

Draft Environmental Assessment

**Kaiahulu-Mokuleia Beach Cottages
Mokuleia, North Shore, Oahu, Hawaii**

Prepared for:

Castle & Cooke, Inc.

Prepared by:

**Wilson Okamoto Corporation
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826**

January 2008

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PREFACE

This Draft Environmental Assessment (EA) / Anticipated Finding of No Significant Impact (FONSI) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS), and Title 11, Chapter 200, Hawaii Administrative Rules (HAR), Department of Health, State of Hawaii, as well as Chapter 25, Revised Ordinances of Honolulu. Proposed is an applicant action by Castle & Cooke, Inc. to demolish and reconstruct three existing beach cottages near the shoreline of Mokuleia Beach, North Shore, Oahu, Hawaii. Compliance with the provisions of Chapter 25, Revised Ordinances of Honolulu (ROH) is required because of the project's location within the Special Management Area. The approving agency is the City and County of Honolulu Department of Planning and Permitting (DPP), in conjunction with the processing of a Special Management Area (SMA) Use Permit.

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SUMMARY

Applicant:	Castle & Cooke, Inc. 100 Kahelu Avenue, 2 nd floor Mililani, Hawaii 96789 Contact: Mr. Dean Minakami, Project Manager Telephone: 548-2903
Recorded Fee Owner:	Castle & Cooke, Inc. 100 Kahelu Avenue, 2 nd floor Mililani, Hawaii 96789
Approving Agency:	City and County of Honolulu Department of Planning and Permitting
Agent:	Wilson Okamoto Corporation 1907 South Beretania Street, Suite 400 Honolulu, Hawaii 96826 Contact: Mr. Earl Matsukawa, AICP, Planning Director Telephone: 946-2277
Location:	68-379 Farrington Highway. The property is a flag lot, accessible from the highway via a 1,100-foot long driveway. The property borders the residences at the western end of Crozier Drive.
Tax Map Key:	6-8-003:001
Lot Area:	9.16 acres
State Land Use Classification:	Agriculture
Zoning:	AG-2, General Agricultural District
Existing Use:	Overnight camping in a shoreline setting with two beach cottages. The property is available by reservation to salaried Castle & Cooke, Dole, Old Waialua Sugar, and Lanai employees and retirees (all Castle and Cooke subsidiaries).
Proposed Use:	Same as the existing use. The applicant proposes to demolish the existing beachfront cottages and construct new cottages further inland, away from the shoreline. An existing

caretaker's residence would also be demolished and relocated closer to the driveway entry to the property. The purpose for the project is two-fold: 1) to upgrade the beach cottages. Originally constructed in 1924, the structures are adequate but aged, despite recent renovation. The reconstruction is also an opportunity to make at least one of the cottages wheelchair accessible, to upgrade the existing cesspools with new, privately maintained wastewater systems; and 2) to remove all structures, including concrete playcourt, walkways, and tiled outdoor lanai spaces, out of the 40-foot setback of the certified shoreline. The shoreline would then be landscaped with suitable coastal strand plants. The hope is that this may help to reduce the rate of beach sand erosion.

Anticipated Impacts: Apart from increased dust and noise during the construction period, no significant impacts are anticipated. Given the sandy soils and prior history of burials in the Mokuleia area, there is the possibility of encountering human remains or cultural artifacts. To mitigate against the possible disturbance or destruction of cultural resources, an archaeological inventory survey of the building footings and individual wastewater treatment site(s) will be conducted, and archaeological monitoring will be implemented during excavation activities.

Anticipated Determination: Finding of No Significant Impact

Parties Consulted During Pre-Assessment:

State Agencies
Department of Agriculture
Department of Hawaiian Home Lands
Department of Health
Wastewater Branch
Environmental Planning Office
Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
Historic Preservation Division
Office of Conservation and Coastal Lands
Office of Hawaiian Affairs

**Parties to be
Consulted During
the Draft EA:**

City and County of Honolulu Agencies
Department of Planning and Permitting

Community Organizations
Mokuleia Community Association

Federal
U.S. Fish and Wildlife Service

State of Hawaii
Department of Business, Economic Development and
Tourism (DBEDT)
 Office of Planning
Department of Health (DOH)
 Environmental Planning Office
 Office of Environmental Quality Control
Department of Hawaiian Home Lands
Department of Land and Natural Resources (DLNR)
DLNR State Historic Preservation Division
Office of Hawaiian Affairs
Waialua Public Library

City and County of Honolulu
Board of Water Supply
Department of Design and Construction
Department of Emergency Management
Department of Facilities Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Fire Department
North Shore Neighborhood Board (No. 27)
Planning Commission

Elected Officials
Councilmember Donovan Dela Cruz (2nd District)
Councilmember Rodney Tam (6th District)

Individuals/Organizations
Mokuleia Community Association

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1. SETTING AND PROJECT DESCRIPTION

1.1. Project Location and Surroundings

Castle & Cooke, Inc. is proposing to demolish and reconstruct three beach cottages on a 9.16 acre property along the shoreline of Mokuleia Beach on the North Shore of Oahu. The property is located at 68-379 Farrington Highway, at the western end of the subdivision homes along Crozier Drive. (See Figure 1-1). The parcel is accessible from Farrington Highway via a 1,100-foot long gravel driveway. The project site is identified as TMK 6-8-003:001 (see Figure 1-2).

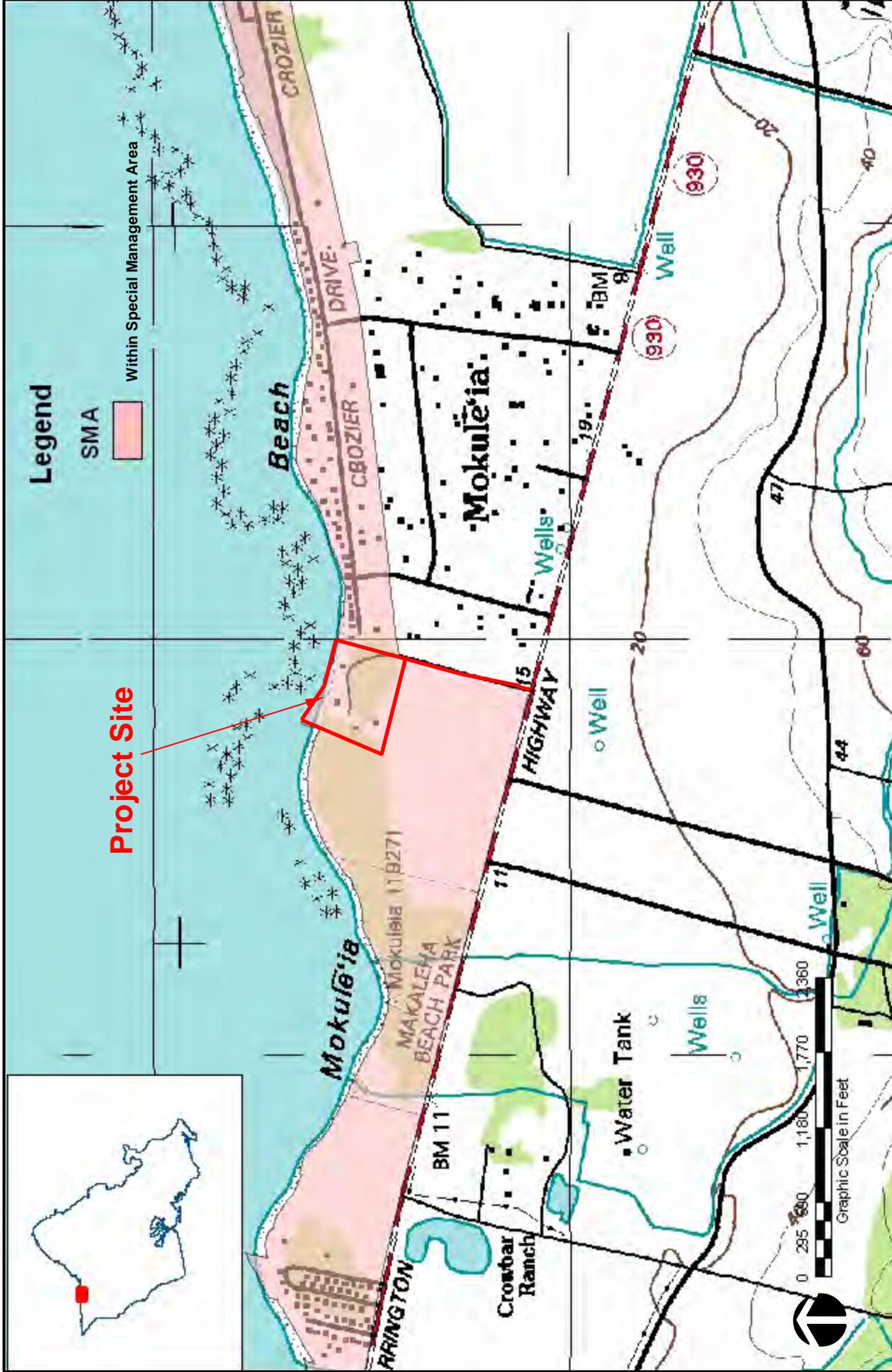
The overall setting of the project site and surroundings is very quiet and rural. Lands surrounding the project site are either vacant or occupied by residential uses. The east side of the project site is bordered by a beachfront residence accessible from Crozier Drive, and by two inland agricultural parcels, one of them vacant and the other occupied by a residence. To the west of the project site, the land is vacant and undeveloped. The four parcels located to the south of the project site are also undeveloped, although one of the parcels, TMK 6-8-003:049, recently acquired a building permit for an “accessory shed for crop production.” An existing easement for walkway access purposes is granted to these four parcels to allow for private access to the beach. There is no public access to the shoreline via the existing driveway.

1.2. Purpose and Need

Since 1927, the 9.16 acre shoreline parcel at Mokuleia, where the Kaiahulu Beach Cottages are located, has been owned by Castle & Cooke and used by their employees for recreational purposes. The two beachfront cottages at the site are available to employees year round and it is estimated they have an average occupancy rate of about sixty percent. The size of groups utilizing the cottages and recreational facilities ranges from a few persons to groups of 15 or more. It is also common for employees to camp on the beach or lawn areas next to the cottages.

The applicant would like to continue the current use. However, the two beachfront cottages are old and are increasingly weathered. Despite regular maintenance and recent interior renovations, they will eventually need to be replaced. Neither of the cottages is wheelchair accessible, so another purpose for the reconstruction would be to make at least one of the cottages accessible to wheelchairs.

A third cottage constructed in the 1950's and occupied by a resident caretaker is also due for an upgrade and would benefit the entire facility by being in a different location closer to the driveway entrance. The new cottage location would allow the caretaker to better monitor and control entry to the property.



Legend

SMA



Within Special Management Area

Project Site



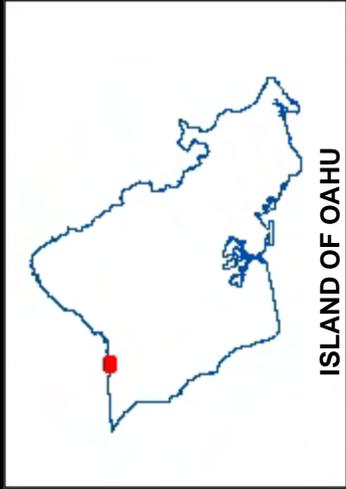
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KAIHULU-MOKULEIA BEACH COTTAGES

LOCATION MAP

FIGURE

1-1



Project Site

TMK: 6-8-003:047

TMK: 6-8-003:002

MOKULEIA BEACH

TMK 6-8-003:001

CROZIER DRIVE

TMK: 6-8-013:009

TMK: 6-8-013:008

TMK: 6-8-013:007

TMK: 6-8-013:006

TMK: 6-8-013:005

TMK: 6-8-003:048

TMK: 6-8-003:049

FARRINGTON HIGHWAY



Graphic Scale in Feet



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KAIAHULU-MOKULEIA BEACH COTTAGES

FIGURE

1-2

TAX MAP KEY 6-8-003:001

Each cottage is currently served by its own individual cesspool. Reconstruction of the cottages would also provide an opportunity to abandon the existing cesspools and upgrade to a single individual wastewater treatment system. The replacement would be in accordance with the statewide effort on the part of the State Department of Health to eventually eliminate all cesspools.

Another purpose of the project is to move the cottages and all concrete foundations out of the 40-foot shoreline setback. During periods of high surf, waves sometimes reach the concrete foundations of the cottages. This has become increasingly apparent where undercutting of the foundations has occurred and the beach has receded inland. Removal of the cottage foundations and all associated concrete would hopefully allow sand to accumulate at the upper wash of the waves and help the beach to naturally replenish itself. The areas that are cleared of concrete foundations would then be replanted with suitable shoreline vegetation.

1.3. Existing Site Conditions

The two beachfront cottages at the project site are situated at the shoreline, overlooking the ocean. They each have a common kitchen, living room, and outdoor lanai space. The larger of the two cottages has three bedrooms and a total floor area of 2,689 square feet. Adjacent to the west side of this larger cottage is an outdoor volleyball/basketball court and a small wooden bathhouse. The bathhouse is used for storage and as a restroom, change room, and shower facility for beachgoers. The smaller of the two cottages is located to the east, has 2 bedrooms and floor area of 1,960 square feet. See Figures 3a and 3b for project site photographs and Figure 1-4 for the photograph locations.

A third cottage for a resident caretaker was constructed in the 1950's at the western edge of the site. In addition to maintaining the grounds, the resident caretaker enforces rules to prevent abuse of facilities and impacts to surrounding properties and residences. Rules include limits to the size of groups using the cottages, limits on the number of tents permitted, and the prohibition of pets, bonfires and fireworks.

The remainder of the site is level open space, largely cleared of big trees in 2006 except for coconut trees near the large cottage and ironwood trees at the western edge of the property. Naupaka is the predominant vegetation at the shoreline. In the northwest corner of the property is a concrete remnant of a former tennis court.

The project site also contains one historic feature. A former 40-foot OR&L railroad right-of-way (SIHP #50-80-12-9714) runs diagonally through the site, from northeast to southwest. The OR&L railroad was constructed through the Waialua District by 1898, with stations in both Kawaihapai (west) and Mokuleia. The remnant grade of this railroad can still be observed within the project site. Where it leaves the site at the



1 Gravel driveway entrance to the property, looking mauka.



2 View of the neighboring lot on the eastern boundary of the property. The remnant concrete in the foreground is a former tennis court.



3 Western boundary of the project site, looking mauka. Caution tape circles the inadvertent burial discovery made in January 2008.



4 Both the small and large cottages as seen from the beach, looking west.



5 Existing large cottage and grounds, looking makai.



6 Kaiahulu shoreline looking east from the large cottage playground. All structures and concrete foundations seen here would be removed.



7 View of the small cottage looking east. The vulnerability of the cottage to high surf conditions is evident in this photo.



8 Concrete foundations are being undercut by beach erosion. The bathhouse in the background is the only structure that would remain.

