February 12, 2002

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State Office Tower
235 S. Beretania Street, Room 702
Honolulu, HI 96813-2437

Dear Ms. Salmonson:

Subject: Finding of No Significant Impact (FONSI) for the
Ocean Bay Plantation at Hanamā'ulu Coastal Renaturalization Plan
TMK: 4-3-7-3-1; (Kaua'i, Hawai'i)

The County of Kaua'i Department of Planning has reviewed the comments received during the
30-day public comment period, which began on December 8, 2001. The County of Kaua'i
Department of Planning has determined that this project will have no significant environmental
effect provided that the requirements of the Special Management Area permits are complied
with, and as a result is issuing a Finding of No Significant Impact (FONSI) determination.
Please publish a notice of this determination in the February 23, 2002 edition of The
Environmental Notice.

We have enclosed four copies of the Final EA/FONSI and a completed OEQC Bulletin
Publication Form. If you have any questions regarding the Final EA, please have your staff
contact the project applicant EWM Kaua'i, LLC (Walton Hong) at (808)-245-4757 or the
planning consultant Group 70 International, Inc. (Jeff Overton) at (808) 523-5866, ext. 104.
Additionally, if there are further specific questions for the County of Kaua'i Department of
Planning, please call (808) 241-6677.

Sincerely,

DEE M. CROWELL
Planning Director
Coastal Renaturalization Plan

Hanamā'ulu, Kaua'i, Hawai'i
TMK 4-3-7-3:1

Final Environmental Assessment

Applicant:

EWM Kaua'i, LLC
c/o Walton D. Y. Hong
3135-A Akahi Street
Lihu'e, HI 96766

February 2002
Ocean Bay Plantation
at Hanamā'ulu

Coastal Renaturalization Plan

Hanamā'ulu, Kaua'i, Hawai'i
TMK 4-3-7-3:1

Final Environmental Assessment

This environmental document is prepared pursuant to Chapter 200 of Title 11, Administrative Rules, Department of Health, “Environmental Impact Statement Rules.”

Applicant:

EWM Kaua'i, LLC
c/o Walton D. Y. Hong
3135-A Akahi Street
Lihu‘e, HI 96766

Accepting Authority:

County of Kaua'i
Department of Planning
4444 Rice Street, Suite 473
Līhu‘e, HI 96766-1399

Prepared By:

Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
Honolulu, HI

February 2002
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To facilitate the readers’ ability to distinguish the revisions made from the Draft EA to the Final EA, substantive changes and additions are underlined. Text that has been deleted is indicated by a strikethrough. New, revised and deleted figures are noted.

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Coastal Renaturalization Plan
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Section 1.0
Summary
Coastal Renaturalization Plan
Final Environmental Assessment

1.0 SUMMARY

This Final Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, HRS and Hawaii Administrative Rules, Title 11, Department of Health.

1.1 PROJECT INFORMATION SUMMARY

Applicant: EWM Kaua‘i, LLC, c/o Walton D.Y. Hong
3135-A Akahi Street
Lihue, HI 96766
Contact: Walton D.Y. Hong, Tel. (808)-245-4757

Accepting Authority: County of Kaua‘i, Planning Department
4444 Rice Street, Suite 473
Lihue, HI 96766-1399
Contact: Keith Nitta, Tel. (808)-241-6699

Name of Action: Ocean Bay Plantation at Hanamā‘ulu
Coastal Renaturalization Plan

Planning/Environmental Consultant: Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813
Contact: Jeff Overton, Tel. (808) 523-5866, ext. 104

Tax Map Key: 4-3-7-3:1

Land Area: 29 acres (approximate)

Project Location: Located on the eastern shoreline of Kaua‘i, extending around the northern rim of Hanamā‘ulu Bay.

Landowner: EWM Kaua‘i, LLC

Request: Non-native tree removal and landscaping management plan that will enhance the natural habitat and visual quality of the project area.

State Land Use District: Conservation
County Zoning: Open; Special Treatment
Special Management Area: Located within the SMA
Ocean Bay Plantation at Hanama'alu

Coastal Renaturalization Plan
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FIGURE 1-2: TMK: 4-3-7-3; 4-3-9-5:5

Approximate Project Area
1.2 OVERVIEW OF THE PROPOSED PROJECT

The project will implement a two-phased landscaping maintenance and management plan that will enhance the overall natural and visual quality of the area through the identification, evaluation, and selective removal of trees, shrubs, and grasses. Extensive clearing, pruning, and grubbing of trees, shrubs, and grasses within the project area will be based upon an inventory and identification of damaged, dying, or dead trees as well as overgrown areas that pose a threat to public safety.

The second phase of the project implements a strategy of re-introducing appropriate species of plants to the conservation area. Selective planting of native shrubs, grasses, and low lying trees that naturally grow within the coastal habitat will be encouraged along with non-native species compatible with the natural setting. Additionally, the scope of the project will include an evaluation, development, and implementation of fertility, pest management, and other maintenance programs to preserve the native habitat.

1.3 AGENCIES CONTACTED DURING PRE-CONSULTATION AND DRAFT EA REVIEW PERIODS

Listed below are the agencies and organizations that were consulted in the preparation of the Final Environmental Assessment. The County of Kaua‘i Department of Planning is the lead agency and accepting authority for this proposed action. A complete list of consulted parties is provided in Section 6.0.

STATE OF HAWAI‘I
Department of Business Economic Development and Tourism (DBEDT) - Land Use Commission
DEIDT- Office of Planning, CZMP
Department of Health
Department of Land and Natural Resources (DLNR)- Forestry & Wildlife
DLNR- Land Division
DLNR- State Historic Preservation Division
Office of Environmental Quality Control

COUNTY OF KAUAI
Department of Planning
Department of Public Works, County Engineer
Department of Water
Office of the Mayor

ORGANIZATIONS
Hanamā‘ulu Beautification Committee
1.4 CONTENTS OF THE FINAL ENVIRONMENTAL ASSESSMENT

This Environmental Assessment evaluates the potential impacts of the Ocean Bay Plantation at Hanamā‘ulu Coastal Renaturalization Plan upon the natural and human environment. This document is presented in seven sections. Section 1.0 contains the introduction and project overview. Section 2.0 describes the proposed project and Section 3.0 addresses the environmental, social and economic setting of the proposed project. Alternatives to the proposed project are presented in Section 4.0. A review of the necessary approvals and permits are discussed in Section 5.0. A list of consulted parties in the preparation of this EA is presented in Section 6.0. The anticipated finding and discussion of significance criteria is discussed in Section 7.0. In Section 8.0, a list of references is provided.

An appendix section has been added to the Final EA. This section includes an archaeological inventory survey and cultural impact assessment, as Appendix A and B, respectively. Both studies were conducted by PHRI, Inc.
2.0 PROJECT DESCRIPTION

2.1 DESCRIPTION OF PROJECT AREA

Regional Setting
Comprised of a land area of 555 square miles, the island of Kaua‘i is the fourth largest island in the Hawaiian chain. Dramatic mountainous regions ranging in elevation from 200 to over 4000 feet unfolding upon flat coastal parcels distinguish the area of East Kaua‘i. Former areas of thriving agricultural lands situated near and along various coastal plains dominate the lower elevations. The distinct regional identity of East Kaua‘i has been transformed from the former small plantation communities of Lihu‘e Plantation and Grove Farm into established pockets of financial, civic, and commercial activity that comprise Lihu‘e, Hanamā‘ulu, and Kapa‘a towns.

In traditional times, the island of Kaua‘i was divided up into six moku, or land districts. The project area lies in the traditional moku of Puna (known today as the Lihu‘e District), in the ahupua‘a of Hanamā‘ulu, along the eastern coast of Kaua‘i. The traditional boundary markers of the moku of Puna include the majestic terrain of Wai‘ale‘ale to the west, the ocean to the east, the mountains of Makaleha to the north, and the Hā‘upu range to the south.

Project Area
The project area is located along the eastern shoreline of Kaua‘i (TMK 3-7-3: por.1), extending from the northern rim of Hanamā‘ulu Bay and extending approximately .5 miles north. The project area is a 100-200 ft. wide strip along the shoreline, comprised of a rocky shoreline area with a variety of plant species that are primarily non-native. This land area served as a buffer zone between the ocean and near-shore agricultural areas. A planting of non-native ironwood trees served to protect the inland areas used for sugarcane production from salt spray emanating from ocean waves breaking along the coastal edge of the project area.

History of the Area
The use of the surrounding area of the project site was centered primarily upon the development of the sugarcane industry. In 1849, the Lihu‘e Plantation established itself as an emerging leader in Hawai‘i’s sugar industry. The plantation quickly began expanding its land base and developing an intricate water irrigation and allocation system. In 1870, the plantation acquired the lands of Hanamā‘ulu, utilizing the unique features of the landscape by creating a complex water collection and transfer system that was based entirely upon gravity flow, producing an average yield of 100 to 140 million gallons per day. By 1884, there were three sugarcane plantations in full operation at Hanamā‘ulu, 2 planting stations and 1 milling station.

However, by 1994, Amfac/JMB consolidated various aspects of its operations, shared by the Lihu‘e Plantation and the Kekaha Sugar Company, in an effort to address the failing
market in Hawai‘i’s sugar industry. As a result of consolidating operations, selected parcels of land and their adjoining irrigation systems were no longer maintained and utilized due to expected lower production yields. By 2000, Amfac/JMB closed the last of its plantation holdings on Kaua‘i.

In 1994, with the consensus of then landowner Amfac/JMB, the Office of State Planning petitioned the State Land Use Commission to reclassify the 29 acres comprising the project area from an “Urban” to “Conservation” District. The Commission granted the petition by its Findings of Fact, Conclusions of Law, and Decision and Order, filed July 20, 1995. However, the designated Conservation district currently does not have a subzone designation, as pursuant to the Hawaii Administrative Rules, Title 13, Chapter 5 provisions and guidelines. Existing subzone classification of the surrounding north and south boundaries of the project site are classified as Limited (L) subzone. Currently, an application has been filed to designate the project area as Limited (L), to create a consistent designation with the Department of Land and Natural Resources.

2.2 EXISTING CONDITIONS OF THE PROJECT SITE

Currently there is no activity within the project area or adjacent to the project site. The project parcel is bordered to the east by the ocean waters of Kaieieahoe channel and is bounded to the west by both Kūhiō Highway and Kapule Highway. Lihu‘e Airport is approximately .75 miles south of the area. Just southwest of the project site lies the town of Hanamā‘ulu, with a resident population of slightly over 3,600 people.

The project area is part of former planted buffer zone of non-native ironwood trees, designed to protect sugarcane crops from offshore wind conditions and sea spray. Since the closure of the Lihu‘e Plantation in mid-November of 2000, the current non-use of the adjacent agricultural parcels has allowed the overgrowth of invasive trees and grasses. These abandoned and desolate agricultural parcels have been invaded by other non-native species of plants and grasses, which generally out compete and displace the native habitat. Many of the ironwood trees have experienced storm damage and have been afflicted with disease and termites. The dead trees and tree litter detract from the viewscape of the near-shore area, and also preclude other native species from flourishing. There are numerous bare soil and erosion areas in the near-shore area that have no ground cover vegetation. Existing conditions are illustrated in Figures 2-1 through 2-3.

2.3 DESCRIPTION OF THE PROPOSED PROJECT

2.3.1 Coastal Renaturalization Plan—Tree Inventory and Survey

The proposed project is an implementation of a comprehensive coastal renaturalization plan. The first phase is comprised of a tree inventory and survey intended to enhance
the overall natural and visual quality of the area through the identification, evaluation, and an extensive removal of ironwood trees, shrubs, and grasses.

The extensive clearing, pruning, and grubbing of trees, shrubs, and grasses within the project area are based upon identifying the following:

1) Damaged, dying, and dead trees, and overgrown areas that are considered a safety threat, or pose a fire hazard;
2) Diseased or insect-infested trees;
3) Tree groves and shrub growth that need to be thinned to allow more sunlight through overgrown canopies;
4) Tree groves and shrub growth inhibiting the natural growth of various native species of plants;
5) Blighted tree groves that are the result of previous storm damage;
6) Areas where the views through and around can be improved.

Upon completion of an area inspection, determinations will be made regarding necessary tree pruning and clearing work, individual tree removals and stump grubbing, and overall stand thinning. Details of the tree survey are included in Figure 2-4.

Landscape Techniques
A variety of techniques and methods will be employed in the removal and clearing of trees, grasses, and shrubs. Safety precautions will be taken to ensure that adequate work space and access are provided and that all landscaping activity will be conducted in a manner that protects on-site workers and the natural habitat. The selection of techniques and methods will be site-specific as to determining best management practices that will minimize short and long-term disturbances to the area including noise impacts and any potential for soil erosion. A review of the various landscaping and maintenance techniques and options for the first phase of the project is discussed below.

Cabling/Bracing: Involves the installation of threaded steel rod braces and/or high strength cables to preserve the integrity and natural structure of trees.

Crown Cleaning: Involves the removal of dead, dying, diseased, crowded, weakly attached, low vigor branches, and water sprouts from the tree canopy, shrub or hedge.

Crown Elevating: Involves the removal of the lowermost branches of a tree in order to provide clearance for pedestrians, vehicles or vistas. Crown elevating encourages the development of view corridors through the foliage of tree.
Coastal Renaturalization Plan
Final Environmental Assessment

FIG. 2.2.1 View of Site from Ahukini Landing

FIG. 2.2.2 Wind Blown Vegetation Buffer Zone

FIG. 2.2.3 Native Vegetation in Overgrowth

FIG. 2.2.4 Pollution in the Wetlands Area

FIG. 2.2.5 Coastal Soil Erosion and Run-off

FIG. 2.2.6 Dense Ironwood Overgrowth

FIGURE 2-2 EXISTING CONDITIONS
Ocean Bay Plantation

Coastal Renaturalization Plan
Final Environmental Assessment

Crown Reduction: Involves thinning and removal of leaders to lateral branches to reduce the height and extension of the tree canopy. This procedure is only done as a last resort instead of complete removal.

Crown Thinning and Restoration: Involves crown cleaning and the selective removal of branches to increase light penetration and air circulation throughout the canopy, as well as to lessen wind resistance and damage potential from storms. Thinning reduces the weight on heavy limbs, the wind-sail effect of the crown, improves the structure and stability of the tree, and helps restore the tree's natural shape. Restoration may involve several prunings over an extended length of time.

Tree Removal (Cutting to Grade): Involves cutting a tree or shrub as close to the ground as possible. Selective tree removal and directional felling will be done in a manner that minimizes soil disturbance, erosion and siltation.

Tree Stump Removal & Stump Grinding: As appropriate, tree stumps will be removed through mechanical means. Stump grinding involves the use of machinery to reduce stumps to wood chips to a maximum depth of 12" below grade.

Use of Equipment
Depending upon the specific landscaping activity, various types of equipment and safety precautions will be employed. During the selective clearing and removal of trees and shrubs, risk zones will be established to ensure all measures pertaining to work safety are taken. Further safety allowances will be made for the potential effects of poor ground conditions, slopes, wind force, and wind direction in the selection and use of specific equipment.

Undergrowth/Scrub Clearance: For this type of activity, a manually-operated heavy duty brush cutter or clearing saw will be used.

Pruning: Hand pruners will be used to prune branches under 2.5 cm in diameter. For slightly larger branches, 7 to 10 cm in diameter, the use of small pruning saws and loping shears will be employed. For branches larger than 10 cm in diameter, a chain saw will be used for cross cutting and removal. Additionally, pole pruners will be used to cut branches beyond reach on remaining trees.

Tree and Stump Removal: The use of chain saws will be employed to take down selected trees. In addition, a backhoe excavator or a winch system will be used to remove stumps and hung trees.

Conversion: Circular saw benches are used for ripping and cross cutting. A variety of chippers will be used to process tree trunks and tree litter into woodchips for mulching material.
2.3.2 Coastal Renaturalization Plan - Habitat Restoration

This phase of the project implements a strategy of re-introducing appropriate species of plants to the conservation area. A selective planting of native and suitable non-native shrubs, grasses, and low lying trees that naturally grow in conditions similar to the existing coastal habitat will be encouraged. Additionally, the scope of the project will include an evaluation, development, and implementation of fertility, pest management, and other maintenance programs to preserve the native habitat, based upon the results of the evaluation.

The coastal renaturalization plan goes a step beyond traditional design principles that focuses primarily on maximizing ecological structure and function within a landscape. An emphasis is placed upon maintaining and enhancing the local biodiversity of plants within the conservation area that ultimately serve as areas of wildlife habitat. This approach allows the creation of landscapes and outdoor spaces that effectively blend aesthetics, function, and maintenance considerations with existing site and environmental considerations.

A comprehensive coastal renaturalization plan has been prepared by GDI Landscape Architects (November 2001). Figures 2-5 to 2-10 illustrates the proposed enhancements to the coastal area. The selection of plants includes a balanced mix of groundcover, mulch, shrubs, canopy trees, beach groundcover, and palms. A combination of mature trees and younger seedling trees will be used in the restoration effort.

2.3.3 Biodiversity & Ecological Management Approach

The appropriate selection of native species of plants to be reintroduced is critical to the sustainability of the habitat structure. In general, knowledge of the island's natural coastal system will be incorporated into a management strategy that assures that the variety and interspersion of reintroduced native species is appropriate for the habitat within the project area. A primary goal in the coastal renaturalization plan is to promote native plant diversity while limiting potential growth areas of noxious and invasive species of plants and grasses.

An emphasis of the coastal renaturalization plan is an ecological management approach that will implement restoration activities, including the use of xeriscaped native plants as well as continued integrated weed management techniques that will control the infestation of noxious plant species.

Xeriscape is a creative and ecological approach of designing attractive landscaped areas that need less water and overall maintenance. Water is conserved in the design of the landscape, so that the water requirements correspond closely to the natural precipitation.
NOTES
- Remove all invasive, diseased, dead and dying trees
- Clear all invasive species
- Any invasive trees to be removed are to be chipped on site with all mulch to be utilized on site
- Plant locations and quantities shown on plans are diagrammatic and subject to field adjustment by designers
- All trees, not designated to be removed shall be preserved under direction of the designers
NOTES

- Remove all invasive diseased, dead and dying trees
- Clear all invasive species under 6" caliper
- Any invasive trees to be removed are to be chipped on-site with all mulch to be utilized on-site
- Plantations and quantities shown on plans are diagrammatic and subject to field assessment by designer
- All trees, not designated to be removed shall be preserved under direction of the designer

Legend:
- Groundcover
- Shrubs
- Existing trees to be removed
- Canopy trees
- Beach groundcover
- Palms

Ocean Bay Plantation
at Hanalei

Coastal Renaturalization Plan
Plan 1

November, 2001

Figure 2-6
Ocean Bay Plantation

COASTAL RENATURALIZATION PLAN

PLAN 2

NOVEMBER, 2001

Figure 2-8
LEGEND
- GROUNDCOVER
- SHRUBS
- EXISTING TREES TO BE REMOVED
- CANOPY TREES
- BEACH GROUND COVER
- PALM

SEGMENT 3

COCONUT PALMS

DISTRESSED AND DYING IRONWOODS TO BE REMOVED

BEACH HELIOTROPE

GROUND COVER FOR SOIL STABILIZATION

BOULDERS AND AKEIKILI

OCEAN

Ocean Bay Plantation
at Honolulu

Coastal Renaturalization Plan
Plan 3

November, 2001

Figure 2-10
Ocean Bay Plantation
at Hawana Malu

Coastal Renaturalization Plan
Final Environmental Assessment

The project will incorporate a xerescape approach that includes seven principles in deciding the appropriate selection of native plant species:

1. Suitable planning and design
2. Soil analysis
3. An efficient irrigation method
4. Practical turf areas
5. Proper plant choice
6. Use of mulches
7. Appropriate maintenance

The selection of plants for landscaping is dependent upon the project site and space allotments for replanting. The plant species used for the project must be tolerant to strong ocean breezes and salt spray. The project will include a balanced mixed of both native and introduced species of plants that are non-invasive. Figures 2-11 through 2-14 illustrate the recommended selections of plant materials to be used as part of the coastal renaturalization plan.

Further discussion of recommended native plants to be used in the project area is provided below.

Hala (*Pandanus tectorius*): Hala is a small tree growing 20 to 30 feet in height and from 15 to 35 feet in diameter. The trunk is stout and the branches grow at wide angles to it. It has distinctive long blade-like leaves (lau hala) about 2 inches wide and over 2 feet long. Most varieties have spines along the edges and on the midribs of the leaves.

Naupaka Kahakai (*Scaevola taccada*): Naupaka kahakai is a dense, spreading shrub that generally grows up to 3 feet tall, but can be up to 10 feet tall and 6 to 15 feet wide. The medium green leaves are waxy and fleshy with irregular shaped flowers with all five petals on one side of the flower making them appear to have been torn in half.

ʻIlima papa (*Sida fallax*): ʻIlima ranges in form from a prostrate to an erect shrub. The prostrate forms, called ʻilima papa, are most often 6 to 12 inches tall and grow in coastal areas. The leaves are bright green with blossoms that are yellow to orange in color.

Paʻu o Hiʻiaka (*Jacquemontia ovalifolia*): Paʻu o Hiʻiaka is a sprawling, non-woody vine that forms a mat 3 to 8 inches deep. The stems are prostrate, up to 10 feet long, and frequently root at the leaf nodes. The leaves are thick or fleshy, oval-shaped to round, with blossoms that are pale blue to white in color.

Pōhinahina (*Vitex rotundifolia*): Pōhinahina is a sprawling shrub 6 to 8 feet in diameter and 6 inches to 2 feet tall, but reaching 4 feet in height and 12 feet in width when protected from wind and salt spray. The round leaves are gray-green to silvery with blossoms that are bluish purple.
Ocean Bay Plantation

COASTAL RENATURALIZATION PLANT MATERIALS

CANOPY TREES

NOVEMBER 2001

Figure 2-11
CARPOBROTUS EDULIS
ICE PLANT

PHEGRAS

LAPORTA INTEGRIFOLIA
NTH

SEVUILLUM PORTULACSTRUM
AERI FF

SIDA FALCIS
THMA

HELHOTROPUM ANOMALUM
THMAFINA

LAPOMOTA INDICA
BEACH MORNING GLORY

VITEX OVATA
BEACH VITEX

CARUSIA SF
GREEN CARPS FALCATE PLUM

JACQU MONTIA OVALIFOLIA
PAPA-HAKA

Ocean Bay Plantation
COASTAL RENATURALIZATION PLANT MATERIALS
GROUNDCOVERS AND GRASSES

NOVEMBER 2001
Figure 2-14
Ma'o (*Gossypium tomentosum*): Ma'o is a 1-5 foot tall shrub that can spread to 5 to 10 feet in diameter. In form, it can range from a mound to a prostrate ground cover. The leaves are covered with soft white hairs, giving a silvery, gray-green appearance. The flowers are bright yellow, looking somewhat like a hibiscus, and are 2 to 3 inches across. Ma'o is an endemic shrub that is considered likely to become endangered in the near future (vulnerable status).

Nehe (*Wollastonia integrifolia*): Nehe is a slightly woody perennial plant with spreading stems up to 6 1/2 feet long. The stems grow outward from the center intertwining with the stems of neighboring plants, often rooting where they touch the soil, to form a mat 6 to 8 inches thick.

### 2.3.4 Post-Removal Uses

Most of the project area is comprised of non-native dense ironwood trees. Post-removal efforts involve developing environmentally friendly uses for branch cuttings, shrub trimmings, and grass clippings. Stump chips, trimmings, and clippings will be recycled and utilized on-site for mulch. In general, mulches serve a number of purposes that includes

- reducing soil erosion,
- reducing soil moisture evaporation,
- maintaining an even soil moisture supply,
- reducing or preventing weed growth,
- insulating soil from extreme temperature changes,
- improving the aesthetic nature of the coastal landscape.

Organic mulches converted from the removed plant materials will serve as slow-release sources of nutrients for both existing and new plant growth within the project area. Newly planted and established trees will benefit from mulching through the promotion of new root growth.

### 2.4 PURPOSE AND NEED FOR THE PROPOSED PROJECT

#### 2.4.1 Removal of Invasive Species

Invasive species are alien, non-native, exotic species of plants that significantly disrupt the overall quality and function of the native ecosystem. The rampant extent of large numbers of invasive alien plants species is a major threat to the protection and perpetuation of Hawaii’s native species and forests. The extent of these alien plants is because these plants have no natural enemies within their new habitat.
Some non-native species, like the ironwood trees within the project area, have been deliberately introduced to serve either some auxiliary or ornamental function. The ironwood trees were planted to serve as a barrier zone, protecting vast parcels of sugarcane production from offshore salt spray conditions. However, these trees are considered invasive due to their physical dominance and alteration of water cycles within the natural habitat. In general, three primary biological attributes make a plant invasive: dispersion of seeds and spores by animals or wind, high fertility rates, and rapid growth rates.

The introduction of these ironwoods has transformed the natural landscape, altering the framework of natural habitat system. Further, the introduction of non-native grasses has diminished the quality of the habitat for native species. The project is an opportunity to address the past affects of ecological impacts of this species within the site area.

As mentioned, the project area contains a variety of invasive species of trees, shrubs, and grasses. Descriptions of some of these species, with their potential impacts are discussed below.

**Ironwood (Casuarina Equisetifolia):** The ironwood is a rapidly growing tree that can reach heights of 40 m (~130 feet). The distinguishing feature of this tree upon the environment is a lack of undergrowth beneath its canopy. The lack of undergrowth beneath these trees is a result of a layer of fallen pine needles that prevents other plants from sprouting. Other studies indicate that the ironwood also exhausts available nutrients in the soil. The lack of undergrowth prevents very hot fires from burning in the vicinity of these trees, thus providing an ideal barrier for the adjacent parcels of previously grown sugarcane. The ironwood had the ability to quickly regenerate from basal shoots and wind dispersed seeds.

**Koa Haole (Leucaena leucocephala):** The koa haole is a thornless tree able to form dense thickets, thus excluding all other plants from growing beneath its canopy. The tree was originally introduced to Hawaii as a quick means of providing fodder for cattle. However, its rapid growth often superceded grazing or control measures, resulting in rampant overgrowth throughout the islands. Like the ironwood, the koa haole has the ability to quickly regenerate from basal shoots after a fire. In addition, new seedlings are produced are produced after a fire. The seeds of the koa haole are dispersed usually by rodents and some non-native birds.

**Java Plum (Syzygium cumini):** Java Plum is an evergreen tree that can reach heights of up to 75 feet, forming a dense cover that does not allow much undergrowth. Smooth, whitish stems and reddish-black berries are its distinguishing marks. Seeds are dispersed by birds and feral pigs. It is normally found in dry to mesic areas and occasionally in wet lowland areas up to 700 m (~3000 ft.) in elevation. Java Plum is
considered an invasive species because of its dense cover that prevents native lowland forest species to thrive.

California Grass (*Brachiaria mutica*): California grass is a perennial grass that can grow to heights of 2 m (~6.5 ft.). The grass forms dense layers and usually overgrows most trees and shrubs in its habitat, normally between sea level and 700 m (~3000 ft.). It has a mild toxic chemical affect, discouraging other plant forms to grow in the nearby vicinity. The seeds are dispersed usually through means of human activity such as hiking and walking. California grass has the ability to quickly regenerate from any damage incurred from fire. It forms dense monotypic stands by layering from trailing stems and will overgrow most shrubs and trees in its habitat.

Actions that may improve native plant diversity or mitigate impacts of management actions include cultivation and reseeding with native plants and adhering to practices that minimize potential soil-disturbing activities.

### 2.4.2 Preservation of the Native Ecosystem

Native species of plants are defined as those plants that have naturally existed prior to the impacts of human activity and development of the natural landscape. Close to ninety percent of Hawaii’s plants and animals exist nowhere else in the world. The fragile nature of the ecosystem is the result of the dominating influence of non-native invasive species of plants.

One of the goals of the coastal renaturalization plan is to maintain the native ecosystem of the immediate and surrounding vicinity. The existing ironwood trees are remnants of a planted buffer zone that has impacted the natural coastal habitat. Thus, the implementation of the coastal naturalization plan represents the reintroduction and sustainability of a more congenial mix of plants to the native ecosystem that will preserve the island’s unique natural beauty and diverse habitats.

