLICE CHIEF

JV:if

cc: Ron Terry/Roy Takemoto, EIS Consultants
Kona Police

BENJAMIN J. CAYETANO
Governor of Hawaii



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

REF:OCEA:DKP

P. O. Box 631
Honolulu, Hawaii 96809

FILE NO.: 95-277
DOC. NO.: 5292

JAN 26 1995

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources
Deputy Director
GILBERT COLOMIA-AGARAN
Aquatic Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Construction and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

Mr. R. Negata - 2 - File No.: 95-277

Office of Conservation and Environmental Affairs

The Office of Conservation and Environmental Affairs (OCEA) comments that Section 4.2, State Land Use Law, should be revised to indicate that State parks are not a "permitted use," but rather an "identified use" within the Conservation District. If this area were reclassified to the Conservation District, construction activities there would be subject to the Conservation District regulations of Title 13, Chapter 5, Hawaii Administrative Rules.

Division of Water and Land Development

The Division of Water and Land Development comments that water requirements should be coordinated with them for water allocation.

We have further comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please contact Steve Tagawa at the Office of Conservation and Environmental Affairs at 597-0377, should you have any questions.

c: Ron Terry and Roy Takemoto

MEMORANDUM

TO: Ralston Negata, Administrator
Division of State Parks

FROM: MICHAEL D. WILSON, Chairperson
Board of Land and Natural Resources

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN):
Keolu/Onahehi State Park, Hooluaolu 4, North Kona, Hawaii,
TRK: 7-7-04; 12, 52, 53

We have reviewed the EISPN information for the subject project transmitted by your letter dated November 28, 1994, and have the following comments:

Division of Aquatic Resources

The Division of Aquatic Resources has no objections to the proposed historical park as presently proposed. It is unlikely that the proposed infrastructure will have adverse effects on the aquatic resources of the area. The EISPN does mention marine flora and fauna as a concern, but given that a survey of the Kamao Point area was made, more detail should be provided in the DEIS. The flora and fauna of the anchialine pools in the Kamao Point area should be described, especially with regard to native and endemic species.

The EISPN also notes the high levels of recreational activity taking place in Hooluaolu Bay, adjacent to Kamao Point. While near-shore activities would not be restricted, the plan proposes to limit recreational user's access across the historic park site. This is acceptable considering the cultural and historical significance of the site.

Historic Preservation Division

The Historic Preservation Division (HPD) comments that they have reviewed the EISPN and are in general agreement with the project objectives and the proposed management plan. HPD will want to review each phase of the project as it proceeds. The acquisition of the Keakealaniwahine Complex would certainly enhance the value of the proposed park and HPD hopes that the State will do everything possible to obtain this property.





REPLY TO
ATTENTION OF
Regulatory Branch

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

04 MAY 1995

Mr. Ron Terry
HCRI
P.O. Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

This is in response to your fax dated February 17, 1995 requesting information for a Department of the Army (DA) permit for work at Keolonahiki State Historical Park pond, Kailua, Kona.


Based on a site visit and the information provided, a permit is not required for the hand removal of debris and rubbish in the existing pond.

Should you plan to deepen the pond by excavating, this action will require the following documents:

- a. Department of the Army permit
- b. State Department of Health, Section 401 Water Quality Certification
- c. Office of State Planning, Coastal Zone Management determination

File number NP95-066 is assigned to this project. Please refer to this number in any correspondence with us. If you have any questions or need further information, please call Ms. Lolly Silva at 438-9258, extension 17.

Sincerely,


James L. Bersson, P.E.
Chief, Operations Division

APPENDIX J

Comments and Responses to the Draft EIS

COMMENTS AND RESPONSES TO THE DRAFT EIS

Official notice of availability of the Draft EIS was published in the May 23, 1995 OEQC Bulletin. The 45-day public review period commenced from that publication date and ended on July 7, 1995.

The Draft EIS was sent to various agencies, organizations, and individuals including those listed in Appendix I, as well as made available to the general public at various libraries. The following is a list of those who sent comments during the review period of the Draft EIS. This appendix includes copies of the comments and corresponding response in the order listed below. Only those letters with substantive comments were sent a response. The "no comment" or "no impact" letters that did not require a response are grouped together at the end of this Appendix.

- I. Federal
 - A. U.S. Department of Interior, National Park Service
- II. State
 - A. Department of Health
 - B. Department of Land and Natural Resources
 - 1. Division of Water and Land Development
 - 2. Division of Conservation and Environmental Affairs
 - C. Office of State Planning
 - D. UH Environmental Center
- III. County
 - A. Planning Department
 - B. Department of Public Works
 - C. Department of Water Supply
 - D. County Council-- Keola Childs
- IV. Organizations and Individuals
 - A. Community Organizations
 - 1. Protect Kohanaiki 'Ohana
 - B. Adjacent Landowners and other individuals
 - 1. Mr. Colin Love
 - 2. Ms. Marian Charlton
- V. "No comment" or "no impact" letters; no response necessary.
 - A. U.S. Department of Interior, Geological Service
 - B. Department of Land and Natural Resources, Division of Forestry and Wildlife
 - C. Department of Accounting and General Services
 - D. Department of Transportation

KIOLA CHILDS
County Planner



COUNTY COUNCIL

County of Hawaii
Hawaii County Building
25 Aupuni Street
Hilo, Hawaii 96720

Hilo Phone: (808) 961-8266
Fax: (808) 969-3291
Kona Phone: (808) 322-2649
Fax: (808) 322-6118

Kona Office Phone: (808) 326-5284
Kona Office Fax: (808) 326-5197
Residential Fax: (808) 322-6118

June 12, 1995

Governor Ben Cayetano
c/o Office of Environmental Quality
220 South King Street, Suite 400
Honolulu, HI 96813

RE: DEIS for Keolomahini State Historical Park
North Kona, Hawaii

Dear Governor Cayetano:

While I am pleased that the subject site may finally be cleared of overgrowth and partially restored, I am very disturbed by the expressed intent of the park plan to exclude people from over 80% of the public park land area on the basis of race or creed. This appears to be unprecedented, and of questionable justification.

I believe this to be fundamentally unlawful under the constitution of the United States of America, as a violation of the civil rights of all Americans, particularly that of equal protection. I also believe that deferences granted Native Hawaiians under the constitution of our state do not establish or provide any rights for the exclusive use of public lands; rather, I believe the state constitutional provisions protect the right of Native Hawaiians to enter onto private and public lands to undertake certain practices.

I implore you to *withdraw the draft environmental impact statement* cause the park management plan to be amended now to provide for reasonable public use of public lands. The revised plan, providing for more reasonable public use should then be publicly circulated for preliminary public approval; an amended or replacement DEIS should then follow.

Specific Issues of Concern

1. Sanctity. The plan (and DEIS) decrees that most of the entire site is comprised of "sacred areas;"

How can the state determine what sites are sacred? What authority, and under what statute or rule has the state recognized in establishing such for Native Hawaiian sites and features? What are the recognized limits or criteria of these authorities in making these determinations?

Does, in fact, the state recognize the existence and practice of "pre-contact" Native Hawaiian religion? If so, when and where, and are not the rights of people to practice such religious tenets subject to the civil rights of our constitution?