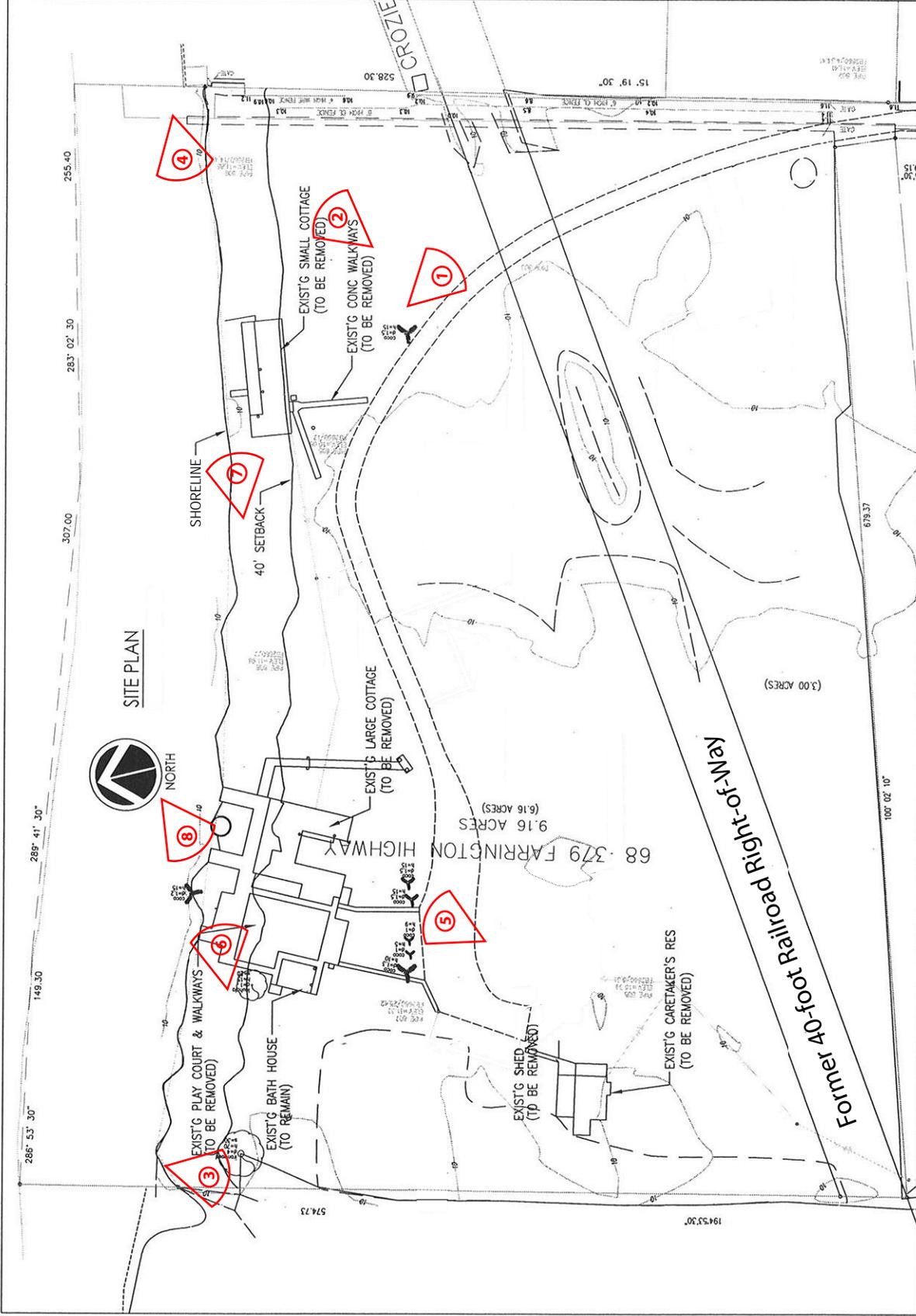
SITE PLAN

KAIAHULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

SI-2

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200
NOVEMBER 27, 2007

FIGURE
1-4



SITE PLAN



KAIAHULU-MOKULEIA BEACH COTTAGES

PHOTOGRAPH KEY



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eastern fenceline, it becomes the alignment of the present day Crozier Drive, the primary coastal residential road in Mokuleia.

Since their original construction in 1924, the shoreline at Kaiahulu has eroded substantially so that during periods of high surf, waves will sometimes reach the footings of the cottages. The gradual erosion of sand from beneath the concrete patio foundations is evident from the shoreline, and some of the concrete foundations are beginning to crack in places.

1.4. Project Description

The applicant proposes to demolish the existing beach cottages and construct new cottages about 100 feet further inland, away from the shoreline (see Site Plan, Figure 1-5). The new cottages would be nearly, if not exactly, identical in size to the existing structures. New cottages would be constructed on posts to minimize grading and ground disturbance. Finish floor elevations would be about 3 feet above the ground surface, with a finish height of 17 feet above ground surface. At least one of the new cottages would be designed to be wheelchair accessible.

Since the subject property is located in a remote, rural part of the North Shore, special consideration will be given to ensuring that the new cottages are sensitive to the shoreline environment and the neighboring residential and agricultural parcels. The new cottages will be modest structures of textured plywood siding and asphalt shingles. Since the new cottages will be sited in the interior of the property at slightly lower elevation, the rooflines will not be visible from the beach. Landscaping will be selected as appropriate to the shoreline environment and as necessary to shield the cottages for privacy and consideration of neighbors. Any outdoor lighting will be shielded as necessary to direct light only to where it is needed. All new construction, including the wastewater system, will be sited to ensure that there is no impact to the existing historic OR&L railroad right-of-way feature.

Each cottage will be outfitted for a maximum of 15 persons, so that 30 persons could conceivably be on-site at any one time. Two 1,200 square foot asphalt parking areas will be constructed, and no parking will be allowed outside of these lots. Parking areas will be sufficient for six cars each, but with no specific limit.

Demolition of the cottages will include removal of all existing concrete playcourt, walkways, utility poles, tennis court remnant, and tiled outdoor lanai spaces. The only structure which will not be demolished is the existing bath house, located next to the existing large cottage playcourt. This would remain to serve as a restroom, shower, and change room for beachgoers. The bath house is between 55 and 60 feet mauka of the shoreline. The condition of the bathhouse is good enough that it will not need renovation. Following demolition, cleared areas would be landscaped with coastal strand plants suitable to the beach environment.

GRAPHIC SCALE



286° 53' 30"

149.30

289° 41' 30"

307.00

255.40

283° 02' 30"

574.73

194° 53' 30"

679.37

100° 02' 10"

15° 19' 30"

528.30



SITE PLAN

Shoreline as of December 2007

40' SETBACK

EXIST'G PLAY COURT & WALKWAYS (TO BE REMOVED)

EXIST'G BATH HOUSE (TO REMAIN)

EXIST'G LARGE COTTAGE (TO BE REMOVED)

EXIST'G CONC WALKWAYS (TO BE REMOVED)

EXIST'G SMALL COTTAGE (TO BE REMOVED)

NEW ASPHALT OVER EXIST'G GRAVEL ROAD

NEW ASPHALT PARKING AREA (20' X 60' = 6 CARS)

NEW ASPHALT PARKING AREA (20' X 60' = 6 CARS)

NEW ASPHALT DRIVEWAY

NEW CARETAKER'S RES

EXIST'G SHED (TO BE REMOVED)

EXIST'G CARETAKER'S RES (TO BE REMOVED)

NEW CARETAKER'S RES

NEW LARGE COTTAGE

NEW SMALL COTTAGE

68+379 FARRINGTON HIGHWAY

Former 40-foot Railroad Right-of-Way

9.16 ACRES (6.16 ACRES)

(3.00 ACRES)

~ 120 feet

~ 190 ft.

~ 130 ft.

~ 220 feet

~ 40 feet

SITE PLAN

KAIHULU - MOKULEIA BEACH COTTAGES

TMK: 6-8-03:001

Si-2

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FIGURE

1-5

KAIHULU-MOKULEIA BEACH COTTAGES

SITE PLAN



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Prior to demolition, suspect building materials in the cottages will be tested for asbestos. Although the cottages are mostly constructed of wood, there could be asbestos present in other building materials such as floor tiles or insulation. If asbestos is detected, materials will be contained and disposed in accordance with State of Hawaii Department of Health, Hawaii Administrative Rules Chapter 11-501, 502, 503, and 504, Asbestos Regulations.

The existing small cottage has a floor area of 1,960 square feet. The new cottage would be identical in size, constructed on posts about 100 feet further mauka. The cottage would have two bedrooms, two bathrooms, kitchen, living room and lanai. Figures 1-6, 1-7, and 1-8 show the floor plans and exterior elevations for the new small cottage. A paved or concrete walkway would connect the new cottage to new asphalt parking for six vehicles along the asphalt paved access road.

The existing large cottage has 2,689 square feet of floor space. The proposed project would replace this cottage with a new structure, identical in size, in a new location about 110 feet further mauka. Figures 1-9, 1-10, and 1-11 show the floor plans and exterior elevations for the new large cottage. The new cottage would have three bedrooms, three bathrooms, kitchen facilities, living room, and lanai. A paved or concrete walkway would connect the new cottage to new asphalt parking for six vehicles along the asphalt paved access road.

A new caretaker's residence would be constructed near the driveway entrance to the property, and the existing caretaker's residence would then be demolished and the cleared area incorporated into the private yard space of the large cottage. The new cottage location will allow the caretaker to better monitor and control entry to the property. Plans for the caretaker's residence consist of a single-story residence on posts, approximately 1,184 square feet, to replace the existing 1,186 square foot residence. Floor plans and building elevations for the new caretaker's residence are shown on Figures 1-12, 1-13, and 1-14.

After construction, the area surrounding all three of the new cottages will be planted with lawn grass bordered by plants suited to the area such as naupaka hedge, beach heliotrope/sea grape, and kamani trees. Naupaka hedge will also be used to line the mauka side of the newly paved driveway and the makai side near the entry into the site.

Wastewater, which is presently disposed of on-site through individual cesspools near each cottage, would be disposed of through a new, privately maintained wastewater treatment system in the open space between the new small and large cottages. The exact type of system, whether septic tank treatment or aerobic treatment and leach field, would be determined after further evaluation of soils and the depth to groundwater. The applicant will comply with the applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems."

SMALL COTTAGE
FLOOR PLAN

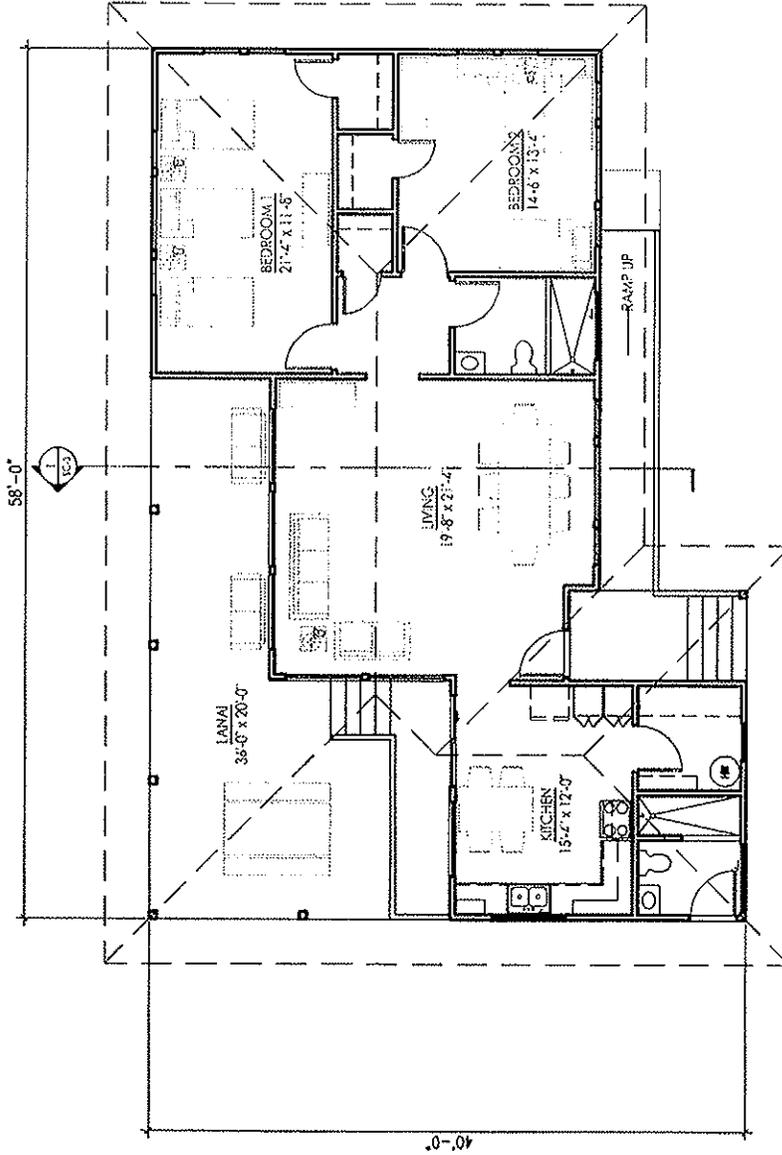
KAIHAHULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

SC-1

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NOVEMBER 27, 2007

FIGURE

1-6



GROSS SQUARE FOOTAGE
EXISTING SMALL COTTAGE: 1960
NEW SMALL COTTAGE: 1960



FLOOR PLAN - SMALL COTTAGE

KAIHAHULU - MOKULEIA BEACH COTTAGE

SMALL COTTAGE FLOOR PLAN

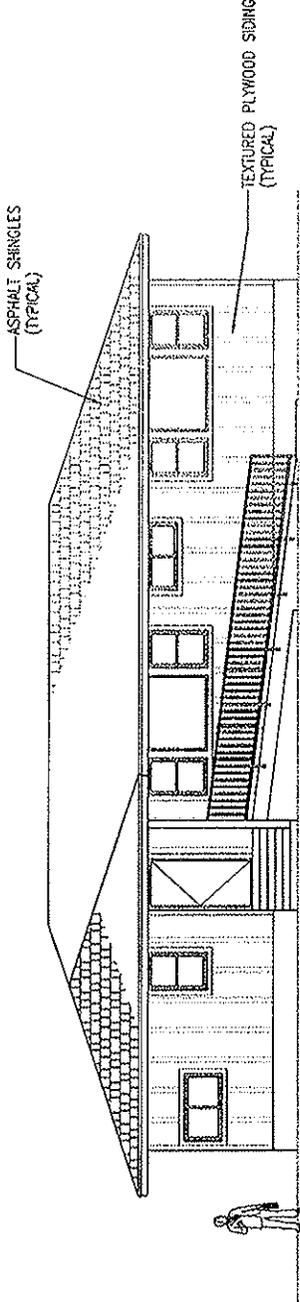
SMALL COTTAGE
EXTERIOR ELEVATIONS

KAIAHULU - MOKULEIA BEACH COTTAGES

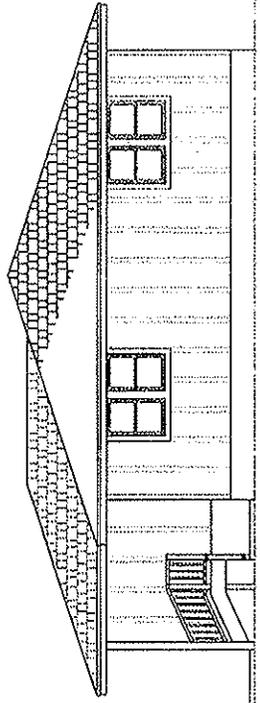
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SC-2

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SMALL COTTAGE - SOUTH ELEVATION (FACING MAUKA)



SMALL COTTAGE - EAST ELEVATION

KAIAHULU - MOKULEIA BEACH COTTAGE

FIGURE

1-7



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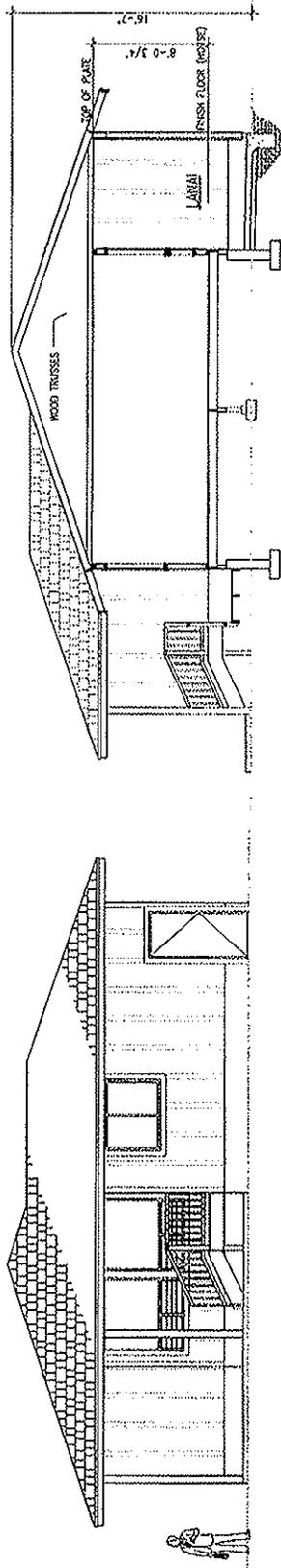
SMALL COTTAGE SOUTH AND EAST ELEVATIONS