### 2.4.3 Viewscape Enhancement & Preservation

The project serves to enhance and preserve significant and panoramic coastal views. The purpose of visual preservation is that these viewscape function both as scenic lookouts and represents landmarks offering points of reference for direction and orientation. Protecting and preserving scenic vistas and viewsheds from haphazard unplanned development allows the island community to preserve its own unique charm while attracting positive growth to the area.

The coastal renaturalization plan is a coordination and preservation effort of open space within the Conservation District. The program places an emphasis on protecting significant visual corridors that are identified in county efforts to meet open space needs for the island community.
2.4.4 Relationship to Adjoining Property Developments

EWM Kaua'i, LLC intends to develop the adjoining property to provide a mixed-use residential and golf course community on their 460+ acre coastal parcel. This low-density master-planned community will include large open space areas to preserve the coastline strand, open space and wetland resources, and maintain the open space character and sense of place of the surrounding area. The proposed project also includes plans for a small retail commercial center at its access to Kūhiō Highway.

The coastal renaturalization plan for the Conservation District is an integral part of an overall master plan that seeks to enhance the overall quality of space and use within an abandoned area. The focused efforts of revitalizing and maintaining the natural habitat system within the Conservation District will seamlessly be integrated with proposed landscaping plans for the overall project, specifically the single-family units and golf facilities adjacent or near to the conservation area. Designs include creating an amiable landscape that maintains and accentuates the natural character of coastal bayside and oceanside areas with the proposed golf holes nearest to the ocean.

Long-term project plans for the adjoining property include the development of an on-site non-potable well that will be utilized for irrigation purposes for the entire landscaped area. Additionally, provisions will be made for temporary irrigation during the short interim replanting phase.

2.5 PROJECT COSTS AND SCHEDULE

Phase One of the project is scheduled to begin in June of 2002, and is scheduled to be completed within two months. Phase Two is scheduled to begin immediately after completion of Phase One, and is scheduled to be completed by October 2002. The cost of the entire project is not expected to exceed $125,000.
Section 3.0

Description of the Environmental Setting, Potential Impacts, and Mitigative Measures
3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

Addressed below are the environmental setting, potential impacts and mitigative measures for the proposed Ocean Bay Plantation at Hanamā'ulu Landscaping Plan.

3.1 CLIMATE

Existing Conditions
The climate of Kaua'i is mild and semitropical with prevailing northeast trade winds. Average daily minimum and maximum temperatures range from the low 60's to the low 90's degrees Fahrenheit (F), depending upon the time of day and the season. Precipitation is seasonal with the most rainfall typically occurring from October through April.

Climatic conditions around the project area yield temperatures ranging from a high of 81 through a low of 69 degrees F. Annual rainfall on Kaua'i varies greatly with elevation and geography from an average rainfall of 444 inches at the top of Mount Wa'ale'ale (the wettest place in the world) to approximately 39-59 inches of rain near the project area, which is located on the eastern side of the island.

Anticipated Impacts and Mitigative Measures
The proposed action will have no effect on climatic conditions, therefore no mitigative measures are required.

3.2 TOPOGRAPHY

Existing Conditions
One of the salient features of the project area is its topography. The area can be described as a spacious coastal plain resting upon low sea cliffs, rising sharply from the ocean's edge. Varying in slope, the topography of the project area is predominantly a relatively flat area with moderate to steep slopes at the ocean's edge, ranging from an elevation of approximately 20 feet above mean sea level down to sea level (USGS 1996).

Anticipated Impacts and Mitigative Measures
The proposed project will not alter the topography of the immediate project area, which is generally flat and level along the upper regions of the coastal areas because of its past association with agricultural use. It is not anticipated that significant grading will be required. No substantial fill or excavation is being proposed for the project. Mitigative measures related to soils and grading are described in the next section.
3.3 SOILS AND GRADING

Existing Conditions
Soil types or classifications for the project area are based on soil surveys by the USDA Soil Conservation Service (SCS). The SCS system classifies soils by type, capability classification (SCS rating), and permeability characteristics including run-off and erosion, as shown in Table 3-1. Soil type describes the composite material of the soil. The SCS rating defines the limitations on the choice of crops that can be grown within the soil, with a higher Roman numeral designation corresponding to stricter limitations on its use. Run-off pertains to the corresponding amount of erosion that can be expected with that particular soil type. Figure 3-1 illustrates the types of soils found within the project area.

<table>
<thead>
<tr>
<th>Soil</th>
<th>Soil Type</th>
<th>SCS Rating</th>
<th>Permeability (Runoff)</th>
<th>Erosion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lihu‘e Silty Clay (LhB)</td>
<td>Red Silty Clay</td>
<td>IIIe</td>
<td>Slow</td>
<td>Slight</td>
</tr>
<tr>
<td>Koloo Stony Silty Clay (KvD)</td>
<td>Silty Clay</td>
<td>IVe</td>
<td>Medium</td>
<td>Moderate to Severe</td>
</tr>
<tr>
<td>Rock Outcrop (rRO)</td>
<td>Basalt, Bedrock, Andesite</td>
<td>VIIIs</td>
<td>Rapid</td>
<td>Severe</td>
</tr>
<tr>
<td>Beaches (BS)</td>
<td>Sand</td>
<td>VIIIw</td>
<td>Rapid</td>
<td>Severe</td>
</tr>
<tr>
<td>Rough Broken Land (rRR)</td>
<td>Weathered Rock</td>
<td>VIIe</td>
<td>Rapid</td>
<td>Severe</td>
</tr>
</tbody>
</table>

Table 3-1: Soil Classification

Anticipated Impacts and Mitigative Measures
The impact of the proposed action on soils is limited to the small potential for erosion during physical removal of particular trees. The impact of landscaping and maintenance activities on the soils will be mitigated by implementing, practicing, strict erosion control and dust control measures, particularly those specified in the following:

- County of Kaua‘i Grading Ordinance

Primary fugitive dust control methods that will be implemented include regular watering of exposed soil areas, good housekeeping on the job site, and prompt landscaping, covering or paving of bare soils in areas where construction is completed.
### 3.4 SURFACE WATER, FLOODING, AND DRAINAGE

**Existing Conditions**

There are no existing streams flowing within the project area. The closest perennial stream is Hanamā‘ulu Stream, located south of the project area. The former cane lands located adjacent to the project area are no longer irrigated and provide sparse vegetation and ground cover. Running through the center of these adjoining lands to the project area is a wetlands area, which receives runoff from regions mauka of Kūhio Highway.

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM # 160002-0140-C—FIRM # 150002-0140 D, September 30, 1995), most of the property within the Conservation District lies within the VE designated flood zone. The VE zone represents a special flood area that has the potential to be inundated with a 100-year coastal flood with heavy wave action. For each of these VE designations, base flood elevations are determined for the specific geographical area. Within the project area’s Conservation District, areas designated as part of the VE zone have a base flood elevation of 10 to 12 feet.

The remaining shoreline areas within the project area lies within the Zone X designation, meaning these areas are lie outside a 500-year flood plain.

**Anticipated Impacts and Mitigative Measures**

As noted, only a small portion of the project site is subject to relatively minimal flood type conditions occurring every 100 years. The mauka portion of the project site is outside of the 500-year flood plain. However, the coastal renaturalization plan will take into consideration the potential for flood hazard in those areas with the greatest concern.

Long-term impacts of the project on drainage conditions are expected to be insignificant. Currently, non-maintenance of these former agricultural parcels has encouraged soil runoff and degradation, especially during extended periods of rain. Improvements to the project site are designed to minimize any increase in peak storm runoff flows and to minimize potential runoff. As such, the proposed project will comply with flood hazard requirements in accordance with current State and County of Kaua‘i standards. No fill activity is proposed within the designated VE zones and the Conservation District. Mitigation may require additional fill to ensure that the character or pattern of surface runoff will not impact adjacent properties.

### 3.5 FLORA

**Existing Conditions**

Coastal vegetation forms a band along the seaward facing slopes of the property. Three variant areas of coastal vegetation have been identified based on the differences in substrate type and slope (Char & Associates, 2001).
Ocean Bay Plantation
at Hanamā'ulu

Coastal Renaturalization Plan
Final Environmental Assessment

Sand Substrate
A sandy beach is found along the northern portion of the project area, where the stream from the wetlands empties into the ocean. The sandy substrate consists of naupaka (Scaevola sericea) and taller tree heliotrope (Tournesoria argentea). 'Aki'aki grass (Sporobolus virginicus) and pōhuehue (Ipomoea pes-caprae) form low mats, especially on the seaward facing portions of the naupaka shrubs. Other species associated with this substrate include nanea (Vigna marina), hala (Pandanus tectorius), Bermuda grass (Cynodon dactylon), and wedelia (Sphagenticola triloba).

Rocky Outcrops/Coastal Cliffs
The coastal vegetation along the seaward rim of rugged coastal cliffs is comprised of large stands of ironwood trees. Along the upper cliff faces, adjacent to the abandoned sugarcane fields, the ironwood trees are 30 to 50 feet tall. Along the exposed steeper slopes, the ironwood trees are low and windsheared, 10 to 12 feet tall. There are few native species associated with this substrate including: naupaka, 'ilima papa (Sida fallax), pā'ūhōlī'aika (Jacquetia ovatifolia ssp. Sandwicensis), 'a ki'aki grass, and 'ākulikuli (Sesuvium portulacastrum).

Other Slopes
On the more protected slopes facing Hanamā'ulu Bay, the coastal vegetation consists varying densities of koa haole shrubs, approximately 12 to 15 feet tall. Other species within this substrate include: Kolomona (Senecio surattensis), Java Plum trees, ironwood, and hau. Guinea grass is the most abundant ground cover, forming robust clumps 2 to 3 feet tall.

Anticipated Impacts and Mitigative Measures
Development of the project site will provide new landscaped areas, trees and plantings that may serve as habitat for area wildlife. None of the plants found during the field studies are considered a threatened or endangered species or a species of concern. The proposed landscaping within the Conservation District is not expected to have a significant negative impact on the botanical resources on-site or in the general region. It is recommended that areas cleared of vegetation be revegetated as soon as possible. This would prevent soil loss and discharge of sediments into the ocean and wetland areas.

3.6 FAUNA

Existing Conditions
Mammals
Studies were conducted within the project area to detect the presence of endangered Hawaiian hoary bats (Lasiusinus cinereus semolis), or the 'ope'ape'a, as it is known in Hawaiian. Visual recordings documented the presence of five separate animals foraging along the coastline, and over Hanamā'ulu Bay. All other observations of mammalian
species were of an incidental nature. With the exception of the Hawaiian hoary bat, all terrestrial mammals found on the island of Kaua‘i are alien species (David, 2001).

Other mammalian species found within the project area include cats (*Felis catus*), horses (*Equus caballus*), and domestic cattle (*Bos taurus*). Recorded signs and scat of two other mammalian species include the domestic dog (*Canis f. familiaris*) and pig (*Sus scrofa*).

Although no live rodents were detected during the course of the field work, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*), and possibly Polynesian rats (*Rattus exulans hawaiensis*) use various resources found within the project site. All of these mammalian species are harmful to avian populations.

**Avi-fauna**

Twenty-seven avian species were recorded within the project area either during station counts, nocturnal visits, or incidental encounters. Of the 27 species detected, the ‘Alae ke‘oke‘o, or Hawaiian coot (*Fulica alni*) is an endemic species that is listed as an endangered species, under the Endangered Species Act of 1973, as amended, and by the State of Hawai‘i under its endangered species program. Other indigenous or endemic avi-fauna located within the project area include: the koa‘e kea (*Phaethon lepturus dorothea*), the ‘auku‘u (*Nycticorax nycticorax hootli*), the kolea (*Pluvialis fulva*), the ‘ūlili (*heterosceles incanus*), the ‘alea‘ula (*Gallinula chloropus sandvicensis*), and the ae‘o (*hianantopus mexicanus knudseni*). Additionally, three seabird species were recorded flying over the site including the endangered endemic Hawaiian subspecies of the ‘ua‘u (*Sterodroma mphaeopygia sandwicensis*), the threatened endemic subspecies of the ‘a‘o (*Puffinus auricularis newelis*), and the ‘ua‘u kani (*Puffinus pacificus*).

The remaining species of avi-fauna are alien to the Hawaiian islands. Avian diversity and densities were relatively low. Two species, the Japanese White-eye (*Zosterops japonicus*), and Zebra Dove (*Geopelia striata*) accounted for 32% of the total sighting of birds recorded within the project area.

**Anticipated Impacts and Mitigative Measures**

Landscaping development of the project area will provide new landscaped areas, trees, and plantings that may serve as habitat for area wildlife. It is expected that during segments of selective removal of certain trees, birds that frequent the landscaped edge of the site will move to nearby undisturbed areas and will return when disturbances cease. Stray domestic animals and other pest mammals will probably continue to pass through the site during and after. No adverse impacts are anticipated, and no mitigative measures are proposed.
3.7 ARCHAEOLOGICAL-CULTURAL RESOURCES

Existing historical and cultural resources within the project area are detailed in an archaeological inventory survey and cultural impact assessment completed by Paul H. Rosenthal, Ph.D., PHRI, Inc. The findings are summarized below and are presented in their entirety in Appendix A and B, respectively.

Existing Conditions
Two site complexes and three single-feature sites were identified either within or near the vicinity of the project area. The sites are listed in Table 3-2.

<table>
<thead>
<tr>
<th>State Inventory of Historic Properties</th>
<th>Feature Type</th>
<th>Tentative Functional Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1839</td>
<td>Complex: Wall (A), Terrace (B)</td>
<td>Temporary Habitation</td>
</tr>
<tr>
<td>1843</td>
<td>Complex: Concrete Foundation (A), Road (B), and Concrete Wall (C)</td>
<td>Transportation</td>
</tr>
<tr>
<td>1840</td>
<td>Retaining Wall</td>
<td>Transportation</td>
</tr>
<tr>
<td>1841</td>
<td>Road</td>
<td>Transportation</td>
</tr>
<tr>
<td>2068</td>
<td>Historic Trash Dump</td>
<td>Trash Dump</td>
</tr>
</tbody>
</table>

Table 3-2: Existing Archaeological Resources

All of the identified sites are located along or near the coast. Of the 5 identified sites, only site 1839 is considered to be prehistoric. Radiocarbon sampling suggests that occupation within the project area may have occurred as early as AD 1170-1400. This time period is known as the Expansion Period, which is characterized by numerous developments, including a rapid increase in population and intensified agricultural practices such as large-scale irrigation, dryland cultivation, and aquaculture.

Based upon historical documentary research, prehistoric settlement in the immediate vicinity of the project area seems to have taken place in the Hanama‘ulu Stream gulch and along the coast. On the coast of Wailua and within the sandy beach area of Hanama‘ulu Bay, burials in sand dunes have been documented as well as habitation activities (Bennett, 1931; Cox, 1977). Because the coast between Hanama‘ulu Bay and the Wailua Golf Course consists of a rocky shoreline, cultural practices and activities along the coast of the present project area were probably restricted to fishing and temporary habitation activities.

Anticipated Impacts and Mitigative Measures
Significance assessments and recommended general treatments for all identified sites are based upon the Rules Governing Procedures for Historic Preservation Review in the
Ocean Bay Plantation
at Hanamā‘ulu

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Hawai‘i Administrative Rules, Chapter 284. All the sites within the project area have been determined to be potentially significant resources that “have yielded or may likely to yield information important in history or prehistory” with no further work required.

Sites 1839 and 1840 have been tested, and data collected from these sites during the survey work is considered sufficient. Site 2068, a historical refuse dump, has been measured, described, photographed, and plotted, and no further work is recommended. Sites 1841 and 1843 have been recorded and described to the extent that no further work is necessary.

In the event that any previously unidentified sites or remains are encountered during site work and construction phases, work in the immediate area will cease. An archaeologist from the State Historic Preservation Division will be notified and work in the area will be suspended until further recommendations are made for appropriate treatment of cultural materials.

3.8 LAND USE - DEVELOPMENT PATTERNS

Existing Conditions
The State Land Use Commission classifies all State lands with consideration given to the General Plan of the County, as Urban, Rural, Agricultural, or Conservation. The project site is within the Conservation District as shown in Figure 3-3.

Development patterns in Hanamā‘ulu are set by the County General Plan, the Lihu‘e Development Plan and the comprehensive Zoning Ordinance of the County of Kaua‘i (CZO). The principal function the CZO is to specify areas where land uses such as agricultural, commercial, residential, industrial, open and public areas are permitted.

Under the General Plan, strips of shoreline around the island of Kaua‘i are designated Open. The General Plan designation for the project area is Open as illustrated in Figure 3-4. The intent of this designation is to preserve, maintain, or improve the natural characteristics of non-urban land and water areas including coastal bluffs, sandy beaches, and other natural features. These strips range from 100 to 300 feet wide, sometimes wider depending upon topography or other natural features of the site.

The Lihu‘e Development Plan serves as a guideline for the region’s future growth within the framework of the General Plan. The Development Plan’s land use designation of the project site is Open.

The County zoning designation within the project area is Open and Special Treatment-Scenic Ecological (ST-R) and is illustrated in Figure 3-5. The necessary permits and approvals for the proposed development are discussed further in Section 5.0.
Anticipated Impacts and Mitigative Measures
The proposed project involves a selective removal of ironwood trees facilitated with a replanting of appropriate species for the conservation area. There will be no change in the existing land use classification or in the amount of land designated for development. Land use patterns in the area will not change as a result of the proposed action. No mitigative measures are required.

3.9 ROADWAYS, ACCESS AND TRAFFIC CONDITIONS

Existing Conditions
The project site is about .85 miles east of the intersection of Kūhiō Highway and Kapule Highway. These State Highway roads provide an alternative route between Līhu'e and points north and west. There are a series of former cane haul roads located in the near vicinity of the project area.

Anticipated Impacts and Mitigative Measures
There are no anticipated impacts upon existing traffic conditions of the nearby highway intersection. The landscaping plan may require the removal of large tree stumps. If so required, off-site hauling may be required. Where necessary, precautions will be taken to maintain traffic safety and minimize effect upon normal traffic patterns.

3.10 NOISE

Existing Conditions
The primary noise sources in the area of the project site are related to wind, surf, aircraft, traffic from the nearby highways, and ocean recreational activities. Generally, the rural character of the area does not generate extended periods of unacceptable levels of noise.

Anticipated Impacts and Mitigative Measures
Landscaping activities within the isolated project area will involve the use of chain saws, a brush chipper, and other types of machinery and equipment. The loudest equipment used during the landscaping could generate intermittent noise levels as high as 95 dB. However, such exposures are only a short-term condition, occurring during normal working hours.

Noise generated during the landscaping activity will be mitigated in accordance with Hawaii Administrative Rules, Title 11, Chapter 46, Community Noise Control of the State Department of Health. Overall, the landscaping work will not generate significant or potentially disturbing levels of noise, thus no mitigative measures will be required.
Figure 3-3 (revised) State Land Use Map

Legend:
- A: Agricultural
- C: Conservation
- R: Rural
- U: Urban

Ocean Bay Plantation at Hanamaulu
Coastal Renaturalization Plan
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3-11
3.11 AIR QUALITY

Existing Conditions
The State Department of Health, Clean Air Branch regularly samples ambient air quality at monitoring stations throughout the State and publishes the information in Hawai‘i Air Quality Data. For the island of Kaua‘i, there is a monitoring station in downtown Lihu‘e, located within a commercial and residential area with nearby agricultural parcels. The station monitors levels of $\text{PM}_{10}$ particulate matter that includes dust, soot, smoke, and liquid droplets from sources such as factories, power plants, motor vehicles, construction activities, agricultural activities, and fires. However, there are no monitoring stations for carbon monoxide on Kaua‘i.

Air quality in the Lihu‘e area is good, with pollution levels below State standards. Typically, the particulate counts in Lihu‘e range between 20 to 40 ug/m$^3$ and can be attributed primarily to automobiles and activity at Lihu‘e Airport. The particulate counts do peak at levels much higher than this, usually during periods of adverse weather conditions.

Anticipated Impacts and Mitigative Measures
Clearing activities are expected to generate short-term impacts to air quality primarily from fugitive dust emissions. On-site landscaping activities will generate particulate emissions. The impact of landscaping activities on air quality will be mitigated by conforming to strict dust control measures, particularly those specified in the State Department of Health's (DOH) Ambient Air Quality Standards, Hawai‘i Administrative Rules, Title 11, Chapter 59: Public Health Regulations, 1968; and the U.S. Soil Conservation Service’s Erosion and Sediment Control Guide for Hawai‘i, 1968.

Primary fugitive dust control measures include wetting down loose soil areas, good housekeeping on the job site and the prompt landscaping of bare soil areas. In addition, State of Hawai‘i Air Pollution Control Regulations require that fugitive dust emissions be controlled to such an extent that no visible emissions of fugitive dust from construction activity should occur beyond the property line.

There is the potential for air pollution from landscaping equipment and vehicles, and from vehicular emissions due to traffic disruptions from construction equipment. On-site mobile and stationary equipment will also emit some air pollutants in the form of engine exhausts. The larger types of equipment are usually diesel-powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are very low and should be relatively insignificant compared to normal vehicular emissions.
Short-term increases in vehicular emissions due to disruption of traffic by construction equipment mobilization will be alleviated by moving equipment and personnel to the site during off-peak traffic hours. Increased traffic volumes in the long term may increase vehicular emissions; however, the region is generally rural and undeveloped. Air quality conditions in the region are not anticipated to decline and no mitigative measures are required.

3.12 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions
The island of Kaua‘i has nearly 60,000 residents and supports, on average, 16,000 visitors each day. Of the four counties within the State of Hawai‘i, the County of Kaua‘i is the least populated. As of 2000, the Census Designated Place of Hanamā‘ulu indicated a population of 3,272 with a median age of 35.3 years, most living in large households. The region has seen an increase in construction activity of homes and infrastructure.

For most of the 20th century, the economy of the island was based upon sugar cultivation. However, with the closure of Līhū’e Plantation in 2000, the only existing sugar producer, Gay and Robinson, is based in West Kaua‘i. Over the past ten to fifteen years, the area of Līhū’e-Hanamā‘ulu has seen resurging growth in commercial activity as well as increases in the visitor industry and related services sector. The closure of area sugar mills has emphasized the need for continued economic diversification and new employment opportunities.

Anticipated Impacts and Mitigative Measures
The project will create short-term benefits as a result of landscape design and construction employment. The project will create jobs for local landscape personnel, plant nurseries, and other local material suppliers and retail businesses. State General Excise Tax revenues will be generated by the landscaping activities and related expenditures.

It can also be assumed that the landscaping activity will enhance the overall character of the Conservation District. Open and natural areas are valuable resources and indirectly contribute to economic development. Natural coastal regions, such as Hanamā‘ulu, are regarded as being among the visitor industry’s strongest assets.

3.13 VISUAL RESOURCES

Existing Conditions
Scenic views of the ocean as well as varying mountain regions abound on the project site. The design and development of the Ocean Bay Plantation at Hanamā‘ulu project will be a conscious application of landscaping that promotes and preserves the present on-site view planes. The preservation of view planes is recognized as an important component of the success of this landscaping effort.
Anticipated Impacts and Mitigative Measures
The landscaping project will enhance and maintain existing view planes while opening areas that are either overgrown or currently occupied with dead or diseased trees. Short-term visual impacts may result from personnel working and equipment stationed at the project site. Upon completion of the landscaping work, no other visual impacts are anticipated.

3.14 UTILITIES

Existing Conditions

Groundwater
The Wailua-Kapa‘a and Puhi-Lihu‘e-Hanamā‘ulu water systems, the two largest systems on the island, transmit source supply for the Hanamā‘ulu area. These two systems are interconnected by a 16-inch water main. The Wailua-Kapa‘a Water System serves an area that extends south from Kalii to just north of Hanamā‘ulu and serves resort, commercial, industrial, and residential uses. According to the County of Kaua‘i Department of Water’s Master Plan, storage facilities for the service zone have approximately 590,000 gallons more capacity than the estimated volume required in 2020.

Wastewater
Both the project area and the adjacent parcels are not sewered and are outside the Lihu‘e Wastewater Collection and Treatment service area. There are plans to provide an on-site wastewater collection and treatment facility to serve the larger 460-acre planned project. The treated effluent from the Ocean Bay at Hanamā‘ulu Wastewater Treatment Facilities will be reused for irrigation purposes.

Electrical
Kaua‘i Electric services over 30,000 customers on the island of Kaua‘i. Power is generated from a 96 megawatt, diesel-fired power plant. Kaua‘i Electric also has purchase power agreements with the remaining sugar producer, Gay and Robinson. A portion of Kaua‘i Electric’s power output is from renewable resources including bagasse, a sugarcane by-product, and the use of hydropower.

Anticipated Impacts and Mitigative Measures
The proposed project on the adjoining land will be developing a new irrigation source through an on-site non-potable well. Provisions will be made for temporary irrigation during the restoration period. The landscaping plan will incorporate a low-intensity water use design, allowing for the entire landscaped area to be adequately supplied by the new development.
3.15 CUMULATIVE IMPACTS

Cumulative and interrelated impacts are those associated with existing, approved, and foreseeable future projects that may produce related or additive impacts. In the case of the planned improvement to the Conservation District, the only anticipated impacts that may fit into these categories relate to plans for the development of the Ocean Bay Plantation at Hanamā‘ulu project. The goals and plans for this new residential and golf development are briefly summarized in Section 2.4.4.

As noted in this section, the proposed coastal renaturalization project will be compatible and complementary to the overall landscaping plans of the master planned development. Both projects emphasize the importance of maintaining and protecting the area’s coastal resources. As such, with respect to the nearby public and private amenities (Hanamā‘ulu Beach Park and the Radisson Hotel), the coastal renaturalization project will enhance the overall visual quality of the coastal area, thereby providing a scenic benefit (i.e., positive impact) for the region.
Section 4.0
Alternatives to the Proposed Action
4.0 ALTERNATIVES TO THE PROPOSED ACTION

This Environmental Assessment evaluates three alternatives to the proposed project as described in Section 2.0. The alternatives include:

- No Action Alternative
- Alternative Uses for the Site
- Alternative Site Configurations

4.1 NO ACTION ALTERNATIVE

The project area once served as a buffer zone between the ocean and near-shore agricultural areas. The planting of non-native ironwood trees served to protect the inland areas used for sugarcane production from salt spray emanating from ocean waves breaking along the coastal edge of the project area. Since the closure of the Lihu'e Plantation, these lands are no longer being maintained on a regular basis.

The No-Action alternative would maintain the site as a conservation strip. However, the existing conditions would not be improved, thereby allowing for overgrowth, soil degradation and erosion, and the infestation of vermin to continue. Public safety and health issues can become a concern if conditions within the project area continue to deteriorate.

4.2 ALTERNATIVE USES FOR THE SITE

Under State Land Use classification, the project area is designated as a Conservation district. However, the designated Conservation district currently does not have a subzone designation, as pursuant to the Hawaii Administrative Rules, Title 13, Chapter 5 provisions and guidelines. Existing subzone classification of the surrounding north and south boundaries of the project site are classified as Limited (L) subzone. Currently, an application has been filed to designate the project area as Limited (L), to create a consistent designation with the Department of Land and Natural Resources.

As a Conservation District, land use is regulated for the purpose of conserving, protecting, and preserving important natural resources. Assuming the approval of the subzone designation for the area to be "Limited," uses within the "Limited" subzone encompass specified activities approved for its own designation as well as approved activities within the more stringent "Protective" subzone (Table 4-1). The proposed coastal renaturalization plan adheres to the appropriate and regulatory use for the Conservation District. No other alternative uses are being considered at this time.
<table>
<thead>
<tr>
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<tr>
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<td>Uses in Protective Subzone</td>
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<tr>
<td>Erosion Control</td>
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<tr>
<td>Seawalls and Shoreline Protection</td>
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<td>Single Family Residence</td>
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</table>

Source: Hawaii Administrative Rules, Title 13, Subtitle 1, Chapter 5 Conservation District

### 4.3 ALTERNATIVE SITE CONFIGURATIONS

The preferred landscaping site plan calls for a selective removal and trimming of trees and shrubs that present the greatest concern to maintain a healthy natural habitat. A comprehensive inventory of the existing condition on the 29 acres of Conservation land has been completed. After consulting with qualified experts, recommendations were made as to which areas within the project site would require the most work yielding the best results in terms of maintaining ecological balance and visual quality. Any site configurations may alter which trees are selected for removal. However, the overall concept of implementing a coastal renaturalization plan as a ecological approach would not change.
Section 5.0

Required Permits and Approvals
5.0 REQUIRED PERMITS AND APPROVALS

This section discusses the necessary approvals and permits required for the proposed project from governmental agencies, boards or commissions or other similar groups having jurisdiction, and the status of each identified approval.