Is the religion for which sacredness is to be recognized a religion of an implicit system of social classes, such as ali'i and commoner? If so, have the issues of the state been fully explored in regard to this as it pertains to state lands?

Who is the arbiter for the state in establishing which religious practices are proper and acceptable to the population of persons interested in using a site for religious purposes? How can a state agency or a consultant draw lines of exclusion and sanctity on public property based on religion (as opposed to objective factors like site fragility, safety, etc.) without a formal, legal recognition of such religion and the physical requirements thereof?

The DEIS dismisses any question of the religious premises used in establishing sanctity, with remarks like, on page 3-32, "...restricting general public access from certain sacred areas is an unavoidable impact." The implicit rationale used in establishing sanctity clashes with our American experience, and must be challenged. For example, a site of worship is commonly recognized as including sacred areas or features, as with any church or temple. But when the structures are destroyed or removed, or when the religion tied to that site is lost, sanctity is also lost.

I cannot accept the declaration that virtually the entire area of the state land involved is sacred until the state has set forth who it recognizes as setting the tenets of such religion(s), and what limits to such tenets it will accept under state law. In deriving such statutes and rules, we will have to confront the body of evidence, existing or lacking, to determine what Native Hawaiian religious tenets were recognized by the Kingdom of Hawaii at the time of its being overthrown in 1893.

The indefensibility of the extent of sacred area is revealed in the plans allowance of public shoreline access around the perimeter of the site, based on a rationale that such is a publicly protected right. So is use of the entire site, except for specific areas of extraordinary concern, subject to reasonable rules!

The state will have to be ready to show why this particular site should be generally more exclusive than other state lands holding religious and ali'i structures and remnants relating to Native Hawaiians, as well as religious structures pertaining to European and Asian religions.

Accordingly, I contend that the draft management plan must be revised to address site features on the basis of *cultural* factors, and to provide proper protection of those features, and access thereto for exclusive or non-exclusive use according to rules that reflect that these features are on public lands. Sacredness is not relevant under the law as it stands today, as there is no basis for the state to determine what a religious group may determine to be sacred or not sacred, to the possible exclusion or detriment of other citizens on public lands.

MEMORANDUM
September 7, 1995
Page 2

... the Secretary, upon the request of an appropriate Indian tribe, may from time to time temporarily close to general public use one or more specific portions of the monument or the conservation area in order to protect the privacy of religious activities in such areas by Indian people.³

However, Congress stipulated that such closures "shall be made so as to affect the smallest practicable area for the minimum period necessary for such purposes."

The implications for Keolokalani are as follows:

- Special legislation may be required to specifically authorize State Parks to restrict public access.
- Further analysis would be required whether the Organic Act, Hawaii's Constitution, or any other law provides the necessary authority.
- The restricted access may have to be only temporary (i.e., during ceremonial activities), and limited to the particular areas of the ceremonies.
- Clarification is needed whether viewing the areas from the viewing towers permits adequate access to the general public for purposes of the Establishment Clause.

Free Exercise Clause

The U.S. Supreme Court developed a two-part test to determine if governmental action violates the Free Exercise Clause. If a court finds that the purpose or effect of a regulation infringes upon religious exercise, whether by coercion or by impeding practice, the court then applies the second part of the test. The second part is whether the "compelling state interest" outweighs the "infringement".⁴

For Keolokalani, the question is whether allowing visitors to the sacred areas impedes the practice of the traditional Hawaiian religious practices. A court found that a tourist's presence does not coerce the Indians into violating their religion or acting contrary to their beliefs, even if the tourist's presence is a desecration of a sacred site.⁵ The court reasoned that the First Amendment cannot give a veto power over public programs that do not prohibit the free exercise of religion. Arguably, allowing visitors may not even meet the first test since a tourist's presence does not coerce anyone to act contrary to their beliefs. Even if found to impede religious practice, the government action of establishing a park to preserve the archaeological resources may be considered a compelling state interest.

The American Indian Religious Freedom Act (AIRFA) ensures that no laws shall abridge the free exercise of traditional native American religious practices:

³Public Law 100-225 (December 31, 1987).

⁴*Sherbert v. Verner*, ___ U.S. ___ (1963).

⁵*Radoni v. Higginson*, ___ F. 2d ___ (10th Cir., 1980).

September 7, 1995

MEMORANDUM

TO: Ralston Nagata, State Parks Administrator
FROM: Roy Takemoto and Ron Terry, Consultants
SUBJECT: Research on First Amendment Rights Regarding the Restricting of Access of the General Public to Sacred Areas at Keolokalani State Historical Park.

The First Amendment to the U.S. Constitution provides:

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances (emphasis added).

The "Establishment Clause" prohibits governmental action whose principal or primary effect is one that advances or inhibits a particular religion. The "Free Exercise Clause" prohibits governmental action that unduly burdens the beliefs or practices of a particular religion.

Establishment Clause

For governmental actions not to implicate the Establishment Clause, the actions must:

- have a secular purpose;
- neither advance nor inhibit religion as its principal or primary effect; and
- not foster an excessive governmental entanglement with religion.

Arguably, restricting public access to the sacred areas to protect the traditional religious values of the areas is not "secular in purpose", and does in fact "advance a religion as its principal or primary effect". Therefore, such a policy would "foster an excessive governmental entanglement with religion." In essence, such a policy would create a government-managed religious shrine. The restrictive access policy requires others to modify their conduct so as not to offend the Native Hawaiians' religiously-grounded preferences. The Establishment Clause "protects one against action from the government. . . . but it gives no one the right to insist that in the pursuit of their own interests others must conform their conduct to their own religious necessities. . . ." Merely labeling the restriction as protecting "untraditional cultural activities" does not render the rationale bereft of spiritual/religious significance.

On the other hand, Congress has enacted special legislation for a specific park (El Malpais National Monument and National Conservation Area in New Mexico) that permits the closure of a park to protect the privacy of religious activities:

¹*Lemon v. Kurtzman*, ___ U.S. ___ (1971).

²*Radoni v. Higginson*, ___ F. 2d ___ (10th Cir., 1980), citing *Olsen v. Baltimore & O.R. Co.*, 205 F.2d 58 (2d Cir. 1953).

MEMORANDUM
September 7, 1995
Page 3

On and after August 11, 1978, it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and *Native Hawaiians*, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.⁶

Although this law ensures native Americans' access to sacred sites, AIRFA does not overrule any state or Federal law.⁷ A similar provision in Hawaii's Constitution⁸ would not be able to preempt Federal caselaw interpreting Federal constitutional rights.

In summary, it seems that permanently closing portions of a government-owned park to the general public for religious purposes may violate the Establishment Clause, and allowing the general public to access the sacred areas would not violate the Free Exercise Clause. If the Attorney General confirms this holding as applied to Koolonahiki, State Parks could revise the access policy to provide for *voluntary* avoidance of the sacred areas by viewing these areas from the towers. If special legislation is necessary, State Parks could seek legislative authority to at least close the sacred areas during ceremonies. However, those members of the general public, such as yourself, who demand to visit the sacred areas, would have a right at least during non-ceremonial periods. Alternatively, if permanent and complete closure of the sacred areas to the general public is an absolute necessity, then State Parks should seek the transfer of the site to a non-governmental entity.