SMALL COTTAGE
EXT ELEV/SECTION

KAIHAHULU - MOKULEIA BEACH COTTAGES
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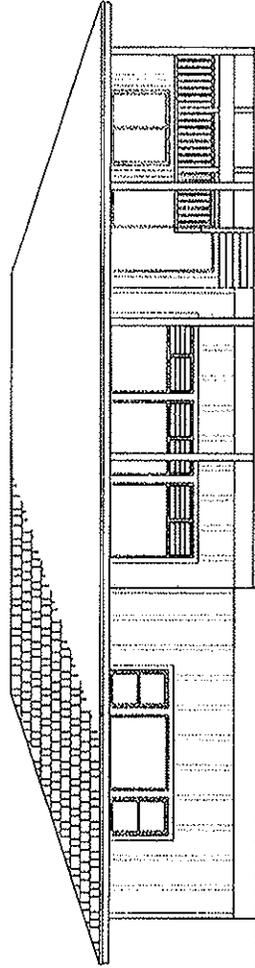
SC-3

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SMALL COTTAGE - SECTION I

SMALL COTTAGE - WEST ELEVATION



SMALL COTTAGE - NORTH ELEVATION (FACING MAKAI)

KAIHAHULU - MOKULEIA BEACH COTTAGE

FIGURE

1-8



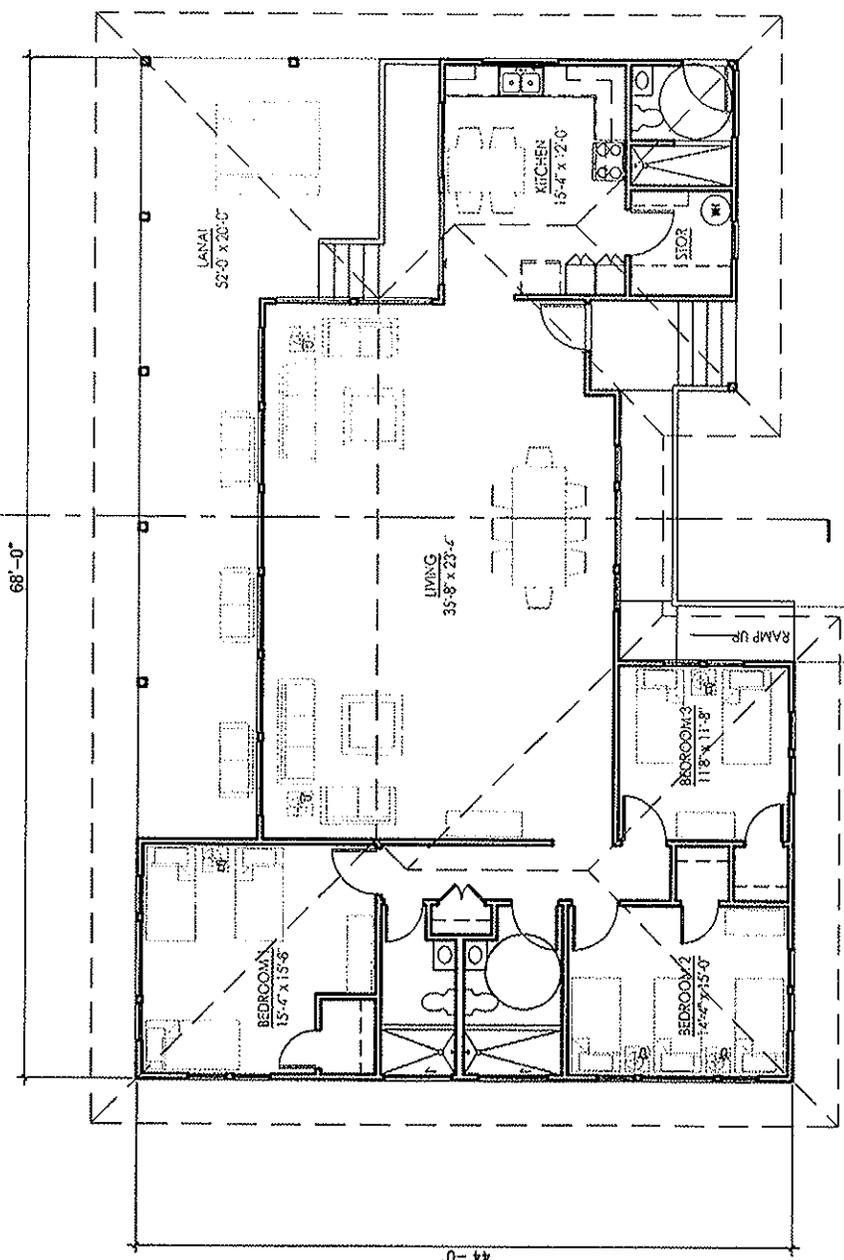
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LARGE COTTAGE
FLOOR PLAN

KAIAHULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

LC-1

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200
NOVEMBER 27, 2007



GROSS SQUARE FOOTAGE
EXISTING LARGE COTTAGE: 2689
NEW LARGE COTTAGE: 2686



NORTH

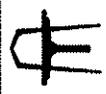
FLOOR PLAN - LARGE COTTAGE

FIGURE

1-9

KAIAHULU - MOKULEIA BEACH COTTAGE

LARGE COTTAGE FLOOR PLAN



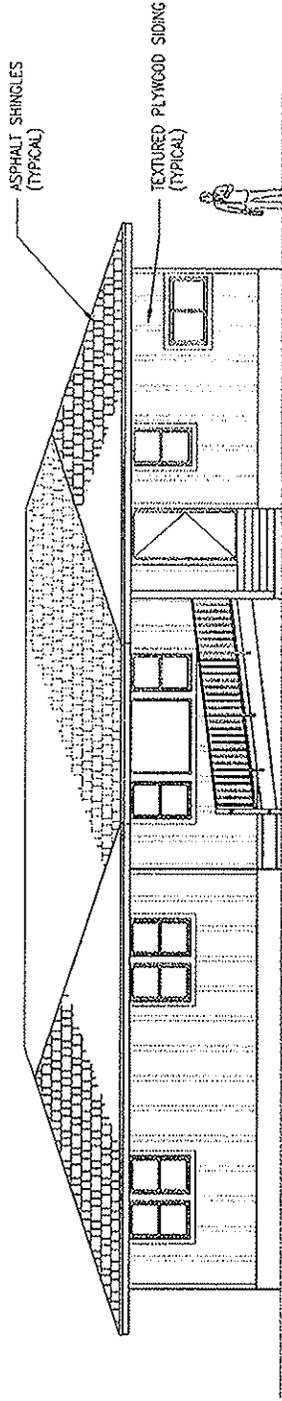
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LARGE COTTAGE
EXTERIOR ELEVATIONS

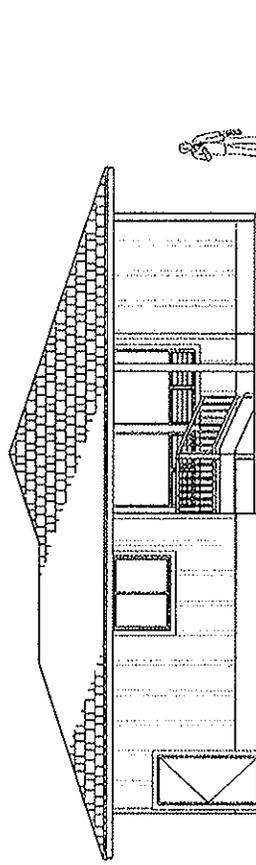
KAIHAULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

LC-2

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NOVEMBER 27, 2007



LARGE COTTAGE - SOUTH ELEVATION [FACING MAUKA]



RIGHT ELEVATION

LARGE COTTAGE - EAST ELEVATION

KAIHAULU - MOKULEIA BEACH COTTAGE

FIGURE

1-10



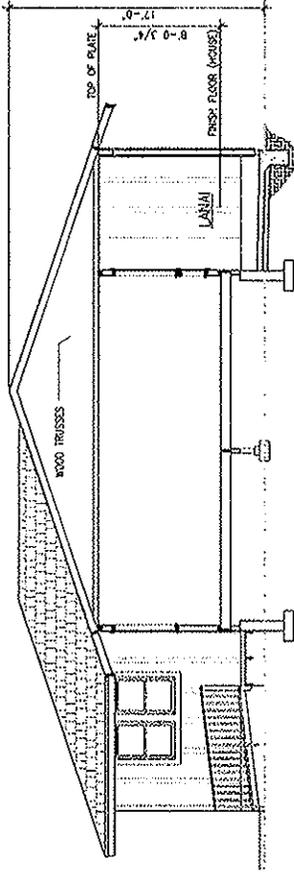
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LARGE COTTAGE
EXT ELEV / SECTION

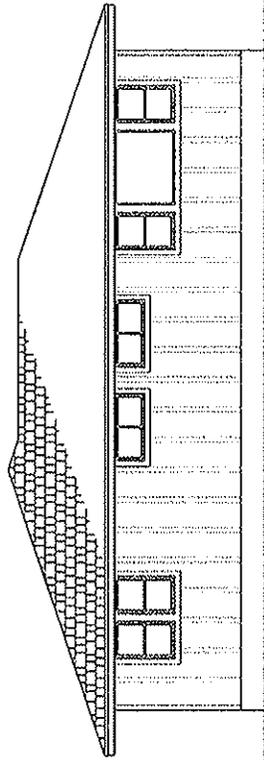
KAIAHULU - MOKULEIA BEACH COTTAGES
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LC-3

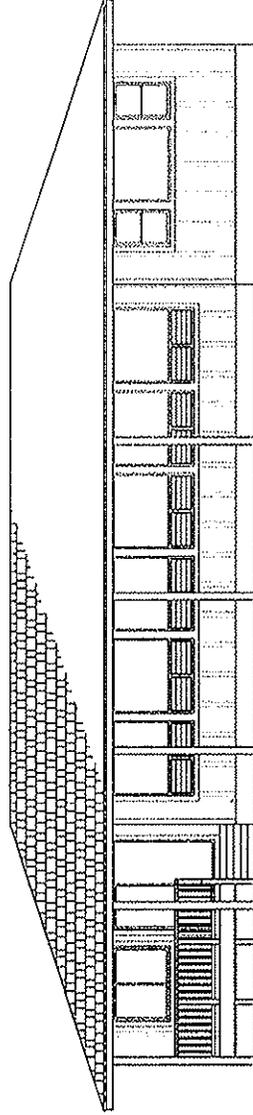
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LARGE COTTAGE - SECTION 1



LARGE COTTAGE - WEST ELEVATION



LARGE COTTAGE - NORTH ELEVATION (FACING FACING MAKAI)



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KAIAHULU - MOKULEIA BEACH COTTAGE

FIGURE

1-11

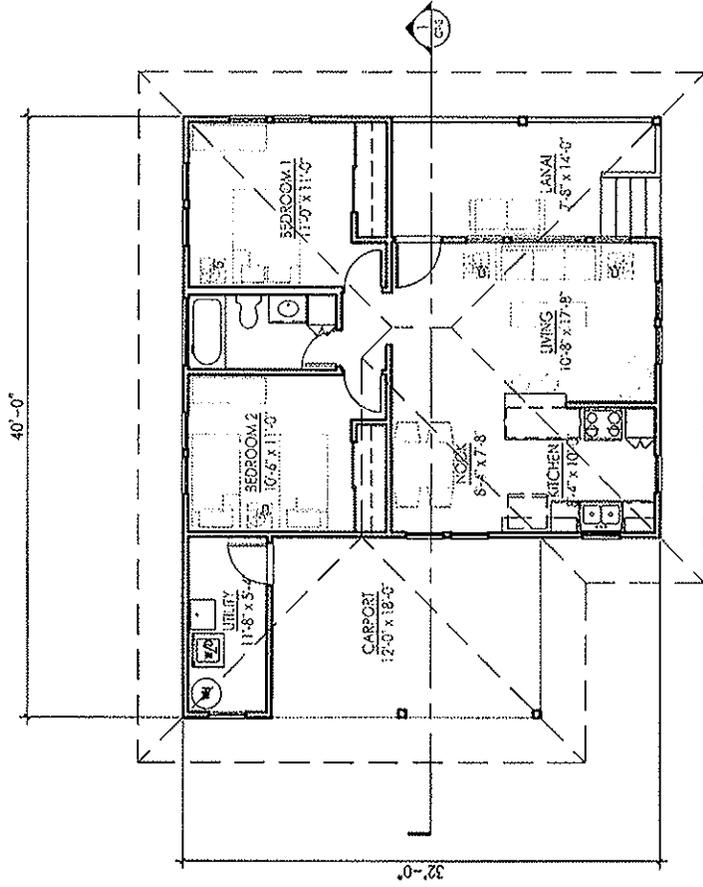
LARGE COTTAGE WEST AND NORTH ELEVATIONS

CARETAKER'S RES
FLOOR PLAN

KAIHAULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

CT-1

STUDIO
200
NOVEMBER 27, 2007



GROSS SQUARE FOOTAGE
EXISTING CARETAKER'S RES: 1186
(INCLUDES STORAGE SHED)
NEW CARETAKER'S RES: 1184



FLOOR PLAN - CARETAKER'S RES

FIGURE

1-12

KAIHAULU - MOKULEIA BEACH COTTAGE

CARETAKER'S RESIDENCE FLOOR PLAN

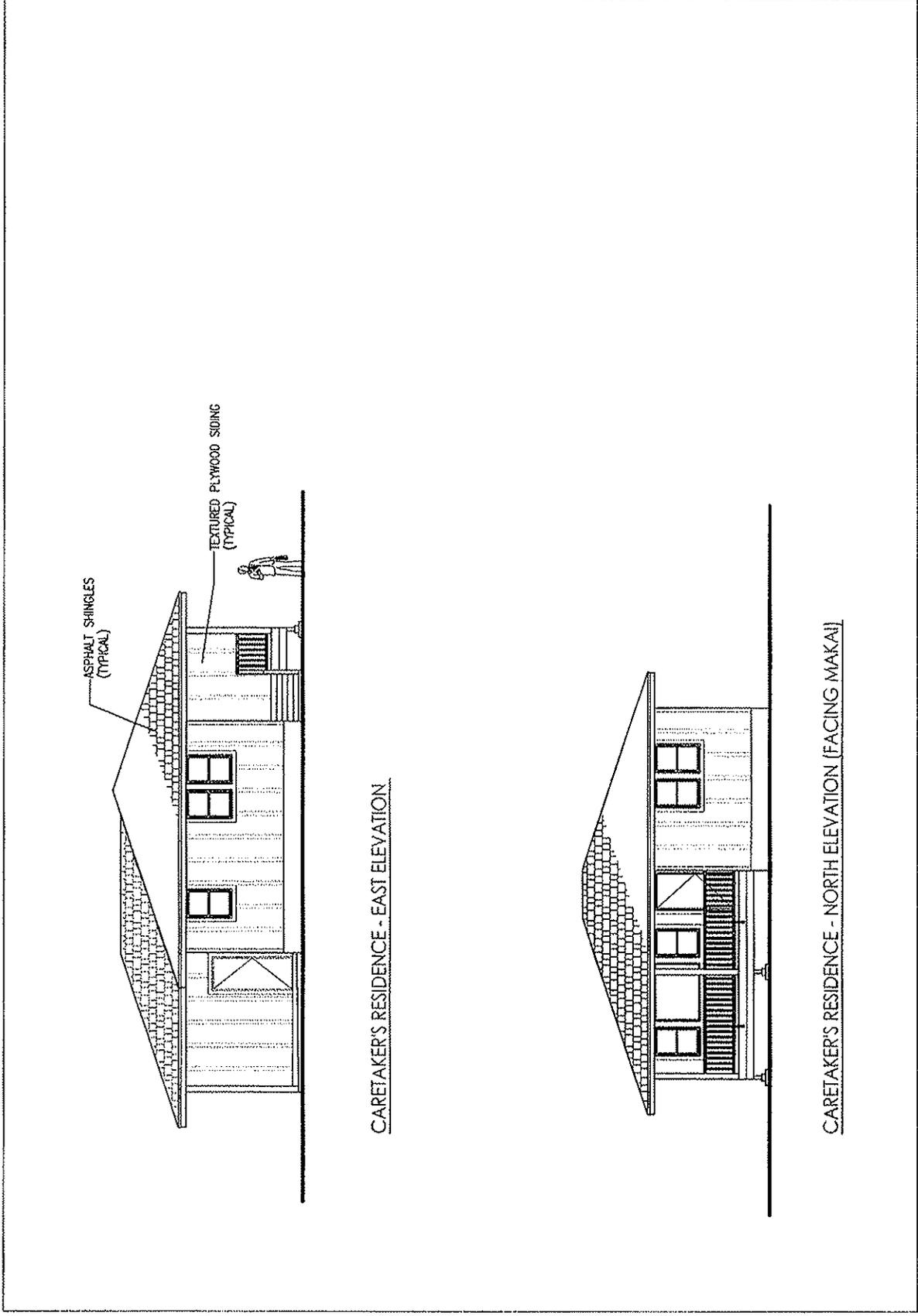


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CARETAKER'S RES
EXTERIOR ELEVATIONS

KAIHAHULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

CT-2



CARETAKER'S RESIDENCE - EAST ELEVATION

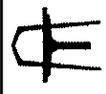
CARETAKER'S RESIDENCE - NORTH ELEVATION (FACING MAKAI)

KAIHAHULU - MOKULEIA BEACH COTTAGE

FIGURE

CARETAKER'S RESIDENCE EAST AND NORTH ELEVATIONS

1-13



WILSON OKAMOTO CORPORATION
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CARETAKER'S RES
EXT ELEV / SECTION

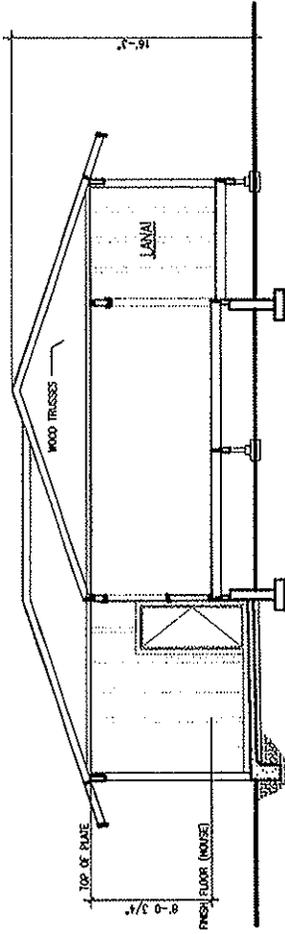
KAIHAHULU - MOKULEIA BEACH COTTAGES
TMK: 6-8-03:001

CT-3

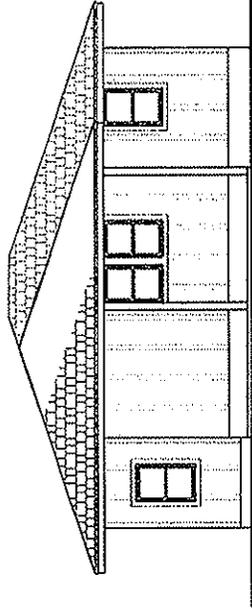
STUDIO
200
NOVEMBER 27, 2007

FIGURE

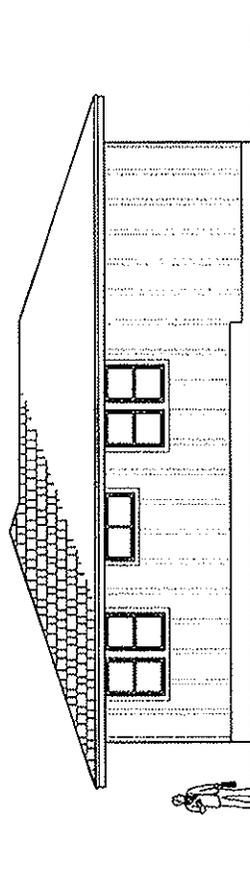
1-14



CARETAKER'S RESIDENCE - SECTION 1



CARETAKER'S RESIDENCE - SOUTH ELEVATION (FACING MAUKA)



CARETAKER'S RESIDENCE - WEST ELEVATION

KAIHAHULU - MOKULEIA BEACH COTTAGE

CARETAKER'S RESIDENCE SOUTH AND WEST ELEVATIONS



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1.5. Required Permits

In addition to the preparation of this Environmental Assessment (EA), the proposed project will require the following permits in order to make the reconstruction compatible with state and county land use plans and controls:

- State Special Use Permit. The site is in the State Land Use Agricultural District. Since the proposed use is not an approved use in the Agricultural District, the applicant will file a State Special Use Permit (SUP) with the City and County of Honolulu Department of Planning and Permitting. The SUP will require review and approval by the Planning Commission.
- Zoning Variance. In order to authorize use of the site as a corporate retreat, a zoning variance will be required. The Zoning Variance application is reviewed and a decision rendered by the Department of Planning and Permitting.
- Special Management Area Use Permit (SMA). The project site is within the Special Management Area (SMA). A SMA major permit will be required. After a public hearing, the City Council renders a decision on the issuance of the SMP.

2. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential project impacts and proposed mitigation measures.

2.1. Topography and Soils

The project site is part of the flat coastal plain that gradually slopes up to the foothills of the Waianae Mountain Range. Elevations within the project site range from 9 to 13 feet above mean sea level (msl) at the shoreline (top of bank), and inland elevations range from about 6 to 12 feet msl. The most pronounced elevation change is recorded from a mound of soil within the former 40-foot OR&L railroad right-of-way. Bottom of bank is 5.6 feet msl, and top of bank is 11.4 feet msl.

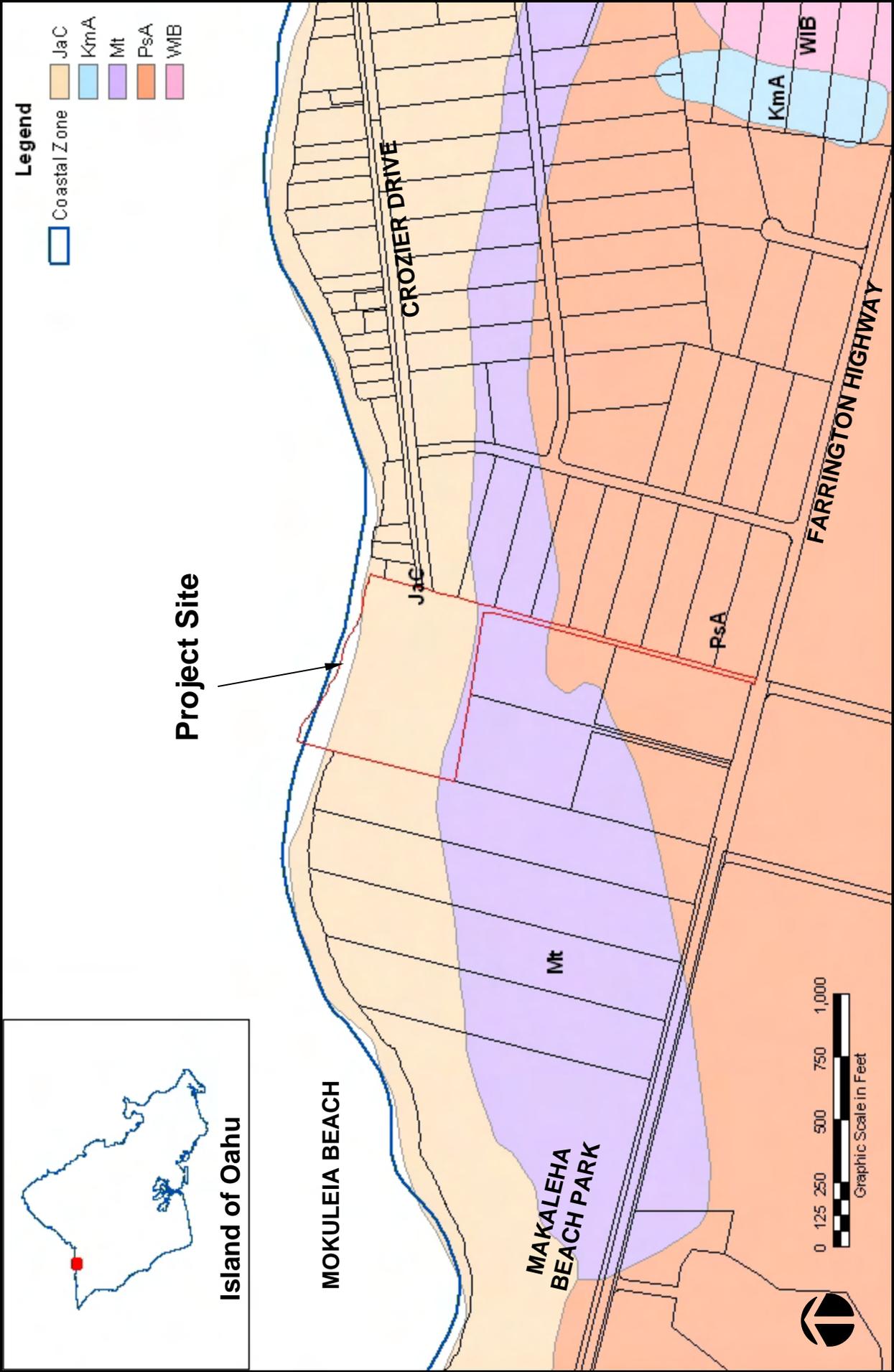
According to the U.S. Department of Agriculture Soil Conservation Service, most of the soil underlying the project site is classified as Jaucas sand (JaC), 0 to 15 percent slopes (see Figure 2-1). A small sliver of soil classified as Mokuleia Clay Loam (Mt) is located along the southern boundary of the site.

Soils of the Jaucas series consist of “excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean . . . developed in wind and water deposited sand from coral and seashells.” A representative profile of this soil type is single grain, pale brown to very pale brown, sandy, and more than 60 inches deep. Permeability is rapid, runoff is very slow to slow, and the hazard of water erosion is slight. Wind erosion is a severe hazard where vegetation has been removed. Listed uses for this soil type include pasture, sugarcane, truck crops, and urban development.

Soils of the Mokuleia series occur as “small areas on the coastal plains . . . (I)ncluded in mapping were small areas of Jaucas soils; small areas of very deep, well-drained soils in drainageways; and small areas of poorly drained clay soils underlain by reef limestone.” A representative profile of the surface layer is very dark grayish-brown clay loam about 16 inches thick. The next layer down to a depth of four to five feet is dark-brown and light-gray, single-grain sand and loamy sand. Permeability is moderate in the surface layer and rapid in the subsoil. Runoff is very slow and the erosion hazard is no more than slight. Listed uses for this soil type include sugarcane, truck crops, and pasture.

Impacts and Mitigation Measures

During the demolition and removal of the cottages and concrete foundations, there is the potential for soils to become airborne. This is of special concern due to the susceptibility of Jaucas soils to wind erosion where vegetation has been removed. Water spraying will be implemented during the removal and if



KAIAHULU-MOKULEIA BEACH COTTAGES

SOILS MAP



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necessary, wind screens will be installed. Windscreens will remain in place until landscaping is established on the cleared areas.

Due to the rapid permeability of the soils and the level ground surface of the project site, soil runoff during site preparation is of less concern than wind erosion. Runoff will be controlled in compliance with the City and County of Honolulu's "Rules Relating to Storm Drainage Standards". Typical mitigation measures will include appropriately stockpiling materials on-site to prevent runoff and establishing landscaping as early as possible on graded areas.

2.2. Agricultural Lands

The project site has been under continuous use as a corporate retreat for over 80 years. There is no record or physical evidence that the project site has ever been used for agricultural purposes, either traditionally or in the historic period during the days of the Waialua Agricultural Company.

According to the State of Hawaii Department of Agriculture classification system "Agricultural Lands of Importance to the State of Hawaii" (ALISH), the project site is unclassified, which commonly indicates that the lands are not suitable for intensive agriculture (see Figure 2-2).

The Detailed Land Classification – Island of Hawaii, published by the University of Hawaii Land Study Bureau (LSB), evaluates the quality or productive capacity of certain lands on the island using a five-class productivity rating system, with "A" representing the class of highest productivity and "E" the lowest. Under this system, about two-thirds of the site is rated "E", Very low productivity, and the remaining one-third in the southern portion of the site is rated "A" or Very high productivity (see Figure 2-3).

Impacts and Mitigation Measures

Based on the sandy soils, a LSB rating of "E" with a small section rated "A", and the ALISH rating of "unclassified", the project site does not have significant potential for high capacity agriculture. At most, the project site may be suitable for grazing. Continued use of the project site for a corporate retreat would not have an adverse impact on the availability of agricultural land in the State of Hawaii.

2.3. Hydrology

Groundwater in the Mokuleia area originates from rainfall in the Waianae Range. The Waialua-Mokuleia coastal plain is underlain by interbedded marine and terrestrial sediments deposited during fluctuations in sea level. This deposited alluvium partially confines groundwater as it moves seaward. A thin body of fresh to brackish water within coralline limestone is located along the Mokuleia coastline.

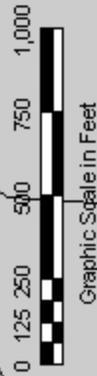
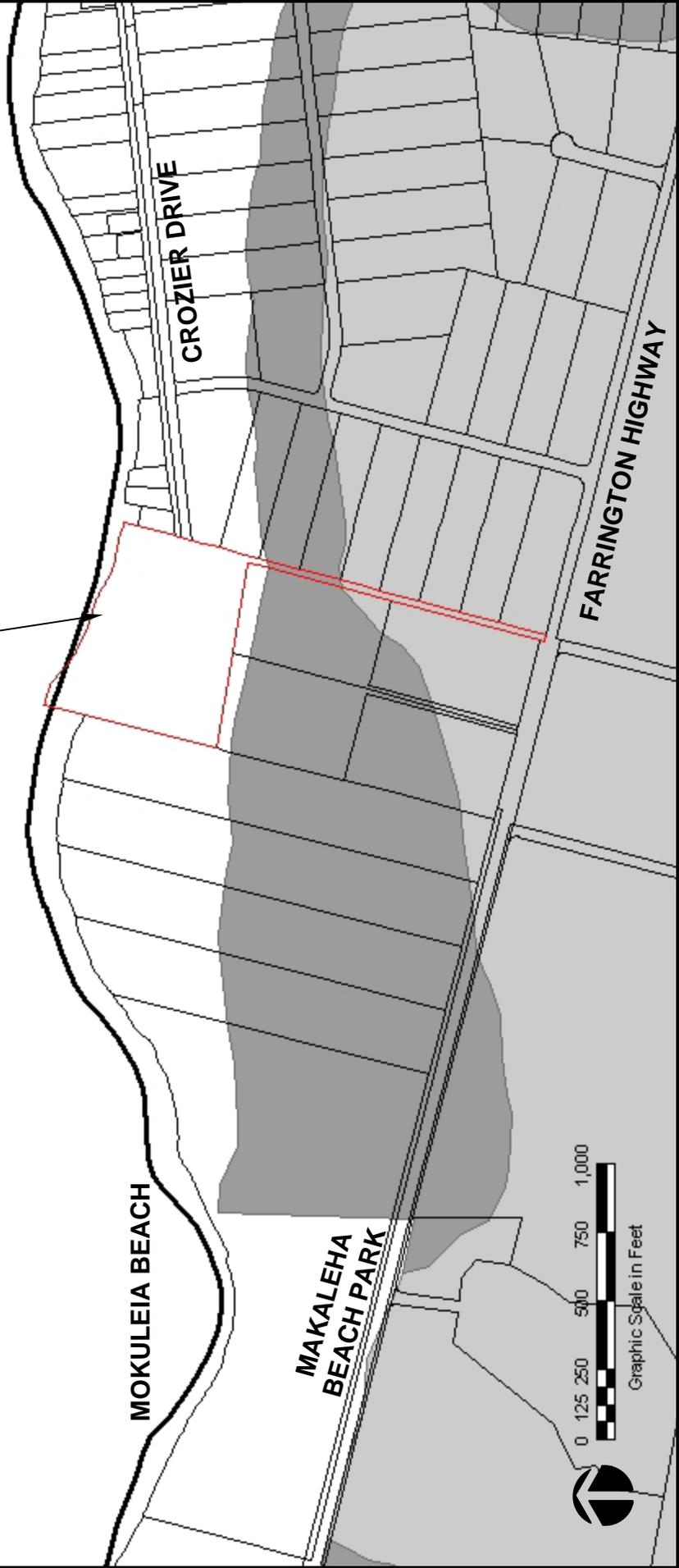