5.1 STATE LAND USE DISTRICT BOUNDARIES

The State of Hawai‘i Land Use Law regulates the classification and uses of lands in the State to accommodate growth and development, and to retain the natural resources of the area. The State Land Use Commission classifies all State lands with consideration given to the General Plan of the County, as Urban, Rural, Agricultural, or Conservation. The project site is within the Conservation District and requires no action by the State Land Use Commission.

5.2 KAUA‘I COUNTY GENERAL PLAN

The Kaua‘i County General Plan is the primary policy governing long-range and comprehensive development, use and allocation of land within the County. The General Plan identifies areas, which are intended to improve the physical environment of the County and the health, safety, and general welfare of the island community. The location of specific uses and development is organized by the Development Plans and regulated by the Comprehensive Zoning Ordinance.

As discussed in Section 3.0, the General Plan designation for the project site is Open Lands. The Open designation includes lands within the State Conservation District and is intended to preserve coastal bluffs, sandy beaches, and other natural features. The project is consistent with the General Plan designation and requires no action by the County of Kaua‘i.

5.3 LIHU‘E REGIONAL DEVELOPMENT PLAN

The Lihue Regional Development Plan, which is codified in the Kaua‘i County Code, 1987 as Chapter 10, Article 5, provides detailed plans for administrative purposes and assists the Planning Department and Planning Commission to implement the County’s General Plan. Adopted in 1977, it serves as a guideline for specific improvements and provides orderly direction for this region’s future growth within the framework of the General Plan.

The Development Plan designation for the project area is Open. As stated in the Plan, open land is designated as such because “it is desirable for physical or social reasons.” The project is consistent with the Open designation and requires no action by the County of Kaua‘i.
5.4 COUNTY OF KAUA'I SPECIAL MANAGEMENT AREA

It is the policy of the County of Kaua‘i to preserve, protect, and to restore the natural resources of its coastal areas. The County’s Special Management Area (SMA) boundary is located along the coastal edge of the project area, as shown in Figure 5-1. The SMA designation places special controls on development within an area along the shoreline. These controls are necessary to avoid permanent loss of valuable resources and to insure that adequate public access is provided to public owned or used beaches, recreation areas, and natural reserves. Issuance of a major or minor permit is necessary if it is determined that a proposed use can be defined as “development.”

Under the Hawai‘i Revised Statutes, Chapter 205A, and the County of Kaua‘i Special Management Area Rules and Regulations, the proposed landscaping activity will require a SMA minor permit (administrative). The proposed landscaping project will be part of a larger project, whose cumulative impact may have an effect on the SMA. A project-wide SMA permit will be sought at an appropriate time in the future.

5.5 COUNTY OF KAUA‘I ZONING DISTRICTS

The purpose of the Comprehensive Zoning Ordinance (CZO) for the County of Kaua‘i is to implement the General Plan and Regional Development Plans’ policies for growth and development. The zoning designation within the project area is Open and Special Treatment-Scenic Ecological (ST-R) and requires no zoning action.

The Special Treatment designation is intended to guide the development of County areas that because of their unique or critical cultural, physical, or locational characteristics, they have particular significance or value to the general public. The Scenic/ Ecological Resources sub-designation includes lands and water areas, which have unique natural forms, biological systems, or aesthetic characteristics which are of particular significance to the general public.

The purpose of the Open Designation of the CZO is to preserve, maintain, and improve those characteristics of land and water areas that are (1) of significant value to the public as scenic or recreational resources, (2) important to the overall structure and organization of urban areas and which provide accessible and usable open areas for recreation or aesthetic purposes, and (3) necessary to buffer the public and places of residence from undesirable environmental factors caused by particular uses such as noise and dust.
Ocean Bay Plantation
at Hanamaulu

Coastal Renaturalization Plan
Final Environmental Assessment

FIGURE 5-1 SMA BOUNDARY
5.6 APPROVALS AND PERMITS REQUIRED

The following is a list of the approvals and permits required for the development and implementation of the Ocean Bay Plantation at Hanamā'ulu Landscaping Plan.

- State of Hawai'i, DLNR acceptance of Conservation District Subzone Designation application, whereby changing non-designation to Limited (L) subzone.

- Completion of the Chapter 343, HRS environmental review process, which is required for use of any land classified as Conservation District by state law.

- State of Hawai'i, DLNR issuance of a Board Permit, for acceptable identified land use activities (landscaping) within the Limited (L) subzone of the Conservation District.

- State of Hawai'i, DLNR approval for Conservation District Use Permit application for Landscaping.

- County of Kaua'i, Special Management Area (SMA) minor use permit (administrative).
Section 6.0
Consulted Parties
6.0 CONSULTED PARTIES

The following agencies and organizations were contacted during the preparation of the Draft Environmental Assessment (EA) and/or received a copy for review and provided comment for the proposed Ocean Bay Plantation at Hanamāʻulu Coastal Renaturalization Plan. A copy of comment and response letters are included in this Section.

<table>
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<tr>
<th>Agency/Organization</th>
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<th>Draft EA Comments Received</th>
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Ocean Bay Plantation
at Hanamā'ulu

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**County of Kaua'i**

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**Organizations & Other Interests**

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<td>The Garden Isle Newspaper, Editor</td>
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Ocean Bay Plantation at Hanamāʻulu
Coastal Renaturalization Plan

Draft Environmental Assessment
Comment and Response Letters
Group 70 International
December 17, 2001
Page (3)

B. 3.4 SURFACE WATER, FLOODING, AND DRAINAGE

1. Existing Conditions:
   a. There is also an additional drainage way in the vicinity of the former
      hardwood area that drains the area makua of Kuhio Highway. The
      natural drainage way between Kuhio Highway and the Pacific
      Ocean needs to be maintained.
   b. The Federal Insurance Rate Map panel no. 140C dated March 4,
      1987 is the current flood map. The current Federal Insurance
      Rate Map (FIRM) is Panel no. 140D dated September 30, 1995.
      The revised flood map did not revise the flood elevations along the
      coastal reaches. Our flood plain management Ordinance No. 810
      prohibits manmade alteration within the Coastal High Hazard Flood
      Zone (VE flood zones). We interpret this to mean that fills are
      prohibited in the VE flood zone designations. We request
      reviewing and approving your coastal renaturalization plan before
      work commences so that fills are not made in the coastal high
      hazard area.
   c. There are other areas that are susceptible to flooding and are
      designated as zone AE with Base Flood Elevations 9 ft. MSL and
      10 ft. MSL and zone X-unshaded. AE flood zones should be
      treated similarly as VE flood zones in regards to filling.

Thank you for this opportunity to provide our comments. Should you have any questions
please feel free to contact Mr. Wallace Kudos of my staff at (808) 241-6650.

Very truly yours,

[Signature]

Cesar C. Portugal
County Engineer
February 12, 2002

Mr. Cesar C. Portugal, County Engineer
Department of Public Works
County of Kauai
4444 Rice Street
Lihue, Kauai, HI 96766

Subject: Ocean Bay Plantation at Hanamaulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 6-3-7-03, par. 1

Dear Mr. Portugal:

Thank you for your letter of December 17, 2002 regarding the Draft Environmental Assessment (DEA) for the above-referenced project. We have prepared the following responses to your comments for consideration in the Final EA.

The applicant proposes to implement appropriate dust controls and erosion controls in the vegetation removal and replanting program. There are no plans to conduct grading in the Conservation District. Limited tree stump removal is proposed, following authorized procedures to minimize soil disruption.

Existing drainage ways on the property will be retained to retain the surface runoff pathways, including the land receiving runoff from areas near the Hanamaulu Highway. No fill activity is proposed in these areas and the Conservation District, therefore, we anticipate no impact to flood zones and high hazard areas.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 78 INTERNATIONAL, INC.

Jeffrey H. Overson, AICP
Chief Environmental Planner

---

December 17, 2001

Mr. Dee Crowley, Director
Planning Department
County of Kauai
4444 Rice Street, Suite 473
Lihue, Hawaii 96766

Attn: Keith Neita

Subject: Draft Environmental Assessment (DEA)
Ocean Bay Plantation at Hanamaulu Landscaping Plan
Hanamaulu, Kauai
TMK: 6-3-7-03, par. 1

We have reviewed the subject DEA and confirm that the project site, as represented on Figure 3-3, is located within the boundary of the State Land Use Conservation District. We also confirm that the project site was reclassified from the Urban District to the Conservation District under LUC Docket No. 8791-214/Office of State Planning to protect the area’s scenic coastal resources. To the extent that the project will involve the selective removal of ironwood trees and the replanting of appropriate species of both native and non-native vegetation "...that promotes and preserves the present on-site view planes," the project appears to be consistent with the intent of the reclassification.

We would like to point out that the legend in Figure 3-3 mistakenly refers to the Agricultural District as the "Agriculture" District. The legend should be corrected in the Final EA.
We have no further comments to offer at this time. Thank you for the opportunity to comment on the DEA. Please feel free to contact Bert Sato while at my office at (808) 587-3822 should you require clarification or any further assistance.

Sincerely,

Anthony M. Ching
Executive Officer

Office of Environmental Quality Control
Jeff Overton, Group 70 International, Inc.

February 12, 2002

Mr. Anthony H. Ching, Executive Officer
State of Hawaii
Department of Business, Economic Development, and Tourism
Land Use Commission
P.O. Box 2259
Honolulu, HI 96804-2259

Subject: Ocean Bay Plantation at Hanualulu
Coastal Reclamation Plan
Draft Environmental Assessment
TKR-4373-03, p. 1

Dear Mr. Ching:

Thank you for your letter of December 17, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the Final EA.

We appreciate your clarification of our Figure 3-3 legend noting the State Agricultural District.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP
Chief Environmental Planner
February 12, 2002

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

Subject: Ocean Bay Plantation at Hanama'ulu  
Coastal Renaturalization Plan  
Draft Environmental Assessment  
TMLK-43-9-005, par. 1

Dear Ms. Salmonson:

Thank you for your letter of January 7, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the final EA:

1. Cultural Impact Assessment. The Draft EA addresses potential cultural impacts of the proposed coastal renaturalization plan, although no reports were included because they address a larger project. A Draft EA is in preparation for the master plan development of the adjoining 400 acres, which will include the cultural impact assessment and an archeological inventory study addressing the overall development. Copies of both reports were provided to SHPE and OHA during early January. The Final EA will include these reports. Coastal access will be provided through the property.

2. Cumulative Impact Assessment. The potential cumulative impacts of the proposed project and other known projects for the region will be addressed in the Final EA. The shoreline setback requirement for structures will be addressed in the overall master plan EIS. No structures are proposed in the conservation district area as part of the coastal renaturalization plan.

3. Wetlands. There are very few wetland areas on this project that lie within the Conservation District, where the coastal renaturalization plan will be implemented. Further, the DEIS will discuss mitigation relating to the wetlands.

4. Burials. The PERH study found no human remains present on the site.

Sincerely,

Genevieve Salmonson  
Director

[Signature]
Letter to Ms. Gervasio Salomonson, Director
Office of Environmental Quality Control
January 21, 2002
Page 2 of 2

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

J. Overton, AICP
Chief Environmental Planner

GROUP 70 INTERNATIONAL, INC.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
PE-300-521
MAUNA LOA BUILDING

January 15, 2002

Ref.: OCEANBAYSPROJ.RMN

Group 70 International, Inc
Jeffery R. K. Overton, AICP
925 Bethel Street, Fifth Floor
HONOLULU, HAWAII 96813-6197

Dear Mr. Overton:

SUBJECT: Review

Applicant: Group 70 International, Inc., for ERM Hawaii, Inc.
Project: Landscaping Plan for Ocean Bay Plantation at
Kaneohe (Coastal Re-Naturalization Plan)
Location: Island of Oahu, Hawaii
Tax Map Key: 3-1-3: 11, 2-3-5: 5

Thank you for the opportunity to review and comment on the Draft Environmental Assessment covering the proposed Coastal Re-Naturalization Plan for Ocean Bay Plantation at Kaneohe.

A copy of the Draft Environmental Assessment was submitted to the following Department of Land and Natural Resources' Divisions for their review and comments:

- Division of Forestry and Wildlife
- Land Division Planning & Technical Services
- Land Division Maui District Land Office

The Department of Land and Natural Resources has no comments to offer on the subject matter.

Should you have any questions, please feel free to contact Nick Vaccaro of the Land Division Support Services Branch at 1-808-587-0498.

Very truly yours,

MARK M. YADA
Acting Administrator

cc: Maui District Land Office
February 12, 2002

Mr. Harry M. Yada, Acting Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Land Division  
P.O. Box 621  
Honolulu, HI 96809

Subject: Ocean Bay Plantation at Hanama'ulu  
Coastal Renaturalization Plan  
Draft Environmental Assessment  
TMSK 4-3-7-03, por. 1

Dear Mr. Yada:

Thank you for your letter of January 15, 2002 regarding the review of the Draft Environmental Assessment (D EA) for the above-referenced project. We have proposed the following responses to your specific comments for consideration in the Final EA.

We appreciate you circulating the document to the various DLNR divisions for comment, and we look forward to coordinating closely with DLNR during the project planning and development process.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Chief Environmental Planner

---

January 8, 2002

Ref. No. P-9329

Mr. Dee M. Crowell, Director  
Planning Department  
County of Kauai  
4444 Rice Street, Suite 473  
Lihue, Hawaii 96766

Attn: Mr. Keith Nita

Subject: Ocean Bay Plantation, Hanama'ulu, Kauai  
Tax Map Key: 4-3-7-3: 1 and 4-3-9-5: 5

Dear Mr. Crowell:

The Office of Planning has reviewed the Landscaping Plan - Environmental Assessment (EA) for landscape work along the coastal area of a proposed mixed-use residential and golf course community at Hanama'ulu, Kauai. The project is being proposed by EWM Kauai, LLC, the property owners.

The proposed project area is an approximately 29-acre strip of land that includes the northern rim of Hanama'ulu Bay and goes around to the north for approximately half a mile. The strip varies between 100 and 200 feet in width. This property is in the State's Conservation District and is zoned Open (O) and Open: Special Treatment Ecological (0.5T-R) by the County of Kauai.

The project involves clearing, pruning and grubbing of trees, shrubs and grasses based upon several criteria listed on pages 2 to 3 and upon a tree inventory and survey. These pictures show mature trees and plants. However, the EA does not provide information as to whether mature trees will be planted as replacements or whether smaller less mature trees will be planted.
To assure the full implementation/completion of the landscaping plan, we recommend the following:

1. A bond should be provided in the event that the project is not fully implemented and soil runoff/erosion causes damage. The bond could also be used to complete the landscaping in such a situation.

2. A monitoring plan be set up with the county (with picture reports or on-site visits) to assure that revegetation is taking place according to a defined schedule.

The EA mentions a proposal to place the property in the Limited Subzone which allows single family residences. The property was reclassified to the Conservation District because of its scenic and open space values. The development of structures on the property would not be consistent with this intent.

Finally, the application states that the area will be continuously maintained, but it is not clear if the area will be irrigated. The application says xeriscaping principles will be used in the restoration of the area so that water requirements are close to the natural precipitation rates, but the application also states that the adjacent proposed community will use treated effluent and an on-site non-potable well for irrigation. It would be helpful to know what happens to the 29-acre coastal strip if it does not receive its customary amount of rainfall. Would the coastal area be irrigated, and would it be irrigated by non-potable or potable source?

Thank you for the opportunity to comment. Should you have any questions, please call Heidi Merker at 387-3502.

Sincerely,

[Signature]

David W. Blaise, AICP
Director
Office of Planning

Subject:
Ocean Bay Plantation at Hanalei
Coastal Remanualization Plan
Draft Environmental Assessment
TMRK 4-3-7-01, part 1

Dear Mr. Blaise:

Thank you for your letter of January 8, 2002 regarding the Draft Environmental Assessment (DEA) for the above-referenced project. We have prepared the following responses to your comments for consideration in the Final EA.

The recommendations for implementation of the coastal remanualization plan are appreciated. Contractors performing the work will be bonded to ensure project completion consistent with mitigation requirements. The project will be monitored closely with regular reports made to the DLNR and County.

This property is located within the Conservation District. However, there is no subzone designation for the subject property, which is required. Designating the subject property as "Limited" would remain consistent with the existing subzone areas on both sides of the project area.

No structures are planned for development in the conservation district portion of the property. The coastal remineralization plan is intended to enhance the scenic and open space values, which are currently diminished by the extensive dead trees, diseased trees, tree lice, and exotic species invasion.

There will be provisions made for temporary irrigation during the plant establishment period. The on-site non-potable well will be used as an irrigation source for the coastal plantings.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP20 INTERNATIONAL, INC.
Jeffrey H. Overton, AICP
Chief Environmental Planner
Mr. Jeffrey H. Overton, AICP  
January 16, 2002  

4. Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells;  
5. Cover or stabilize topsoil stockpiles;  
6. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain;  
7. On long or steep slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff;  
8. Protect areas that provide important water quality benefits and/or are environmentally sensitive ecosystems;  
9. Protect water bodies and natural drainage systems by establishing streamside buffers;  
10. Minimize the amount of construction time spent in any stream bed;  
11. Properly dispose of sediment and debris from construction activities; and  
12. Replant or cover bare areas as soon as grading or construction is completed. New plantings will require soil amendments, fertilizers and temporary irrigation to become established. Use high planting and/or seeding rates to ensure rapid establishment. Use seeding and mulching. Sodding is an alternative.

The following practices are suggested to remove solids and associated pollutants in runoff during and after heavy rains and/or wind:  
1. Sediment basins;  
2. Sediment traps;  
3. Fabric filter fences;  
4. Straw bale barriers; and  
5. Vegetative filter strips.

Any questions regarding these matters should be directed to the Polluted Runoff Control Program in the Clean Water Branch at 586-4309.

Sincerely,

GARY GILL  
Deputy Director  
Environmental Health Administration
February 12, 2002

Mr. Gary Gill, Deputy Director
State of Hawaii
Department of Health
P.O. Box 3370
Hilo, HI 96720

Subject: Ocean Bay Plantation at Hanamā’ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TNR-4-3-7-03-04, par. 1

Dear Mr. Gill,

Thank you for your letter of January 16, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the Final EA.

We received the construction mitigation recommendations provided by the Clean Water Branch. Practices to minimize erosion and control polluted runoff will be implemented as specified under the Erosion Control Plan prepared by the consulting civil engineers. We are providing them with the information you indicated from the Nonpoint Source Control Plan. Approval of the Erosion Control Plan will be part of the County of Kauai Grading Permit conditions, and the NPDES permit.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

[Signature]
Jeffrey H. Ovorton, AICP
Chief Environmental Planner

January 22, 2002

Planning Department
County of Kauai
Attn: Mr. Keith Nitta
4444 Rice Street, #473
Lihue, HI 96766

Dear Mr. Nitta:

Subject: Draft Environmental Assessment for the Ocean Bay Plantation at Hanamā’ulu
Landscaping Plan, TNR: 4-3-7-03-01, 4-3-9-05-01

The Department of Water’s comments are as follows:

We have no objections to this draft Environmental Assessment. However, the applicant is made aware that any actual subdivision or development will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

The applicant is made aware that the lots are located out of the Department’s service area as defined in the Department’s General Plan for Domestic Water.

If you have any questions, please contact Mr. Keith Askini at 245-5418.

Sincerely,

Ernest Y. W. Lau
Manager & Chief Engineer

cc: Group 70 International, Inc.
February 12, 2002

Mr. Ernest Y.W. Lau, Manager & Chief Engineer
Department of Water
County of Kauai
P.O. Box 1706
Lihue, Kauai, HI 96766-5706

Subject: Ocean Bay Plantation at Hanamakolu
Coastal Renaturalization Plan
Draft Environmental Assessment
TRMC 8-3-93-03, pkg. 1

Dear Mr. Lau:

Thank you for your letter of January 22, 2002 regarding the Draft Environmental Assessment (EA) for the above referenced project. We have prepared the following responses to your comments for consideration in the Final EA.

The applicant is aware that any actual subdivision or development will be dependent on the adequacy of the source, storage and transmission facilities existing at that time. Further, we note your comment that the subject properties are located out of the Department's service area as defined in the Department's General Plan for Domestic Water.

For the purposes of the subject project to restore the natural vegetation along the shoreline area, the applicant intends to utilize non-potable water from an on-site well for irrigation purposes. There should be no effect on Department facilities as a result of the proposed activity.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP
Chief Environmental Planner
Section 7.0

Findings and Reasons Supporting Anticipated Determination
7.0 FINDINGS AND REASONS SUPPORTING ANTICIPATED DETERMINATION

7.1 ANTICIPATED DETERMINATION

In accordance with the Hawai‘i Revised Statutes, Chapter 243 and Hawai‘i Administrative Rules, Section 11-200-12, an applicant or agency must determine whether an action may have a significant impact on the environment. According to Section 11-200-12, an action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

- **Involve an irrevocable loss or destruction of any natural or cultural resources.**

The proposed project does not involve any known destruction of existing natural or cultural resources. The project is located in the State of Hawai‘i Land Use Conservation District and new development is planned for the relatively level areas near the adjacent residential area. Known historic sites have been identified and documented with no further work required. If during the course of construction any cultural or archaeological remnants are unearthed, the Historic Preservation Division of the State Department of Land and Natural Resources will immediately be notified, and their treatment will be conducted in strict compliance with SHPD requirements.

- **Curtail the range of beneficial uses of the environment.**

The proposed development is located in the State of Hawai‘i Land Use Conservation District but it will not cause substantial adverse impact on the natural environment. The site improvements constitute a very limited encroachment on the conservation area and they are designed to blend in with the natural area. In addition, the use will be compatible with the surrounding locality.

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

The proposed project is consistent with the environmental policies established in Chapter 344, Hawai‘i Revised Statutes. Expanded landscaping will increase the number of native plant species, thereby contributing to maintaining and improving the existing natural habitats within the project area.
• Substantially affects the economic or social welfare of the community or State.

Landscape work will generate indirect and induced employment opportunities and multiplier effects, but not at a level that would generate any significant expansion. The short-term employment impacts will be beneficial to the local economy.

• Substantially affects public health.

The project does not substantially affect public health. The long-term benefits associated with the project outweigh the temporary impacts to air and noise levels.

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

Improvements to the project area serve to maintain and protect its natural and scenic resources. No new facilities or structures are planned within the project area. The project will maintain and improve public access to the shoreline areas.

• Involves a substantial degradation of environmental quality.

It is anticipated that the proposed project will not involve a substantial degradation of environmental quality. To the contrary, the proposed development will significantly enhance an area that is now characterized as overgrown and cluttered. The proposed project is designed to have a minimal impact upon the Conservation District. Appropriate landscaping design will allow the new plantings to blend into the natural environment.

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

No plan or schedule currently exists for further development within the conservation area. The proposed project will be implemented as part of the overall future development of the area.

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

Landscaping development of the project area will provide new landscaped areas, trees and plantings that may serve as habitat for area wildlife. It is expected that during segments of selective removal of certain trees, birds that frequent the landscaped edge of the site will temporarily move to nearby undisturbed areas and will return when disturbances cease.
Detrimentally affects air or water quality or ambient noise levels;

Short-term effects on air, water quality or ambient noise levels during the landscaping activity will be mitigated by compliance with the County of Kaua'i and State Department of Health rules, which regulate construction-related activities. After development, improvements to the site and related infrastructure should have no significant impacts on air and water quality, and on ambient noise levels.

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

Improvements to the project include the removal of damaged, dying, and dead trees, and overgrown areas that are considered a safety threat, or pose a fire hazard. Measures will be taken to minimize soil erosion that may occur from removal of tree stumps.

Substantially affects scenic vistas and view-planes identified in county or state plans or studies.

The proposed landscaping activity is designed to improve existing scenic vistas and view corridors.

Require substantial energy consumption.

The use of various landscaping tools and equipment will not consume substantial sources of energy. As a relatively small project, energy consumption during the work activity will be low.

7.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

As stated above, there are no significant environmental impacts expected to result from the proposed action. A Finding of No Significant Impact (FONSI) is anticipated. The improvements to the conservation area are consistent with the regulated uses within the "Limited" sub-zone designation. The coastal renaturalization plan will be beneficial by providing an opportunity of restoring an ecological balance to the area's natural habitat while enhancing the scenic quality of the area, thereby creating a greater public good.
Ocean Bay Plantation
at Hanamā'ulu

Coastal Renaturalization Plan
Final Environmental Assessment

8.0 REFERENCES


Ocean Bay Plantation
at Hanamā'ulu

Coastal Renaturalization Plan
Final Environmental Assessment

Land Study Bureau (1967). Detailed Land Classification- Island of Kaua'i. Honolulu: University of Hawai'i.


APPENDIX A

Archaeological Inventory Survey-Ocean Bay Plantation at Hanamāʻulu, Land of Hanamāʻulu, Līhuʻe District, Island of Kauaʻi

PHRI, Inc.

September 2001
Archaeological Inventory Survey
Ocean Bay Plantation at Hanamāʻulu

Land of Hanamāʻulu, Lihuʻe District
Island of Kauaʻi
ARCHAEOLOGICAL INVENTORY SURVEY
OCEAN BAY PLANTATION AT HANAMĀ'ULU

LAND OF HANAMĀ'ULU, LIHU'E DISTRICT
ISLAND OF KAU'A'I (TMK: 4-3-7-3:1:4-3-9-5:5)

BY

Harry D. Cohen, M.A. • Supervisor, Archaeologist

WITH

Amy F. Walker, B.A. • Supervisor, Archaeologist
Lihua Kalima, B.A. • Historical Researcher
Helen Wong-Sweat, B.A. • Historical Researcher
St. Quinton, Ph.D. • Laboratory Director

PREPARED FOR

JAMM (Hawaii, Inc.)
300 Hualalai Street
Suite 200
Honolulu, Hawaii 96813

FEBRUARY 2002

PHRI

Paul H. Rosendahl, Ph.D., Inc.
Archaeological - Historical - Cultural Resource Management Studies & Services

SUMMARY

Paul H. Rosendahl, Ph.D., Inc. (PHRI) recently completed an archaeological inventory survey of the approximately 460-acre Ocean Bay Plantation at Hanamā'ulu site, located in the Land of Hanamā'ulu, Lihu'e District, Island of Kaua'i (TMK: 4-3-7-3:1:4-3-9-5:5). The work was done at the request of Mr. Jeff Oates of Group 70 International, representing EWM Kaua'i, LLC. The basic objective of the project was to provide information sufficient for (A) preparation of an Environmental Impact Statement (EIS) for the proposed development of the project site, and (B) compliance with the historic preservation regulatory review requirements of the Hawai'i State Historic Preservation Division (SHPD) and the County of Kaua'i.

The current report is an updated version of an earlier PHRI report (Walker et al. 1991). The current project area had been previously surveyed in 1990 by PHRI for an Environmental Impact Statement that was to be prepared in connection with AMFAC/MBM Hawaii, Inc.'s Lihu'e Forest/Hanamā'ulu Master Plan Project. That inventory survey included virtually the entire current project area. The Walker et al. (1991) report was completed but never submitted to SHPD for formal review. PHRI consulted with Dr. Ross Condy, SHPD Archaeology Branch Chief, regarding the prior field survey and report, and in consultation with Dr. Condy formulated the specific tasks needed to upgrade the prior report and survey. PHRI then proceeded with the required fieldwork and upgraded the report to its current state.

Four site complexes and six single-feature sites were identified in or near the vicinity of the project area. The sites and complexes were composed of a variety of formal and informal types. The most common feature types are bridges (2), cultural deposits (2), and cemeteries (1 and possibly 2). Other feature types in the area include concrete foundations, a retaining wall, and a terrace. Transportation constituted one-quarter of the functional site types. This function is almost certainly connected to the sugar cane production and distribution that took place in the area. Temporarily and possible permanent habitation constituted one-half of the functional types. These relate to the geohistoric use of the project area for habitation at the coast, dormitory for the procurement of marine resources.

Two test excavations, totaling 0.75 sq m in surface area, were dug within the project area at Sites 1839 (Feature B) and 1480. In addition to the test units, two bulk soil excavation samples were collected from Site 1838, and a sample of mammal bone and diagnostic historic artifacts was collected from the surface of Site 1843.