⁶42 U.S.C. 1996 (1988).

⁷*Lyng v. Northwest Indian Cemetery Protective Association*, ___ U.S. ___ (1988).

⁸Hawaii State Constitution Art. XII, §7 (Traditional and Customary Rights).

77

RECEIVED
DIVISION OF
STATE PARKS
AUG 8 9 05 AM '95

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Water and Land Development
August 7, 1995



MEULANI J. CAYTANO
GOVERNOR OF HAWAII

COMMISSIONER
MICHAEL S. WILSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTY DIRECTOR
GILBERT S. COLMAN-ALABRAN
AQUACULTURE DEVELOPMENT
PROGRAMS
BOAT TRAIL AND OCEAN RECREATION
COAST ENVIRONMENT
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RECREATION
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96809
September 13, 1995

Mr. Manabu Tagomori, Manager-Chief Engineer
Department of Land and Natural Resources
Division of Water and Land Development
P.O. Box 373
Honolulu, Hawaii 96813

RE: KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holualoa 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS-- Response to Comments

Dear Mr. Tagomori:

Thank you for your comments on the Draft EIS for Keolonahihi State Historical Park (Cultural Site). The Draft EIS contained an estimated average daily demand of 500 gpd for domestic use and 4000 gpd for irrigation, for a total of 4500 gpd. Please contact me if you have any further questions or comments on the water demand estimates.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator

Manabu Tagomori, Manager-Chief Engineer

TO: Mr. Ralston Nagata, State Parks Administrator
FROM: Manabu Tagomori, Manager-Chief Engineer
SUBJECT: Draft EIS for Keolonahihi State Historical Park (Cultural Site)
Holualoa 4, North Kona, Island of Hawaii (TMK 7-7-04: 12,51,52)

We have reviewed the Draft EIS for the subject project and have the following comments:

1. The shortage of potable water in North Kona has led to the development of a water master plan for the area. This plan will develop an average daily demand (ADD) of potable water for State projects over the next 20 years.
2. Please provide us with your projected ADD for the proposed facility as soon as it is available.

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at extension 70227.

D:lk

Colin L. Love
Legal and Environmental Services

Governor, c/o Office of Environmental Quality
July 6, 1995
Page 2

the visitor center and bathrooms south of the parking lot and with the access ways and viewing platforms. That has not been done to date, and I believe that the DEIS inadequate for that reason. To say that such a plan can be considered later is just not realistic. Once the proposed plan is accepted it will have such momentum that no other proposal will be given fair consideration.

I do not dispute the need for do something about this significant parcel of property. If nothing is done it will continue to deteriorate. I have serious reservations, though, about any plan that opens the property up to the public within the foreseeable future. Kailua-Kona has fewer recreational facilities than any other comparable community in the State of Hawaii. Those that we do have receive more use than any other comparable facilities in the State of Hawaii. We have even less in the way of historical resources available for the tourists. What we have gets very heavy use. Anyone who does not recognize the great attraction that such a significant property will have is just not being realistic.

Alii Drive is a central attraction in Kailua-Kona. Hundreds of people walk, run and ride bicycles along it every day. It is on the course for the Ironman Triathlon. When the surf is up the point on which the future park will be located is the most popular surfing location in West Hawaii. On high surf days so many cars park along both sides of Alii Drive that it is dangerous for pedestrians and bicycles. A very good friend of mine was seriously injured on her bicycle on such a day.

When the park opens it will be the highlight of the area. Every tour bus in West Hawaii will want to stop there at least once every day. I understand that the 15 parking spaces and limited access are intended to discourage heavy usage. It is not going to work. The public and the tourist industry will not allow it to work. The DEIS estimates that peak hour traffic entering and exiting the project will be 33 vehicles. That estimate does not take into consideration the fact that this project will be the only one of its kind within twenty miles. It does not take into consideration the fact that the project is in the middle of the developed tourist area. It does not take into consideration the bus tours that do not have very much else to offer their customers.

In conclusion, I do not believe that the park should be developed by half-way measures and on a shoestring budget. I do not believe the park should be developed until the State of Hawaii has acquired sufficient land in the vicinity to handle the tourist traffic the park will attract. If those in a position to decide conclude that the park should go forward on a limited nature and with a limited budget, then I believe that the public should be given a fair chance to consider the available alternative. To date they have not had that opportunity.

Very truly yours,



Colin L. Love

cc Department of Land and Natural Resources
Division of State Parks
Ron Terry & Roy Takamoto

COLIN L. LOVE
Legal and Environmental Services

Post Office Box 2072
Kailua-Kona, Hawaii 96745

Telephone and Facsimile
(808) 329-2460

July 6, 1995

Governor, c/o Office of Environmental Quality
220 South King Street, Suite 400
Honolulu, HI 96813

Re Draft Environmental Impact Statement, Keolonahihi State Historical Park

Dear Sir or Madam:

My wife and I own one of the private residences on Kamaoa Point that adjoin the proposed Keolonahihi State Historical Park. We have owned and occupied that residence since 1976. We were present at the dedication ceremonies at Kamaoa Point after the 13-acres were purchased by the State in the early 1980's. We were told that an advisory committee would be formed who would provide State Parks with community input and recommendations for the development of the park. None of my neighbors were consulted about their concerns. I am told that none of the were ever given a copy of the advisory committee's recommendations before the recommendations were finalized and submitted. I have asked, and I cannot find anyone along this section of Alii Drive who was consulted. I have asked friends of mine in the Hawaiian community, and I can find no one who was consulted. None of the people who attended the meeting on December 7, 1994, had been consulted.

I knew some of the people on the committee, and I was shows what I was told were preliminary sketches of the proposed development. I pointed out that it was very insensitive and quite inappropriate to put the bathrooms inside of the heiau, and right in front of the existing residences. I understood that final recommendation would include a proposal that located the bathrooms and visitor center to the south of the proposed parking lot. If that proposal was made, it has apparently been lost in translation.

After the December 7, 1994 meeting I had the opportunity to meet with one of the consultants. At that time we discussed using substantially the same plan as the proposed management plan in the Draft Environmental Impact Statement (DEIS), but with the bathroom and visitor center located south of the proposed parking lot. It is the same alternative that I understood was to be included in the 1982 recommendations. I was told that the plan we discussed would be one of the alternatives considered in the DEIS. When I attended the meeting on May 31, 1995, when the DEIS was presented to the public I found that alternative we had discussed was not incorporated. A reading of the comments and the report by Ms. Pualani Kanahale show that the proposal that I have been repeatedly assured was under consideration has not been considered.