Island of Oahu

Legend

- Coastal Zone
 - Unclassified
 - Prime Lands
 - Other Lands
- ALISH Type**

Project Site



KAIAHULU-MOKULEIA BEACH COTTAGES

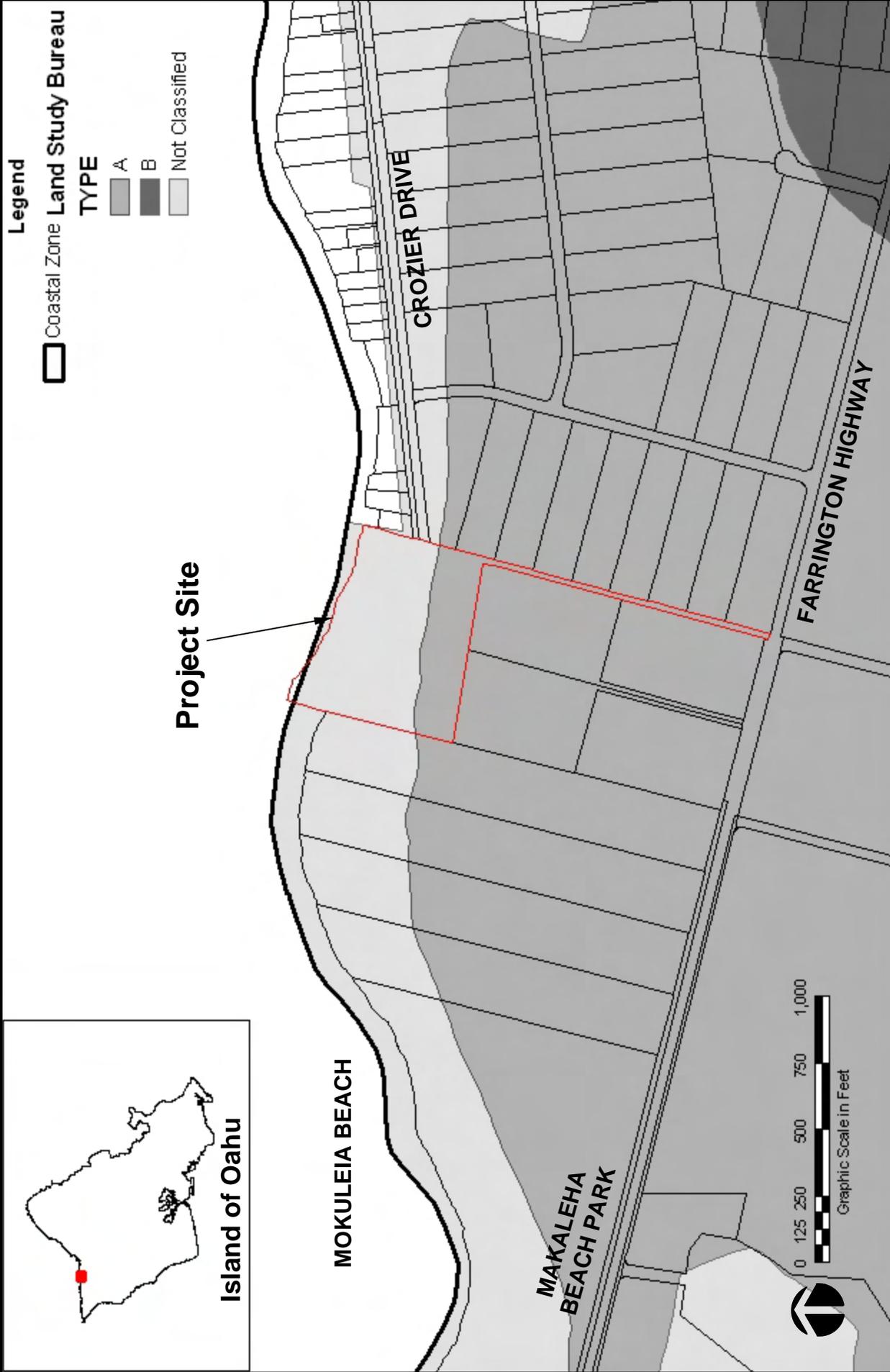
**AGRICULTURAL LANDS OF IMPORTANCE
TO THE STATE OF HAWAII**

FIGURE

2-2



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There are no natural surface water bodies, floodplains, or wetlands on the project site. Makaleha Stream, the closest natural surface water source, is located approximately 1,700 feet west of the project site where it enters the ocean from within Makaleha Beach Park. The rain gage station closest to the project site (Station Key No. 841.00, Kawaihapai Station) records approximately 32.5 inches mean annual rainfall. Most of the rain occurs during the winter months.

In the vicinity of the project site, Farrington Highway delineates the division between the City and County of Honolulu Board of Water Supply Pass/No Pass line. The project site is below this line, indicating that the underlying aquifer is not considered a drinking water source. However, the project site is identified by the State Department of Health as a high groundwater area. The nearest registered potable water well in the vicinity of the project site is identified as Well No. 3410-01, owned and operated by Crowbar Ranch. This well is located mauka of Farrington Highway, approximately 3,700 feet to the southwest of the project site.

Impacts and Mitigation Measures

Due to the level topography and soil permeability, no impact on surface water bodies is anticipated during construction. If necessary, soil containment barriers may be installed at the shoreline during removal of concrete foundations. Any potential soil runoff from grading and excavation will be controlled in compliance with City and County of Honolulu grading permit requirements. Typical mitigation measures may also include appropriate treatment of excess excavated material, and covering and landscaping exposed soils as early as possible.

In the long-term, the overall impact from the proposed project on groundwater and the marine environment is expected to be positive since the new IWS installation will replace the existing cesspools. Even when working properly, cesspools remove only a small percentage of pollutants contained in domestic sewage, with groundwater carrying the remainder into the ocean. The new IWS will treat the wastewater to a level which is safe for percolation to the water table. The wastewater systems will require review and approval by the State of Hawaii Department of Health to ensure the system complies with Title 11 Hawaii Administrative Rules, Chapter 62, Wastewater Systems.

2.4. Flood Hazard

According to Flood Insurance Rate Map (FIRM) Panel 85 of 395, Map number 15003C0085F, dated September 30, 2004, the project site lies within two flood hazard designations (see Figure 2-4).

The first designation, Zone AE, "Base Flood Elevations determined" (elevation 11 feet) closely follows the top of the bank at the shoreline. The remainder of the project site is designated Zone X, "Areas of 0.2% annual chance flood; areas of 1% annual chance

flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.”

The entire project site is within the Tsunami Evacuation Zone, as determined by City and State Civil Defense agencies. The Tsunami Evacuation Zone depicts estimated inundation limits for all coastal areas of Oahu using available historical data. The evacuation zone designation is an advisory designation meant to foster tsunami preparedness. It does not impose any building restrictions on proposed development.

Impacts and Mitigation Measures

The new cottages will be moved approximately 100 feet further mauka of the shoreline, which will move them outside of the Zone AE flood designation. Over time, the re-establishment of shoreline vegetation and natural beach processes should also have a positive impact on the mitigation of flood hazard from high surf or tsunami events. The new cottages will be built on posts, with a floor elevation approximately 3 feet above the surrounding ground elevation. All renovations will comply with City flood ordinances.

2.5. Flora and Fauna

Terrestrial Flora and Fauna

Vegetation on the project site predominantly consists of naupaka (*Scaevola* spp.) and grasses. Most of the large trees, primarily ironwood (*Casuarina equisetifolia*) and kamani (*Calophyllum inophyllum*), that previously grew on the property were removed in 2006. No threatened or endangered plant species are known to exist on the property.

Pets are not allowed to be brought to the site by cottage users. Faunal species that may naturally occur at the project site include rats, mice, and mongoose that are common to rural environments. Feral species of cats and dogs may also be present at the site on occasion. Avifaunal species include those common to rural Oahu such as the barred dove, mynah, sparrow, Brazilian cardinal, and finches. The Pacific Golden Plover, a migratory species, would also be expected to appear at the site during the winter months. No federally protected, threatened or endangered species of animals are known to inhabit the project area.

Marine Flora and Fauna

The project site does not involve any encroachment or potential impact into the area makai of the shoreline. For the record, the ocean environment just offshore of the project site supports a wide variety of benthic algae, common macroinvertebrates like sea urchins, sponges, and corals, and a wide variety of common reef fish. Several federally designated threatened and endangered species are also known to occur on the North Shore, including the green sea turtle (*Chelonia mydas*) and the endangered hawksbill turtle (*Eretmochelys imbricata*). The endangered Hawaiian monk seal (*Monachus schauinslandi*) has also been known to appear on the North Shore.

Impacts and Mitigation Measures

Once the existing concrete paving and building foundations are removed from the shoreline, the cleared area will be replanted with species such as naupaka, silver buttonwood, and hala trees (see Landscape Plan, Figure 2-5).

After construction, the area surrounding all three of the new cottages will be planted with lawn grass bordered by naupaka hedge, beach heliotrope/sea grape, and kamani trees. Naupaka hedge will also be used to line the mauka side of the newly paved driveway and the makai side near the entry into the site. All other existing trees that are not within the proposed construction area will remain.

No adverse impacts on fauna are anticipated. Site preparation will remove existing plant species that provide forage space and/or habitat for various bird, mammal and insect species that commonly occur in the region. When landscaping for the proposed project is established, these displaced species will return.

2.6. Noise

Ambient noise levels in the vicinity of the project site are very quiet, which is characteristic of the rural North Shore community. This also means that sensitivity to unusual or atypical noise is heightened since residents have a greater expectation of quiet. Most noise that is considered intrusive in rural areas is related to motor vehicles, or to other power equipment such as mowers, trimmers and other power tools used for property maintenance.

Impacts and Mitigation Measures

During the construction phase of the proposed project, construction noises will be audible to the surrounding properties along Crozier Drive and Mahinaai Street. The activities most likely to cause disturbance will be the excavation and removal of the old concrete tennis court in the northeast corner of the project site, and the construction of the new caretaker's residence closest to the eastern property line.

All demolition and construction activities will occur between the hours of 7 a.m. and 6 p.m. The contractor will be responsible for complying with DOH noise regulations (Chapter 11-46 Community Noise Control, Hawaii Administrative Rules) as specified for construction-related activities.

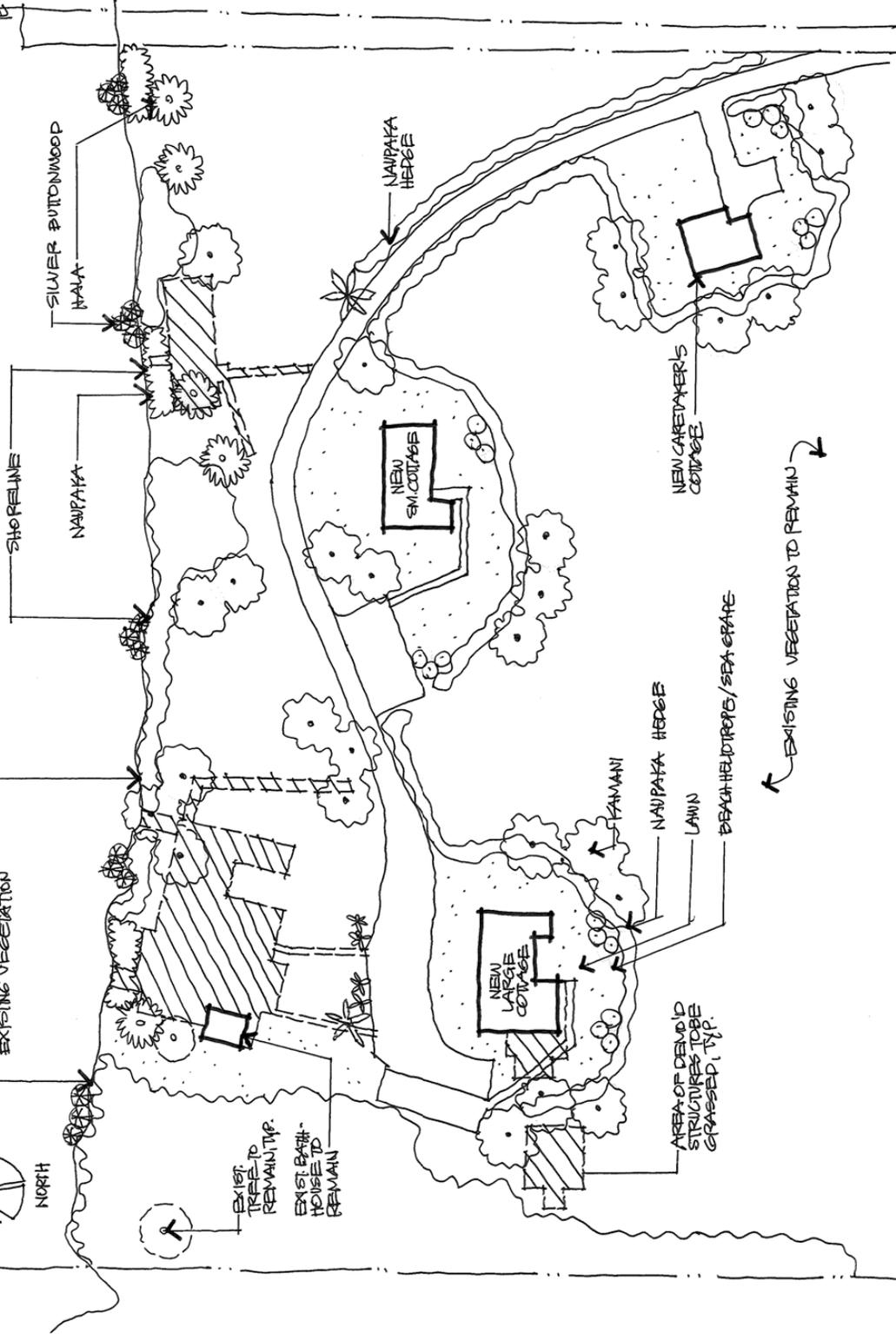
Upon completion, traffic associated with the proposed project is not anticipated to increase since no net increase in traffic will be attributable to the proposed improvements. The proposed project will not increase net floor area or parking capacity.

1/16 = 66' = 1" = 1'



NORTH

APPROXIMATE LINE OF EXISTING VEGETATION



LANDSCAPE PLAN

KAIHULU - MOKULEIA BEACH COTTAGES

TMK: 6-8-03:001

L-1

FEBRUARY 2008



WILSON OKAMOTO CORPORATION
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KAIHUKU-MOKULEIA BEACH COTTAGES

LANDSCAPE PLAN

FIGURE

2-5

2.7. Air Quality

The climate of the Mokuleia area is characterized by abundant sunshine, persistent tradewinds, relatively constant temperatures, moderate humidity, and infrequent severe storms. Northeasterly tradewinds prevail throughout the year although their frequency varies from more than 50 percent during the summer months to 90 percent in January. The average annual wind velocity is approximately 10 miles per hour.

The mean temperature measured at Waialua ranges from 70 degrees Fahrenheit (°F) in the winter to 77°F in the summer. High temperatures at Waialua are typically in the low to mid-70°F in the winter and the mid-80°F in the summer. Relative humidity ranges between 56 and 72 percent.

Other than vehicular emissions or fugitive dust from ground disturbing activities or drought conditions, there are no air pollutant sources within the project vicinity. The State Department of Health Clean Air Branch does not maintain any air quality monitoring stations on the North Shore of Oahu.

Impacts and Mitigation Measures

The proposed project will have short-term construction-related impacts on air quality in the immediate vicinity, including the generation of dust and the emissions from construction vehicles and equipment and from the vehicles of commuting construction workers. However, due to the prevailing tradewinds and distance of the demolition and construction activities from the nearest residences along Crozier Drive, most of these impacts should not be adverse.