Of the ten sites identified, six are assessed as significant under Criteria D only (important for information content) are recommended for no further work (Sites 1838, 1839, 1840, 1841, 1843, 2066). One site (Site 1810), a historic concrete railroad bridge, is assessed as significant under multiple criteria (A, C, D). Further data collection followed by preservation with some level of interpretive development is recommended for the site. Another concrete bridge site (Site 1846) is assessed as significant under Criteria A and D and is recommended for further data recovery in the form of limited historical research. Site 2066, a complex with an upright, is recommended for further data recovery in the form of limited historical research and possible preservation. Site 2067, a historic cemetery located outside the current project area, is recommended for preservation "as is."
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Table 1. Correlation of SHP Set Numbers with Phase Temporary Field Numbers 9
INTRODUCTION

BACKGROUND

Paul H. Rosenfeld, Ph.D., Inc. (PHRI) recently completed an archaeological inventory survey of the approximately 460-acre Ocean Bay Plantation at Hanamalu site, located in the Land of Hanamalu site, Lihue’s District, Island of Kauai (TMK 4-3-7.1), 4-3-9-5.13 (Figure 1). The work was done at the request of Mr. Jeff D. Bonham of Group 79 International, representing SWM Kauai, LLC. The basic objective of the project was to provide information sufficient for (a) preparation of an Environmental Impact Statement (EIS) for the proposed development of the project site, and (b) compliance with the historic preservation regulatory review requirements of the Hawai‘i State Historic Preservation Division (SHPD) and the County of Kauai.

SCOPE OF WORK

The level of archaeological investigation generally conducted in conjunction with the preparation of an EIS is referred to as an inventory survey. The basic purpose of an inventory survey is to identify all sites and features of potential archaeological significance present within a specified project area. An inventory survey generally completes the initial level of archaeological investigation, and is conducted to determine the presence or absence of archaeological resources. It indicates the general nature and variety of archaeological remains present, and the general distribution and density of such remains. Finally, it permits a general assessment of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for any subsequent mitigation work (such as preservation, data recovery excavations, or construction monitoring) that might be necessary or appropriate.

The current project area had been previously surveyed in 1990 by PHRI for an Environmental Impact Statement that was to be prepared in connection with AMFAC/MB Hawaii, Inc.’s Lihue’o’Pali/Hanamalu Master Plan Project. That inventory survey included virtually the entire current project site. The report for the earlier survey (Wacker et al. 1991) was completed but was never submitted to SHPD for formal review. Prior to the fieldwork for the current project PHRI consulted with Dr. Ron Cordy, SHPD Archaeology Branch Chief, regarding our prior field survey and report, and the specific tasks and level-of-effort needed to upgrade the prior survey to current SHPD review standards.

The specific objectives of the 1990 survey were fourfold: (a) to identify all potentially significant archaeological remains present within the parcel; (b) to collect information sufficient to evaluate and document the potential significance of all identified remains; (c) to evaluate the potential impacts of any proposed development upon any identified significant remains; and (d) to recommend appropriate measures that would mitigate any adverse impacts upon identified significant remains.

The following are the specific tasks for the current work. They were formulated based on consultation with Dr. Cordy, a review of prior archaeological survey work done in the general area, information derived from the 1990 inventory survey, and our familiarity with both the general project area and the current regulatory review requirements of the SHPD.

Figure 1. Project Area and Site Locations
PROJECT AREA DESCRIPTION

The project area consists of 460 acres and is located in the Land of Ho'omaluhia (Figure 2). It is bordered on the south by Ho'omaluhia Road; on the east by the Pacific Ocean; on the west by the Ho'omaluhia-Makaha cut-off road and Kaulu Highway; and on the north by Koko Beach Road. The project area has, in the past, been subjected to sugar cane cultivation, but is abandoned at the present time. EWA (Kauai, LLC) intends to develop the property as a mixed-use residential and golf course community. This low-density mixed-planned community will include large open spaces (to preserve the estate's tranquil setting), open space, and water-related resources, and will maintain the open space character and sense of place of the surrounding area.

The terrain within most of the project area is generally level and consists of four classifications of soil: Lahiana solid clay (0-15% slope), Lahiana gravelly silt (0-15% slope), Koko solid silt (15-25% slope), and Koko gravelly silt (0-15% slope). These soils are present immediately inland of the coastline. They developed in material weathered from basic igneous rock and are underlain by bedrock (Foote et al. 1972). Vegetation in the immediate coastal and the coastal cliffs at the northeast corner of the project area, adjacent to the beach access road, consists predominantly of introduced Casuarina equisetifolia L. and Phyllostachis edulis (Casuarina sargentii Walt) grasses, and tree heliotrope (Hibiscus syriacus L. & A. van. argenteum Goyr). There are three classifications of soil present within the immediate coastal zone: Kauai broken land, rock outcrop, and Beaches (Foote et al. 1972). The rock outcrop land consists of exposed basalt and andesite bedrock, which covers more than 90% of the surface (Foote et al. 1972). Within the southern half of the project area, the lands classified as Beaches are comprised solely of basalt cobbles and bedrock areas that are constantly awash with waves. Present within the coastal cliffs at the northeast corner of the project area are three classifications of soil: Makaha fine sandy loam, Lahiana gravelly silt (0-15% slope), and Beaches (Foote et al. 1972). Within the coastal cliffs, the land classified as Beaches is composed of ligh-colored sands derived from coral and shell debris.

Because the section of land inland of the Kauai Beach Resort Hotel is a low-lying drainage area, sometimes containing standing water, vegetation in this area includes various grasses, sedges, grasses, and herbs. Present within this area are three classifications of soil: Makaha clay loam (sparsely densified variant), Lahiana silt loam (50-60% slope), and Lahiana silt loam (0-25% slope) (Foote et al. 1972). According to Foote et al., Lahiana series soils are used for taro, passion, sugar cane, and vegetable crops. Lahiana silt loam (0-2% slope) specifically "...occurs on stream terraces and flood plains" (Foote et al. 1972:38).

The area inland of the county park lands appears to have been modified sometime in the past, as evidenced by the presence of secondary growth species such as fireweed and Indian Pochas (Phlox seed s.l. and L. Less.). Present within this area are four classifications of soil: Makaha clay loam (sparsely densified variant), Lahiana silt loam (50-60% slope), and Lahiana gravelly silt loam (0-15% slope), and Fill land (Foote et al. 1972). According to Foote et al., Fill Land "...consists of areas filled with material from dredging, excavations from adjacent uplands, garbage, and bagasse from sugar mills. Generally, these materials are dug and spread over number, low-lying areas along the coastal line, coral sand, coral limestone, or areas shallow to bedrock."

Rainfall in the general vicinity of the project area ranges between 40-50 inches per year, and the mean annual temperature in the project area varies from 70-75 degrees F (Abernethy 1953:63).

PREVIOUS ARCHAEOLOGICAL RESEARCH

In order to obtain the information necessary to compile this section on previous archaeological work in the project area, PHISI searched for relevant records and reports at the SHPD. According to SHPD records, the following reports were supposed to be present in the SHPD Library, but these could not be found despite assistance from the SHPD staff and a memo to SHPD staff Archaeologist for Kauai Nancy McNamara. This section was therefore written without the information from these reports:

Flors, K.X. 1985
Historical and Cultural Research at Maluaha, District of Punu, Island of Kauai, State of Hawaii.

Hammant, H. 2001
Archaeological Assessment of the Proposed Sandwich Island Communications Fiber Optic Cable Project within Approximately 51 Mile Road Corridor between Kekaha and Molokai.
In 1977, Archaeological Research Center Hawaii, Inc. (ARCI), provided consultant services and conducted salvage fieldwork during construction of a force main and effluent piping mains north of the clubhouse of the Waikunes Golf Course (Fox 1977). During the fieldwork, scattered human remains representing 13 burials were identified, most of which were on the western (makahana) side of acid dunes. Three of the burials were in an extended position, with the crania facing near or southeast, suggesting possible ceremonial significance. Following the investigation, the burials remains were left either in situ or were reinterred as near as possible to their original locations. Included in the report is osteological analysis of the remains and general comments regarding distribution. With the exception of historic burial items, no other cultural remains (artifacts or deposits) were identified.

According to local informants, burial remains previously identified north of the golf course clubhouse were usually of sparsely distributed single individuals. But burial remains previously identified south of the clubhouse (toward Hanamalu and the present project area) were often in groups or multiple individuals (Fox 1971:23). The burials of this type identified within the Waikunes Golf Course area are probably those referred to by Bennett (1995).

In 1995, Erickson and Welch (1995) encountered a burial during investigations of a sewer line trench extending from Knuts' Conventional Facility to Waikunes Golf Course. Informants stated that "hundreds of bones" were found during construction of the golf driving range in the early 1960s (cf. Fager and Spear 2000).

In 1994 Cultural Surveys Hawaii was contracted to conduct backhoe trenching in order to install a fiber optic cable from the edge of the sea to Kohala Highway, through the Waikunes Golf Course at Waikunes. During the excavations and subsequent screenings, several burials and disarticulated human remains were discovered. These consisted of (1) a single, disarticulated adult; (2) several disarticulated adult bones; and (3) disturbed and disarticulated bones scattered from the sand castings from the first original trench. These disturbed bones represented at least six individuals (three adults and three subadults) (Fager and Hamann 1994:13).

Numerous burials were recovered during renovation of the golf course irrigation system in 2000. Scientific Consultant Services encountered 44 prehistoric burials with an additional 40 isolated finds of isolated bones from previously disturbed burials. In addition, pre-contact artifacts, including two adzes, a协商, and a hammerstone were recovered, and historic artifacts such as glass and porcelain were also found (Fager and Spear 2000).

Given the archeological findings and cultural significance of the areas discussed above, Cultural Surveys of Hawaii in 2001 recommended mitigation in the form of a monitoring program in conjunction with construction of a proposed trail/park path through Lydgate State Park (Creed et al. 2001).

Cultural Surveys of Hawaii in 2001 monitored construction activities associated with the expansion of Waikunes Bridge. However, after four monitoring days it was evident that the original widening of the channel and subsequent construction of the bridge in 1948 had removed any cultural materials that may have once existed there (Pettinelli and Hamann 2001).

PHRI Archaeological Investigations

Between November 1985 and April 1989, PHRI conducted an archaeological inventory survey of the Grove Farm Leeward project area, located in the lands of Nualolo, Niulama, and He‘ili‘i, Leeward District. The survey resulted in identifying two sites (Kawasaki and 1995:23).

Kawasaki, C.Y.
1995
Archaeological Monitoring of the Kohala Highway Widening Project, Waikunes, Kawahili, Kauai.

Safford, R.
1993
The Mo'olelo Documents of Waikunes, Kauai.

Archaeological work conducted within or immediately adjacent to the present project area includes investigations by Thron (1907), Dickey (1916), Bennett (1915), Cox (1973), Kawasaki (1973), (Hinrey et al. 1993), (Kohler & Bannister 1990), (Kohler & Bannister 1990), Kawahila (1993), (Kohler & Patkem 1994), (Kohler & Patkem 2000), (Cox et al. 2001), and (Pettinelli & Hamann 2001).

In 1907 T.G. Thron compiled a list of heiau for the Island of Kauai (Thron 1907). Of the numerous heiau Thron recorded, two (Abaakun and Kukulua) were in the general vicinity of the present project area. Thron, however, did not mark the location of the heiau on a map and his descriptions are brief. Thron described Abakun Heiau as "a medium sized heiau; all destroyed" and Kukulua Heiau as "a large walled heiau that stood above the present mill; destroyed about 1835. Of po'okamaka stains" (Thron 1907:40).

In 1928-1929, while surveying sites for B.P. Bishop Museum, Bennett described Abakun (Ahakun) and Kukulua heiau and assigned them site numbers 101 and 102, respectively (Bennett 1931). In addition to repeating Thron's site descriptions, Bennett indicates that Abakun Heiau was once located "... near Ahakun Point on the bluff overlooking the sea" (Bennett 1931:125). Because Bennett (1931) indicates both heiau had been destroyed, it appears the sites may not have been relocated. During his survey, Bennett (1931) recorded one other site (Site 103,iane burials) in the immediate vicinity of the present project area. Bennett describes Site 103: "In the sand dunes that run along the shore half way between Hanamulu and Waikunes River are many burials" (125).

In 1949 Mrs. Rebecca Baskin recorded 36 petroglyphs figures on boulders stretching across the mouth of the Waikunes River (Dickey 1916:16). These boulders formed a Natural Historic Landmark in 1962. In 1972, Dr. Kohler and the Anthropology Club of Kauai's Community College surveyed the same area and relocated the petroglyphs, some of which had been stolen in 1948 (Kohler 1994:18). In 1991, the Division of Water Resources Management, Design Section contacted the SHPO to do surveys of the mouth of Waikunes and other Kauai's rivers in order to determine the presence of historic sites. During these surveys, none of the petroglyphs previously recorded were relocated, however, a boulder with petroglyph figures and a superimposed grinding facet, was identified and recorded (Kawasaki 1995:30).

In 1972, F.K. Wong of Archaeological Research Center Hawaii, conducted a survey near North Kohala Bay for the Kamehameha (Ching et al. 1975). This survey resulted in the examination of nine archeological features, including three gulpuus (Sites 9B (501), 1027 and 3028) and two irrigation ditches (Sires 3029 and 3030), and the remains of four taro fields (all are now components of the North Kohala Complex - SHPO Site 50-30-11.16)).

In 1972, Handy and Handy (1972) published an account of native Hawaiian agricultural practices. Handy and Handy speculate that because Hanamulu Stream gush, near the current project area, offers a suitable environment for horticultural agriculture, it may contain numerous terraced fields. Handy and Handy also surmise that the stream gushed was covered with a Y for wetland two cultivation and extended approximately two and a half miles inland (1972:425-426).
cemetery (Site 503), and a historic residence (Site 93909). Subsurface testing revealed no subsurface cultural deposits. An additional inventory in eight small areas of the project area also revealed no archaeological sites (Bleny et al. 1993). In late 1989 FBIR conducted an archaeological inventory survey of the approximately 66-acre proposed Hanamahu Ali`iMODEL housing project area. The parcel is centrally located between Hanamalu Stream gulch, Kohala Highway, and Hanamahu-Alien cut-off road. The basic objective of the survey was to provide information sufficient for the preparation of an Environmental Assessment (EA). The survey included variable-coverage surface and limited subsurface archaeological inventory survey. During the surface survey, the only cultural remains identified were isolated coral fragments. No structural features or cultural deposits were encountered. The subsurface survey entailed excavation of nine backhoe trenches. The trenches yielded no cultural matrices, buried pondfields, subsurface horizontal features, possible cultural remains, or datable materials of any kind. As a result of three negative findings, no further archaeological work was recommended (Walker and Rosenfield 1990).

In late 1990, FBIR conducted an archaeological field inspection and limited subsurface testing of the Kalapa Radio Station and Kalapa Road Improvement project area located on Kalapa Ridge in the Land of Hanamalu (Rosenfield 1990). During construction at the Radio Station site, previously unidentifiable human burial remains had been uncovered in a boulder mound, and the remains had been designated as Site 1827. DLNR-HPP/SHPO had been contacted and recovered portions of the burials.

The principal objective of the field inspection was to identify all sites present within the project area and to assess the potential significance of all identified archaeological remains, and to define the scope of any subsequent archaeological work. The specific purpose of the field inspection was to evaluate the potential for cultural remains within the project area. As a result of the inspection, no archaeological remains of any kind were identified, either within or immediately adjacent to the site. The field inspection of the Radio Station project area consisted of inspecting Site 1827 and the zone of disturbed burials and in situ burial remains previously identified by DLNR-HPP/SHPO. The purpose of the inspection was to determine if additional human burials were present and to make appropriate recommendations for further archaeological work. Because intact human burial remains had been found, there were still undisturbed areas within the project area suitable for burials, it was felt that there were probably additional burials in the area. It was also discovered that Site 1827 had originally functioned as a quarry or flake reduction area (Rosenfield 1990). Based on the findings of the field inspection, it was recommended that an alternative site be selected for the Radio Station project. Three alternative sites were later selected, and FBIR inspected these sites and conducted backhoe testing at two of the sites. Because one of the alternative sites (Alternate Site 1) was located a portion of Site 1827, it was not tested. No possible remains or human burials were present within the trenches. Based on the fieldwork findings, FBIR recommended that the radio station be constructed at either Alternate Site 2 or 3 (Rosenfield 1990). No further archaeological work was recommended within the 500-ft section of existing gravel road (Radio Improvement project area) (Rosenfield 1990).

FIELD METHODS AND PROCEDURES

The survey fieldwork for the project area was conducted October 3-11, 1990 under the supervision of Supervisory Archaeologist Alina T. Walker, assisted by Assistant Supervisory Archaeologist Jenny O’Clary and Field Archaeologists Mike Pake, John Murray, and Jack Harris. While planning the survey strategies, considerations included: (a) past land utilization patterns (sugar cane cultivation); and (b) prehistoric site distribution patterns as shown in previous archaeological work. Because areas altered by sugar cane cultivation were unlikely to contain archaeological features, such areas (including portions of the current project area) were not surveyed fully, but were sampled. One hundred percent ground survey was conducted in all portions of the project area not cultivated in sugar cane. This included all coastal areas, unaltered stream gullies, and drainages within sugar cane fields, and the edges of all unaltered areas bordering sugar cane fields. Because previous archaeological work indicated that the immediate shoreline area of the Hanamalu project area unit, and the coastal features at the northwest corner of the Hanamalu project area unit (adjacent to the beach access road) were likely to contain archaeological sites, they were surveyed fully.

The surface survey was conducted in a series of precision transects. Intervals between sweeping crenners were 15-20.0 m, depending on vegetation and terrain. To aid in relocating swept areas and sites, surveyors were numbered sequentially. To ensure complete coverage, the edges of swept areas were flagged with red or blue-striped flagging tape. As sites were identified, they were flagged with pink and blue flagging tape and were assigned sequential FBIR temporary numbers prefixed by "FS," beginning with T-1. Subsequently, all identified sites were assigned permanent Site Inventory of Historic Places (SIHP) site numbers. All sites were plotted on a blueprinted mapping sheet (1"=100' scale) provided by Hoffer, Hoffer & Kirmans (now Hoffer, Hoffer & Piek) and were listed by swept designations in a field notebook. Site plotting was aided by 1":100' scale, black-and-white, aerial photos (B.M. Towell Corp. Photo Nos. 11651-1 through 3, dated November 26, 1959 and Photo No. 8317-43 dated February 27, 1956).

Sites were then recorded on standard FBIR site record forms and were sketch-mapped, with orientation and the dimensions determined using metric tape and compass. At least one 35-mm black-and-white photograph was taken of each site (FBIR Roll Nos. 1556 and 1567). Sites were tagged with an aluminum strip bearing the site number, FBIR project number (90-HV4), the letters FBIR, and the date. This information was also written on pieces of flagging tape, which were then wrapped around stones and pinned in prominent areas on the site. Two test units, totaling 0.75 sq m surface area, were excavated within the project area. Test Units were numbered sequentially within sites and were excavated using hand tool, which, in some cases, and dust pan. Test units were terminated on bedrock or on large bedrock boulders, below cultural matrices. Surface collection was done at two sites. Two bulk collections and samples were collected from Site 133 - one from a cultural deposit exposed in an existing cut bank (Layer I) and one from an exposed surface deposit (Layer I). Diagnostic historic artifacts and a sample of material bone was collected from Site 133.
To facilitate recovery of portable remains, all material excavated from the test units was processed through 1/4- and 1/16-in mesh. Because the test units contained no midden material, only midden recovered from the two bulk radiocarbon soil samples from Site 1815 underwent laboratory analysis. Soil samples were described in detail using standard procedures and terminology as set forth in the Soil Survey Manual (Soil Survey Staff 1942).

The fieldwork for the current project was conducted on August 10, 2001 by PHRI supervisory archaeologist Alan B. Corbin, M.A., and PHRI field technician Brice M. Gillcar. As previously mentioned, the purpose of the current project was to relocate and update the condition and significance of all sites previously identified during the 1990 survey, and to record any newly identified sites. During the course of relocating sites, three sites (2067, 2068) were newly identified. These were plotted on a USGS map and aerial photograph provided by the client. The sites were recorded on standard PHRI site record forms and a least one color photograph was taken of each site, generally from the same vantage point as the original site photograph taken during the 1990 survey. Newly identified sites were given a temporary site number (T-) and later were assigned permanent SHIP numbers (Table 1).

Table 1: Correlation of SHIP Site Numbers with PHRI Temporary Field Numbers

<table>
<thead>
<tr>
<th>SHIP Site</th>
<th>PHRI Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>2066</td>
<td>T-11</td>
</tr>
<tr>
<td>2067</td>
<td>T-12</td>
</tr>
<tr>
<td>2068</td>
<td>T-13</td>
</tr>
</tbody>
</table>

Note: Site numbers in parentheses indicate the initial site number assigned by PHRI, which was later modified as follows:
- 2066: 06-33-08
- 2067: 06-33-09
- 2068: 06-33-10

Table, revised to include site number and field number.

FINDINGS

RELOCATION OF SITES

During the present and previous surveys a total of ten sites containing 14 features were identified within or immediately adjacent to the project area. Figure 1 shows the locations of all of the identified sites. Table 2 provides a summary of sites and their component features in terms of formal type, functional type, and completeness of information. Appendix A provides detailed information for each site, including:

1. Site number — SHIP number and PHRI temporary site numbers. SHIP numbers are four-digit numbers prefixed by 56-33-08 or 11 (56-Site of Hawaii; 11-Island of Kaua‘i); 08 or 11-USGS 7.5° series quad map
   - “Kaua‘i” or “Kaua‘i, Kaua‘i”. PHRI temporary numbers are one- and two-digit numbers prefixed by “T”;

2. A site type designation — provides formal feature type for sites consisting of a single feature, or designates the site as a complex if the site contains more than one feature. Also lists total number of features present;

3. A description of site topography — a brief description of the terrain in the area of the site;

4. A listing of site vegetation — site principal components of the vegetation within and in the vicinity of the site;

5. A statement of site condition — overall state of preservation of the site (good, fair, poor, or excellent);

6. An assessment of site integrity — degree of post-abandonment modification by human agencies (eroded, partially altered, and completely altered) and means of modifications, if any, with a determination of potential for or non-possibility of integrity of the site;

7. A probable age — indicates probable/possible age of the site (i.e., historic or prehistoric);

8. A functional interpretation — probable or possible functions for each feature, if possible and determined, assigns predominant function. For sites with multiple functions, functions are separated by a hyphen;

9. A site description — a brief overall description of the site, listing types of constituent features, portable remains, if any, and other site data, and

10. Feature dimensions — maximum length, width, and height or depth. Dimensions immediately followed by a description of feature construction, associated portable remains, and other information.
<table>
<thead>
<tr>
<th>Site No.</th>
<th>Formal Site Type</th>
<th>Formal Feature Types</th>
<th>Feature Description</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1039</td>
<td>Complex (2)</td>
<td>Habitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1039</td>
<td>Cultural deposit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1043</td>
<td>Complex (2)</td>
<td>Temporary habitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1043</td>
<td>Road</td>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1045</td>
<td>2.5m wall</td>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1046</td>
<td>Concrete bridge</td>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1046</td>
<td>Concrete (3)</td>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1047</td>
<td>Road</td>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1047</td>
<td>Foundation</td>
<td>Temporary habitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1047</td>
<td>Historic cemetery</td>
<td>Burial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1048</td>
<td>Historic trash dump</td>
<td>Trash dump</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Frequencies of Formal Feature Types

<table>
<thead>
<tr>
<th>Formal Feature Type</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Cultural deposit</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Road</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2.5m wall</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Concrete bridge</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Concrete (3)</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>2.5m wall</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Concrete foundation</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Terrace</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Ditch</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

SUBSURFACE TESTING AND SURFACE COLLECTION

During the initial survey in 1990, two test excavations, totaling 0.75 m in surface area, were dug within the project area. The purpose of the excavations was to determine the presence or absence of cultural remains and to attempt recovery of datable material. Excavations were plowed at Sites 1838 (Feature B) and 1840. In addition to the test units, two bulk and radiocarbon samples were collected from Site 1838, and a sample of mammalian bone and diagnostic historic artifacts was collected from the surface of Site 1843. Both samples were submitted for age determination analysis.

Site 1838 - Complex

PHRI Radiocarbon Sample No. RC-890 was collected from a possible cultural deposit (Layer B) exposed in a cut sandbank. The possible cultural deposit (designated Feature A of Site 1838) was composed of charcoal-stained sand and contained sparse marine shell. The profile exposed in the cut sandbank displayed the following stratigraphy:

- **Layer Description**
  - I 0-5 cm: yellowish-brown (10YR 5/4); sand, weak, very fine to fine, single grain structure; loose when dry, loose when moist, nonsticky and nonplastic when wet; lower boundary is abrupt and smooth in profile;
  - II 5-24 cm: grayish-brown (10YR 5/2); coarse sand; weak, very fine to fine, single grain structure; loose when dry, loose when moist, nonsticky and nonplastic when wet; lower boundary is abrupt and smooth in profile;
  - III 24-65 cm: pink (7 YR R/4); coarse sand; loose when dry, loose when moist, nonsticky and nonplastic when wet; layer continues below base of exposed profile

A radiocarbon sample (PHRI No. RC-890) was collected from a possible cultural deposit (Layer A) exposed on the surface of a sand dune. The possible cultural deposit (designated Feature B of Site 1838) was composed of charcoal-stained sand and contained sparse marine shell. The soil layer is described as follows:
AGE DETERMINATIONS

Objectives and Methods

The purpose of age determination analysis is to provide initial chronological data to aid in assessing the relative significance of sites in the project area. Two samples of charcoal were chosen from discrete cultural deposits for age determination using radiocarbon analysis. Samples were selected based on the amount and nature of datable material present, stratigraphic context, and overall distribution within the project area. The two samples were submitted for radiocarbon analysis to the Analytic Lab of Miami, Florida.

Using standard procedures, the samples were pretreated with an acid, alkali, and series of soakings to remove carbonates and humic acids. After pretreatment, samples were combusted to form carbon dioxide gas, combined with lithium to separate the carbon, and hydrogenated to liquid form. The liquid was then catalyzed in form benzene and placed in a liquid scintillation counter to determine the amounts of carbon-14 and carbon-12. The isotope values for each sample, with the final result being determined relative to international standards in order normative.

Results

The results of the radiocarbon age determination are presented in Table 3. The age for each sample is reported as a range corresponding to the calendar age ± two standard deviations. Ages were calculated using the tables provided in Stuiver and Pearson (1976), which correct for variations in atmospheric carbon over time.

Both of the samples yielded definitive age ranges. Sample RC-891 yielded an age range of AD 1170 to 1460, indicating that occupation of Feature A of Site 1838 occurred during prehistoric times, and may have occurred as early as c. AD 1170. Sample RC-890, which was derived from Feature B at Site 1838, yielded an essentially modern age range.

Table 3. Summary of Radiocarbon Age Determinations

<table>
<thead>
<tr>
<th>PRM</th>
<th>Site No.</th>
<th>Layer</th>
<th>Provenience</th>
<th>C-14 Age</th>
<th>C-15</th>
<th>C-13 Adjusted</th>
<th>Calibrated</th>
<th>Range</th>
<th>Yrs. BP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(uncal.)</td>
<td>(Ratio)</td>
<td>(uncal.)</td>
<td>(calibrated)</td>
<td>(BP)</td>
<td></td>
</tr>
<tr>
<td>891</td>
<td>40212</td>
<td>1</td>
<td>Fes. A.</td>
<td>1011.0-2.7</td>
<td>0.6</td>
<td>1011.0-2.7</td>
<td>1170-1340</td>
<td></td>
<td></td>
</tr>
<tr>
<td>891</td>
<td>40218</td>
<td>1</td>
<td>Fes. A.</td>
<td>710-69</td>
<td>13.5</td>
<td>710-69</td>
<td>1170-1430</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Calculated according to Stuiver and Pearson (1976). Range of ± 2 standard deviations.
PORTABLE ARTIFACTS

Non-Indigenous Artifacts

A total of 42 non-indigenous artifacts of recent historic age were collected from the project area. The assemblage derives mainly from Site 1843, and consists of ceramics and glassware. A detailed tabulation of artifacts by debris area is presented in Table 6. No indigenous artifacts were recovered during the project. The results of the analytical analysis are discussed below.