One of the alternatives does show the visitor center south of the parking lot. But that proposal does not include the bathroom, walkways and viewing platforms. It is called inadequate because those facilities are not included. I ask that those who are interested in the future of the property be given a fair opportunity to consider the obvious alternatives. I ask that they be presented with a plan that shows

Division License No. 1274
California Bar Association 1972, No. 41411
Registered Geologist - California, 1976, No. 1152
Registered Professional Engineer - California, 1979, No. 41411
Registered Professional Engineer - California, 1979, No. 111

BERNARD J. CATELAND
Governor of Hawaii



DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96808
September 20, 1995

COMMISSIONER
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RECREATION
COMMITTEES
HONOLULU, HAWAII 96808
P. O. BOX 621
LAND MANAGEMENT
DIVISION
STATE LAND AND NATURAL RESOURCES

Mr. Colin Love
P.O. Box 2072
Kailua-Kona, Hawaii 96745

RE: KEOLONAHII STATE HISTORICAL PARK (CULTURAL SITE)
Holuoa 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS- Response to Comments

Dear Mr. Love:

Thank you for your comments on the Draft EIS for Keolonahii State Historical Park (Cultural Site). Your comments will be addressed in the Final EIS as follows:

1. **Alternative Site Plan:** The Final EIS will include your suggested alternative site plan of locating the facilities south of the parking lot along with restrooms and walkways.
2. **Potential for Heavy Use of the Park:** We acknowledge the lack of recreational facilities in Kailua and the potential for any new casual development to experience heavy visitor use. Because Keolonahii is a historical area, our proposed development and visitor programs emphasize the preservation of cultural sites and traditions through interpretation and education rather than recreation. However, we also recognize the recreational opportunities of Holuoa Bay and have sought to balance historical preservation and shoreline recreation. We also understand your concern about the possibility that use may become so heavy that the facilities are overwhelmed, causing traffic and neighborhood impacts. However, we are confident that with proper management of parking and security, these impacts can be minimized to acceptable levels. Specifically, the following mitigation measures have been or will be incorporated into the Final EIS:

- Limit of 15 parking spaces;
- Signs to discourage visitors from parking on the roadway shoulder;
- Security personnel to discourage off-hours visitation;
- Outreach program to tour bus companies to schedule visitation;
- Appointment-only visitation for all visitors, if demand becomes too overwhelming.

We wish to thank you for your input, not only through your comment letters, but also in your attendance at public meetings and the time and advice you generously gave to the project's consultants. We acknowledge that we do not yet have all the answers for creating the ideal park/cultural site at Keolonahii. We look forward to a continuing dialogue with members of the public, especially concerned ones such as yourself, in order to minimize adverse impacts of the site's development and maximize the educational and cultural experience that having a public facility at Keolonahii will make possible.

Very truly yours,

PAULSTON H. NAGATA
State Parks Administrator



United States Department of the Interior

NATIONAL PARK SERVICE

Pu'uhonua o Honaunau National Historical Park
Puukohola Heiau National Historic Site
P.O. Box 129
Honaunau, Kona, Hawaii 96726

IN REPLY REFER TO:

170

June 22, 1995

Governor, c/o Office of Environmental Quality
220 South Street, Suite 400
Honolulu, HI 96813

To whom it may concern:

The following are my comments regarding Keolonahii State Historical Park:

The facilities there should be minimal. However, realize that visitors will come once the vegetation is removed. Perhaps it would be wise to build any walkways before the major portion of the vegetation is removed.

The area needs to be opened up both as a shrine for the Native Hawaiians and the education of others. It is through learning that we gain wisdom and it is only through wisdom that understanding comes.

The other two parcels of Kaumalumu and Keakealani Wahine complexes should be in the State government's plan to acquire even if acquired by donated funds. Back several years ago we thought that it would be impossible to acquire 26.5 acres of land at Pu'ukohola Heiau National Historic Site from the Queen's Medical Center, but it came about through persistence and a couple of friends on their team.

The site, when completed should look as Natural as possible, as though the Hawaiians just left the area. The best way to achieve this, I believe, are through minimum of modern signs and facilities and doing things through a self-guiding system, or, having personnel on site doing personal interpretation.

Mr. Jerry Shimoda, Superintendent
September 13, 1995
Page 2

Again, thank you for taking the time and interest to comment.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801
JUNE 22, 1995

PLEASE CHECK ONE BOX

General Information (required)

Request for information

Direct reply needed (Government)

For information only

Draft copy for Director's signature

Other (specify)

Name of requester (if any)

Date of request

Other (specify)

RECEIVED JUN 29 1995
38825/31629

To: The Honorable Benjamin Cayetano
Governor, State of Hawaii
c/o Director, Office of Environmental Quality Control

From: Lawrence Mike *Lawrence Mike*
Director of Health

Subject: Draft Environmental Impact Statement (DEIS)
Keolonahiki State Historical Park (Cultural Site)
North Kona, Hawaii
THK: 7-7-04: 12, 51 & 52

Thank you for allowing us to review and comment on the subject document. We have the following comments to offer:

Wastewater

In our earlier comments to the Environmental Impact Statement Preparation Notice dated December 23, 1994, we said that the use of a self-contained composting toilet facility is the Department's least favorable wastewater alternative, but was acceptable under the present circumstances, meaning the lack of a municipal sewer line serving the site.

Now that a sewer line is under construction on Alii Drive, which will allow the project to connect to the municipal wastewater treatment system, we would want the project to connect to the sewer line. The developer should work closely with the County to assure the availability of additional wastewater treatment capacity for the project.

Should you have any questions, please contact Ms. Lori Kajiwara of the Wastewater Branch at 586-4294.

C: WWB
DLN
Ron Terry

BERNARD J. CAVELLO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96809

September 13, 1995

Dr. Lawrence Milke, Director
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

RE: KEOLONAHII STATE HISTORICAL PARK (CULTURAL SITE)
Holualoa 4, North Kona District, Hawaii (TMK 7-7-04:12, 31, 32)
Draft EIS— Response to Comments

Dear Dr. Milke:

Thank you for your comments on the Draft EIS for Keolonahii State Historical Park (Cultural Site). Your comments support the mitigation measure recommended in the Draft EIS that the project hookup to the sewer system in lieu of composting toilets. The County of Hawaii has also requested that the proposed park connect to the sewer line under construction. Feasibility investigations conducted during the EIS determined that a sewer hookup would actually produce less potential subsurface impact than a composting toilet and would produce less overall environmental impacts. The County's sewer plans already included a lateral for the project; therefore, the planned wastewater treatment capacity already accommodates the proposed project. Coordination with the County will be necessary to relocate the lateral to a location that would provide more cost-effective hookup based on the project's proposed site plan. The Final EIS will mention your department's position as further justification to hookup. The Final Management Plan for the park will reflect State Park's decision to adopt the recommendation of the EIS.

Again, thank you for taking the time and interest to comment.

Very truly yours,

Ralston H. Nagata
RALSTON H. NAGATA
State Parks Administrator



OFFICE OF STATE PLANNING

Office of the Governor

MAILING ADDRESS: P.O. BOX 2442, HONOLULU, HAWAII 96821-2442
TELEPHONE: (808) 551-2442
FACSIMILE: (808) 551-2442

June 13, 1995

Ref. No. D-067

Mr. Ralston Nagata, Administrator
Division of State Parks
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Subject: Keolonahii State Historical Park (Cultural Site) Draft
Environmental Impact Statement, May 6, 1995

Thank you for the opportunity to review and comment on the subject document. Keolonahii has always been a worthwhile project. Active stewardship of the resources by the community is the best assurance that the area will be protected and used by present and future generations. Consulting community members, relying on an advisory committee, using volunteers, and staffing the site with a caretaker or *kahu* are elements of an effective management plan. The inclusion of these elements in your plan is consistent with your plans for Kalalau, which the Governor has endorsed.