It is possible that some adverse impacts could occur to nearby residences along Crozier Drive during the demolition and removal of the old tennis court in the northeast corner of the site. If necessary, a temporary dust fence will be erected along the eastern property line to shield the nearest residences along Crozier Drive from potential fugitive dust. This would be in addition to an existing 6-foot high chain link fence with dust screen already in place along the southern and most of the eastern boundary of the property.

The construction contractor will be responsible for complying with State Department of Health, Administrative Rules, Section 11-60.1 regarding air pollution control, specifically Section 11-60.1-33, regarding fugitive dust and the prohibition of visible dust emissions at property boundaries. As discussed in Section 2.1, Topography and Soils, measures such as water spraying and wind screens will be implemented, as necessary, during excavation, followed by temporary irrigation systems to facilitate the establishment of landscaping.

In the long-term, some minor air quality benefits may be accrued from paving of the access road and parking areas. Traffic associated with the proposed project will not adversely affect air quality since there will be no increase in traffic attributable to the project.

2.8. Hazardous Materials

At the time the beach cottages were originally constructed in 1924, asbestos was commonly used in building materials. Although the cottages are mostly constructed of wood, it is possible that materials such as floor tiles, fire-proofing, or insulation may contain asbestos.

Impacts and Mitigation Measures

Prior to demolition and renovation, the cottages will be inspected for the presence of asbestos by a certified inspector, and any asbestos containing material will be handled in accordance with the State of Hawaii Department of Health Administrative Rules (HAR) Chapter 11-501, 502, 503, and 504, Asbestos Regulations.

2.9. Archaeological and Historic Resources

The Mokuleia area has been the location of several archaeological investigations, the majority of which have been limited to inadvertent finds of burial remains along the beach. The most recent inadvertent find occurred in the northwest corner of the project site in January 2008. Based on these prior findings, an archaeological literature review and field inspection was conducted for the proposed project to determine if there are any major archaeological concerns within the study area, and to develop data on the general nature, density, and distribution of known archaeological resources in the area. The review and field inspection report is included in Appendix A.

Field inspection of the project site confirmed the findings and information provided in the background research. Within the project site, the remnant grade of the OR&L railroad (SIHP #50-80-12-9714) is still visible as a linear depression through the center of the site. Historic material including broken bottles, metal fragments, and window glass were observed in the vicinity of the alignment.

The site of the recent inadvertent burial discovery in the northwest corner of the project site was also observed during the field inspection. Human remains of at least two adult individuals were unearthed in this location during initial tree removal activities in January 2008. With approval from Castle & Cooke, Inc., these remains along with three other inadvertent burial discoveries from the immediate area stored within the SHPD depository, were reburied at this location. A temporary perimeter using metal rebar and caution tape remains in place around the reburial location. In the near future, a reburial

agreement will be drafted to further protect the burials through recordation in the Bureau of Conveyance.

Impacts and Mitigation Measures

The remnant grade of the OR&L railroad is outside of the sites proposed for development of the new cottages and individual wastewater system/leach field. There will be no impact to this historic feature from the proposed project.

The recent inadvertent burial discovery along with previous archaeological research in the vicinity of the project site suggests that additional human remains or burials could be encountered during future subsurface excavation or vegetation removal. Based on these results, an inventory survey will be conducted that will focus on subsurface testing in areas where excavation will be needed. This includes footings for the cottages, waterline trenching, and the site of the new wastewater system.

The inventory survey work will be preceded by an archaeological inventory survey plan to be prepared and submitted to SHPD for review and approval. The inventory survey plan will establish the appropriate and agreed upon scope of work. Archaeological monitoring during the excavation will also be conducted, which will be preceded by an archaeological monitoring plan to be submitted to SHPD for review and approval.

2.10. Cultural Resources

The district of Waialua is rich in legends, stories, proverbs and myths. Waialua, literally translated as “two waters”, may refer to the two large stream drainages (Anahulu and Helemano-Poamoho-Kaukonahua) that were once used to irrigate extensive taro fields in the ahupa’a of Kamananui, Pa’ala’a, and Kawailoa. The ahupua’a of Kealia, Kawaihapai, and Mokuleia on the western side of the district were more arid and not as well watered as the three eastern ahupua’a. However, they were famed for their warm climate, cooling breezes, plant resources, and especially marine resources. Legends and stories with references to the natural attributes of the Mokuleia area are included in Section 3 of the archaeological literature and field investigation (see Appendix A).

The recent inadvertent discovery of human remains in the northwest corner of the property provides the only link to traditional or early historic period cultural use of the project site. When protected and recorded with the Bureau of Conveyance, this cultural use will continue in perpetuity. Otherwise, modern records indicate that the property has been used for railroad right-of-way, as a private residence, and as a corporate retreat.

Impacts and Mitigation Measures

The proposed project will not change the current use of the property, which has been on-going since acquisition of the land by Castle & Cooke in 1927. Nor will it affect the ability to preserve the recent reburials that took place on the property with the consent of the applicant. Therefore, no impact to cultural practices in the Mokuleia area will result from the proposed project.

2.11. Socio-Economic Characteristics

The project site is located at the western edge of the town of Waialua. Unlike the nearby town of Haleiwa which is more commercial and tourist oriented, Waialua is primarily a residential area with a quiet ambiance. According to statistics available from www.city-data.com, as of July 2007, the population of Waialua was 3,891 persons, in comparison to the 2000 U.S. Census figure of 3,761. The 2000 U.S. Census listed 1,128 households within the census-designated place (CDP) of Waialua. The racial makeup of the CDP in 2000 was approximately 35 percent Filipino, 27 percent from two or more races, 14 percent white, 12 percent Japanese, 6 percent Hispanic, 4 percent Native Hawaiian and other Pacific Islander, and the remainder of mixed or other races. The estimated 2007 median household income in the CDP was \$58,900 (it was \$46,763 in 2000, based on the U.S. Census).

Impacts and Mitigation Measures

The beach cottages have been in use for over 80 years as a corporate retreat for Castle & Cooke employees. As a transient use recreational facility, it does not contribute to any permanent changes in the area's population or economy. Since no changes are proposed to the current use, the proposed action will not have any significant socio-economic impacts.

2.12. Community Health and Safety

Throughout the period of use of the property as a corporate retreat, the cottages have been used safely and without incident to the surrounding community. Although zoned for agriculture, no agricultural activities occur on the property that could otherwise have potentially adverse health impacts.

Impacts and Mitigation Measures

Since the proposed action would not result in any change to the current use, no impacts to community health and safety are anticipated. Some positive health benefits to offshore water quality may be gained from the proposed action by the replacement of outdated cesspools with a new individual wastewater system that will serve all three new cottages.

2.13. Scenic Views

Due to the distance of the project site from Farrington Highway, the beach cottages do not obstruct any scenic views of the shoreline normally available to the general public. From within the site, the two beachfront cottages partially obstruct views of the ocean. The cottages are also currently visible from stationary locations on Mokuleia Beach, which may be regarded as detracting from the scenic views. However, there are many other beachfront homes along Crozier Drive that are also visible when looking to the east from Mokuleia Beach.

Impacts and Mitigation Measures

The proposed reconstruction of the cottages further inland will move the structures from the slightly higher elevations at the shoreline, to slightly lower elevations in the middle of the site. This relocation may have a slightly positive impact on coastal views from Farrington Highway, especially if future clearing of adjacent, undeveloped land opens up new view planes. Scenic views of the ocean from within the project site and from Mokuleia Beach will be positively impacted by the cottage relocation and replacement with shoreline vegetation.

2.14. Traffic

Traffic on the North Shore can have significant delays, primarily during weekends, special events, and periods of high surf. However, these delays tend to occur on the two-lane Kamehameha Highway between Haleiwa and Sunset Beach, and do not affect Farrington Highway between Waialua and Mokuleia. There are no issues around traffic where the project site access road meets Farrington Highway.

Impacts and Mitigation Measures

There will be a negligible increase in traffic to the North Shore due to construction workers commuting to the project site during the week. Since these workers will be traveling against the predominant peak hour traffic pattern, the increase will not be noticeable. No long-term traffic impact is anticipated since the use of the project site will not change.

2.15. Utilities

The project site is not served by a municipal sewer or drainage system. Water, electric, and telephone service are currently delivered to the site.

Impacts and Mitigation Measures

No increase in water use at the project site is anticipated. There may be a small increase in electrical demand resulting from the project due to the likely need for

an aerator pump in the new individual wastewater system. This increase in demand will likely be offset by the installation of solar water heating and energy efficient appliances in the new cottages. As is the case with all of CCHH's residential developments, the applicant will consider the use of energy saving technologies in the new beach cottages to the extent practicable.

2.16. Other Public Facilities

The project site is served by City and County of Honolulu solid waste collection and police and fire protection. Since it has no permanent residents, it has no impact on schools or recreation facilities in the area.

Impacts and Mitigation Measures

Since the proposed project would continue the current use, municipal services related to solid waste, schools, recreation, and public safety will be unaffected by the proposed project.

3. RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

This section discusses State and City and County of Honolulu land use plans, policies and controls relating to the proposed project.

3.1. State Land Use District

The Hawaii Land Use Law, contained in Chapter 205, Hawaii Revised Statutes, classifies all land in the State into four land use districts: Urban, Agricultural, Conservation, and Rural. The project site is designated within the Agricultural District (see Figure 3-1).

The current and proposed use of the land as a corporate retreat is not a permissible use within the Agricultural district, as defined by Chapter 205-4.5, Permissible uses within the agricultural districts. In such instances where the proposed land use is not a permitted use, the county planning commission may grant a State Special Use Permit (SUP) to allow such use in the State Agricultural District if the use can be shown to be reasonable. Castle & Cooke, Inc. will request an SUP from the City's Department of Planning and Permitting for the Kaiahulu Beach Cottages reconstruction.

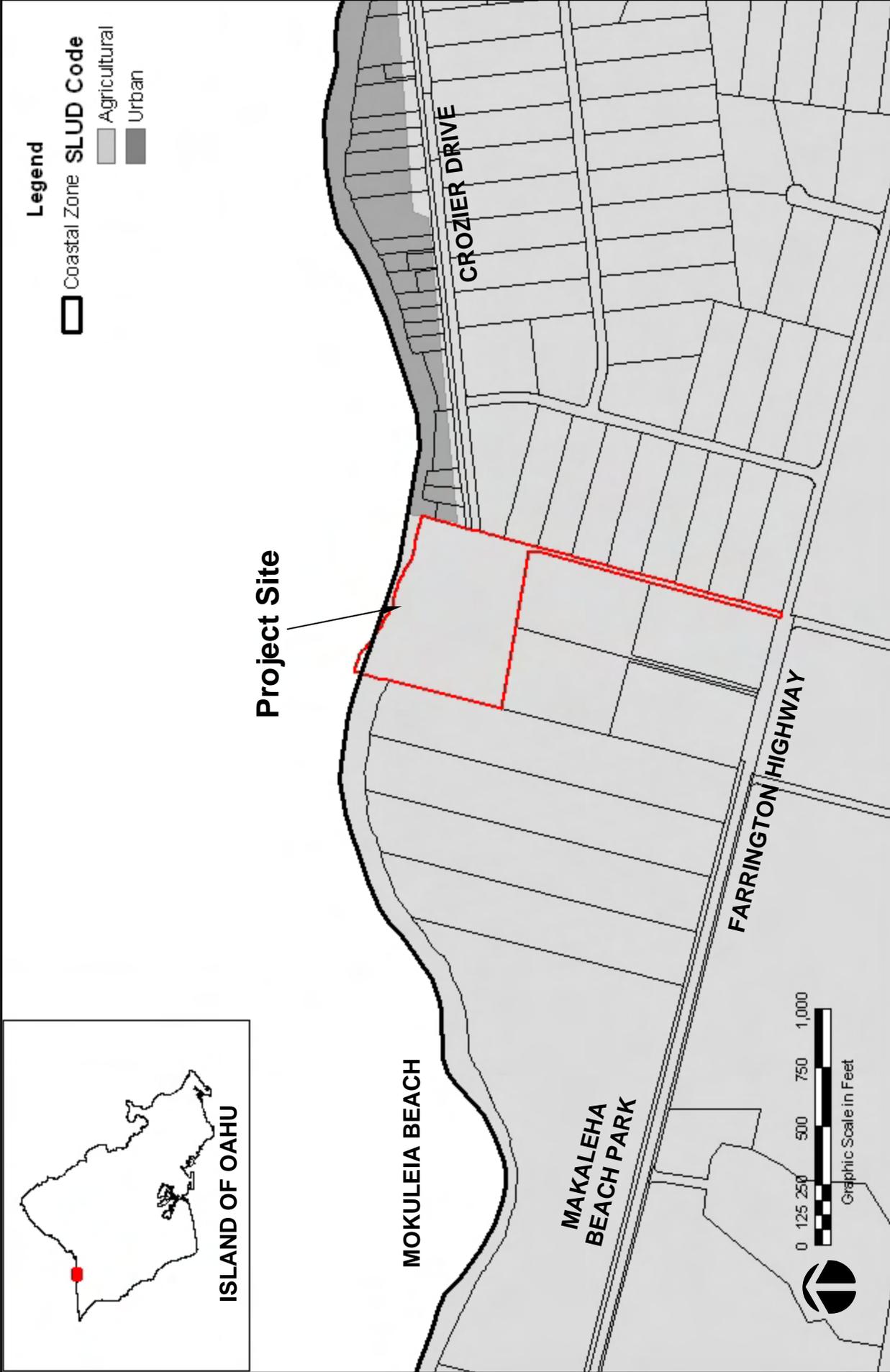
3.2. City and County of Honolulu

3.2.1 Zoning

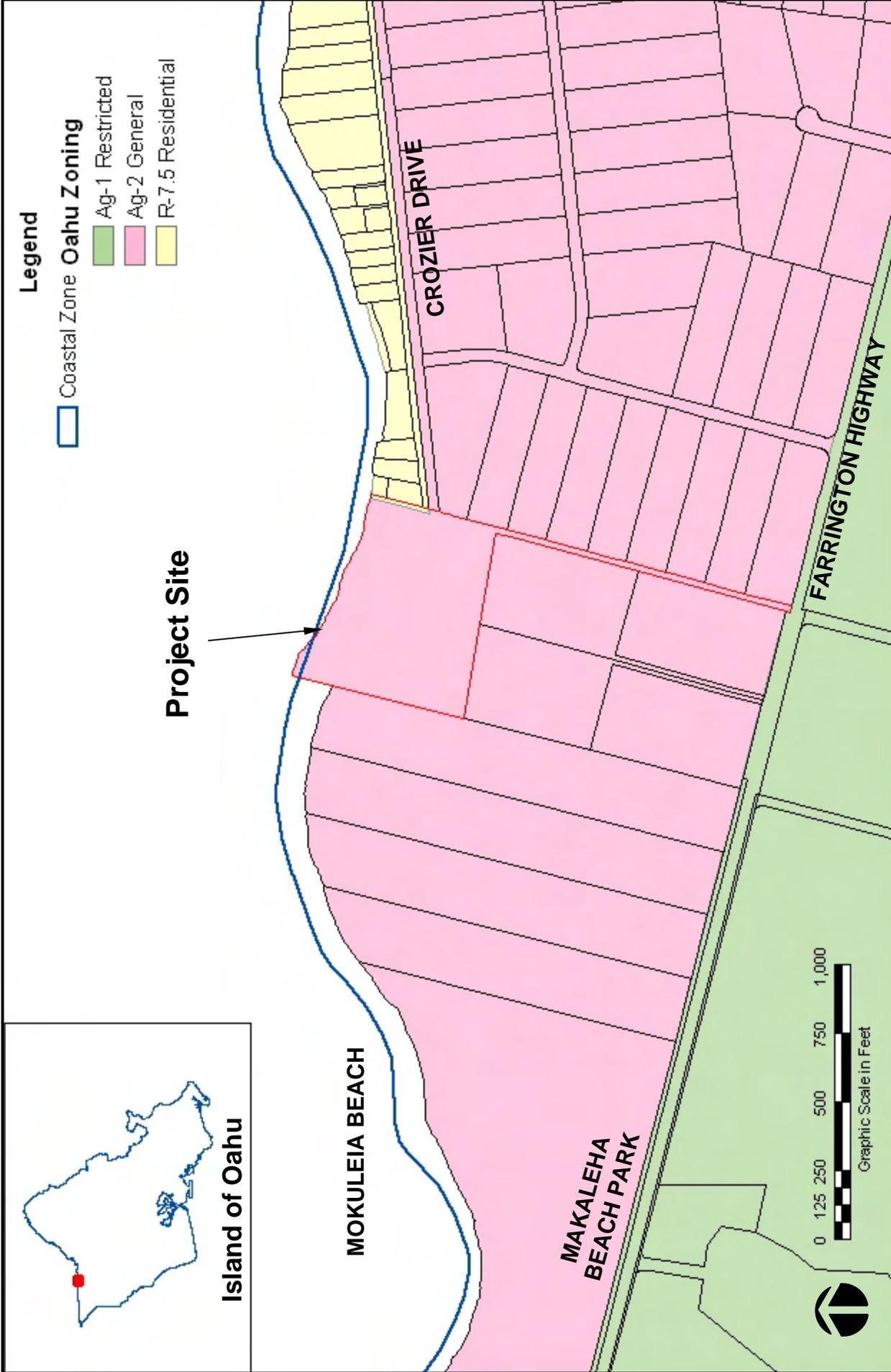
The project site is zoned AG-2 General Agricultural District (see Figure 3-2). The City and County of Honolulu Department of Planning and Permitting considers the use of the site to be a "corporate retreat" for zoning purposes. The Land Use Ordinance (LUO) Section 21-10.1 defines a corporate retreat as follows:

"Corporate retreat" means a transient vacation unit which is provided with or without monetary compensation by a business, company or corporation, including a nonprofit corporation, to transient occupants, including but not limited to employees, directors, executives or shareholders of the business, company or corporation."