<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Sherd Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramics</td>
<td>Porcelain sherd</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Ceramic sherd</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>27</td>
</tr>
<tr>
<td>Glassware</td>
<td>Bottle</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Bottle fragment</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Vase fragment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>15</td>
</tr>
</tbody>
</table>

Ceramics

Twenty-seven ceramic and porcelain artifacts were recovered from the surface of Site 1843. Ceramic artifacts are classified based on a range of attributes, including paste color, texture, vessel form and diameter, and surface finish. Porcelain artifacts, which form a highly specialized class of ceramic artifacts, are manufactured using an extremely fine-grained white clay, and are characterized by a glazy surface finish and extreme hardness after firing (Shipps 1968).

Twenty-two of the ceramic artifacts are classified as porcelain. The specimens include ten rim sherds, one composite rim/band body sherd, four base sherds, six body sherds, and one support. With the exception of one vase rim sherd and the six body sherds, all of the sherds derive from small or shallow bowls with non-restricted mouths. Bowl diameters, as measured from the rim sherds, range from 8.38 cm, while vessel wall thicknesses range from 2.0 to 8.0 mm. All but one of the bases are footed, each with a single-piece circular foot, and are convex in cross-section. The interior surface of all bowls is white with a glossy surface; one exhibits fine drying cracks. Exterior surfaces are more varied. Four of the bowls have exteriors that are white with a glossy surface. Eight of the bowls are decorated with fine blue floral or scenic motifs that have been transferred onto a glossy white background; a ninth bowl has a blue floral design supplemented by green. The remaining bowl is hand-painted with an orange floral design.

The vase rim sherd derives from a narrow-mouthed vase with a non-restricted opening. The vase has a diameter of 8.5 cm and a vessel wall thickness that ranges from 2.0 mm at the rim to 6.0 mm below the rim. The vase is hand-painted with a band of daffodils against a green background encircling the rim, and has a second, thin band of gold paint encircling the vessel body parallel to the rim. The exterior of the vase below the gold band is white and glossy, and is fluted (Figure 2). The interior surface is uniformly white and glossy.

Figure 2. Vase Rim Sherd

Figure 3a. Vase Rim Sherd
The support is hollow and attaches to a fragment of a base. It is hand-painted with an orange floral design similar to that noted on one of the bowl rim sherds, and may be a fragment of the same vessel. The support is 16.0 mm in diameter. The body sherds range in vessel wall thickness from 4.0 to 8.0 mm. Like the bowl fragments, all of the body sherds have interior surfaces that are white with a glossy finish. There are 15 body sherds in a variety of sizes. Some sherds are decorated with blue floral designs similar to those noted above, while others exhibit a green transfer design rather than blue. The interiors of the remaining 10 body sherds are a pale blue-green with a glossy finish, and are ribbed in the same manner similar to Fiesta Ware.

The five remaining ceramic artifacts (one rim sherd, two base sherds, and two body sherds) are manufactured from coarse textured clays. The rim sherd is manufactured from a very fine, buff-to-white, silky-textured clay. Based on the orientation of the rim and the curvature of the sherd, the specimen most likely derives from a large, shallow, non-projected bowl approximately 38.0 cm in diameter. Vessel wall thicknesses range from 0.0 to 6.0 mm within the rim, to 6.0 mm further away from the rim. The interior surface is decorated with a white glaze that exhibits abundant, fine drying cracks. The glaze is overlaid by a thin black band of paint parallel to the rim, and a yellow painted flower. The exterior of the sherd is decorated with a white glaze and exhibits drying cracks.

One of the base sherds is manufactured from a fine, buff-to-orange, silty-textured paste. The base is footed with a single-piece, flanged, circular foot. Vessel wall thicknesses range from 5.0 mm for the foot, to 1.0 mm for the base. The interior surface is decorated with white glaze, and exhibits drying cracks and crazing firing stains. The exterior surface is covered in an identical manner, including the drying cracks, and features a parallel ridge, one on the foot and the other at the juncture of the foot and vessel wall. The second base sherd is manufactured from a very fine, buff-to-light-orange, silty-textured paste, similar to the rim sherd described above. The base is covered in cross-section, and is not footed. Both the interior and exterior surfaces are decorated with white glaze and exhibit drying cracks.

Both of the body sherds are manufactured from a fine, buff-to-white, silty-textured paste. One of the sherds is curved in a convex-concave pattern, suggesting the form of a plate or shallow bowl. It has a vessel wall thickness of 8.0 mm, and is decorated with a white, cracked glass on both the interior and exterior surfaces. The other body sherd has a convex shape, and may derive from a bowl. Vessel wall thicknesses range from 3.0 to 5.0 mm. The interior surface of the sherd is decorated with a cracked, cream-colored glaze and is painted with several parallel blue bands. The exterior surface is painted with blue geometric and floral designs over the white glaze, and vaguely resembles Pittsburg Ware.

Glassware

Fifteen glass artifacts were encountered on the surface of Site 184. The inventory includes one complete bottle, 13 bottle fragments, and a body fragment from a glass vessel of unknown form. Borates are classified based on a range of atollas, including glass color, form, size, and manufacturing technique. Identifications of bottles and bottle fragments were augmented by comparisons with historic period bottles illustrated in Wilson and Wilson (1964), Putnam (1968), Fike (1987), Elliott (1971), and Oakland (Appendix A on Wilson 1983).

The complete bottle, which measures 9.5 cm by 4.5 cm by 2.5 cm, is a Japanese medicine bottle manufactured from dark amber glass (w. A000-1918). The body of the bottle is unid-

Figure 36. Japanese Medicine Bottle

The bottle fragments include six mouthneck/shoulder fragments, six base fragments, and one body fragment. The fragments are manufactured from clear glass (3), clear iridescent glass (3), pale green glass (1), dark brown glass (1), dark green glass (1), pale yellow glass (1), and lavender glass (1). The mouthneck/shoulder fragments range in diameter from 1.4 to 3.8 cm, and...
The following range of rock finishes: one reinforced extract with a double ring, one flat or parent rock, one bead finish, one crown finish, one ring or all finish, and one composite crown and double ring (Fiske 1971:8). The fragment with the reinforced extract and double ring rock finish is embossed with the statement "5 FLUID OZ."

Five of the base fragments are round in profile, while the sixth is classified as a "flat" or "handy base" profile (Fiske 1971:10). The round bases are uniformly 8 cm in diameter, and are generally convex in cross section. Three of the base fragments have embossed lettering. The letters "& S." appear on a dark brown base fragment, "P.C.W." appears on a pale green fragment, and "JAMES POUND" appears on one wall of the eliptical base fragment. The single body fragment is manufactured from clear glass, and represents portions of two sides of a rectangular plate. The front of the fragment is embossed with the words "BOSTON U.S.A."

The remaining glass artifact is a body fragment from a glass vessel of unknown form. It is manufactured from opaque white glass, and has a wall thickness of 2 to 5 mm. The exterior surface of the fragment is flared, or impressed, with a series of parallel rectilinear panels, an alternating pattern of small and large panels. Above the panels, the fragment has a flat surface, which is painted with a floral motif of faded yellow flowers and green leaves. The interior surface of the fragment is underdrawn.

Summary

In general, the assemblage of non-indigenous artifacts recovered during the current investigation suggests that areas surrounding Site 1843 served as a periodic refuse area during the late 19th and early 20th centuries. The artifacts are generally fragmentary, indicating that they have been disturbed since being discarded and deposited at the site. No artificial remains were encountered in the deposits from 1830 and 1839.

MIDDEN

Objectives and Methods

The variety and content of food remains within midden deposits provide useful information concerning prehistoric diet and resource utilization. The analysis of midden remains for the current project has two primary objectives:

1. To determine midden contents, in particular the variety and distribution of the remains for each cultural deposit encountered within the project area;

2. To provide an indication of dietary and resource exploitation patterns for each site, and for the project area as a whole.

All midden recovered from the bulk soil radiocarbon samples and surface collection underwent detailed analysis. No midden was present in the test units. Detailed analysis involved splitting the sample into two size classes by passing each sample through 1/4-inch and 1/8-inch mesh. One hundred percent of the material retained in the 1/4-inch screen was completely sorted to the lowest taxonomic level possible, while the material retained in the 1/8-inch screen was inspected both for artificial material and for taxa not encountered in the larger portion of the sample. Marine shell identifications were verified and augmented using Fiske (1971).

The sampling design outlined above is adapted from Krich (1979), based on a series of experiments measuring the relative distribution of molluscs and bone material retained on each screen. Krich concluded that use of the screening process increased the speed of the sorting process without decreasing either the accuracy or statistical validity of the overall analysis. The taxonomic distribution and weight of material retained on the 1/4-inch screen should thus be considered representative of the variety and relative percentages of each taxon present in the sample.

Results

The range of taxa present in the midden sample from each deposit is summarized in Table 7. Total weights for each taxon (in grams) are tabulated by site and feature, with subtotals indicating the combined weight per feature for each larger material class (e.g., gastropods). The total weight of each taxon in the project area is provided in the final column of the table, while the grand total represents the combined weight of all the midden materials for the project area.

In general, the taxa represented by the midden samples taken from the project area are common inhabitants of the shorelines, shallow-water areas, saltmarshes and mangrove habitats of the Hawaiian Islands. By weight, 28.2% of the 22.91 grams of midden material recovered from the project area is contributed by marine gastropods, 8.1% is contributed...
by echinoids, and 33.4% by mammal bone. No vegetable remains were encountered in the deposits.

The age and relative weight percentages of taxa at each site show somewhat different patterns than those noted for the project area as a whole. The deposits associated with Site 1818 are composed entirely of marine gastropods and echinoids, while the deposits encountered on the surface of Site 1843 are composed entirely of mammal bones.

The results of the midden analysis indicate that subsistence patterns at Site 1839 included limited collection and consumption of marine resources, ranging from several taxa of marine gastropods to echinoids. All of the marine taxa represented in the midden deposits, both at the site and feature level, were readily obtainable in the shallow-water areas immediately off shore, from tidal pools, or from the flotation beaches and flinging reefs located near the shoreline. The mammal bones on the surface of Site 1843 may indicate a subsistence pattern that included exploitation of terrestrial resources, but were more likely deposited as refuse, similar to the glass and ceramic artifacts described above.

CONCLUSION

SUMMARY AND DISCUSSION

The archaeological inventory survey of the current Hanama’alu project area was executed in two phases. The first phase was an inventory survey done in 1990, and the second phase comprised the recent field inspections, site relocation, and mapping of data for the previously identified sites. The 1990 survey included a 100% ground survey of all areas not planted in sugar cane, limited surface survey and inspection of areas planted in sugar cane, and limited subsurface testing. Only limited surface survey was done in areas of sugar cane fields because surface archaeological features are not likely to have survived in such heavily-modified areas. Previous archaeological work conducted in the vicinity of the present project by Walker and Rosenfeld (1990) has demonstrated the absence of archaeological features in sugar cane fields. During the Walker and Rosenfeld (1990) work a sample area (c. 33%) of an area from which sugar cane had been recently harvested was examined and scored using a backhoe. The ground visibility was excellent. No surface sites were identified, and no backhoe test excavations revealed only several small, isolated shell pebbles (Walker and Rosenfeld 1990).

Given the extensive sugar cane cultivation that occurred within the present project area, it is not surprising that the present survey confirmed that only a limited number of archaeological sites are present. The sites include four complexes and six single-feature sites, and comprise the following functional feature types: habitation (prehistoric deposit, wall, and structure), transportation (settlement wall, concrete foundation, concrete walls, and concrete bridges), burial (prehistoric cemetery and one upright grave [possible burial]), and refuse disposal. A few prehistoric sites were identified, but generally the sites are historic. The overall physical condition and integrity of the sites vary from poor to good.

Two general patterns exist in the overall distribution of the functional and feature types, and it appears the patterns are directly influenced by historic period activity. First, of the ten sites identified, all are in areas minimally modified or unmodified by historic period land alteration. Second, all the historic period sites (Sites 1840, 1841, 1843, 1845, 1846) are located along or near the coast. These historic sites were all probably occupied by a limited population that followed the coastline and which may be associated with Alakai Landing on the south side of Hanama’alu Bay (Site 1842, however, probably predates Alakai Landing). The historic period artifacts recovered from Site 1843 may reflect habitation associated with the small wharf area, or with inhabitants of a small support community in the immediate area. The historic dump site (Site 2064) may or may not be associated with the transportation route. The people who created the dump may have been involved in the transport or transportation business, but the artistic and apparently expensive glass, represented by the fragments encountered at the site may indicate the dump creators were of a relatively high-status.

In the process of relocating the sites of the 1990 survey, three additional sites were newly identified. One of the sites, a historic period cemetery (Site 2063), is located adjacent to Hele‘i Road, and is just outside the present project area. It is currently still semi-abandoned and visited. The second site, an early prehistoric habitation site (Site 2064), is also just outside the project area, on a bluff on the south side of the lake, located 100 yards from the edge of the Hanama’alu Alakai Cutoff Road. This site, south of the causeway, will not be impacted by the planned construction of the housing community golf course. The third site, 2069, is a trash dump on a small bluff overlooking the ocean.
In the same way as Wailea operated, the Huleia Valley probably also supported a substantial prehistoric population. This is evidenced by an extensive agricultural system of taro terraces and a large fishpond (Alelele Fishpond) in Huleia Valley (Handy 1940, Miller and Palama 1973, Ching et al. 1973). Impression is confined to these sites, but are not limited to Kohala Heiau, Niihau Heiau, and Ahukini Heiau (Staade 1931, Bennett 1953, Bennett 1993). Kohala Heiau, in Niihau, has been detected as the largest and most famous on Kaua‘i in its day (Staade 1931) (Thrum 1967).

**GENERAL RESEARCH TOPICS**

With regard to the scientific research value of sites and features within the Hanam‘ulu project site, the general goal of future research should be to obtain information on the culture history and lifeways of the Hawaiian population that occupied the project area. Future archaeological research should include the following:

1. Definition of the nature (topographic, semi-permanent, or permanent) and sequence (single or recurrent) of occupation within the project area to determine if the inhabitants were local residents, or were simply passing through the area to places such as Wailea Bay or Niihau Bay;
2. Definition of the marine resources and the methods, techniques, and technologies of marine resource exploitation;
3. Detailed historical documentary research aimed at expanding current knowledge regarding the nature of the identified Historic Period sites and their relationship to Liloa’s Plantations or sugar cane cultivation; and
4. Examination and analysis of archaeological data with traditional and historic relevance.

**GENERAL SIGNIFICANCE ASSESSMENTS AND RECOMMENDED GENERAL TREATMENTS**

Significance assessments and recommended general treatments for all identified sites are summarized in Table 8. Significance categories used in the site evaluation process are based on Rules Governing Procedures for Historic Preservation Review (Chapter 234; Hawaii Administrative Rules; DLNR 2001). The DLNR-HHFD uses these criteria for evaluating cultural resources. Sites determined to be potentially significant for information content fall under Criterion D, which defines significant resources as ones that “...yielded, or are likely to yield, information important in prehistory or history.” Sites potentially significant as representative examples of site types are evaluated under Criterion C, which defines significant resources as those which “...embodies the distinctive characteristics of a type, period, or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction.”

Sites with potential cultural significance and value (Criterion E) are evaluated under guidelines prepared by the Advisory Council on Historic Preservation (SCHP) entitled “Guidelines for the Consideration of Cultural Values in Historic Preservation Review” (Draft Report, August 1985). The guidelines define cultural values as “...the contribution made by...”
a historic property to an ongoing society or cultural system. A traditional cultural value is a cultural value that has historical depth. The guidelines further specify that “[t]he property need not have been in consistent use by a cultural system in order to have traditional cultural value.”

All of the project sites were evaluated using the criteria mentioned above. Also, all sites were evaluated on the basis of major ongoing research issues involving actual questions of chronology, settlement and exploitative patterns, site and artwork variability, material culture and technology, diet and economy, and socio-religious values.

Six of the sites (no sites identified) (1838, 1839, 1840, 1841, 1843, and 2608) are assessed as significant only under Criterion D (information content), with no further work required. Table A-3. These sites have been recorded and described at such a level as to sufficiently mitigate their possible destruction.

Table A-3. Summary of General Significance Assessments and Recommended General Treatments

<table>
<thead>
<tr>
<th>Site No.*</th>
<th>Integrity</th>
<th>Significance Evaluations</th>
<th>General Recommendations</th>
</tr>
</thead>
</table>

General Significance Categories:

A = Importance of cultural area known or significant events or trends in the history of the region or state
B = Importance of cultural area known or significant events or trends in the history of the region or state
C = Importance of cultural area known or significant events or trends in the history of the region or state
D = Importance of information content
E = Locality specific

Recommended General Treatments:

F: C: Further data collection necessary (including recording, surface collections, and/or site surveys, and/or other appropriate data recovery/projective investigations).
G: F: I: N: J: Not further work of any kind necessary (sufficient data collected, archaeological clearance recommended), no further work required.
H: P: I: O: Q: Further work or possible excavation recommended (including site-specific data recovery, or appropriate, further site collection necessary).

*Data inventory of historic sites published by SDHIS at 111 E. Sams of Hawaii, 31st floor of Kalani, CBW 171455 S 93, or Sams of Hawaii, 31st floor of Kalani, CBW 171455 S 93, or further work and possible clearance area (non-limited), or potentially needed further data collection necessary.

No further work is recommended for Site 1838 since it has been previously tested and is now at such a stage that further research would not be feasible.

The newly identified historical resource dump (Site 2608) has been measured, described, photographed, and plotted, and no further work is recommended.

Sites 1839 and 1840 have been tested, and data collected from these sites during the prior survey and current project is considered sufficient. Their preservation is not essential.

One site (Site 1843), a historic bridge distinctive due to its multiple arch style of construction, is assessed as significant only under Criterion C (information content), with no further work required. Further data collection, including limited historical research, followed by preservation with some level of intensive development is recommended.

Site 1846, another concrete bridge site, is assessed as significant only under Criterion C (information content) and is recommended for further data recovery in the form of limited historic research to determine the relationship of the uprisings at the site to a possibly existing cemetery and historic known site.

The historic cemetery (Site 2607) is recommended for preservation “as is,” although it is outside the current project.

One area that may contain prehistoric subsurface agricultural deposits is located outside the project area, south of the Radison Hotel Beach Resort. This area consists of a low slope, and drainage, and sometimes contains standing water (an area suitable for wetland agriculture).

The evaluations and recommendations presented within this final report have been based on a visible coverage surface and limited subsurface inventory survey of the project area. Due to the limitations of such surveys, there is always the possibility, however remote, that potentially significant, undetected surface or subsurface cultural remains will be encountered during the course of future investigations in the area. In such situations, archaeological consultation should be sought immediately.

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REFERENCES CITED


APPENDIX A: SITE DESCRIPTIONS

The following site descriptions are from two sources: the descriptions for Sites 1838, 1839, 1840, 1841, 1843, 1845, and 1847 are from the 1990 survey fieldwork, and the descriptions for newly identified Sites 2066, 2067, and 2068 are from the current fieldwork. All previously identified sites were reexcavated and inspected during the current fieldwork. If necessary, updated information on the sites is presented here so that both the site's condition in 1990 and its current condition in 2001 are clearly defined. Photographs taken during the 2001 survey are not presented when they are visually identical to those taken during the 1990 survey; they are, however, on file at the PHRl headquarters.

SITE NO.: 1838 PHRl: T-1
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Undulating terrain of sand mounds and points southwest of site.
VEGETATION: Grass, ironwood trees, green vines.
CONDITION: Fair
INTEGRITY: Altered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Possible cultural layers.
DESCRIPTION: The site consists of two culture deposits (Features A and B). The overall dimensions are c.70.0 m by 10.0 m.

FEATURE A: Cultural deposit
FUNCTION: Habitation
DIMENSIONS: 2.40 m by 1.00 m
DESCRIPTION: The cultural deposit is a mound that may have been pushed by a bulldozer.
The north-south face of the mound is exposed by natural erosion, revealing a stratigraphy of four layers. The cultural deposit is a dark, gray-black, charcoal-filled layer with scattered watercom shells and coral fragments. The deposit (Layer III) contained a high concentration of marine midden and coral fragments. East of the exposed area of the deposit are deep pockets that may have been caused by erosion.

FEATURE B: Cultural deposit
FUNCTION: Habitation
DIMENSIONS: 1.70 m by 1.70 m
DESCRIPTION: This is a dark grayish-black sandy surface layer with dense coral and shell fragments scattered on the surface.

Feature B is on a fairly level area on top of a north-south slope. The southwest side of the feature is a natural swamp or pond; snipes and beach lizards are present around the feature. A road is immediately north-northeast of Feature B. Vehicle tracks were observed on the feature.

Updated Information: Feature A has been been further eroded since the 1990 survey and is now approximately 9.00 m by 7.00 m by 0.40 m. A cultural layer is still slightly visible, but the overall condition is now poor. Feature B was not found. The general area is heavily used for picnicking, with scattered modern trash. Compare photographs Figure A-J (1990) and A-2 (2001) taken from the same vantage point.

SITE NO.: 1839 PHRl: T-2
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Generally flat with a slight slope toward the ocean; basalt boulders scattered throughout.
VEGETATION: Ironwood (ground covered with ironwood needles)
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Temporary habitation
DESCRIPTION: The site consists of a wall (Feature A), and a terrace (Feature B) (Figures A-D, A-4, A-5). The overall dimensions of the site are c. 20.0 m by 220.0 m by 10.0 m.

FEATURE A: Wall
FUNCTION: Temporary habitation
DIMENSIONS: 8.00 m by 1.00 m by 0.35 m
DESCRIPTION: The feature is constructed with basalt boulders and smaller basalt cobbles and is stacked two courses high. It is oriented c. 45.0 m southeast of Site 1840, heading south at 220° from the feature. This feature is on generally flat terrain, sloping slightly toward the ocean. Ironwood trees in the vicinity.

FEATURE B: Terrace
FUNCTION: Abandoned
DIMENSIONS: 5.20 m by 1.70 m by 0.47 m
DESCRIPTION: This terrace is connected to an earth berm. It is located c. 150.0 m north at 40° of Feature A, and 160.0 m north of the ocean. It is on a generally flat area, sloping slightly toward the ocean, about 16.0 m north.

Updated Information: Feature A and B are virtually unchanged since the previous survey. A newly identified site, Site 2068, was recorded approximately 28 m to the northeast.

SITE NO.: 1840 PHRl: T-3
SITE TYPE: Retaining wall
TOPOGRAPHY: Top edge of M-S running coastal bluff sloping slightly to the east. Red clay with scattered boulders.
VEGETATION: False ironwood, grasses, and vines.
CONDITION: Good
INTEGRITY: Altered
PROBABLE AGE: Historic

A2
**FUNCTIONAL INTERPRETATION**: Transportation
**DIMENSIONS**: 15.50 m by 11.00 m by 0.60 m

**DESCRIPTION**: This structure is composed of stacked small to medium basalt boulders. The boulders are stacked two-to-four courses c. 0.75 m to 1.10 m high (Figures A-6, A-7, A-8). The wall is vertically faced on the east-northeast side, facing a dirt roadcut. Behind the wall is the west-southwest, in a pile of red clay mixed with recent rubbish (mostly car parts); this pile averages c. 6.0 m in width and ends abruptly at a north-south running ditch that is presumed to be the upper end field drainage. The maximum height of this mound is c. 2.5 m above the north-to-south roadcut, and about 1.4 m above the high point of the wall. The wall runs at 342° to 160°, with a slight west-southwest jog at 1.0 m from the north end. The high point is c. 3.0 m from the south end. There is also a crude clearing mound c. 12.0 m east of the north end of the wall, at 82°. This mound is oval (c. 19 m northwest to southeast by 1.4 m by 0.6 m) and constructed with small to medium basalt boulders.

**Updated Information**: This wall is virtually unchanged from the 1990 survey.

**SITE NO.**: Site 1811  **PHRI**: T-4
**SITE TYPE**: Road  **VEGETATION**: Rocky and steep, above steep southeast rocky cliff  **CONDITION**: Fair
**PROBABLY AGE**: Historic
**DIMENSIONS**: 2520 m by 6.0 m by 3.0 m

**DESCRIPTION**: This is a semi-collapsed section ranging north-northeast to south-southwest; present along the road edge from the north point of Hamana's Bay (Figures A-9 and A-10). There is a ledge that slopes gently up, facing south-southeast from the point, which has been mostly cleared of medium and large boulders to create a roughly level surface. The boulders have been stacked along the seaward edge to create a retaining wall/breakwater; this breakwater is from two to eight courses and averages c. 0.50 m to 2.75 m high. Some sections are faced on the seaward side, and a few short sections extend above the ledge and are faced on the inside. The wall sections vary from c. 0.50 m to 0.75 m in height by 0.60 m to 1.25 m in width. The surfaces of the cleaned areas are irregular but roughly level. There are no machinery scars visible on the structure. The "pathway" is very obscure near the point. A few short sections inland appear paved with angular cobblestones. At the north-northeast end, the stone trail ends into a bulldozer dirt road. The site is located on top of a faced retaining wall eight courses high and about 0.50 m southeast of the northeast end. The east end rises c. 3° to 4°.

**Updated Information**: This site is unchanged from its 1990 condition.
FEATURE A: Concrete wharf
FUNCTION: Transportation
DIMENSIONS: 17.00 m by 5.20 m by 1.80 m
DESCRIPTION: The concrete wharf is rectangular. It is reinforced with basalt cobbles and large steel beams that run perpendicular to its length at the water line. Feature A is probably associated with a paved road running the point, and served as docking facilities for agriculture (beaching or canoe). This feature probably continued further into the bay at one time. The filling extends further into the bay (for ships). This feature extends into the water near the north point of Hazana’a Bay.

A separate wall section runs parallel to the east and shows a large cobbled/mall boulder/basalt paved road (designated Feature B).

FEATURE B: Road
FUNCTION: Transportation
DIMENSIONS: 19.00 m by 15.00 m by 1.20 m
DESCRIPTION: This is a beach sand partially paved with cobbles and small basalt boulders. It apparently begins at the concrete wharf (Feature A) and runs east then makes a turn around the north point of Hazana’a Bay and runs roughly north-south. Feature B is present in many forms of varying condition: concrete walls to broken alignments, barge rock to muddy areas to paved areas with waterworn basalt boulders cobbles.

FEATURE C: Concrete wall
FUNCTION: Transportation
DIMENSIONS: 15.80 m by 2.70 m by 0.40 m
DESCRIPTION: This feature is a foundation-like wall with a lower similar concrete wall running parallel (c. 70.00 m) along the length of the south side. The main wall is composed of concrete mureted, dished basalt, one course, very large and brick-like. The lower wall seems to be made primarily of concrete. This feature is on the west side of the steep slope and is partially buried by basalt and covered with dense vegetation. The feature’s main wall contains corner at both ends that turns 90° north toward the slope. The walls are oriented by debris from the slope and by vegetation. A solid area of concrete at the west end may have been an interior slab (room, platform, etc.). A partial wall section is observed at the west end of this feature’s main wall, also forming a corner, but it is also densely covered.

A-10

Updated Information: Feature A is largely intact, and appears much the same as in 1990 (Figures A-11 and A-12); however, the tree in the center of the rock is now present. The northeast corner of the slip has also been further impacted by storm action, possibly by barge wash (Figures A-13 and A-14). Damage is now visible on Feature B, probably due to storm action. The entire Feature C appears to have been affected by storm action; the southwest concrete section has been displaced c. 5 m further west (Figure A-15, 1990; Figure A-16, 2001).

SITE NO.: State: 1845 PHRI: T-4
SITE TYPE: Railroad bridge
TOPOGRAPHY: Near a stream on a lowland marsh, where it enters the ocean.
VEGETATION: Java plum, hau-hau, hau, grass, and vines.
CONDITION: Good
INTEGRITY: Undamaged
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 57.80 m by 3.00 m by 7.50 m
DESCRIPTION: The bridge is constructed of steel reinforced concrete, supported on three piers (Figure A-17). Two arches rest at the bottom of the middle support pillar. This bridge spans a marsh and is supported by two lobbies, one at each end. The bridge spans a modern road on the southeast half and a swampy lowland stream on the other half.