The final environmental impact statement should expand upon the possible conflict between the need to preserve historical and cultural sites and the desire to provide expanded recreational opportunities along the shoreline. A brief explanation could be discussed why sunbathing and picnicking along the shoreline are incompatible with the historical and cultural values of the site.

If you have any questions on this matter, please do not hesitate to call David Nimo Frankel at 587-2839.

Sincerely,

Gregory G. Y. Pai
Gregory G. Y. Pai, Ph.D.
Director

cc Mr. Gary Gill, OEQC
Mr. Ron Terry
Mr. Roy Takemoto

CHIEF OF BUREAU
MICHAEL D. NELSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
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EDUARDO J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96809

September 13, 1995

Mr. Gregory Pai, Ph.D., Director
Office of State Planning
P.O. Box 3540
Honolulu, Hawaii 96811-3540

RE: KEOLONAIIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holuloa 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS-- Response to Comments

Dear Dr. Pai:

Thank you for your comments on the Draft EIS for Keolonahiihi State Historical Park (Cultural Site). We agree that extensive community involvement is a key element in State Parks planning and operation, and we intend to continue to take advantage of the high level of interest and expertise available in the Kona community.

The Final EIS will expand upon the conflict between the need to preserve historical and cultural sites and the need to provide expanded shoreline recreational opportunities.

Again, thank you for taking the time and interest to comment.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator

CHAIRPERSON
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University of Hawaii'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7381 • Facsimile: (808) 956-3980

July 10, 1995
RE:0661

Governor Benjamin Cayetano, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street
Honolulu, Hawaii 96813

Dear Governor Cayetano:

Draft Environmental Impact Statement
Keolonahiihi Historic Park (Cultural Site)
Holuloa, Hawaii

The State Department of Land and Natural Resources, Division of State Parks, proposes to create a State Historic Park for three adjacent parcels of State land at Kāmoa Point, Kona. The site has historical significance because it was used by at least five generations of highest ranking ali'i. Archaeological sites include houses, heiau, bathing ponds, a possible sports arena, and other features. If approved, development would consist of an interpretive center, viewing platforms, restrooms, and a small parking lot.

We reviewed this Draft Environmental Impact Statement (EIS) with the assistance of Steve Dollar, Oceanography; Jon Matsuoka, Social Work; Michael Graves, Anthropology; and Paul Berkowitz of the Environmental Center.

Given the nature of the proposed project, the greatest potential impacts pertain to cultural issues and archaeological sites. In both cases, our reviewers suggest that this Draft EIS appears to adequately describe and assess the impacts.


Undoubtedly this site is one of the most significant historical properties in Hawaii. Of the alternatives specified, the preferred alternative appears to be the best option. Our only concern is that park development could cause the site to be overwhelmed by visitors. If this were to happen, then the very aspects which make the park significant, i.e. the sacred quality of native Hawaiian religious sites, may be lost. As many of the letters commenting

Governor Benjamin Cayetano
July 10, 1995
Page 2

on the EIS Preparation Notice suggest, increased public utilization of this area remains controversial, and finding an appropriate balance of restoration, preservation, and development will be difficult. The Draft EIS adequately articulates these concerns.

Thank you for opportunity to review this Draft EIS.

Sincerely,



John T. Harrison
Environmental Coordinator

cc: OEQC
DLNR
Ron Terry & Roy Takemoto
Roger Fujioka
Steve Dollar
Jon Matsuoka
Michael Graves
Paul Berkowitz



REGULINE J. CAYETANO
GOVERNOR OF HAWAII

COMMISSIONER
MICHAEL D. WELSON
BOARD OF LAND AND NATURAL RESOURCES

DEPARTMENT OF LAND AND NATURAL RESOURCES
CULTURAL AFFAIRS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P. O. BOX 521
HONOLULU, HAWAII 96808

September 13, 1995

Mr. John Harrison, Environmental Coordinator
Environmental Center, University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

RE: KEOLONAHIII STATE HISTORICAL PARK (CULTURAL SITE)
Holuola 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS-- Response to Comments

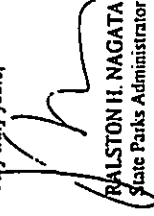
Dear Mr. Harrison:

Thank you for your supportive comments on the Draft EIS for Keolonahiti State Historical Park (Cultural Site). We appreciate your concurrence that balancing public access and preservation is the paramount challenge for Keolonahiti, that the EIS adequately addresses the pertinent cultural and archaeological impacts, and that the proposed plan is the best alternative to attain this delicate balance.

Community involvement, particularly of the Hawaiian community, is the key element and we intend to continue to take advantage of the high level of interest and expertise available in the Kona community to make this plan work.

Again, thank you for taking the time and interest to comment.

Very truly yours,



RALSTON H. NAGATA
State Parks Administrator

DELOAN L. CAYETANO
GOVERNOR OF HAWAII



COMPTROLLER
MICHAEL D. WILSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTY DIRECTOR
GILBERT S. COLONIA-AGUIAR
SPECIAL AGENT IN CHARGE
REGULATORY AND COMPLIANCE
PLANNING AND DESIGN
CONSTRUCTION AND
OPERATIONS
ADMINISTRATIVE SERVICES
CONTRACTS MANAGEMENT
FINANCIAL AND ACCOUNTS
INFORMATION SYSTEMS
LEGAL COUNSEL
STATE PARKS
OFFICE OF LAND AND NATURAL RESOURCES

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P. O. BOX 611
HONOLULU, HAWAII 96809

September 13, 1995

Ms. Marian Chariton
78-6895 Mammalahoa Highway
Honolulu, Hawaii 96725

RE: KEOLONAHIIHI STATE HISTORICAL PARK (CULTURAL SITE)
Honolulu 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)

Draft EIS— Response to Comments

Dear Ms. Chariton:

I have received a copy of the DEIS and as a permanent resident of Kona, hope that you will accept the recently submitted Draft Environmental Impact Statement for Keolonahiihi. This excellent, in depth work done by the EIS preparation team of Ron Terry and Roy Takemoto, skillfully combines what exists now with the vision of what it could become.

My strong interest in Kamea Point began in 1978 when I first visited this site at the suggestion of local historian David Roy. I found it to be a unique place, not just for the cultural remains, but for the feelings of spiritual and natural beauty one encounters there.

Before it became so overgrown with vegetation, it was possible for many of us to often visit the site and let our imaginations soar as to its history and its future. I feel this area should not be restricted to the Hawaiian community only, but should accommodate all residents and visitors to Kona as a community cultural center for advanced learning.

Right now, it is important that the DEIS be accepted so that the beginning steps of preservation and management of this site can begin. I hope you agree.