For LUO purposes, a corporate retreat is considered to be a type of transient vacation unit (TVU) and is not a permitted use in the AG-2 District. Therefore, in order to authorize the use of the site as a corporate retreat, a zoning variance will be required. Castle & Cooke, Inc. will file a zoning variance with the City's Department of Planning and Permitting.



 <p>WILSON OKAMOTO CORPORATION ENGINEERS • PLANNERS</p>	<p>KAIAHULU-MOKULEIA BEACH COTTAGES</p> <p>STATE LAND USE DISTRICT MAP</p>	<p>FIGURE 3-1</p>
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 <p>WILSON OKAMOTO CORPORATION ENGINEERS • PLANNERS</p>	<p>KAIAHULU-MOKULEIA BEACH COTTAGES</p> <p>ZONING MAP</p>	<p>FIGURE 3-2</p>
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3.2.2 North Shore Sustainable Communities Plan

On May 10, 2000, the City and County of Honolulu's North Shore Sustainable Communities Plan (NSSCP) was adopted. The Plan is one of eight regional plans covering the Island of Oahu. As mandated by the City Charter, the plans set forth City policy to guide zoning, land use, and public investment in a manner that is consistent with and supports the General Plan of the City and County of Honolulu.

The North Shore Sustainable Communities Plan Land Use Map designates the project site as "Park." However, based on consultation with the City Department of Planning and Permitting (DPP), the "Park" designation for the adjacent planned Makaleha Beach Park was erroneously extended to include the project site. The DPP intends to correct this error in conjunction with its forthcoming update of the NSSCP. The correct designation for the project site is "Agriculture."

As stated in the NSSCP, the role of the North Shore in Oahu's development pattern is to maintain the rural character, agricultural lands, open space, natural environment, recreation resources and scenic beauty of Oahu's northern coast. For this reason, special consideration will be given to ensuring that the new cottages are sensitive to the shoreline environment, historic resources, and to the neighboring residential and agricultural parcels. The new cottages will be modest structures of textured plywood siding and asphalt shingles. Since the new cottages will be sited at slightly lower elevation in the interior of the property, the 17-foot high roofline will not be visible from the beach. Landscaping will be selected as appropriate to the shoreline environment and as necessary to shield the cottages for privacy and consideration of neighbors. Any outdoor lighting will be shielded as necessary to direct light only to where it is needed. All new construction, including the wastewater system, will be sited to ensure that there is no impact to the existing historic OR&L railroad right-of-way feature.

The proposed action is consistent with the following specific land use policies, principles and guidelines in the NSSCP:

OPEN SPACE AND NATURAL ENVIRONMENT

General Policies

- Protect significant natural features
- Preserve cultural and historic features
- Protect scenic views

Discussion: *The proposed project will enhance the shoreline environment and scenic views through removal of concrete structures and the re-establishment of appropriate shoreline flora. Potential disturbance to cultural resources during inland grading and*

excavation activities will be mitigated by archaeological inventory survey and construction monitoring in accordance with plans prepared and approved by the SHPD.

Planning Principles

- **Preservation of Scenic Views.** Scenic resources include the Waianae and Koolau Mountain Ranges, coastal pali, the coastline, and the Pacific Ocean. View of these resources from public places, including major roadways, should be preserved. More open space should be provided along the shoreline to preserve and enhance views of the ocean. New developments should seek to minimize impact on these scenic resources.

Discussion: *Views of the coastline from Mokuleia Beach will be enhanced by the reconstruction of the two beachfront cottages further mauka, away from the shoreline, and by the removal of all concrete foundations and their replacement with coastal strand vegetation.*

Guidelines

Shoreline Areas

- Preserve rare coastal resources including coastal strand vegetation, sand dunes, and anchialine ponds. Establish buffer zones around these areas where necessary. Discourage off-road vehicle use in ecologically sensitive areas.
- Discourage development or activities which result in beach loss. Encourage development or activities which result in beach preservation or enhancement.
- Where structures are permitted on lands abutting the shoreline, adequate setbacks should be provided. Establish greater shoreline setbacks for new structures in erosion hazard areas, using criteria from the various shoreline studies. New structures should incorporate building styles compatible with coastal hazards such as coastal erosion, tsunamis, and hurricane overwash. Buildings should adhere to the City's and FEMA minimum building elevations and architectural guidelines.
- Maintain and expand public beach access to the shoreline and lateral shoreline access along the coast, especially in areas with high recreational or scenic value. Public access should generally be no more than ½ mile apart in undeveloped areas and no more than ¼ mile apart in developed areas...

Discussion: *Shoreline areas that are cleared of concrete structures will be landscaped with coastal strand vegetation and cordoned off until well-established. The removal of "hardened" structures should help to preserve or enhance the beach in the long-term. The new cottages will have a setback distance of 120 feet or more from the shoreline.*

Cottages will be on posts, with 3-foot floor elevations above the surrounding ground surface.

With regard to public beach access, while it would be possible for beachgoers to park along Farrington Highway and walk down the driveway and across the property if an easement were provided, the remote parking location for unattended vehicles and the over ¼ mile walking distance from the highway make an easement in this location impractical. There are easier and more secure public beach access points along Crozier Drive and at Makaleha Beach Park. Both of these existing access points are located approximately ¼ mile from either side of the subject property.

HISTORIC AND CULTURAL RESOURCES

General Policies

- Preserve significant historic features from earlier periods.
- Restore or keep intact sites with cultural and/or religious significance out of respect for their inherent cultural and religious values.

Discussion: The new cottages and wastewater system will be sited to avoid the alignment of the historic OR&L railroad right-of-way, SIHP #50-80-12-9714. Additionally, archaeological inventory survey of the cottage foundations and area for the individual wastewater system will be conducted to determine the potential for disturbance of any potentially significant archaeological and historic features. Archaeological monitoring will also be conducted during excavation activities.

WASTEWATER TREATMENT

General Policies

- New wastewater treatment systems should meet standards that minimize adverse impacts on potable water sources and the ocean. An ocean outfall in the North Shore area has been rejected by the community as an option due to environmental and economic considerations. New developments should provide for environmentally sensitive wastewater collection and disposal.

Discussion: Wastewater, which is presently disposed of on-site through individual cesspools near each cottage, will be disposed of through a new, privately maintained wastewater treatment system. The applicant will comply with the applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems."

Planning Principles and Guidelines

- **Replacement of Cesspools.** Replace outdated individual cesspools with septic tanks and individual wastewater systems. Consider public programs or policies to support private conversion efforts.

Discussion: See discussion above.

3.2.3 Special Management Area

The entire project site lies within the boundary of the City and County of Honolulu's Special Management Area (SMA). Proposed improvements within the SMA are subject to SMA permit requirements pursuant to Section 205A, HRS, and Chapter 25 Revised Ordinances of Honolulu.

The objectives, policies and SMA guidelines, as set forth in *Chapter 205A, Hawaii Revised Statutes*, are intended to ensure that adequate shoreline access is provided, public recreation and wildlife preserves are reserved, and that minimum adverse effects to water, visual and natural resources are assured. The project's consistency with the Coastal Zone Management Program is discussed below.

(1) Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies

- (A) *Improve coordination and funding of coastal recreational planning and management; and*
- (B) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
 - (i) *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
 - (ii) *Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;*
 - (iii) *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*

- (iv) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
- (v) *Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
- (vi) *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.*
- (vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
- (viii) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of Section 46-6, HRS.*

Discussion: Development of the proposed project is anticipated to have no impact on coastal recreational opportunities except to the extent that the shoreline is improved by the removal of concrete pavement and building foundations, and by the reestablishment of shoreline vegetation in these areas. It is also hoped that removal of the hardened structures at the shoreline will reduce the rate of beach sand erosion. (2) Historic Resources

Objective:

Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

- (A) *Identify and analyze significant archaeological resources;*
- (B) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) *Support state goals for protection, restoration, interpretation, and display of historic resources.*

Discussion: An assessment for the potential to encounter archaeological and historic resources within the proposed areas of disturbance was conducted in March 2008. Based on observations during the field inspection and background research, additional human burials, prehistoric subsurface features, and cultural material associated with the

former OR&L railroad may be encountered during subsurface excavation activities within the project area.

State goals for the protection of historic resources will be supported through the completion of an archaeological inventory survey of the designated areas of disturbance, and by archaeological monitoring during excavation of building footings, waterline trenching, and the individual wastewater treatment system.

(3) Scenic and Open Space Resources

Objective:

Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

- (A) *Identify valued scenic resources in the coastal zone management area;*
- (B) *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
- (C) *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
- (D) *Encourage those developments which are not coastal dependent to locate in inland areas.*

Discussion: On the North Shore Sustainable Communities Plan, Open Space Map, the stretch of coastline between the west end of Crozier Drive and Mokuleia Beach Park is identified as a resource with “Intermittent Panoramic Views” of the Pacific Ocean. The demolition and reconstruction of the cottages further inland will improve the scenic views of the ocean from within the property by removing the cottages as obstructions. Stationary views from the beach will also be improved to the extent that the current location of the cottages will be replaced with coastal strand vegetation and open space.

(4) Coastal Ecosystems

Objective:

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

- (A) *Improve the technical basis for natural resource management;*
- (B) *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*

- (C) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- (D) *Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.*

Discussion: One of the purposes of the proposed project is to remove the concrete foundations from the shoreline. As has been shown in studies of littoral processes, man-made structures that “harden” the shoreline can lead to beach erosion and eventual beach loss. Hardening a shoreline can interfere with seasonal beach profile adjustments because the dune can no longer share its sand with the beach. As a retreating beach encounters a hardened structure it can no longer draw upon a landward sand supply and it begins to erode as sand is deposited offshore. It is hoped that removal of the concrete building foundations, lanai space, and playcourt will help to protect the valuable beach sand that fronts the property.

Another purpose of the project is to upgrade the method of wastewater disposal. As noted in the NSSCP, cesspools have the potential for failure when not maintained, and even when working properly, they remove only a small percentage of the pollutants contained in domestic sewage, with groundwater carrying the remainder to the ocean. This can result in potential health problems to recreational users of the shoreline.

The NSSCP advocates as a planning principle the replacement of cesspools with septic tanks and individual wastewater systems where centralized treatment systems are not available. The proposed project will install an individual wastewater system, likely with aerobic treatment, to replace the existing cesspools. The new systems will comply with all applicable provisions of the Department of Health’s Administrative Rules, Chapter 11-62, “Wastewater Systems.”

(5) *Economic Uses*

Objective:

Provide public or private facilities and improvements important to the State’s economy in suitable locations.

Policies:

- (A) *Concentrate coastal dependent development in appropriate areas;*
- (B) *Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*

- (C) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
- (i) *Use of presently designated locations is not feasible;*
 - (ii) *Adverse environmental effects are minimized; and*
 - (iii) *The development is important to the State's economy.*

Discussion: All of the features of the proposed project have been designed to minimize any adverse social, visual, and environmental impacts on the coastal zone management area. There will be no increase in building area, and no increase in use. Existing cesspools will be replaced with individual wastewater systems for improved water quality. Improvements will be made to the shoreline's scenic value by moving the cottages inland and restoring cleared areas with shoreline vegetation. No direct impact to the State's economy will result except to the extent that the return of the shoreline to its more original, natural state will enhance the value of the beach to visitors.

(6) Coastal Hazards

Objectives:

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies

- (A) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
- (B) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;*
- (C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program;*
- (D) *Prevent coastal flooding from inland projects; and*
- (E) *Develop a coastal point and nonpoint source pollution control program.*

Discussion: The proposed project will move the cottages away from Zone AE, "Base Flood Elevations determined" (elevation 11 feet) and further into Zone X, "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." Thus, the relocation further inland should reduce potential hazard to life and property from tsunami and storm waves.

Beaches are critical to flood and erosion prevention since they serve as a natural buffer to prevent property damage from storm waves. If the removal of hardened shoreline structures has a positive impact on the sand accretion over time, this accretion will further reduce the potential hazard to life and property.

Managing Development

Objective:

Improve the development review process, communication and public participation in the management of coastal resource and hazards.

Policies:

- (A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- (B) *Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*
- (C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Discussion: Government agencies, community organizations and the general public will be notified and given an opportunity to comment on the project through the environmental review process. A Castle & Cooke, Inc. representative has already met with the Mokuleia Community Association to apprise them of the project and solicit their feedback. The SMA Use Permit process will provide additional opportunities for agency and public input.

(8) Public Participation

Objective:

Stimulate public awareness, education, and participation in coastal management.

Policies:

- (A) *Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;*
- (B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Discussion: This EA will be circulated to various government agencies, community organizations, and individuals. A meeting with the North Shore Neighborhood Board No. 27 will be held to coincide with the publication of this Draft EA. The public participation objective will also be addressed during the processing of the SMA Use Permit, which will include public notification as well as a public hearing.

(9) Beach Protection

Objective:

Protect beaches for public use and recreation.

Policies:

- (A) *Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;*
- (B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

Discussion: As has been emphasized throughout this EA, the removal of concrete foundations and structures from the shoreline of the project site should have a positive impact on the accretion of beach sand over the long-term. Hardening a shoreline can interfere with normal beach processes because it prevents dunes from forming above the high water line. When a hard structure is in place that prevents the formation of dunes, beach sand is not available for replenishment, and the eroding force of the waves will deposit the sand offshore.

(10) Marine Resources

Objective:

Implement the State's ocean resources management plan.

Policies:

- (A) *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- (B) *Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (C) *Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;*

- (D) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
- (E) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- (F) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion: The proposed action reflects an overall conservation ethic and practice of stewardship in the protection, use and development of coastal resources that are ecologically and environmentally sound and economically beneficial. This is discussed in comments to previous SMA policies regarding: (1) Recreational Resources; (2) Historic Resources; (3) Scenic Resources; (4) Coastal Ecosystem; (5) Economic Resources; and, (6) Beach Erosion.

4. ALTERNATIVE TO THE PROPOSED ACTION

4.1 No Action Alternative

The no action alternative would avoid any short-term environmental consequences resulting from construction-related dust, noise and the potential for unearthing human burials or other sensitive cultural remains. However, in the long-term, the no action alternative would jeopardize the current use of the site as the cottages become increasingly dilapidated and require more and more maintenance.

There are also good reasons for proceeding with the proposed action that are related to the long-term quality of the environment. Specifically, the demolition and reconstruction of the cottages further mauka provides an opportunity to restore the natural shoreline. It also provides an opportunity to replace the existing cesspools with a new individual wastewater treatment system. Therefore, since the proposed action has long-term benefits for both the applicant and the immediate environment, the no action alternative is not regarded as a prudent alternative.