Updated Information: This site has remained unchanged since the 1990 survey.
Updated Information: Although the bridges remain intact, they are overgrown with dense
bush, which has replaced the previous vegetation. Compare Figure A-18 (1900) to Figure A-19

SITE NO: Site 2004  PHASE: T-11
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: On a slight slope
VEGETATION: Koa, Mohala, grass, faya plum, and various grasses
CONDITION: Poor
INTEGRITY: Absent
PROBABLE AGE: Prehistoric to Historic
FUNCTIONAL INTERPRETATION: Multiple
DIMENSIONS: Approximately 25.00 by 20.00 m
DESCRIPTION: The site consists of an upright (Feature A) (Figure A-20), a road (Feature B),
and a possible historic house foundation (Feature C). The overall dimensions are c. 25.00 by
20.00 m.

FEATURE A: Upright
DESCRIPTION: This is an upright stone 0.75 m long and 0.45 m wide surrounded by
scattered pieces of coral. About one dozen coral pieces immediately surround the upright, while
another 6+ pieces are scattered up to 5.00 m to the south. The upright and coral may be a
component of an historic cemetery known to have existed in this area: a Kulei’s informant
stated that he knew of the cemetery in this area as a child, and that members of the Leitea family
were interred there (personal communication, Bingle, 2004). However, no other
graves or gravestones were identified in the area.

FEATURE B: Road
FUNCTION: Transportation
DIMENSIONS: C. 25.00 m by 3.20 m
DESCRIPTION: This is an old dirt road with side earthen berms leading down from the cane
road south to the bluff. It is approximately 25 m long and 3.2 m wide and is heavily overgrown.
The road may be associated with cane production and transportation down to Hana’s Bluff, since
this area was in active cane production until recently. It may also be associated with
Feature C.

FEATURE C: Possible Historic House Foundation
DESCRIPTION: A possible historic house foundation about 20 m north of Feature A and
adjacent to Feature B. It is possible that the northern foundation stones are simply road path
from examination of the bordering cane road, and the southern foundation stones are remnants
of a terrace. Features A, B, and C may be associated, or they may be temporarily distinct (Figure
A-21). All three features are outside of the area to be developed.
SITE NO.: State: 2667
SITE TYPE: Historic Cemetery
TOPOGRAPHY: On a fairly steep slope
VEGETATION: Jim Flora, various grasses, vines, headfruit trees
Condition: Fair
INTEGRITY: Intact
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Burial
DIMENSIONS: Approximately 60.0 m by 60.0 m
DESCRIPTION: This is a semi-maintained cemetery with recent offerings (flowers and plastic flowers) and an associated probable bronze foundation (Figures A-22 and A-23). There are approximately nine to eleven graves. The oldest visible grave with a headstone appears to date from the late 1880s, while the most recent visible grave with a headstone indicates 1932 as the year of death. This site is not within the current project area.

SITE NO.: State: 2668
SITE TYPE: Historic Trench Dump
TOPOGRAPHY: On a small bluff overlooking the ocean
VEGETATION: Kukapua, various grasses, headfruit trees
CONDITION: Poor- Fair
INTEGRITY: Altered
PROBABLE AGE: Historic (1880s to 1910s)
FUNCTIONAL INTERPRETATION: Refuse disposal
DIMENSIONS: 12.00 m N-S by 7.00 E-W
DESCRIPTION: This is a historic trench dump on a small bluff overlooking the ocean, approximately 28.00 m and 32 degrees from Site 1839 (Figure A-24). It appears that people have visited the site looking for bottles; there is a 1.0 m by 1.0 m hole placed approximately in the site center; no whole bottles exist, they probably have been collected. The refuse materials were doubtless dumped from the bluff above. Materials include: approximately 300 pieces of ceramic of various glazes; several oriental rice bowl fragments; about 1,000 medium bottle fragments, several of which are purple, and about 1,000 smaller fragments, about 50 medicine bottle fragments; several cup and beer mug fragments; several artistic glass fragments; several pieces of candy and majolica pottery fragments; several glassy large sized machinery pieces; and several unidentified faunal bone fragments. The age of the materials appears to be from the 1880s to the 1910s.
APPENDIX B:

HISTORICAL DOCUMENTARY RESEARCH

Greeve Bay Plantation at Hamana'ula

Land of Hamana'ula, Libba District, Island of Kauai (TMK 6-3-4; 4-3-5-5, 4-3-5-5)

by Lehr Kainu and Helen Wong Smith

Kauai has always been unique among the Hawaiian Islands as a somewhat separate kingdom due to its distance from the rest of the islands. In Archaeology of Kauai, William Bennett writes:

It seems that there was much more communication between all parts of Kauai than between Kauai and the other islands. In other words Kauai may be considered as a cultural unit (Bennett 1921:34).

The District of Libba’s has been the setting of numerous stories. In the book, Kauai: The Separate Kingdom, Ernest looping states, “There is no explanation for the choice of the name Libba...The name can be interpreted as meaning ‘cold hill,’ although it might well have another meaning in ancient times...” (Leavitt 1994:154).

It should be noted that old maps and accounts of the time of the Great Maelo (c. 1888) refer to the district as Po'ia, now Libba. This is the same area often given to the southeastern portion of an island, such as the wiluhua Puna District on the Island of Hawaii.

Kauai’s traditions exist as a “wed (or walking) key,” and it is said to be the birthplace of the hero Kalaheo (Puu et al. 1974). Few stories refer specifically to Hamana'ula, and the information contained in them is generally not clear, this document therefore also includes information from the orally Hamana'ula and Wailua artifactuals to the present area. Wailua translates literally as shade (off) coastal areas (Puu et al. 1974). Wailua means “two waters” (Puu et al. 1974).

Hamana'ula is mentioned in Osso Ke'a, a book of Hawaiian sayings and epigrams:

No Hamana'ula ke ma ke a paua.
(He quickly expired a creature belongs to Hamana’ula)

Sat the rings people of Hamana'ula, Kauai—no hospitably there At one time, food containers would be hidden away and the people of Hamana’ula would apologize for having no ability to offer their guests (Puu et al. 1930: 30-31).

Another tradition may mention Wailua as a land of large streams (Puu et al. 1974: 168).

KauaiKalakea Wailua
(The expansive waters of Wailua)

TRADITIONAL REFERENCES

According to Abraham F examining, who has written extensively about the legends and mythical origins of Kauai:

The legendary history of Kauai is very unsatisfactory in any effort to restore historical form and accuracy. The legends are disconnected and the genealogies are few...Thus the ruling families of Kauai were the highest up chiefs in the group is evident from the society with which aloha and chieftain of the other islands sought alliance with them. They were always considered as the parent of the “blue blood” of the Hawaiian ancestry...But of the exploits and traditions of most of the aloha’s who ruled over Kauai during this period, there is little preserved to tell (Femandez 1917:73-7).

The Waipu area figures in numerous legends, while, the other aloha’s are rarely mentioned. Donald Maclean, in a report on the history of Waipu and Kana, notes... “...All the kings of Kauai from ancient times to Kamehameha were born at Waipu. The legend of the Naha Stone names Waipu as the place of its origin” (Femandez 1931).

The Naha stone is a famous stone that was lifted by Kaumakapili as a boy, a testament to his strength at such a young age. It was prophesied that whoever lifted the stone would become the ruler of Hawaii’s ancient seat.

The book of Thomas F. Smith, in the Hawaiian Historical Society:

In Hawaiian, the hero is said to be in Waipu. The Waipu beach at the mouth of the river is usually where the legend takes place. Here all the goddesses, spirits, the proponent in this legend, was thrown into the water, which had swallowed all of Waipu. This is the story of Waipu, the seat of Waipu, who gave the prophet Hoole'au a cause and cause to seek the cause of a mysterious island in Waipu. There are at least three Hawaiian canoes or brae which have references to Waipu (Femandez 1914:44).

Elija also tells a tale of the brothers of Moana, the demigod, who were responsible for many supernatural events in the Hawaiian Islands.

Moana wished to bring the Hawaiian Islands together and for that purpose to catch the powerful fish Lohi, which, if hooked, would cause all the islands to draw together. As soon as Lohi was caught, the Hawaiian Islands began to draw together. As Kauai and Oahu came near great crowds gathered on the shore of Oahu and observed. This did not disturb the brothers of Moana as first (po was pulling the islands together), who paddled steadily but when the charters exclaimed at the beauty of the wonders behind Moana, all the bears turned as soon to look (this they weren’t prepared to do at risk of losing the fish). Immediately the great fish became loose from the hook and the islands slid apart as they had been. Only two islands had actually reached each other. The point near Nawalihi lighthouse had touched 52
Kiowa Point on Oahu and as they drew near a piece of Oahu was caught on Kauai and a piece of Kauai on Oahu. This rock off Kiowa Point is still called "Pokaha o Kauai." Rock of Kauai because of their taming bird, Mau's brother, on their return to Waialua, turned to remove which are set across the mouth of the Waialua River (ibid 18).

Another tale deals with Pakiskoia and the people of Waialua.

Pakiskoia of Kinoehe, Oahu, had a pet fish that he had raised from its childhood, named Uluwauaiki. When fishing at Waialua, Pakiskoia put his horses against four pieces of land that made 12 days. He would catch more fish than the people of Waialua and all their pigs and dogs could carry away as food, and send west to the fish Uluwauaiki to help him set his net. On the 14th day, when he had caught no fish, the Waialua people made preparations to kill him and refurbish a new, wooden canoe, to take him, but as daylight the next day fish were seen coming to Waialua both from north and south. The fish covered the land at Waialua and extended deep into the valley. The fish Uluwauaiki came, too, and Pakiskoia picked up and wished at and for love of it returned to his Oahu home, giving the whole of Kauai to the owner of the canoe that had brought him to Waialua (ibid 19).

In a report by Cox (1977) on Waialua Chant, the author emphasized that Waialua was a place of social importance on the island and the primary residence and major religious center for the chief's end of the island. In the legends of the first to reach Hawaii, Mokihana is said to have picked Waialua as his home (Cox 1977:4).

Brazil notes the existence of a man associated with an area, tales are also told of bismark or many things Waialua is mentioned in this time by Skinner.

How has his "heaps" and "spots," just as in other matters that do not believe in such things. One of the spirits makes a slope down to Kilauea, Kiua. As there are trees of bamboo one of his streams to carry him to the top of his slope on his shoulders. It was a tedious climb, the day was hot, hence it is no wonder that just before he passed the second man staggered, fell, and sent his dog and indignant man sprawling on the rocks. This was a fatal mistake, for the chief met the poor fellow through with his spear. The ghost possibly limits because it did not lose any uncertain manner and with more emphasis.

Another place that the native owned is the Sugar Land on Waialua River, Kiua. Hungry矢es know a slope and are some harness that had been connected as a local god, Kolesterol. Meaning the chief, the deity turned himself into the rock known as the Sugar Land, which is very steep, high, that he might watch his gymnastics while being observed. The hands raised the rock, they, however, could not recall that it had been there on the day before, and suspending somewhat kept away. The stone of the god, belongs him to the bend, dropped into the river and become a stone himself. And, being of themselves of the fish, these two see more in water on the spot (Skinner 1900:274).

**EARLY HISTORICAL ACCOUNTS**

William Bennett, an archaeologist who studied many areas of Hawaii in the early part of this century, noted that it was hard to look ethnological finds on the island to individual chiefs and political events due to the encroachment of the genealogical record.

To separate the chronological history of Hawaii, the society, and importance of the genealogical, and the lack of accurate tradition.

knowledge about the rules and traditions. Some of the biographies are said to have been built by each and such a chief, but has been possible to place several of these chief in chronological sequence.

Bennett also noted Hawaii's political independance:

As to actual history the most significant point is that Kauai remained politically independent up to 1825. The island was never conquered, though in 1810 Kauaiuli ceded the island to Kamehameha I to prevent an invasion.

With the death of Kamehameha I in 1824 the independence of Kauai ceased (Bennett 1911:7-8).

At this point, it might be of interest to review the events surrounding and following the creation of Kauai. According to Kamehameha.

By the mid-1800s, Kauaiuli had become King of Kauai, and the island of the entire island were his. In 1810 Kauaiuli sailed to Honolulu to acknowledge the sovereignty of the King of Hawaii. It appears that no change took place in the established land tenure as Kamaalii returned to Kauai's in charge of his land. There was a promise on his part, however, that the island would be left eventually in the Kamehameha line.

On the death of Kamehameha I, Liholiho came to Kauai to check on the loyalty of Kamehameha. Kamehameha proposed in a formal manner to surrender himself, his island, and all that he had to Liholiho. Bingham (1822:234) recorded the salient points: "...Do with them as you please. Place what chief you please as governor here." Liholiho "...I did not come to take away your island! I come with the place anyone over it. Keep your island and take one of us just as you have done, and do what you please with your veteher." Kamehameha was married to Kalamaku, one of the strongest political forces in the kingdom. To strengthen the political tie with Kauai's, she also well Kalamaku, son of Kamehameha. Kamehameha died in May 1825, leaving his Kauai's lands in the Kamehameha line. Apparently through, lands in the hands of Kauai's chiefs were to be administered by them. Sept. 13, 1824, Liholiho wrote from Waimea to Kamehameha I in London: "...Your servant Kauai's is dead. He left word that Paniolo (also known as Kalamaku, who with Kamehameha were the two strongest political forces) was to take care of your lands. . . ." This indicates Kamehameha fulfilled the land agreement of 1810. The lands was to be held in trust by Kamehameha and Kalamaku for Kamehameha II and that these chiefs who had lands would keep them, those who were Indies would remain so. This disposition of lands brought about the discrepancy in 1824 when landless chiefs attempted to overthrow the forces of Kamehameha II. The revolt brought disaster for all Kauai's chiefs as they lost the building in the territories. His interest in the Kamehameha line, who took over the lands of Kauai's (Kamakau 1961:249).

Landscape Kauai chiefs called Kamaalii's son Honelea, to join them in revolt; but reinforcements from the other islands under Kalamaku dispersed the tenaciously.

...and the lands and houses of (Selectivity of Oahu and Maui obtained the rich lands of Kauai) (ibid.)
Little information can be found to help determine which chief obtained land after the uprising. It appears that the Crown and new relatives inherited the bulk of the lands. The government on Kauai was placed in the hands of Kauai, whose loyalty to the Kamehameha line was unquestioned. Kauai, in turn, was given governor after Kekaha's death in 1839 and held the post until 1842.

Several early European visitors recorded impressions of the whole area in the vicinity of the project site. In 1833 Captain George Vancouver landed on Kauai and noted three river mouths emptying into the sea, two at Waialua and one at Kapaa. He wrote that these were "the most fertile and pleasant district of the island" and the "natural residence of the king" (Vinson 1994:59).

Vinson also estimated the birth of Kamehameha III to be around 1780. Tradition tells us that he was born in the bithurth of Waialua Valley (ibid 199).

Waialua is also noted as the most fertile, although it did not possess as much land in its area. It was also known as the residence of Deborah Kapolei, a queen, whose home served as a stopping point for travelers on their way to or from Honolulu between 1810 and 1815. This is where the Kamehameha line is presently located (ibid 141).

Hendy (1948) describes traditional agricultural land use in the area:

- Kalo planted in upland forests from 1,500 to 2,000 feet elevation, Kekaulu and Puna (emphasis Hendy) (1948:43).

Farming in the Hanamakau area included the raising of taro, sweet potatoes, bananas and coconut.

The Hanamakau stream flows through a broad valley terminally terraced in older stages. Before the advent of modern agriculture, these terraces were very likely an important area for wetland agriculture. Upland areas would have been ideal for planting sweet potatoes (Riley and Hendy 1971).

HEIAU SITES

Berman briefly describes two Heiau sites in the Waialua area:

Site 1: Kakeha Kaulua heiau, in Hanamakau above the present mill. Described by Berman as an "Heiau to the north of Hanamakau valley." Site 1955. Of questionable cause.

Site 2: Kakeha Kaulua heiau, in Hanamakau above the present mill. Described by Berman as an "Heiau to the north of Hanamakau valley." Site 1955. Of questionable cause.

Thurston (1905) notes 124 Heiau for the Island of Oahu, several in the Waialua area.

Makaha - Central Waialua. A walled and paved heiau 232 to 112 feet in size of traditional Hawaiian construction located along the river bed. The location of this site is known to the native people. The site was likely a ceremonial center and a place of worship. It is mentioned in Hawaiian oral traditions and likely played a significant role in the religious and social life of the community.

In 1841, during the reign of Kamehameha III, the traditional Hawaiian land ownership system was replaced with a new Western-style system. This radical rearrangement was referred to as the Great Motu. The Great Motu established a royal court system and divided the island into districts based on the districts of the old Kamehameha line.

The Great Motu was created in 1841 and divided the Island of Oahu into three districts: the Waialua district, the Hanalei district, and the Waimea district. The Waialua district was divided into two sub-districts: the Waialua district, which included Hanamakau valley, and the Waipio district, which included the Waipio valley.

The Great Motu was also responsible for the creation of the office of the Governor of the Island of Oahu. The Governor was appointed by the King of Hawaii and was responsible for the administration of the island. The Governor was also responsible for the enforcement of the laws of the Kingdom and the protection of the people.

In 1848, the Kamehameha III and Princess Victoria Kamakau, and by Royal Charter, appointed the Governor of the Island of Oahu, the Governor of the Island of Molokai, and the Governor of the Island of Maui. The Governor of the Island of Oahu was appointed by the King and the Governor of the Island of Molokai was appointed by the King and the Governor of the Island of Maui was appointed by the Governor of the Island of Oahu.

In 1850, the Governor of the Island of Oahu was appointed by the Kamehameha III and the Governor of the Island of Maui was appointed by the Governor of the Island of Oahu. The Governor of the Island of Molokai was appointed by the Governor of the Island of Oahu.
The Mahri did not convey title to any land. The chiefs and householders were required to present their claims to The Land Commission to receive awards for lands quickened to them by Kamehameha III. They were also required to paydamages to the government in order to receive payment on their claims. Until an award was issued, title remained with the government. The lands awarded to the chiefs and householders became known as Kuleana Lands. Because there were few surveys in Hawaii at the time of the Mirtios, the lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This expedited the work of the Land Commission and speeded the transfers (Chirns 1955:13).

During the process all land was grazed in one of three categories: Crown Lands (the occupant of the Crown, Government, or Kuleana Lands. There were no claims to the rights of native tenure. (Laws of Hawaii, 1845:22). Native tenure were the common Hawaiian people who lived on the land and worked it for their subsistence. Questions concerning the nature of these rights began to arise as the King, the government, and Kuleana began selling parcels of land. On December 21, 1949 the Pueo Council attempted to clarify the situation by adopting four resolutions intended to protect the native rights of native tenants referred to in the 1848 law (Chirns 1955:23).

These resolutions authorized the Land Commission to award the simple title to all native tenants who occupied and improved any portion of Crown, Government, or Kuleana lands. These awards were to be free of covenants except for house lots located in the districts of Honolulu, Lahaina, and Hilo (ibid.).

Before accepting their awards from the Land Commission, the native tenants were required to prove that they cultivated the land for a living. They were not permitted to acquire whatsoever of lands which they cultivated "with the understanding of repairing their titles." Once a claim was confirmed, a survey was conducted before the Land Commission was authorized to issue any award. These lands became known as "Kuleana Lands" (ibid 50). Until its dissolution on March 31, 1855, the Land Commission issued thousands of awards to the native tenants for their Kuleana lots, even so that 30,000 acres of land were given to the native tenants as Kuleana Lands.

The alapua of Waianae has 45 entries in the Index of Awards (Board of Commissioners 1929) and was declared to be a Crown Land. To be the proper lands of his majesty Kamehameha III, to hold and to hold in himself, his heirs, and successors, forever (1848). These crown lands received in the Territory of Hawaii with the establishment of the Organic Act of 1849, and have since been called Government lands. The present owner of the County of Kauai.

The Index of Land Commission Awards, contains the following awards for Honolulu:

LCA 3631
Kealoha 1.25 Acr, 20 rods
3632
Kaiwa 3 rods, 20 rods
3633
Kaloa 1.75 Acr, 20 rods
3634
Kualoa 9177.46 (Lot 32)
7721
V. Kamalani 7.17 Acr, 20 rods
3644
Kakaikoa 1.25 Acr, 20 rods
3654
Kokea 3 rods, 1 rod
3640
Kokehai 1.75 Acr, 30 rods
3655
Koko 1 rod, 27 rods
3659
Kohalaena 3 rods, 17 rods
3660
Kurihakona 1 ac, 1 rod, 12 rods
3571
Lahilaha 1 ac, 25 rods
3667
Nana 1 ac, 1 rod, 13 rods
3423
Pila 1.50 Acr, 30 rods
3526
Pikake 1 ac, 17 rods
3571
Nakoa 1 ac, 25 rods (Kapiolani)
3647
Kapoho 4 rods, 12 rods (Makaha)
3647
Kapoho 38 rods (Papahana)

The fourth name on the list, V. Kamalani, is Victoria, sister of Alexander Liholiho (King Kamehameha IV). Lei Kamalania (King Kamehameha IV), Meae Kulukau, and half sister of Ruth Keelikolani (Board of Commissioners 1929). She was awarded Kuleana by the Executive. However, all proceedings on all the other leases, they were bound to respect the rights of the existing tenants. These tenants, if they filed a claim to the Board of Commissioners, were entitled to file an action in the courts and live on their parcel. The following are excerpt from a motion for survey for awards to individuals in Honolulalala.

LCA 3550 to Jules, Foreign Testament vol. 13:160
Kauahapu is a lease he has...consists of three lots in the district of Kaiulani and is also a small kulea of his. Chimient has also a house lot at Honolulu. Chinamanta had his house lot at Pin, which was disposed by his kule. Thus the property...agreed to give him the lot above described at Honolulalala.

LCA 3650 to Ewell, Foreign Testament vol. 13:153
...in the district of Pin is a lease of Honolulalala and consists of four lots in the district of Mokulau, with small house lots attached. The house lots being taxed, it was taxed as land. The acreage of this lot is in the district of Kalaheo. The Koleo is known as No. 2 kulea, Koleo is the name of the street. Chinamanta had his house lot at Koleo, in the days of good old Kohala, the house lots have been disposed.

LCA 3653 to Ichibu, Foreign Testament vol. 13:151
...consists of four lots in the district of Honolulalala and consists of four lots in the district of Mulukau, with small house lots attached. The house lots being taxed, it was disposed as land. The acreage of this lot is in the district of Kalaheo. Chinamanta had his house lot at Koleo, in the days of Kohala, the house lots have been disposed.

LCA 3456 to Peck, Foreign Testament vol. 13:156
...consists of four lots and in the district of Kepuka. Chinamanta has also a house lot near the sea shore in place of Koleo. Chinamanta has a small house lot near the sea shore in place of Koleo. Chinamanta has also a house lot near the sea shore in place of Koleo.

LCA 333 1 to Inbee and Inbee, Foreign Testament vol. 13:155
...consists of 10 lots and small kulea attached to which Inbee became known as Inbee and Inbee in 1841. The lots are further attached to which Inbee became known as Inbee and Inbee in 1841. The lots are further attached.

LCA 3647 to Kepuka, Foreign Testament vol. 13:151
...consists of four lots and in the district of Kepuka. Chinamanta has also a house lot near the sea shore in place of Koleo. Chinamanta has also a house lot near the sea shore in place of Koleo. Chinamanta has also a house lot near the sea shore in place of Koleo.
by the kōnākū. Wainan says there never was any dispute about the land within the last few days. He says Clinton gave the land to his friend Lanika who held it several years till his death about a year and a half ago when he returned the land to Kāhiwa, the present Clinton. Pupukea, in 1842, I am a Kannawa of Hanalei and know the land of Clinton and at the time of any dispute about the claim till Tuesday; hence, when I found that Louis disposed of it I believe the treaty of Kūpehi is of no force.

ECA 1371 to Lūhuihewa, Foreign Testament vol. 12:161
- copies of the deed in the office of Kalua. Clinton's house is in the village of Pepea. He held his land from Daniel Alii in the days of Kukahoa and has occupied it ever since in peace.

ECA 1373 to Peke, Foreign Testament vol. 13:158
- copies of the deed in the office of Kalua and small lots adjoining. Clinton also has a house in Pepea land from Keo his kōnākū in the days of Kukahoa.

Found in the Land File of the State Archives were various references to Hanalei land:

Intestate Dept., Aug 19, 1827 - In letter from M. Kabebe to W. Webster, informing that the above land which is claimed as belonging to the King has been surveyed and granted the Land Commissioner and a Royal Patent issued to V. Kamala.

Intestate Dept., Aug 4, 1825 - In letter from H.A. Waleman to Webster, that he had sent his name on a lease to the Leie Planter for the above land, which leads him to believe he has something to do with Victoria's land.

Intestate Dept., July 20, 1870 - In letter from Paul Strobel [sic] to J.J. O'Donnell enclosing a draft for $777.00 being the purchase price for the above shipaka's acre.

Intestate Dept., Oct 4, 1870 - In letter from G. McIntrye to C.C. Harris, that Mrs. Strobel [sic] has requested him to know the exact boundary of the Crown Land of Waihe that part which adjoins the above shipaka's land to the Leie Planter. Harris is to know whether the said shipaka's was held by the late Princess Victoria by Royal Patent according to survey by Pepe, or by the Ancient Boundary Act.

Intestate Dept., July 20, 1878 - In letter from S. Kauai to the Commissioner of Crown Lands stating that he is holding the Waihe Estate under two leases from the Hawaiian Govt. first to M. Young to Thomas Brown for 99 years and second from Kamala to M. F. Hulahula for 50 years but since a royal patent had been granted to the Leie Planter for the above shipaka's containing about 800 acres which is a fraction in 2 leases which happens the property of his estate, he desires to have said leases canceled & asking that he be allowed to enter into a new balance of said estate for the same land but with the exception of the land granted to said planter for a term of 25 years at a yearly rate of not more than $5000.

Intestate Dept., DL.15 p.109 - In lot of 8000 Kauai land, showing that V. Kamala is owner of the above land & that it has a sea frontage of 55 miles.

Public Instruction, June 24, 1891 - J.K. Bertken to Min of Public Instruction - Have talked with Mr. Wilcox & Mr. Heimberg in regard to a lot for a school house at the above place, etc.

Public Instruction, Feb 11, 1891 - A.S. Wilcox to Min of Pub Instruction - Think it best to send a copy of the former survey of the above school lot, as the other surveyors have all disappeared & will be difficult to find the exact spot without its use.

Public Instruction, April 1, 1907 - Register of Conveyances & Ings. of Public Land. Submitting Abstract of Title for a portion of S.P. 2481, Land Claim Award No. 7718, Ap. 2, Port 7, land shown at the above tract, Kauai, claimed to be owned by the Leie Planter Co. Ltd. etc. Notes of Survey of School lot in said tract.

Public Instruction, Aug 25, 1909 - Sups of Pub Instruction to W.C. Frost. To execute the Act in suggesting valuation of 2.08 acres school lot at the above tract, valued at $350 per acre for 20 years, to be returned on the 20th.

Executive Parkhum, Aug 4, 1915 - Commissioner of Public Lands to Governor Parkhum: Informed that the Leie Planter Co. deliver to the Koha sugar Co., water rights & fencing on the above lands, paying a little over $20.00 a year.

THE SUGAR PLANTATION

Kohala, Kauai's was home to the first Sugar Plantation in the islands. A brief history of Kohala's Plantation Company is presented here, taken from the Pacific Commercial Advertiser's 50th Anniversary Edition, July 2, 1900:

Leie's sugar plantation is interesting because of its phenomenal success and the story of its establishment which has been somewhat exaggerated and overdrawn through its progress, and especially during the early years when the sugar industry in Hawaii was in its experimental stage.