Yours sincerely,

Marian Chariton

cc: DJNR
cc: Ron Terry

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator



PROTECT KOHANA'IKI 'OHANA
 P.O. Box 592
 Kealahou, Hawaii 96750
 phone/808-325-6175 fax/808-325-6322



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF STATE PARKS
 P. O. BOX 521
 HONOLULU, HAWAII 96809

September 13, 1995

Ms. Karen Eoff
 Protect Kohanaiki 'Ohana
 P.O. Box 592
 Kealahou, Hawaii 96750

RE: **KEOLONAHII STATE HISTORICAL PARK (CULTURAL SITE)**
 Holoala 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
 Draft EIS-- Response to Comments

COMMISSIONER
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BERNARD J. CATTALDO
 COMMISSIONER OF PARKS

Dept. of Land and Natural Resources
 Division of State Parks
 Ron Terry
 HCR 1
 Box 9575
 Keaau, Hawaii
 96749
 Ph. #982-5831

Regarding Draft Environmental Impact Statement for Keolonahii

July 7, 1995

Aloha Ron,

Members of our organization have read the Draft Environmental Impact Statement and have attended several meetings regarding Keolonahii. We would like to express our gratitude to those individuals who have spent countless hours considering all aspects of the development of this very important cultural site. Their work represents a bold attempt to address the challenge ahead with the utmost dignity and respect it deserves. We are honored and enlightened by the research, writing, and suggestions of Pualani Kana'ole Kanahele and agree wholeheartedly with her recommendations.

The Protect Kohanaiki 'Ohana believes that areas such as this should be restored for their rightful purpose, become functional again, and not be compromised in any way. Efforts should be made to acquire the adjoining Keakealaniwahine Complex and Kaumalumu to complete the re-dignification of this unique cultural site and to assure the renaissance of a living culture.

Sincerely,
 Karen Eoff
 for
 Protect Kohanaiki 'Ohana



Dear Ms. Eoff:

Thank you for your comments on the Draft EIS for Keolonahii State Historical Park (Cultural Site). Since the proposed plan was based in part on the recommendations of Pualani Kanahele, we appreciate your supportive comments of Pualani Kanahele's suggestions.

Regarding your comment about the acquisition of nearby important properties, State Parks has for some time attempted to gain funding to acquire Keakealaniwahine. Acquisition of this culturally and archaeologically rich parcel is still a vital part of long-range plans for the area. If and when the site is acquired it will add immensely to the value of Keolonahii. It is expected that one of the tasks of the proposed Keolonahii Advisory Committee will be to organize a donations campaign to acquire Keakealaniwahine. Acquisition of Kaumalumu is more problematic since the property owner has both rights and the desire to develop the parcel for residential lots. However, State Parks will continue to monitor closely the potential to acquire the parcel, as well as attempt to protect the integrity of Keolonahii against incompatible uses at Kaumalumu.

Very truly yours,

RAESTON H. NAGATA
 State Parks Administrator

Stephen K. Yamashiro
Mayor



County of Hawaii

PLANNING DEPARTMENT
25 Appaloosa Street, Room 109 • Hilo, Hawaii 96720-4112
(808) 941-4238 • Fax (808) 941-9415

Virginia Goldstein
Director

Norman Olsen
Deputy Director

Honorable Benjamin Cayetano
Page 2
July 7, 1995

Other Permits and Approvals (Page 4-15)

Table 4: List of Permits and Approvals should be amended to include the possibility that the issuance of a Shoreline Setback Variance by the Planning Commission may be required.

As a general note, a shoreline survey of the project site, as certified by the Chairman of the Board of Land and Natural Resources, must be submitted to this office along with the submittal of a Special Management Area Use Permit and, if required, a Shoreline Setback Variance Application.

Thank you for allowing our office the opportunity to comment on the DEIS. Should there be any questions, please feel free to contact Daryn Arai of this office at 961-8288.

Sincerely,

Virginia Goldstein
VIRGINIA GOLDSTEIN
Planning Director

DSA:dmo
LX00101.DSA

XC: Mr. Ralston Nagata
Ron Terry & Roy Takemoto
West Hawaii Office

July 7, 1995

Honorable Benjamin Cayetano
c/o Office of Environmental Quality Control
220 South King Street, Suite 400
Honolulu, HI 96813

Dear Honorable Cayetano:

Draft Environmental Impact Statement for the Proposed
Keolonahiki State Historic Park (Cultural Site)

Tax Map Key: 7-7-04: 12, 51 & 52, Hualaloa 4th, N. Kona, Hawaii

We have completed our review of the above-described Draft Environmental Impact Statement (DEIS) and have the following comments to offer:

CHAPTER 4

Relationship to Plans, Policies, and Controls (Page 4-1)

Discussions within this chapter relative to the Hawaii County General Plan (4.4), Kona Regional Plan (4.5) and Hawaii County Zoning (4.6) are thorough and complete. However, under Coastal Zone Management, Special Management Area, and Shoreline Setback (4.7), the applicant states that "Since restoration activities are probably exempt a shoreline setback variance would not be applicable. Landscaping and walkway/pathway construction within the shoreline setback area are considered minor structures or activities, and also do not require a shoreline setback variance." This statement is premature inasmuch as a detailed and thorough review of all proposed improvements must be conducted prior to issuing such a determination. A Special Management Area Use Permit Assessment Application should be submitted to this office to assist us in determining whether a Shoreline Setback Variance will be required, among other possible requirements.

All references within this Chapter to a "Special Management Area Major Permit" should be changed to "Special Management Area Use Permit".

DEPARTMENT OF LAND AND NATURAL RESOURCES



STATE OF HAWAII
DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96809

September 13, 1995

Ms. Virginia Goldstein, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

RE: KEOLONAHIIHI STATE HISTORICAL PARK (CULTURAL SITE)
Hohoula 4, North Kona District, Hawaii (TRK 7-7-04:12, 51, 52)
Draft EIS— Response to Comments

Dear Ms. Goldstein:

Thank you for your comments on the Draft EIS for Keolonahiihi State Historical Park (Cultural Site). The Final EIS will incorporate your comments as follows:

1. A statement will be added in the Final EIS that State Parks will submit a request for a minor structure or activity determination pursuant to Planning Commission Rules of Practice and Procedure §8-7(d) to confirm whether the proposed restoration, landscaping, and walkways within the shoreline setback area shall not require a variance.
2. All references to "Special Management Area Major Permit" shall be replaced with "Special Management Area Use Permit".
3. Table 4, "List of Permits and Approvals", will be amended to include the shoreline setback minor activity determination and/or variance.
4. The requirement for a certified shoreline survey will be included.

Again, thank you for taking the time and interest to comment.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
25 AUPUNI STREET • HILLO, HAWAII 96720
TELEPHONE (808) 949-1421 • FAX (808) 949-1422

May 31, 1995

The Honorable Benjamin J. Cayetano, Governor
State of Hawaii
c/o Office of Environmental Quality
220 South King Street, Suite 400
Honolulu, HI 96813

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE KEOLONAHIIHI STATE HISTORICAL PARK
(CULTURAL SITE)
LOCATION - ISLAND OF HAWAII
DISTRICT - NORTH KOHA
TAX MAP KEY 7-7-4:12, 51 AND 52

We have reviewed the subject document for the Historical State Park.

Water can be made available from an existing 8-inch waterline along Aiihi Drive fronting the property.

However, to assist us in determining the service lateral and meter size for the park, we request that the peak hour demand requirements for the park in gallons per minute be submitted by a professional engineer registered in the State of Hawaii.

Should you have any questions, please contact our Water Resources and Planning Section at 959-1421.

MOR
Milton D. Pavao, P.E.
Manager

WA

copy - Department of Land and Natural Resources, Division of State Parks
Mr. Ron Terry and Mr. Roy Takemoto

... Water brings progress...



BERNARD J. CAVETTANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

September 13, 1995

Mr. Milton Pavao, P.E., Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

RE: KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holuoa 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS - Response to Comments

Dear Mr. Pavao:

Thank you for your comments on the Draft EIS for Keolonahihi State Historical Park (Cultural Site). Your comments confirmed the availability of water to service the project from an existing 8-inch waterline fronting the site along Aili Drive. For purposes of determining the service lateral and meter size for the project, we will provide peak hour demand requirements at the next phase of the project when detailed design plans are developed.

Again, thank you for taking the time and interest to comment.

Very truly yours,

RAYSTON H. NAGATA
State Parks Administrator

CHIEF OF DIVISION
MICHAEL D. WILSON
BOARD OF LAND AND NATURAL RESOURCES
CELESTINE E. COLLETTA-JAGGAR
DEPUTY DIRECTOR

ADMINISTRATIVE DEVELOPMENT OF
PROGRAMS
ADVISORY SERVICES
PLANNING AND DESIGN RESEARCH
CONSTRUCTION
ENVIRONMENTAL AFFAIRS
CHIEF OF DIVISION AND
MANAGER OF DIVISIONS
RECORDS MANAGEMENT
COMMUNITY AND OUTREACH
GENERAL INVESTIGATION
LAND MANAGEMENT
STATE PARKS
PLANNING AND DESIGN DIVISION



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

218 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE: 588-8411/16
FACSIMILE: 588-3493/3492

July 6, 1995

Mr. Rayston Nagata, Administrator
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Attention: Martha Yent

Dear Mr. Nagata:

Subject: Draft Environmental Impact Statement (EIS) for Keolonahihi State
Historical Park, North Kona; TMK 7-7-4: 12, 51, 52

In the final EIS for the proposed project, please include responses and, if appropriate, modifications to the text, to the following:

1. The January 26th, 1995 letter from the Department of Land and Natural Resources, Office of Conservation and Environmental Affairs, regarding correct language from the State Land Use Law;
2. The February 28th, 1995 letter from the Hawaii County Department of Public Works regarding the proposed composting sewage system and a possible variance from the required county sewer connection.

If you have any questions, please call Nancy Heinrich at 586-4185.

Sincerely,

GARY GILL
Director

GG/NH/HH

c: Ron Terry & Roy Takemoto

QUALITY CONTROL

BURNHAM J. CAYETANO
Governor of Hawaii



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

REF: OCEA: DXP

P. O. Box 431
Honolulu, Hawaii 96809

FILE NO.: 95-277
DOC. NO.: 5292

JAN 26 1995

MEMORANDUM

TO: Ralston Nagata, Administrator
Division of State Parks

FROM: MICHAEL D. WILSON, Chairperson
Board of Land and Natural Resources

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN):
Keolomohani State Park, Holoaloa 4, North Kona, Hawaii,
TKK: 7-7-04: 12, 52, 53

We have reviewed the EISPN information for the subject project transmitted by your letter dated November 28, 1994, and have the following comments:

Division of Aquatic Resources

The Division of Aquatic Resources has no objections to the proposed historical park as presently proposed. It is unlikely that the proposed infrastructure will have adverse affects on the aquatic resources of the area. The EISPN does mention marine flora and fauna as a concern, but given that a survey of the Kamao Point area was made, more detail should be provided in the DEIS. The flora and fauna of the anchialine pools in the Kamao Point area should be described, especially with regard to native and endemic species.

The EISPN also notes the high levels of recreational activity taking place in Holoaloa Bay, adjacent to Kamao Point. While near-shore activities would not be restricted, the plan proposes to limit recreational user's access across the historic park site. This is acceptable considering the cultural and historical significance of the site.

Historic Preservation Division

The Historic Preservation Division (HPD) comments that they have reviewed the EISPN and are in general agreement with the project objectives and the proposed management plan. HPD will want to review each phase of the project as it proceeds. The acquisition of the Keakealaniwahine Complex would certainly enhance the value of the proposed park and HPD hopes that the State will do everything possible to obtain this property.

Mr. R. Nagata

- 2 -

File No.: 95-277

Office of Conservation and Environmental Affairs

The Office of Conservation and Environmental Affairs (OCEA) comments that Section 4.2, State Land Use Law, should be revised to indicate that State parks are not a "permitted use," but rather an "identified use" within the Conservation District. If this area were reclassified to the Conservation District, construction activities there would be subject to the Conservation District regulations of Title 13, Chapter 5, Hawaii Administrative Rules.

Division of Water and Land Development

The Division of Water and Land Development comments that water requirements should be coordinated with them for water allocation. We have further comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please contact Steve Tagawa at the Office of Conservation and Environmental Affairs at 587-0377, should you have any questions.

c: Ron Terry and Roy Takemoto

BERNARD J. CANTILANO
GOVERNOR OF HAWAII



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

CHAIRPERSON
MICHAEL D. WILSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTY DIRECTOR
OLBERT S. COLOMBO-AGUIAR
AGRICULTURE DEVELOPMENT
PROGRAMS
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MANAGEMENT RECREATION
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CONSERVATION AND
RECREATION DEVELOPMENT
CONSERVATION AND
RECREATION DEVELOPMENT
CONSERVATION AND
RECREATION DEVELOPMENT
CONSERVATION AND
RECREATION DEVELOPMENT

Mr. Michael Wilson, Chairperson
Board of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

September 13, 1995

RE: KEOLONAHIIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holuaha 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS-- Response to Comments

Dear Mr. Wilson:

Thank you for your comments dated 26 January 1994 on the EIS Preparation Notice for Koolonahiihi State Historical Park (Cultural Site). The Draft EIS inadvertently omitted more detailed information on the anchialine ponds. This information will be included in the Final EIS.

The Final EIS will also correct the Draft EIS to state that construction of the visitor facilities may require a Conservation District Use Application if the Site is reclassified from Urban to Conservation.

Very truly yours,

[Signature]
RAJLSTON H. MAGATA
State Parks Administrator

C



County of Hawaii
DEPARTMENT OF PUBLIC WORKS
 25 Airport Street, Room 202 • Hahaione, Hawaii 96720-4112
 (808) 941-8311 • Fax: (808) 949-7138

February 28, 1995

Donna Fay K. Kiyosaki
 Chief Engineer
 Ricky W. Smith
 Deputy Chief Engineer

Article 2. Public Sewers.
Section 21-5. Connection to sewer required.

(a) Every lot which is accessible to a sewer and which has plumbing fixtures located on it shall be connected to the sewer within one hundred twenty calendar days after the lot owner has been notified to do so by the Chief Engineer or State Department of Health. If such plumbing fixtures have not been so connected, the premises shall not be used or occupied as a habitation or for any purpose for which plumbing fixtures are necessary.

(b) Exceptions are as hereafter provided:

(1) This section shall not apply to lots accessible to a sewer which have plumbing fixtures located on it and which were in existence prior to the date of July 1, 1989, providing that the lot's existing waste disposal system does not violate any existing health, sanitation, or nuisance provision.
 (2) This section shall not apply to a lot which is below the level of the sewer and would require the installation of a pump to lift the sewage to proper elevation for discharge into the sewer.