The early records of the plantation show that in 1854 Messrs. Henry P. Sturtevant, Wm. L. Lee, Wm. C. Parke, Edwin O. Hill, C. N. Bishop, C. W. A. Hase, W. H. Sitter, formed a copartnership under the name of Henry A. Force & Co whose business should be to plant sugar cane, manufacturing sugar, and all other branches of business themselves aforesaid, and authorized by the proprietors of the said plantation, which indicates that the plantation had been in operation prior to that date. Mr. Rice was the manager. The mill which stood on the present site, was built by Mr. Rice in 1854, and was conducted by Mr. Samuel T. Alexander. In front of the store was a large open space surrounded by a grove of mango, breadfruit and other fruit trees which warmed from all parts of the island comprising coffee, sugar, and sugar cane. The mill was later purchased by Messrs. Sturtevant and others, and was bought from Mr. Alexander and Mr. Rice. The mill was later sold to Wm. H. Sitter, who took it over, and it was managed by him in 1857. A sugar mill at Waihe was regarded by the natives especially low in quality. The crops were not only to relax, but also for the sale of the raw sugar. A sugar mill at Waihe was regarded by the natives as especially low in quality. The crops were not only to relax, but also for the sale of the raw sugar. A sugar mill at Waihe was regarded by the natives as especially low in quality. The crops were not only to relax, but also for the sale of the raw sugar. A sugar mill at Waihe was regarded by the natives as especially low in quality. The crops were not only to relax, but also for the sale of the raw sugar.
It was Mr. Rice who first introduced irrigation on the cane fields in Hawaii. The average yield of sugar per acre was, at that time, one and one-half tons and was insufficient to make the industry a profitable one, and he conceived the idea of bringing the waters of the Koolau stream to the plantation for irrigation, and he built a ditch for that purpose. Even with irrigation the outlook for the planter was evidently dark, for in 1841 a proposition was considered to abandon the planting of sugar cane. Mr. Paul Isenberg was an employee of the plantation at the time and it was due to his advice and efforts that the proposition to abandon was given up, and planting was continued.

In the year 1857 Mr. Rice died and Mr. Isenberg succeeded to the management of the estate. Mr. Isenberg was a man of strong character, clear foresight and indomitable will and energy, who, by his perseverance and example, not only pulled Lahaina’s plantation through difficulties of extraordinary severity, but inspired his neighbors with pluck to plod along in a successful sugar against conditions, at times, most discouraging. So great was his faith in the future of the sugar industry in Hawaii that, when later he had acquired an interest in the plantation, and his proposal to purchase the Hanauiola (established by the Adventurers) was opposed by the partners, he entered into an agreement with them whereby any loss which might be incurred in the planting of those lands was to be borne by him individually, whereas any profits arising from that same premises was to go back to general plantation in the several partners. This in question contains 17,000 acres and was bought for $38,000, which price was agreed to be paid by some members of the firm at the high.

Men of Mr. Isenberg’s description rarely are in such matters. It was this purchase which gave to Lahaina’s plantations its present water supply, and added thousands of acres of fine cane land...

The Hanauiola lands referred to above were purchased during the sixties. In 1877 Mr. A.S. Wilson was given a concession to plant the tract on Kekaha, the mill was erected by Lahaina’s plantation, and in 1890 Mr. A.S. Wilson, giving up Hanauiola, the cultivation of the place was taken up by Lahaina’s plantation, and some time the two places have been in composition, although the area of the respective plantations been grown in as an own mill. Mr. Wilson (manager) succeeded increasing the crop of the combined places, Lahaina and Hanauiola, to 18,000 tons (Estado Commercial Annual 1906:60-61).

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APPENDIX B

Cultural Impact Assessment Study-Ocean Bay Plantation at Hanamāʻulu, Land of Hanamāʻulu, Līhuʻe District, Island of Kauaʻi

PHRI, Inc.

December 2001
Cultural Impact Assessment Study
Ocean Bay Plantation at Hanamāʻulu

Land of Hanamāʻulu, Lihuʻe District
Island of Kauaʻi

Technical Report for Environmental Impact Statement
Cultural Impact Assessment Study
Ocean Bay Plantation at Hanamā'ulu

Land of Hanamā'ulu, Lihu'e District
Island of Kaua'i (TMK:4-3-7-3:1;4-3-9-5:5)

Technical Report for Environmental Impact Statement

PREPARED BY
PHRI, P.O. Box 11, Honolulu, Hawaii 96810

December 2011

PREPARED FOR
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EXECUTIVE SUMMARY

This cultural impact assessment study as a technical report for an Environmental Impact Statement (EIS) to be submitted in support of development applications for the proposed Ocean Bay Plantation at Hanalei Bay in Kauai County, Hawaii, has been prepared by the Hawaii State Department of Planning and Ninety-six (96) Table of Contents (Rev. 2/1983). The general purpose is to specify the requirements for Chapter 152 (Rev. 2/1983), as amended by H.B. No. 2495, H.D. 1 of the Hawaii State Legislature (2000) and approved by the Governor on Act 55 on April 16, 2000, and which among other things require that environmental assessments (EAS) and impact statements (EIS) identify and analyze the potential effects of any proposed project upon the "...cultural practices of the community and State..." more specifically, they should address the issue of potential project impacts upon traditional Hawaiian cultural uses and practices, in accordance with the CEQC Guidelines for Assessing Cultural Impact" adopted in November 1997.

The specific purpose of the present study is to assess the potential impacts of the proposed project upon the cultural resources-the practices, features and/or beliefs-of native Hawaiians or any other tribal group, that are currently associated with the Hanalei Bay project area. To accomplish this purpose, several specific objectives were established: (a) identify any native Hawaiian or other ethnic group cultural practices currently being conducted by individuals or individual cultural practitioners; (b) collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices; (c) assess the potential impacts of the proposed project upon identified cultural practices; and (d) recommend appropriate mitigation measures for any potentially adverse impact upon identified cultural practices.

The basic study methodology involved contacting and consulting with as many as possible potentially knowledgeable individuals and group representatives. A final revised "List of Potential Informants" included some potential informants. Of these individuals, some 34 individuals, representing different groups and organizations, were contacted and consulted. The extent of this effort indicates it is likely that the full range of traditional native Hawaiian cultural practices currently associated with the Hanalei Bay project area has been identified.

Cultural practices identified as currently occurring within and immediately adjacent to the project area appear to be essentially associated with the immediate shoreline area and inshore system. These practices primarily involve a variety of manner resource exploitation activities and recreational activities. This general finding was not unexpected, given the almost total modification and alteration of the inshore portion of the project area over a century of historic period resource cultivation.

The traditional native Hawaiian cultural practices identified appear to represent only one of two general types of behaviors, i.e., practices with active behaviors involving both similar activities with material benefit. None of the identified practices explicitly identify any specific examples of the other type of behavior, i.e., those practices with passive behavior which seek to produce nonmaterial results. None of the traditional cultural practices of any kind were identified by any of the contacted Hawaiian. The only cultural practice that would seem to be a contemporary practice other than traditional and customary cultural practices was the customary practice of scattering of cremated remains into aboriginal waters. A slight element of this practice.

Based on an evaluation of the traditional native Hawaiian cultural practices identified as currently associated with the Hanalei Bay Plantation project area, an assessment of the potential impacts of the proposed project upon these identified practices, the present identification study has concluded that the proposed golf course and residential development project-in which the proposed development would be done almost entirely within the existing limits of the inshore portion of the project area that was previously cleared and greatly modified by historic period agrarian activity—should have no significant or adverse effect on the existing cultural practices identified as currently associated with the shoreline area and immediately adjacent inshore waters. Given the nature and development limits of the proposed project, and with the specific exception of possible short-term construction period restrictions, the continued exercise of all traditional and customary native Hawaiian rights for access and gathering practices would not in any way be constrained, restricted, prohibited, or otherwise. This conclusion is made with the qualification that public shoreline access for the continuance of the identified cultural practices will remain intact.
PREFACE

The present study, which is the result of work done by PEHI over a four-month period beginning in early August 2000, is based largely on contacts and consultations made with potentially knowledgeable individuals and group representatives, with additional information obtained from other readily available documentary sources and previously prepared reports. The general purpose of the study is to comply with the requirements of Chapter 13 of Hawaii Rev. Stat., as amended by H.B. No. 2983, 1991, and with the requirements of the Environmental Assessment Act of 1993 (H.B. No. 2983) and the requirements of the Hawaii State Legislature (1995) and approved by the Governor as Act 36 on April 15, 2000. The study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project. The study also identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

I would like to acknowledge the efforts made by those who have helped achieve the successful completion of the present study within the specific context of time and scope. First, I would like to thank the many individuals and group representatives who were contacted and consulted on this study project team—especially those who contributed their expertise and provided the necessary data and information. Second, I would like to acknowledge the efforts of the project team members, who were instrumental in bringing together the necessary expertise and resources to complete the study. Finally, I would like to express my appreciation to those who contributed to the successful completion of the study, including the project team members, the consultants, and the many others who provided assistance and support.

W. Yuri Kamehameha
Hilo, Hawaii

INTRODUCTION

STUDY IDENTIFICATION

At the request of the Kauai Hawaii Planning Commission, this study, entitled "Hanauma Bay Master Plan: A Development Plan for the Future of Hanauma Bay," was prepared by PEHI to identify potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay. The project is intended to address the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project. The study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

STUDY PURPOSE

General Purpose

The general purpose of this study is to identify potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project. The study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

Cultural resources include a broad range of cultural values, including those associated with cultural practices, beliefs, customs, and traditions. A "cultural resource" is defined as any cultural object that has been identified as having historical significance. The study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

Traditional cultural resources are defined as those that have been identified by community members as having cultural significance. These resources include cultural objects, such as artifacts, traditional practices, and beliefs, that are associated with cultural traditions and beliefs. The study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

In addition, it is important to realize that sometimes a traditional cultural property may not have a visible physical manifestation. Although many traditional cultural properties have physical manifestations that can be easily identified, others are more subtle and may not be immediately apparent. The study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

There are at least two significant differences that distinguish traditional cultural properties from other properties. First, while cultural resources such as artifacts and beliefs may be associated with general types of geographical areas, such as the continental shelf and coastline, traditional cultural properties are more closely associated with specific locations, such as Hanauma Bay. Second, while cultural resources such as artifacts and beliefs can include a wide range of cultural practices, beliefs, and traditions, the study identified the need for a more detailed assessment of the potential environmental impacts of a proposed Ocean Bay Project at Hanauma Bay as a result of the State's decision to proceed with the project.

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place of honor directly associated with specific behaviors or the community of which they are a part, in other words, or remembered, can be demonstrated.

Based on these two significant distinctions, it is possible to suggest three types of practitioner claims relating to cultural practices, beliefs, and features that are likely to be included in the course of completing a cultural impact assessment study. These claims can be referred to as (a) traditional cultural property claims, (b) traditional and customary practice claims, and (c) contemporary or non-traditional cultural practice claims.

Traditional cultural property claims would be those which lie within the purview of Article XII, Section 1, of the Hawaii State Constitution ("Traditional and Customary Rights"), and various other state laws and court rulings, particularly as reaffirmed in 1993 by the Hawaii State Supreme Court in the decision commonly referred to as the "PAHO decision," and as further clarified more recently in a 1998 decision in State of Hawaii v. Aloha Airlines, and its 2000 decision in 53 P.3d refers to a number of state and local laws in Hawaii. The purpose of the decision in 53 P.3d and its impact can be summarized as follows: (1) the exercise of ancient Hawaiian rights are entitled to protection under Article XII, Section 1, of the Hawaii State Constitution, and (2) those persons claiming their right is constitutionally protected must prove that they are a native Hawaiian as defined in 53 P.3d, that they have a claim constitutionally protected as a traditional or customary property right; and that the exercise of the right is occurring on undeveloped or less than fully developed property. The decision in 53 P.3d generally reaffirms the same points as in the PAHO and 53 P.3d decisions and, in addition, (3) the explicit acceptance of the regulatory agency involved in the application reviews or any other applicable entity that the exercise of an ancient Hawaiian right is constitutionally protected, and (4) the claimant's activity is "similar" or "analogous" to the traditional or customary property right, provided that the exercise of the right is occurring on undeveloped or less than fully developed property. The decision in 53 P.3d generally reaffirms the same points as in the PAHO and 53 P.3d decisions and, in addition, (3) the explicit acceptance of the regulatory agency involved in the application reviews or any other applicable entity that the exercise of an ancient Hawaiian right is constitutionally protected, and (4) the claimant's activity is "similar" or "analogous" to the traditional or customary property right, provided that the exercise of the right is occurring on undeveloped or less than fully developed property.

CULTURAL IMPACT ASSESSMENT AND OECD GUIDELINES

1. Identify any native Hawaiian or other ethnic group cultural practices currently being conducted by individual cultural practitioners of group.
2. Collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices;
3. Assess the potential impacts of the proposed project upon identified cultural practices; and
4. Recommend appropriate mitigation measures for any potentially adverse impacts upon identified cultural practices.

Then, the overall goal or objective of the present cultural impact assessment study is to identify any native Hawaiian or other cultural practices currently being conducted by the 65-acre Ocean Bay Flats at Hanalei Valley project area that might potentially be in any manner constrained, restricted, prohibited, or eliminated if the proposed project were to be constructed. The types of practices to be identified would be inclusive; that is, claims for all three types of practiced-cultural property, traditional and customary cultural property, and contemporary cultural practices would be identified and considered.

CULTURAL IMPACT ASSESSMENT AND OECD GUIDELINES

As indicated previously, the general purpose of this cultural impact assessment is to assess the potential impacts of the proposed Ocean Bay Flats at Hanalei Valley project on any identified cultural resources in compliance with the requirements of Chapter 150, "Environmental Quality Control" (State of Hawaii). According to the guidelines, the Social Impact Assessment and Cultural Impact Assessment (SIA/CIAs) process shall be conducted in accordance with the procedures set forth in the guidelines. The assessment process shall include the identification of potential impacts on cultural resources and the evaluation of these impacts on the cultural resources.

Specific Purpose and Objectives

The specific purpose of the present cultural impact assessment study is to assess the potential impacts of the proposed Ocean Bay Flats at Hanalei Valley project on the cultural resources, features, and beliefs held by native Hawaiian or any other ethnic group that are associated with the 65-acre Ocean Bay Flats at Hanalei Valley project site. To accomplish this purpose, several specific objectives were established:

1. Identify any native Hawaiian or other ethnic group cultural practices currently being conducted by individual cultural practitioners of group.
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2. Collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices;
3. Assess the potential impacts of the proposed project upon identified cultural practices; and
4. Recommend appropriate mitigation measures for any potentially adverse impacts upon identified cultural practices.
The third attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights within the state environmental impact review process resulted in the current OEQC "Guidelines for Assessing Cultural Impacts" (EQC 1997). Draft guidelines were initially issued for public review and comment on September 8, 1997. The Environmental Council formally adopted the guidelines in their final form on November 19, 1997.

The relationship of the OEQC guidelines to the State Supreme Court "PASSI decision" was clearly stated on the front page of the September 8, 1997 issue of the EQC bulletin, "The Environmental Observer," when the draft guidelines were first issued for public review and comment.

For years, a controversy has rumbled over developers' responsibility to perform a "Cultural Impact Study" prior to building a project. The recent Supreme Court "PASSI decision" reaffirmed the state's duty to protect the gathering rights of native Hawaiians. In light of these events, the Environmental Council has drafted a guidance document to provide clarity on when and how a project's impacts on the cultural practices of Hawaiian communities should be assessed.

It should be noted that the guidelines for cultural impact assessment are meant to include consideration of all the different groups comprising the multi-ethnic community of Hawaiians. This includes the indigenous group of native Hawaiians who are generally understood, and the claim that the guidelines are to be applied only to cultural practices of native Hawaiian culture.

More than 20 letters were received by OEQC in response to the publication of the draft guidelines, and relevant comments were to be incorporated into a final version of the guidelines (EQC 1997). The final guidelines (EQC 1997) were formally adopted by the Environmental Council on November 19, 1997. The final guidelines are virtually identical to the draft guidelines initially published on September 8, 1997, and the degree to which any of the received comments on the draft guidelines were considered prior to issuance of the final guidelines is uncertain.

In general, the overall process through which the guidelines were prepared and adopted appears to ensure that the content of the guidelines is final and conclusions are not subject to change. The content of the guidelines is intended to provide a basis for the adequacy of cultural impact assessment studies prepared in response to the guidelines, and the legal obligation to comply can be required when the guidelines are in effect.

According to the Chair's Report contained in The 1997 Annual Report of the Environmental Council, the guidelines were drafted by the Cultural Impact Committee.

The Committee drafted guidelines recommending a methodology to assess the impact of proposed actions on cultural resources, including Hawaiian cultural resources, values, and beliefs. The guidelines also specified the content of a cultural impact assessment.

To prepare the guidelines, the Committee reviewed public testimony and solicited input from interested parties. Expertise from the DLNR Historic Preservation Division and other Federal agencies governing the "Protection of Historic Properties" were used to model the draft guidelines.

The draft cultural impact guidelines were published for review and comment in the September 8 Environmental Observer, and 20 letters were received. Relevant comments were incorporated into a final draft version of the guidelines, which were adopted as a policy document by the Environmental Council on November 19, 1997 (EQC 1997).

Director is an EQC Group (Gulf, Eastern) and SHPD (Dr. Shirley McMillan, Specialist in the History and Culture Branch) provided additional background information relating to the formulation of the cultural impact assessment guidelines. The principal author of the guidelines was Arnold Lum, a member of the Environmental Council's Cultural Impact Committee. Mr. Lum was also a state attorney at the Oregon State Legal Corporation. EQC staff assisted in the preparation of the guidelines. Several cultural groups were initially involved in the review of the guidelines. The principal author of the guidelines was Arnold Lum, a member of the Environmental Council's Cultural Impact Committee. Mr. Lum was also a state attorney at the Oregon State Legal Corporation. EQC staff assisted in the preparation of the guidelines. Several cultural groups were initially involved in the review of the guidelines. In some cases, the approval of the EQC was necessary. Overall, the SHPD draft guidelines for conducting cultural surveys and dealing with traditional cultural properties (EQC 1997) were included. In fact, a copy of the EQC draft guidelines was provided to the Environmental Council (EQC 1997). Given the relatively new status of the guidelines, the Environment Commission Committee by SHPD Administration, Dr. Dee Ridgway, professional staff in the SHPD's Office of Environmental Quality Control (EQC) 1997) are meant to provide compliance guidelines.

Discussion

The EQC Guidelines consist of three basic sections. The first section is an introduction which states the various statutory and other bases for addressing potential impacts upon cultural resources within the context of the environmental assessment review process, and the potential for preparing environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural resources and features associated with the project area (EQC 1997). The second section of the guidelines discusses the methodologies for conducting cultural impact assessments, and presents a recommendation to follow the practices set forth by the guidelines. The third section of the guidelines outlines 16 topics or "items" that a cultural assessment should address, and these topics basically represent the defined elements and organization of a cultural impact assessment report.

As guidelines, the EQC Guidelines are meant to have both the statutory authority of law or the regulatory authority of administrative rules. As guidelines, they are intended to provide general guidance that is, they represent general suggestions and recommendations as to how to approach the assessment of potential cultural impacts. The guidelines provide little or no guidance relative to many important issues, perhaps the most significant of which would be the following:

1. How would project-specific designations be made as to whether or not a cultural impact assessment study might even be necessary or appropriate—are there specific cultural elements that are a part of a proposed project?
2. If a cultural impact assessment is to be conducted, how does one determine what constitutes an appropriate project-specific level of effort—is there the general approach of work or objectives for the study, and the specific tasks or activities required to accomplish successfully the scope of work on an objective?
3. What criteria are to be used for determining the credibility and reliability of potential cultural information sources (generally referred to as "documents") as being "admissible" or "inadmissible"?
4. If specific cultural practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be applied for evaluating the description and applicability of the identified practices, beliefs, or features, or criteria?
5. If specific culturally authentic practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be applied for evaluating the description and applicability of the identified practices, beliefs, or features?
6. If a project is determined to have potentially adverse impacts upon specific identified cultural resources, practices, beliefs, or features, what criteria are to be used for determining the credibility and reliability of potential cultural information sources (generally referred to as "documents") as being "admissible" or "inadmissible"?

Within the purview of what regulatory office or agency would be the role and responsibility for determining the credibility and reliability of potential cultural information sources (generally referred to as "documents") as being "admissible" or "inadmissible"?
PRESENT STUDY SCOPE

Level of Study Effort and Rationale for Study Approach

The scope of work and methodology for the present cultural impact assessment study was based on the general assumption that the level of study effort appropriate for any project specific context should involve the remuneration of several factors, the most important of which are the following: (a) the probable number and significance of native Hawaiian cultural practices, features, easily identifiable resources, or beliefs with or associated with the specific project area; (b) the potential number of individual or residential impact points; (c) the potential number of individual or residential impact points with identifiable and cultural characteristics of the specific project area; (d) the availability of historical and cultural information for the specific project area or immediately adjacent lands; (e) the physical site, configuration, and natural and human modification history of the specific project area; and (f) the potential effects of the project on known or potential cultural properties, features, or resources with or related to the specific project area.

Consideration of these factors within the specific nature and context of the proposed 460-acre Ocean Bay Plantation at Nanuiku project, as well as consultation with professional staff of the State Historic Preservation Division-History and Culture Branch, indicated that the appropriate level of study effort for an adequate assessment of potential cultural impacts would be a relatively lower level of study effort that could be characterized as an identification study. The distinctive characteristics of an identification study are that it will afford (a) the identification of native Hawaiian or other ethnic cultural practices, beliefs, properties, features, or resources with or related to the specific project area that are currently being conducted by or known to be conducted by individual or residential impact points or groups, and (b) the collection of information reasonably adequate to define the general nature, location, and likely authenticity of identified cultural features.

An identification study would not involve the consideration of general level of study effort—both calendar months and hours of labor—needed to carry out what could be characterized as a full documentation study. The distinctive characteristics of the latter, which would commonly be referred to as a full documentation or site visit study, would be (a) the collection of detailed information regarding identifiable native Hawaiian, or other ethnic cultural practices, or resources with or related to the specific project area that are actively in use or in use; (b) the analysis of this information as relevant to an historical and archaeological dossier of the known or potential cultural properties, features, or resources with or related to the specific project area; and (c) the collection of information reasonably adequate to define the general nature, location, and likely authenticity of the cultural feature.

The overall rationale for obtaining the present identification study is that it is the level of study effort that could be characterized as a full documentation study. The distinctive characteristics of the latter, which would commonly be referred to as a full documentation or site visit study, would be (a) the collection of detailed information regarding identifiable native Hawaiian, or other ethnic cultural practices, or resources with or related to the specific project area that are actively in use or in use; (b) the analysis of this information as relevant to an historical and archaeological dossier of the known or potential cultural properties, features, or resources with or related to the specific project area; and (c) the collection of information reasonably adequate to define the general nature, location, and likely authenticity of the cultural feature.
STUDY METHODOLOGY

Guidance Documents

Several references were utilized as basic guidance documents for the conduct of the present cultural impact assessment identification study. The principal sources were the following:

1. The NPS Guidelines for Evaluating Cultural Resources outside the National Park System (1979);
2. The National Historic Preservation Act (1910), as amended and adapted to the NPS Guidelines for the Protection of Historic Properties (1988);
4. The report on the Waihau (Hawaiian Land Use Survey Report, 1980); and

Summary of Potential Informants Contacted

A list of Potential Informants Contacted for the present study is contained in Table 1. Numerous attempts were made to contact everyone on the Potential Informant List. Repeated attempts were made either by phone or through intermediaries. Attempts were made to follow up on all leads that were given. Three people not successfully contacted are indicated as such and those names remain on the list to show the breadth of potential informants that were contacted. All informants interviewed were done informally by telephone, and were successful. A follow-up interview was used for preliminary interview guides (see Appendix 4, n. 4, 1987). For the present study, all informants were contacted by phone, on formal interview guides were done for this study.

The informants represented diverse educational and community backgrounds and included various communities in addition to native Hawaiians. Their expertise included, but was not limited to, cultural resource management, history, research, law, and culture. Any potential informant who might have been included in the study was included in the study. Of the 15 informants included in the final study, all were contactable. A total of 41 informants were contacted and all were successfully contacted. Virtually no one of the 41 contacted individuals was able to provide some or more of the information. Of the 41 individuals contacted, four were unable to provide any useful information. 28 provided limited general cultural information, and 11 provided useful information specific to the project area and had potential for follow-up, and possible follow-up interviews. None of the informants contacted were able to provide more detailed information regarding usage, folklore, and cultural practices within the project area. The 11 individuals who have good interview potential, and considerations for interviews and follow-up are recommended. Also, of the 15 potential informants that were not successfully contacted, three were reported by other informants as being knowledgeable, i.e., having good interview potential, and are recommended for follow-up.

Following are brief profiles of informants identified and evaluated as knowledgeable individuals and are recommended for additional information for the study.

Stanley Kamaichi - Retired from a career in the Marine and General Manager for Pineview, Stanley currently resides in Kapa'a. He grew up living in Hanalei, Heavens throughout his early years, and still occasionally visits Hanalei Bay.
### Table 1. List of Potential Informants

<table>
<thead>
<tr>
<th>Name</th>
<th>HCMU</th>
<th>Position</th>
<th>Affiliation</th>
<th>Relationship to Subject</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alia, Lela</td>
<td>2. Alia, Lela</td>
<td>3. Alia, Lela</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

### Table 1. (Cont.)

#### KEYS
- **Excerpt** = CP: Cultural Practices
- **CRS** = Community Resources
- **HCS** = Historical Cultural Society
- **HPS** = Historical Preservation Society
- **LCL** = Legal Resources
- **PL** = Planning Resources
- **PE** = Personnel Resources
- **Potential** = 0
- **Affiliation** = AACE: Ancestral Cultural Exchange
- **Note** = (Note: Additional information not provided)

### Notes
- Cultural Exemplar: Ancestral Resource Exchange
- Contact Information: Office of Ancestral Affairs
- Resources Available: Community Resources, Legal Resources, Planning Resources, Personnel Resources
- Potential Contacts: 1. Ancestral Leader 2. Local Resources 3. Historical Resources
- Affiliation: Ancestral Cultural Exchange
OCEAN BAY PLANTATION AT HANAMĀ'ULU PROJECT

PROJECT SETTING AND BACKGROUND

The Ocean Bay Plantation project area consists of c. 400 acres of former sugar cane lands located in the Land of Hanamā'ulu in the District of Kū'ūsolo in the Island of Kaua'i (Figure 5). It is bounded on the north by Hanama'ulu Bay, on the east by the Pacific Ocean, on the west by the Hanama'ulu-Ahahui Cut-off Road and Kiihio Highway, and on the south by Kaua'i Beach Road. Virtually all of the project area was under sugarcane cultivation for more than a century, but has stood abandoned and overgrown since sugarcane cultivation was discontinued approximately fifteen to twenty years ago.

The terrain within some of the project area is generally level. Kukui series soils (Fone et al. 1972) are present immediately inland of the coastline; these soils develop in material weathered from basalt igneous rock, and overlie hard rock. Four general types of the Kukui series soils are present. Lithic silt clay (0.6% slope), Lithic silt clay (0-1% slope), Lithic sandy silt clay (0.6% slope), and Kukui series silt clay (15-25%).

There are three general types of soil present within the immediate coastal area: Rough broken sand, Rock Outcrop, and Beachfront (Fone et al. 1972). The Rock Outcrop soil consists of exposed basalt and underlying bedrock, which covers more than 90% of the surface (Fone et al. 1972). Within the southern half of the project area, the lands classified as Beaches are composed mainly of basaltic cobbles and boulders that are constantly washed away by waves. Present within the coastal flat is the northeast corner of the project area are three general types of soil: Kukui (fine sandy loam), Kukui sandy silt loam (0-15% slope), and Beachfront within the coastal flat, the land classified as Beaches is composed of silty-clayey sands derived from coral and mollusk.

Rainfall in the general vicinity of the project area ranges between 50-60 inches per year, and the mean annual temperature in the project area varies. (Fone et al. 1972). Vegetation in the immediate coastline and the coastal flat is the northeast corner of the project area, adjacent to the existing beach access road, consists mostly of improved (Cocos cafer agrestis L.), napo-coirahale (Scirpeo tennia varia), introduced grasses, and trees (Melaleuca alternifolia, H. A. and others). As a result of soil and sand of the Pacific Ocean beachfront, the land is low-lying marshy or intermittent wetland sometimes containing standing water. Vegetation in this area includes various weeds, grasses, trees, and shrubs (Hibiscus sabdariffa L.), and other coastal wetland vegetation. Present within this area are three general types of soil: Wood sand clay loam (dense dense, beach), Lithic silt clay (0-1% slope), and Beachfront (Fone et al. 1972). Kukui series soils are generally suitable for tea, coffee, sugarcane, and vegetable crops. Land within the coastal flat (0-25% slope) specifically "...occurs on stream bottoms and flood plains" (Fone et al. 1972: 38). Lithic series soils are generally suitable for irrigated sugarcane, pineapple, pasture, and orchards (Fone et al. 1972: 38). The area of the coastal flat and lands appears to have been modified sometime in the past, as evidenced by the presence of secondary grassy swales such as Anaspis (Passion grass) (L. Hersek) and Indian Fish (Passion grass) (L. Hersek). Present within this area are three general types of soil: Wood sand clay loam (dense dense, beach), Lithic silt clay (0-1% slope), and Beachfront (Fone et al. 1972). Beachfront consists of areas filled with material from dredging, excavation from adjacent uplands, gashes, and bagasse and silt from sugar mills. These materials are dumped and spread over marshes, low-lying areas along the coastal flat, coastal swales, swales, or areas adjacent to beaches" (Fone et al. 1972: 38).