(c) However, connection to the sewer for lots under the exemption provided by section 21-5 (b) (1) shall henceforth be required to connect to the sewer in accordance with section 21-5 (a) after July 1, 1989, when any of the following conditions occur:

- (1) Upon written notification by the Chief Engineer or State Department of Health that a violation of existing health, sanitation, or nuisance provisions exists.
- (2) Upon sewer services being provided to the lot under a municipal sewer expansion program after July 1, 1989.
- (3) When a change of ownership of the subject lot occurs.
- (4) When the cost of a building renovation exceeds fifty percent of the existing value as determined by the building division.
- (5) When a change in use of the subject lot occurs. (1975 C.C.c.14, art. 1, sec. 3.01; Am. 1989, Ord. No. 89-68, sec. 3.)

(Hawaii County 12-90) 541-542

Stephen K. Yamashiro
 Mayor

Ron Terry, Ph.D.
 Geo Metinician
 HCR 9575
 Keaau, Hawaii 96749

SUBJECT: Keolonahihi State Historical Park

The Wastewater Division has reviewed the Environmental Impact Statement Preparation Notice for the subject project. We are concerned with Section 3.3.3 Wastewater System, wherein you propose using a composting sewage system in lieu of connecting to the sewer line currently under construction. As presented, the justification for this unusual method was the need for portability and to avoid excavation impacts on potential subsurface archaeological remains.

As you may be aware, Hawaii County Code requires connection by property owners to the sewer within one hundred twenty calendar days after notification from the Chief Engineer or Department of Health (Section 21-5 of the code is attached). Under certain circumstances, this requirement can be waived, but after reviewing your EISPN we are not sure that this installation warrants a waiver.

Firstly, if portability is a concern, the restroom facilities can be designed for future relocation more easily with a conventional system than with the composting system due to the lack of a holding/fermentation tank. Secondly, since the designated location for the restrooms is in an area that was previously filled, the risk of disturbing archaeological sites appears to be minimal. This risk could be further reduced by installing the building sewer at or just below the ground surface elevation within your property subject to Plumbing Code requirements. The sewer could then slope down to meet the minimum cover requirements where it meets the sewer lateral at the County Right-of-Way.

If we can be of any further assistance, please feel free to contact Peter Boucher at 961-8338.

Sincerely,

Ben Ishii, Acting Wastewater Division Chief

WILLIAM J. GAYTANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
P. O. BOX 611
HONOLULU, HAWAII 96808

September 13, 1995

Mr. Ben Ishii, Acting Wastewater Division Chief
Department of Public Works
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

RE: KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE)
Holualoa 4, North Kona District, Hawaii (TMK 7-7-04:12, 51, 52)
Draft EIS— Response to Comments

Dear Mr. Ishii:

Thank you for your comments dated 28 February 1995 on the EIS Preparation Notice for Keolonahihi State Historical Park (Cultural Site). The Draft EIS incorporated your comments by recommending that State Parks hookup to the sewer system rather than seeking a waiver for a composting toilet for the reasons stated in your letter. Since there were not rebuttal comments from any other reviewer of the Draft EIS, the Final EIS will reiterate that recommendation.

Also enclosed for your review and approval is information from our civil engineer to request relocation of the sewer lateral as shown on your current construction plans for the Alii Drive sewer main.

Again, thank you for taking the time and interest to comment.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator

COMMISSIONER
MICHAEL D. WILSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
GILBERT E. COLEMAN-JAGGAR

ADMINISTRATIVE DEVELOPMENT
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FORESTRY AND WILDLIFE
MOUNTAIN PEAK RECREATION
LAND MANAGEMENT
WATER AND LAND DEVELOPMENT

(P) 1436.5

JUN 13 1995

TO: Governor, State of Hawaii
c/o Office of Environmental Quality Control

SUBJECT: Keolonahihi State Historical Park
Holualoa 4, North Kona District, Hawaii
Draft EIS

Thank you for the opportunity to review the subject document. The proposed project will have no impact on our facilities. Therefore, we have no comments to offer.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Public Works Division at 586-0488.

EUGENE S. IMAI
State Comptroller

RY:jk

C: Department of Land and Natural Resources
✓ Messrs. Ron Terry and Roy Takemoto
OEQC



United States Department of the Interior

U.S. GEOLOGICAL SURVEY

WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

June 2, 1995

The Honorable Governor Benjamin Cayetano
c/o Office of Environmental Quality
220 South King St., Suite 400
Honolulu, Hawaii 96813

Dear Governor Cayetano:

Subject: Keolonahihi State Historical Park (Cultural Site)
Holualoa 4, North Kona District, Hawaii

We are in receipt of the enclosed Draft Environmental Impact Statement (DEIS).
We regret that due to prior commitments, we will be unable to review the DEIS.

Thank you for allowing us the opportunity to review the DEIS. We are
returning it to your office for your future use.

Sincerely,

William Meyer
William Meyer
District Chief

Enc.

cc: Mr. Ralston Nagata
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Mr. Ron Terry
Ron Terry and Roy Takemoto
HCR 1, Box 9575
Keaau, Hawaii 96749

RECEIVED
DIVISION OF
STATE PARKS
Jun 13 2 33 PM '95

DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of State Parks

June 1, 1995

MEMORANDUM

TO: Division of Aquatic Resources
Division of Forestry and Wildlife
Historic Preservation Division

FROM: Ralston Nagata, State Parks Administrator

SUBJECT: Draft EIS for Keolonahihi State Historical Park (Cultural Site)
Holualoa 4, North Kona, Island of Hawaii (TMK: 7-7-04: 12, 51, 52)

Enclosed is the Draft EIS for Keolonahihi State Historical Park (Cultural Site),
Holualoa 4, North Kona, Island of Hawaii. Please review this document for
regulatory compliance and to see that your comments on the EIS Preparation Notice
for this project have been adequately addressed. Comments on this document are
due by July 7, 1995.

You will note that the resources studies prepared by your staff are included in the
appendices of this Draft EIS. We would like to acknowledge your assistance with
these surveys at Keolonahihi.

Thank you for your assistance with this request.

DDFAW HAS NO COMMENTS
OR OBJECTIONS TO THE
PROPOSED REQUEST.

JUN 5 AM 10:50

BENJAMIN CADETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097
June 27, 1995

KAZU HAYASHIDA
DIRECTOR
DEPUTY DIRECTOR
KAMI COLLEGE
GLENN H. DOMOTO

#REPLY REFER TO:
HNY-PS
2.6148

TO: GARY GILL, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: *J. Kazu Hayashida*
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT,
KEOLONAHIHI STATE HISTORICAL PARK (CULTURAL SITE),
KAMOA POINT, HOLEALOA 4, NORTH KONA
TMK: 7-7-4: 12, 51, 52

Thank you for the opportunity to provide comments regarding the
draft environmental impact statement for the proposed project.

We do not anticipate that the proposed historical park will have
any significant impact on State highway facilities.

c: Mr. Ralston Nagata, DLNR
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

✓ Mr. Ron Terry
Ron Terry and Roy Takemoto
HCR 1 Box 9575
Keaau, Hawaii 96749

C