Paul H. Rosenbush, Ph.D., Inc. (PHB) recently completed an archaeological inventory survey for the Ocean Bay Plantation at Hanamā'ulu project (Corkins et al. 2001). The basic objective of the survey was to provide information sufficient for (a) preparation of an Environmental Impact Statement for the proposed development of the project site, and (b) compliance with the regulatory review requirements of the Hawaii State Historic Preservation Division (SHPD) and the County of Kauai. The current survey report (Corkins et al. 2001) is a revised and updated version of an earlier PHB report (Walker et al. 1991). The present Hanamā'ulu project area had been previously surveyed in 1990 by PHB for an EIS that was to have been prepared in connection with AMAGIN Hawaii, Inc.'s Turtle Beach/Hanamā'ulu Master Plan Project.
The 1990 inventory survey included virtually the entire current project site. The 1990 inventory survey (Walker et al. 1991) was completed but was never submitted to SHPO for formal review. In June 2004, FHRI consulted with Dr. Ross Cordy, SHPO Archaeology Branch Chief, regarding the prior 1990 field survey and report, and formulated the specific tasks needed to upgrade the prior survey and report as appropriate for the Ocean Bay Plantation at Hanamakole project. FHRI then proceeded with the appropriate supplemental fieldwork in August 2004, and subsequently revised and updated the earlier report to the current version (Cordy et al. 2003).

Four site components and six single-feature sites were identified within or in the immediate vicinity of the Ocean Bay Plantation at Hanamakole project area. (See Figure 1 for location of sites.) The sites and components were composed of a variety of formal feature types. The most common feature types were bridges (two), cultural deposits (two), and cisterns (one, possibly two). Other feature types in the area included concrete foundations, a retaining wall, and a terrace. Transportation consisted of one-quarter of the formalized site types. This function was almost certainly connected to the sugarcane production and distribution that took place in the area. Temporary and possible permanent habitation constituted one-half of the functional types. These related to the prehistoric use of the project area for habitation at the coast, conducive to the procurement of marine resources.

Of the ten sites identified within or immediately adjacent to the Ocean Bay Plantation at Hanamakole project area, six were assumed as significant for information content, and no further work on preservation was recommended (Sites 1830, 1839, 1840, 1841, 1843, 1845, 2006). One site (Site 1844), a historic concrete railroad bridge, was assumed as significant under multiple criteria, and further data collection followed by preservation with some level of interpretive development was recommended. Another concrete bridge site (Site 1846) was also assumed as significant under multiple criteria, and further data recovery in the form of limited historical research and possible preservation was recommended. Since 2006, a complex with a large upright house building was recommended for further data recovery in the form of limited historical research and possible preservation. Site 2007, a historic cemetery located just outside the current project area, was recommended for preservation "as is" and would be avoided and protected during project development.

**PROJECT DESCRIPTION**

(Notes: The following narrative has been adapted from the Environmental Impact Statement Preparations Notice (EIS/PEIS) published on the September 8, 2004 issue of the CEQ Index, for Environmental Notice.)

The applicant, KWKA, LLC, proposes to develop the 440-acre property as a mixed-use residential and golf course community. The low-density master-planned community would maintain the open space character and sense of place of the surrounding area, and would provide large open spaces like along the coastline, the existing wetlands, and the existing buffer area. Proposed for the project area single and multi-family residential lots, an 18-hole golf course and associated clubhouse facility, and a small-scale commercial center. Project implementation is anticipated to be phased over a 10-15 year period, with initial site-clearing, grading, and infrastructure potentially scheduled to begin in 2003. The golf course and clubhouse, and a portion of the single family residential lots would be developed during the first two years, while the remaining single and multi family lots would be incrementally developed over the following 3-10 years.
SUMMARY OF HISTORICAL DOCUMENTARY RESEARCH

(Nota: The following summary has been adapted from Kalima and Smith 2001.)

Hakanui is mentioned in the Olalo Nii-ua, a book of Hawaiian sayings and aphorisms.

No Hakanui la loa paia ke kula.
(Th e quickly expired contains belongs to Hakanui.)

Sant of the singu people of Honanui, Kauai; - his hospitality there. At one time, food containers would be hidden away and the people of Hakanui would apologize for having no loko to offer their guests (Pukui 1981: No. 2239).

Hakanui who translates literally as "one up (as from walking by)" and it is said to be the birthplace of the kula Kauai (Pukui et al. 1974). Few legendary sources refer specifically to Hakanui, what legendary information seems to exist and primarily concerns the nearby akahokou of Waialea. In a report by Costa (1977) on Waialua, the author emphasized that Waialua was a place of ceremonial and religious center for the area of the island (Costa 1977).


Coconut planted near sea level throughout, in valley bottoms in Hakanui... Plums planted in inner valley slopes, especially Koolau, Puna (1940:9)

Farming in the Hakanui area included planting taro, sweet potatoes, taro, and coconuts. Hakanui Suauna flows through a broad path extensively terraced in earlier times. Before the advent of sugar cane, the mesa de los was very likely an important area for wet land cultivation. Upland slopes would have been ideal for planting sweet potato (Hendy and Hendy 1972).

Archaeological W C Bennett briefly describes two sites in the Hakanui area:

Site 328: Kikailaona kena, in Hakanui, above the present mill. Described by Thomas as "a large well filled basin that stood above the present mill, destroyed about 1857.

Of Polynesia claim Site 328: Two burials. In the area was once the great half way between Hakanui and Waihawa River six ancient burials (Bennett 1931:175).

Bennett, an archaeologist who studied many areas of Hawai'i in the early part of this century, noted that it was hard to find archaeological evidence for Hakanui to individual which political events due to the incompleteness of the genealogical research and Kauai's independence from the other islands, which have relatively been done. Bennett's doctoral thesis is also available to help determine early land ownership (Bennett 1929).

In 1848, during the reign of Kamehameha III, the traditional Hawaiian land ownership system was replaced with a more Western-style system referred to as the Great Mahele. During the Mahele all land was designated as Crown lands, Government Lands, or Kauai lands. These lands were all "suitable to the rights of native tenants" (Laws of Hawaii 1848-1849). The common Hawaiian people who lived on and worked the land. Eventually, the simple title was awarded to all native men who occupied and improved any land in Crown, Government, or Kauai lands, the Land Commissioner issued thousands of awards to the native tenants. The Indian Land Commission Act of 1853 (1857) contained the following awards for Hakanui: the four sites on the Waihawa River, the eighth site on the Waihou, Kauai on the Hakanui River, and the sites on the Waialua River.

LCA 3558 to Keka, Foreign Testimony vol. 13:180 - Kekuanao, a man, has seen... consists of three lots in the is of Waialua and then it a small kula adjusting. Clinton had also a house at Kekuanao... Clinton had buried on his island Kauai in 1846. His house lot he lived from Koi. Clinton held a house lot at Opi which was dug by Ken the Kekuanao. Clinton agreed to give him the house described at Houa.

LCA 5500 to Kekuanao, Foreign Testimony vol. 13:153 - In the is of Waialua and consists of... land has been added to this... Clinton had his land from Koi, Kekuanao, in the days of good old Kauai & he has occupied it ever since without opposition.

LCA 1565 to Keka, Foreign Testimony vol. 13:156 - It consists of four lots in the apposites of Hakanui and consists of four lots in the is of Kauai, with small kula adjusting the kula is not cultivated being examined to the dependance of mode. Clinton has also a house lot in the village of Kauai which is surrounded by a fence. No. 1 is bounded: Kekuanao's adjoin on Kekuanao's Adjoin, No. 1 is kola of Kauai. Kekuanao's adjoin... Clinton had his land from Koi, Kekuanao, in the days of Kekuanao's half dependable person ever since since his claim has ever been disputed. Koi says he is a late under Kauai and know the land and gave the land to Clinton according to the testimony of Kekuanao which all we.

LCA 34166 to Pelela, Foreign Testimony vol. 13:156 - ... consists of 4 lots in the is of Kauai. Clinton has also a house lot near the sea shore at a place called Kekuanao... Clinton had his land from Kekuanao's adjoin on Kekuanao's adjoin, land from his kokedai. In 1849 after Kekuanao came to Kauai and occupied it in place till Koi and became kaledata in Kekuanao in 1849 who took away from Clinton two lots and give them to Aukua. Kekuanao's adjoin the testimony of Kauai to all take. Ken sees it as is that Clinton held and occupied said land from lots.

LCA 3471 to Kekuanao, Foreign Testimony vol. 13:156 - ... consists of 10 lots and small kula adjusting on which Clinton held a house in the is of Kauai. Clinton had his land from his man in-law Kekuanao soon after Kekuanao went to Kauai and he occupied it in place till his death, which occurred in 1849. He gave land to his daughter Kapa.

LCA 3471 to Kekuanao, Foreign Testimony vol. 13:156 - ... consists of 10 lots and small kula adjusting on which Clinton held a house in the is of Kauai. Clinton had his land from his man in-law Kekuanao soon after Kekuanao went to Kauai and he occupied it in place till his death, which occurred in 1849. He gave land to his daughter Kapa.

LCA 3471 to Kekuanao, Foreign Testimony vol. 13:156 - ... consists of 10 lots and small kula adjusting on which Clinton held a house in the is of Kauai. Clinton had his land from his man in-law Kekuanao soon after Kekuanao went to Kauai and he occupied it in place till his death, which occurred in 1849. He gave land to his daughter Kapa.
land from Pau, the ko'olau about 5 years ago. That part of the claimant’s land lying south of the Hana’ulu stream had never been disputed to this day. But the land lying on the Wai’au side is disputed by the ko’olau. Wilson says there never was any dispute about this land within the last few years. He says Claiborne gave the land to his friend Luskin who held it several years till his death about a year or two ago (possibly 1878) when he returned the land to government. Pauwahow, sworn the 23rd day of June, 1897, states he is a Kanaka of Hana’ulu and knows the land of Claiborne and never heard of any dispute about the claim till Tuesday last when he heard that Ken disputed it and he believes the testimony of Kupuna is all true.

LCA 3751 to Lahilahilah, Foreign Testimony vol 12:145 - consists of six lots in the ill of Kula, Claiborne house lot in the village of Puako. ... land from Delia Abina in the days of Kaukabins and has no record of it ever since in peace.

LCA 3424 to Pakua, Foreign Testimony vol 13:150 - consists of 8 bns in the ill of Puako and small house adjoining Claiborne also has a house in Puako... land from Ken his brother in the days of Kaukabins...

Fouled at the land files of the State Archives were various references to Hana’ulu.

Interfer Dept, Aug 19, 1862 - In letter from Ms. Kekaulahele to W. Webster, informing that the above land which is claimed as belonging to the King has been surveyed and awarded to the Land Commissioner and a Royal Patent issued to V. Kamakau, etc.

Interfer Dept, Aug 8, 1863 - In letter from H. Watanabe to V. Webster, that he had sent his name on a lease to the Librat plantation for the above lands, which leads him to think he has something to do with Victoria’s lands.

Interfer Dept, July 30, 1873 - In letter from Paul Honopu to J. O. Doming in drafting a draft for $27/20 being the purchase price for the above akupua’s land.

Interfer Dept, Oct 4, 1878 - In letter from Deacon McElroy to C.C. Harris, that Mr. Honopu [sic] has engaged of him if he knows the maka’apa Boundary of the Crown Land of Walla that part which adjoins to the above akupua’s land to the Librat Plantation. Declining to know whether the said akupua’s land was held by the late Princess Victoria by Royal Patent according to survey by Peate, or by the ancient Boundary.

Interfer Dept, July 28, 1881 - In letter from E. Kauila to the Commissioner of Crown Lands stating that he in holding the Walla Estate under letters and leases from the Hawaiian Govt. First from Y. Young to T. Brown for 50 years & second from Kamakauhamea IV, to H. Helme for 70 years but since a royal patent had been granted to the Librat Plantation for the above akupua’s containing about 500 acres which is included in 2 leases & which happen to the patangia of his kula, he desires to have said leases cancelled & asking that he be allowed to enter into a new indenture of lease for the same lands with the exceptions of the lands granted to said plantation for a term of 20 years at a yearly rate of not more than $100.

Interfer Dept, Bk 15 p. 149 - In list of Kona Ulu lands, showing that V. Kamakau is owner of the above land & that he has a sea coast frontage of 3.5 miles.

Public Instruction, Jan 40, 1901 - J. K. Kukina to Min of Public Instruction - Have talked with Mr. Wilson & Mr. busking in regard to a lot for a school house at the above place, etc.

Public Instruction, Feb 11, 1903 - A. S. Wilson to Min of Publ Inst. Thinks it best to send a copy of the former survey of the above school lot, as the corner streets are all disappeared & will be difficult to find the exact spot without it.

Public Instruction, April 3, 1907 - Register of Conveyances to Dept of Publ Inst. Showing Abstract of Title as a portion of R.P. 4281, Land Claim Award No. 1707, at P. 2. Part of, land estate at the above tract, Kauila, claimed to be owned by the Librat Plantation Co. Ltd. Notes of Survey of School lot in said tract, attached.

Public Instruction, Aug 10, 1909 - Soof of Pub Inst to J. K. Kellett To assist the Dept in suggesting valuation of 23 acres of school lot at the above tract, valued at $1000 per acre & Don’t include those attached.
FINDINGS

TRADITIONAL AND CUSTOMARY CULTURAL PRACTICES AND BELIEFS

A number of cultural practices that most likely would be considered to be representative of traditional and customary native Hawaiian cultural practices were identified as currently occurring within the Hawaii\u2019s project area. Identified practices are specific. The following references are summarized in Table 2. While multiple informant references were encountered, the most prominent, others were reported by only one. While a single informant reference is noted, some references are attributed to the same source. The following table should be consulted for informant reference notes and information.

Table 2. Summary of Informant References to Cultural Practices

<table>
<thead>
<tr>
<th>Practice</th>
<th>Informant Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection of Shoreline Marine Resources</td>
<td></td>
</tr>
<tr>
<td>Gathering limu (kelp sea lettuce)</td>
<td>41</td>
</tr>
<tr>
<td>Gathering honohono</td>
<td>18, 17</td>
</tr>
<tr>
<td>Gathering iho</td>
<td>5, 33, 41</td>
</tr>
<tr>
<td>Gathering kalo</td>
<td>41</td>
</tr>
<tr>
<td>Fishing</td>
<td>5, 13, 17, 21, 30, 32, 43, 47, 53, 58</td>
</tr>
<tr>
<td>Botanical Fertilization</td>
<td>30</td>
</tr>
<tr>
<td>Catching akou, halau, speckled eel, esp. \textit{canoe eel}</td>
<td>18, 43</td>
</tr>
<tr>
<td>Catching akou and hana</td>
<td>29, 41</td>
</tr>
<tr>
<td>Catching akou from streams</td>
<td>29, 41</td>
</tr>
<tr>
<td>Catching akou, hana, iho, etc.</td>
<td>29, 41</td>
</tr>
<tr>
<td>Catching fish (inshore)</td>
<td>51</td>
</tr>
<tr>
<td>Kid., for digging for whale in inshore areas</td>
<td>5, 30, 41, 45</td>
</tr>
<tr>
<td>Fishing (kane, \textit{kaihau}, hana, etc.)</td>
<td>5, 51</td>
</tr>
<tr>
<td>Time and throwing</td>
<td>5</td>
</tr>
<tr>
<td>Collection of Other Shoreline Resources</td>
<td></td>
</tr>
<tr>
<td>Gathering \textit{kumiai}</td>
<td>41</td>
</tr>
<tr>
<td>Gathering with spear</td>
<td>20</td>
</tr>
<tr>
<td>Other Shoreline Resources</td>
<td></td>
</tr>
<tr>
<td>Gathering \textit{kumiai}</td>
<td>5, 29, 30, 33, 48, 53</td>
</tr>
<tr>
<td>Funerary deposits, including cremated remains</td>
<td>51</td>
</tr>
</tbody>
</table>

*See Table 1 for informant names and information.*

Cultural practices identified as currently occurring within and immediately adjacent to the Ocean Bay Plantation at Hawaii\u2019s project area appear to be entirely associated with the immediate shoreline area and inshore waters. These practices typically involve a variety of marine resource exploitation activities and recreational activities. This general finding was not unexpected, given the emphasis on modification and enhancement of the limited portion of the project area by near a century of coastal development and recreation activities. Public access to the shoreline area is gained generally by means of walking from Hawaii\u2019s project area, and direct access along the beach has generally been closely monitored by means of locked gates or chains and exclusive property signs.

Several related general types of marine resource exploitation activities were identified by local informants, including (a) collection of shoreline resources such as \textit{kumiai} (kelp sea lettuce), \textit{akou} (kelp sea lettuce), and \textit{hoku} (leaves); (b) different forms of fishing for a variety of species, and (c) collection of shoreline, storm, and resources such as \textit{pali} grass and wild spruces (species uncertain). Another cultural practice identified by informants is associated with the shoreline area was the use of study areas and tidal areas seaward of former sugarcane cultivation fields for human burial. None of the informants identified any specific traditional native Hawaiian beliefs associated with the project area.

IDENTIFICATION OF TRADITIONAL CULTURAL PROPERTIES

While attempting to identify cultural practices and beliefs associated with the Hawaii\u2019s project area, efforts were also directed toward the identification of any traditional cultural properties that might be present. No potential traditional cultural properties of any kind were identified by any of the informants contacted in the course of the assessment study. Hawaii\u2019s project area

CONTEMPORARY CULTURAL PRACTICES AND BELIEFS

The only cultural practice that would seem to be a contemporary practice rather than a traditional and customary cultural practice was the customary practice of seasonal use of shoreline waters. A single informant noted this practice.

CURRENT CULTURAL CONCERNS

In addition to the various cultural practices and activities identified in the course of the informant interviews and informal interviews, a number of issues and concerns related to the proposed Ocean Bay Plantation at Hawaii\u2019s project area, residential development project. Several informants expressed their opposition to "development" in general, including the presently proposed project.

A number of informants also expressed more specific projects, including, those that included (a) provision for continued public access, for canoes of various activities; (b) land use practices related to the development and management of the proposed golf course that were perceived to have potential adverse impacts to the quality of the shoreline and inshore waters, and the exploitable marine resources present (e.g., fisheries, and recreational activities); (c) adequate and appropriate shoreline setbacks for development elements; and (d) possible construction of a pathway along the shoreline for hiking and biking.
CONCLUSION

The specific purpose of this concluding section is to assess the findings of the present cultural impact assessment study to determine if any of the native Hawaiian cultural practices, beliefs, or features identified were being associated with the proposed Ocean Bay Disposal Facility at Hanama'ula project area represent traditional and customary practices which might be affected by the proposed golf course and residential development. The specific objectives of this conclusion include the following:

1. Summarize the nature and variety of identified traditional native Hawaiian cultural practices;
2. Evaluate the significance of the identified traditional native Hawaiian cultural practices;
3. Assess the potential effects of the proposed golf course and residential development upon the identified traditional native Hawaiian cultural practices, beliefs, or features; and
4. Make recommendations for further work that might mitigate any potentially adverse effects of the proposed development upon the identified traditional native Hawaiian cultural practices, beliefs, or features, and/or be otherwise appropriate.

IDENTIFICATION OF CULTURAL PRACTICES, BELIEFS, AND PROPERTIES

The number and variety of individuals and groups contacted and consulted during the present identification study, as evidenced by theinda below, suggests that the "list of Potentially-Affected Individuals" (Table 1) demonstrates an adequate, appropriate, and reasonable good faith effort to identify the full range of traditional native Hawaiian cultural practices currently associated with proposed Ocean Bay Disposal Facility at Hanama'ula project area. Of the 55 individuals that were included in the final revised "List of Potentially-Affected Individuals," some 40 individuals, representing many different groups and organizations, were contacted and consulted. This document evidences indicates it is likely that the full range of current traditional native Hawaiian cultural practices associated with the project area has been identified, even though only the general nature of these practices has been determined but not documented in any detail. In the course of the identification study, information representing diverse backgrounds and community groups were contacted and consulted, including individuals of various ethnic and cultural backgrounds and other traditional Hawaiian culture areas.

The specific purpose of the present cultural impact assessment study is to assess the potential impacts of the proposed Ocean Bay Disposal Facility at Hanama'ula project area upon the cultural resources—traditional native Hawaiian practices, beliefs, or features—of any kind identified by any of the informants who have been associated with the Hanama'ula project area.

EVALUATION OF IDENTIFIED CULTURAL PRACTICES, BELIEFS, AND PROPERTIES

The specific purpose of the present cultural impact assessment study is to assess the potential impacts of the proposed Ocean Bay Disposal Facility at Hanama'ula project area upon the cultural resources—traditional native Hawaiian practices, beliefs, or features—of any kind identified by any of the informants who have been associated with the Hanama'ula project area.

The cultural practices identified by any informant as being associated with the Hanama'ula project area would constitute claims which would be subject to the provisions of Article XII, Section 7, of the Hawaii State Constitution ("Traditions and Customary Rights"). Specifically, as remodeled in 1920 by the Hawaii State Supreme Court in the decision commonly referred to as the "Rahill decision," and as further modified more recently in the decision in State v. Rahill, the Hawaii Supreme Court ruled in 1998 in the decision in accordance with the "Aina et. al. v. Land Use Commission, State of Hawaii, et. al. v." that "employees with traditional and customary Hawaiian access and use rights that would include a broad range of cultural practices and beliefs associated with a geographically defined area or region as a clearly definable property or site.

An assessment with the context of traditional Hawaiian culture—both in tangible material aspects and, perhaps, to a certain extent, in intangible cultural aspects—transformed spiritual aspects, and the various embedded spiritual practices which comprise the very foundation of all native Hawaiian cultural practices. This is the belief that all of these traditional native Hawaiian practices and beliefs associated with the Hanama'ula project area will be considered to be culturally and historically significant. All would appear to be traditional and customary cultural practices within the meaning of the Hawaii State Constitution.

Based on an evaluation of the findings of the present cultural impact assessment study, it is recommended that the following cultural practices and beliefs identified as being currently associated with the Hanama'ula project area be considered to be culturally and historically significant:

1. The practice of canoeing and related activities, including the use of traditional Hawaiian canoes;
2. The practice of fishing and related activities, including the use of traditional Hawaiian fishing equipment;
3. The practice of Hawaiian food preparation and related activities, including the use of traditional Hawaiian kitchenware;
4. The practice of Hawaiian hula and related activities, including the use of traditional Hawaiian hula costumes;
5. The practice of Hawaiian music and related activities, including the use of traditional Hawaiian musical instruments;
6. The practice of Hawaiian dance and related activities, including the use of traditional Hawaiian dance costumes;
7. The practice of Hawaiian language and related activities, including the use of traditional Hawaiian language materials.

In the course of the present study, it has been determined that the potential cultural practices and beliefs identified in any of the informants associated with the Hanama'ula project area are likely to be culturally and historically significant. All would appear to be traditional and customary cultural practices within the meaning of the Hawaii State Constitution.
ASSESSMENT OF POTENTIAL PROJECT EFFECTS

Discussion

The assessment of potential project effects upon the traditional native Hawaiian cultural practices identified as currently associated with the proposed Ocean Bay Plantation at Hanahau‘ula project area has been done in general accordance with the guidance documents cited earlier in the "Study Methodology" section of this report. In particular, references were made to 100.9 ("Criteria of Effect and adverse effects") of the Federal regulations of the Advisory Council on Historic Preservation for the "Protection of Historic Preservation" (1988) and Chapter 154. Rules Governing Procedures for Historic Preservation Review Commission, Chapter 154-24, HRE, Hawaii Rules for the State Historic Preservation Division (2003).

In order to assess the potential effects of the proposed golf course and residential development at Hanahau‘ula upon the traditional native Hawaiian cultural practices that have been identified in association with the project area, it is useful to review the scope and nature of the proposed development. The Ocean Bay Plantation project area consists of 5,200 acres of forested mountain lands. Virtually all of the project area was under significant cultivation for more than a century, and had been developed and managed since sugar cane cultivation was discontinued approximately fifteen to twenty years ago. The background to the proposed project and the details of planned construction have been presented in an earlier section of the present report. In this report here is the basic observation that the planned development would be done almost entirely within the existing limits of the limited portion of the project area that was previously altered and greatly modified by historic period sugarcane cultivation. With these exceptions of minor improvements such as, for example, existing archaeological sites, and taboos to be protected, the shoreline portion of the project area would not be altered or developed, and public access to the shoreline would continue. While there may be, or may not be, or may continue to be, no significant adverse effects upon the existing physical environment of the shoreline portion of the project area, proposed development would not result in any direct physical effects causing any significant or long-term effects upon the existing physical environment of the shoreline portion of the project area.

With regard to potential effects upon identified cultural practices having active behavior involving both observable activities with material results and their inherent values or beliefs—that is, the gathering and collecting of marine resources and plant materials within the shoreline area and immediately adjacent inland waters for various purposes, it is possible to determine that at least some of these active behavior and material results, the proposed development project would have no significant effect at all. The presence and specific nature and physical development limits of the proposed project, and with the specific exception of possible short-term commercial period improvements, the continued public shoreline access and the exercise of all traditional and customary native Hawaiian rights for access and gathering purposes, and any other as yet undefined practices—would not be in any way constrained, restricted, prohibited, or eliminated.

With regard to potential effects upon cultural practices with more passive behavior which involve experience activities with nonmaterial results ("engaging with nature") as well as potential effects upon community values or beliefs associated with active behaviors involving observable activities, assessment of potential effects is more difficult. This is because there is subjective nature of adverse effects that might be perceived upon the practices, beliefs, and values involved. It is simply not possible to assess or quantify any objective manner the significant or adverse effects upon such practices that informant's claim they might experience as a result of the proposed development. However, it should be noted that none of the informants contacted and informally interviewed identified any specific example of the latter type of behaviors, i.e., those practices with more passive behaviors which seek to produce nonmaterial results, therefore, the issue of potential effects upon cultural practices with more passive behaviors which involve experience activities with nonmaterial results may well be a moot issue.

Concluding Assessment

Based on an evaluation of the traditional native Hawaiian cultural practices and implicit beliefs identified as currently associated with the Ocean Bay Plantation project area at Hanahau‘ula, and an assessment of the potential impacts of the proposed project upon these identified practices, the present identification study has concluded that the proposed golf course and residential development project in the platted portion of the project area was previously altered and greatly modified by historic period sugarcane.
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APPENDIX A
OUTLINE OF GENERAL INFORMANT INTERVIEW CONTENT

Cultural Impact Assessment Study
Ocean Bay Plantation at Hananā'ulu
Land of Hananā'ulu, Libin District
Island of Kaua'i

(TM: 4.3-7-3:1; 4.3-9-5:3)

General Information
- Full name
- Telephone number
- Current residence and address
- Interview date, time, location
- Other participants

Biographical Information
- Age, birthdate, birthplace
- Immediate family composition
- Education
- Occupation
- Family background: parents, grandparents, residential ties
- Previous residences: childhood to present
- Any additional family background pertinent to informant knowledge

General Sources of Informant Knowledge
Knowledge of Specific Historic/Cultural Properties, Practices, and/or Beliefs
- Name(s) of property/place or area
- Description of property/place or area
  - Present physical characteristics, setting, location, use
  - Original/prephysical characteristics, setting, location, use
  - Practices or beliefs associated with property/place or area
  - Specific sources of informant knowledge
  - Individuals, families, and/or groups associated with property/place or area
    - Specific nature of association
  - Time frame/depth and intensity of association

Perceived Impact(s) of Proposed Uses on Any Properties/Places/Area, Practices, and/or Beliefs
Possible Mitigation Measures
Any Additional Information to Provide
Any Additional Thoughts or Concerns