4.2 Alternative Site or Design

The proposed action is intended to preserve the current use, such that the floor area of the new cottages is essentially the same as the existing cottages. It is also intended to limit ground disturbance, such that new cottages will be on posts unlike the existing cottages that are on concrete foundations. The new cottages have been sited in the center of the site for privacy, and will include energy saving technologies to the extent practicable. For these reasons, there is no alternative site or design for the new structures that would be more advantageous or environmentally benign than the proposed action.

An alternative location for the wastewater treatment system will be designated prior to the start of construction so that, in the event the archaeological monitoring encounters sensitive cultural materials during excavation, the system could be relocated without halting construction. The alternate site of the wastewater treatment system will be designated on the building plans.

4.3 Alternative Use

The 9.16-acre project site is zoned AG-2 General Agricultural District and is in the State Land Use Agriculture District. Based on the Land Use Ordinance (LUO), alternative uses for lands zoned AG-2 include activities that would conserve and protect agricultural activities on smaller parcels of land. However, as discussed in Section 2.2, Agricultural Lands, the project site has never been used for agricultural purposes and its soil characteristics make it unsuitable for high capacity agriculture. While the project site could possibly be used for ancillary activities related to agriculture, these uses

would have their own attendant environmental consequences. Given the 80 years of established use of the property as a corporate retreat without complaints from surrounding property owners, the current use should be regarded as the most feasible and suitable use of the property.

5. ANTICIPATED DETERMINATION OF FONSI

A. Applicant

Castle & Cooke, Inc.

B. Accepting Authority

City and County of Honolulu, Department of Planning and Permitting

C. Description of the Proposed Action

Reconstruction of three cottages, which includes demolition of two of the beachfront cottages currently within the 40-foot shoreline setback, and the demolition and reconstruction of a caretaker's cottage. The beach cottages will be constructed on posts about 100 feet further inland, with similar if not identical floor area. The surrounding grounds will be landscaped with lawn grass bordered by naupaka. Existing cesspools that serve the cottages will be replaced with a new individual wastewater system.

All concrete structures within the 40-foot shoreline setback will be removed, and the cleared areas will be landscaped with shoreline vegetation. One structure, an existing bath house outside the 40-foot shoreline setback, will remain to serve beachgoers. The existing gravel driveway will be paved, and new paved parking area for 12 cars will be created.

D. Determination and Reasons Supporting Determination

Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. In general, the proposed project will not:

(1) Involve an irrevocable commitment to loss or destruction of any natural or cultural resource

The project will demolish and then reconstruct two beach cottages at locations further inland, away from the shoreline. Demolition of cottages will be accompanied by the removal of all concrete walkways, playcourts, lanai space and other concrete structures that are currently within the 40-foot shoreline setback. This will provide the opportunity to restore shoreline vegetation in the cleared areas, and to hopefully encourage the accretion of beach sand fronting the property. This should result in an overall improvement to the coastal resource.

Based on literature review and field inspection, there is the potential for encountering cultural resources during excavation for the cottage footings, waterline, and the new individual wastewater systems. An archaeological inventory survey will be conducted pursuant to an SHPD-approved archaeological inventory survey plan. Archaeological monitoring during

excavation will assure that any cultural materials encountered, including human burials, are appropriately treated. This will include stopping work and reporting inadvertent finds to the SHPD. In the case of any human burials encountered, consultation will be pursued with the Oahu Island Burial Council.

(2) *Curtail the range of beneficial uses of the environment*

The proposed project will continue the existing use, without any increase in user activity or utility requirements, and will also provide some benefits to the environment in the form of increased coastal strand vegetation, beach replenishment, and wastewater treatment upgrade.

(3) *Conflict 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 does not conflict with long-term environmental policies, goals, and guidelines of the State of Hawaii. As presented in this EA, the project's potential temporary adverse impacts are associated only with short-term construction-related activities and can be mitigated through adherence to standard construction mitigation practices.

(4) *Substantially affect the economic or social welfare of the community or state*

The proposed project would provide short-term economic benefits in the form of construction jobs but otherwise will not have a substantial effect on the economic or social welfare of the community or state.

(5) *Substantially affect public health*

No significant impacts to the public's health and welfare are anticipated. The proposed replacement of existing cesspools with new individual wastewater systems will potentially have a positive impact on water quality.

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

The proposed project will be the same as the existing use, without any increase in use levels or utility requirements.

(7) *Involve a substantial degradation of environmental quality*

Construction activities associated with the proposed project are anticipated to result in short-term impacts to noise levels, air quality, and local traffic in the immediate project vicinity. The project site is in a remote location, however, and these impacts will be minimal due to the distance from other residences. In the long-term, the project will have benefits to coastal strand vegetation, beach replenishment, and water quality.

- (8) *Individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions*

The proposed project will continue the current use, without any increase in user activity or utility requirements.

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

There are no known rare, threatened or endangered species of flora or fauna or associated habitat identified on the project site.

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

Operation of construction equipment would temporarily elevate ambient noise and concentrations of exhaust emissions in the immediate vicinity of the project site. In the long-term, replacement of existing cesspools with individual wastewater systems should improve groundwater quality that flows to the ocean.

- (11) *Affect 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*

The proposed project will move structures out of the environmentally sensitive shoreline zone, thereby reducing the likelihood of damage to structures from tsunami or high-surf/storm conditions. The proposed improvements will comply with City flood ordinances.

- (12) *Substantially affect scenic vistas and view planes identified in county or state plans or studies*

The demolition and reconstruction of the beach cottages further inland will have a positive impact on the intermittent panoramic views of the ocean identified on the North Shore Sustainable Communities Plan Open Space Map.

- (13) *Require substantial energy consumption.*

Construction and operation of the project will not result in any substantial increases in energy consumption. The applicant will incorporate energy-saving technologies such as solar water heating into the new cottages to the extent practicable.

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6. PERMITS AND APPROVALS

The following is a list of permits and approvals, which will be required prior to construction of the proposed project:

6.1 State of Hawaii

Department of Health

- Review of Wastewater Treatment Plans

Department of Land and Natural Resources, Historic Preservation Division

- Review of Archaeological Inventory Survey Plan
- Review of Archaeological Monitoring Plan

6.2 City and County of Honolulu

Department of Planning and Permitting

- State Special Use Permit (SUP)
- Zoning Variance
- Special Management Area (SMA) Use Permit
- Grading Permit
- Excavation Permit
- Building Permit
- Electrical Permit
- Plumbing Permit

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7. CONSULTATION

7.1 Parties Consulted During the Pre-EA Consultation Period

The following agencies and organizations were consulted during the pre-assessment consultation period of the Draft EA. Each agency was sent a copy of a project summary and a request for their written comments on the project. All written comments and responses are reproduced at the end of this chapter.

State Agencies

- Department of Agriculture
- Office of Hawaiian Affairs
- Department of Hawaiian Home Lands
- Department of Health
 - Wastewater Branch
 - Environmental Planning Office
 - Office of Environmental Quality Control
- Department of Land and Natural Resources (DLNR)
 - DLNR Historic Preservation Division
 - Office of Conservation and Coastal Lands

City and County of Honolulu Agencies

- Department of Planning and Permitting

7.2 Parties to be Consulted During the Draft EA Review Period

The following agencies and interested parties will be consulted during the Draft EA review period.

Federal

- U.S. Fish and Wildlife Service

State of Hawaii

- Department of Business, Economic Development and Tourism (DBEDT)
- Office of Planning
- Department of Health (DOH)
 - Environmental Planning Office
 - Office of Environmental Quality Control
- Department of Hawaiian Home Lands
- Department of Land and Natural Resources (DLNR)
 - DLNR State Historic Preservation Division
- Office of Hawaiian Affairs
- Waialua Public Library

City and County of Honolulu

Board of Water Supply
Department of Design and Construction
Department of Emergency Management
Department of Facilities Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Fire Department
North Shore Neighborhood Board (No. 27)
Planning Commission

Elected Officials

Councilmember Donovan Dela Cruz (2nd District)
Councilmember Rodney Tam (6th District)

Individuals/Organizations

Mokuleia Community Association



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPITOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

RECEIVED
JUN 4 2008

May 30, 2008

WILSON OKAMOTO CORPORATION

Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania St., Suite 400
Honolulu, Hawaii 96826

HRD08/3633

EM

RE: Request for comments on the proposed demolition and reconstruction of three beach cottages, Mokuia, O'ahu, TMK: 6-8-003:001.

Aloha e Earl Matsukawa,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated April 10, 2008. OHA has reviewed the project and offers the following comments.

OHA notes that the applicant is aware of the high probability for encountering cultural deposits in the project area. We are pleased that an archaeological inventory survey is planned and that monitoring will be implemented during excavation activities. We look forward to reviewing your archeological assessments and plans.

OHA sees that the cabins are being moved back due to an encroaching shoreline and as such we recommend setting an aggressive setback for the proposed new buildings. We also observe that the applicant intends to plant naupaka and other shoreline plants which could be a potential cause for concern for us should they encroach onto this dynamic shoreline.

We are also aware of local biota that could benefit from mitigation and we suggest that you contact the Fish and Wildlife Service for their recommendations. OHA would also like to point out that the applicant should consider that by 2020, 20% of Hawaii's electricity is to be from renewable sources.¹ As such, OHA recommends that the applicant take this opportunity to consider the use of photovoltaic and small wind harvesting electrical generation for peripheral uses. Solar energy should also be incorporated into the building plans. During construction, OHA urges the use of recyclable materials: steel studs and structural members, and wood

¹ See Act 95, Session Laws of Hawaii 1991, which, in 2004 set that new original renewable portfolio standard goal.

Earl Matsukawa
May 30, 2008
Page 2

products from certified sustainable sources. Incorporating these and other ideas will promote a whole-building approach to sustainability. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is also a source for further information and ideas in this regard.

Additionally, OHA would also like to suggest that the project area be landscaped with drought tolerant native or indigenous species that are common to the area. Any invasive species should also be removed. Doing so would not only serve as practical water-saving landscaping practices, but also serve to further the traditional Hawaiian concept of mālama 'āina and create a more Hawaiian sense of place. This would also help to reduce the amount of impervious surfaces in the project area, thereby reducing runoff as well.

OHA also looks forward to reviewing your Best Management Practices in regards to construction activities in this sensitive area. Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold (808) 594-0263 or e-mail him at grantia@oha.org.

'O wau iho nō me ka 'ōia 'i'o,

Clyde W. Nāmu'o
Administrator



7630-01
June 27, 2008

Mr. Clyde W. Nāmu'o, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

1917 South Beretania Street
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Honolulu, Hawaii 96826 USA
Phone 808 946 2277
Fax 808 946 2253
www.wilsonokamoto.com

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA) for Kaihulu-Mokuleia
Beach Cottages, Mokuleia, North Shore, Oahu, Hawaii
Tax Map Key 6-8-003:001
Response to Comments

Dear Mr. Nāmu'o:

Thank you for your comments of May 30, 2008 (HRD08/3633) regarding the proposed reconstruction of the Kaihulu-Mokuleia Beach Cottages. We note that you had a number of suggestions regarding the use of native and indigenous plants, and the use of renewable energy sources and materials. These suggestions will be taken into consideration throughout the planning and design phase of the project.

The applicant is committed to the use of solar water heating in the new cottages. Incorporation of photovoltaics or wind harvesting will also be considered, as will the use of recyclable and responsibly harvested materials, provided they can be shown to withstand the rigors of the coastal environment.

Naupaka is currently the dominant plant species along much of this shoreline. We will solicit suggestions on suitable landscaping from various sources, including other state agencies and the U.S. Fish and Wildlife Service. These agencies will be sent a copy of the Draft EA.

We appreciate your participation in the pre-assessment consultation process. Your office will be sent a copy of the Draft Environmental Assessment.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: D. Minakami, CCHH



LINDA LINGGLE
GOVERNOR
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879
HONOLULU, HAWAII 96805

April 21, 2008

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96813

Dear Mr. Matsukawa:

Thank you for the opportunity to participate in the consultation process in preparation of a draft Environmental Assessment report on the proposed Kaihulu-Mokuleia Beach Cottages project located on the North Shore of Oahu. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at (808) 586-3836.

Aloha and mahalo,

Michael A. Kane, Chairman
Hawaiian Homes Commission

MICHAEL A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION
KALELANA H. PARK
DEPUTY TO THE GOVERNOR
ROBERT L. RALL
EXECUTIVE ASSISTANT

EM

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7630-01
June 27, 2008

Mr. Micah A. Kane, Chairman
Hawaiian Homes Commission
State of Hawaii
Department of Hawaiian Homelands
P.O. Box 1879
Honolulu, Hawaii 96805

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA) for Kaihulu-Mokuleia
Beach Cottages, Mokuleia, North Shore, Oahu, Hawaii
Tax Map Key 6-8-003:001
Response to Comment

Dear Mr. Kane:

Thank you for your letter of April 21, 2008 indicating that you have no comments to offer on the subject pre-assessment consultation for the Kaihulu-Mokuleia Beach Cottages. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,


Earl Matsukawa, AICP
Project Manager

cc: D. Minakami, CCHH

LINDA LINGLE
GOVERNOR OF HAWAII



CHRISTOPHER L. PUNO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3178
HONOLULU, HAWAII 96801-3178

May 13, 2008

RECEIVED
MAY 22 2008



Mr. Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

WILSON OKAMOTO CORPORATION

Dear Mr. Matsukawa:

SUBJECT: Pre-Assessment Consultation for Kaihulu-Mokuleia Beach Cottages
Mokuleia, North Shore, Oahu, Hawaii
TMK: (1) 6-8-003: 001; 9.16 acres

Thank you for allowing us to review and comment on the subject application. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Wastewater Branch (WWB) and General comments.

Wastewater Branch

The applicant proposes to demolish the existing cottages and construct new cottages further inland, away from the shoreline. The new cottages would be nearly, if not exactly, identical in size to the existing structures. In addition, the existing caretaker's residence would also be demolished and a new residence would be constructed near the driveway entrance to the property.

Please see the attached document, letter dated April 18, 2008, addressed to Mr. Earl Matsukawa, Project Manager of Wilson Okamoto Corporation. Our comments and concerns are addressed in the letter.

All wastewater plans must meet Department's Rules, HAR Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. If you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Indoor and Radiological Health Branch

Project activities shall comply with the following Administrative Rules of the Department of Health:

In reply, please refer to:
EPO-08-068

Mr. Matsukawa
May 13, 2008
Page 2

Chapter 11-46, Community Noise Control
Chapter 11-501, Asbestos Requirements
Chapter 11-503, Fees for Asbestos Removal and Certification
Chapter 11-504, Asbestos Abatement Certification Program

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Indoor and Radiological Health Branch, at 586-4701.

General

We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/envy-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,



KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
WWB
IRH

Attachment: WWB April 18, 2008 Letter to Mr. Earl Matsukawa



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7630-01
June 27, 2008

Mr. Kelvin H. Sunada, Manager
Environmental Planning Office
State of Hawaii Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA) for Kaihulu-Mokuleia
Beach Cottages, Mokuleia, North Shore, Oahu, Hawaii
Tax Map Key 6-8-003:001
Response to Comment

Dear Mr. Sunada:

Thank you for your letter of May 13, 2008 (EPO-08-068) regarding the proposed reconstruction of Kaihulu-Mokuleia Beach Cottages. Our separate response to the comments and concerns of the Wastewater Branch is attached for your records. Please be assured that wastewater plans for the new cottages will comply with all applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." Detailed wastewater plans will be provided to your office for review when they are prepared.

It is the intent of the applicant to comply with all of the applicable provisions of the Administrative Rules of the Department of Health with regard to community noise and to asbestos requirements should asbestos be encountered. Prior to demolition and renovation, the cottages will be inspected for the presence of asbestos by a certified inspector, and any asbestos containing material will be handled in accordance with Chapter 11-501, Asbestos Requirements.

We appreciate your participation in the pre-assessment consultation process. Your office will be sent a copy of the Draft Environmental Assessment.

Sincerely,



Earl Matsukawa, AICP
Project Manager

Encl.
cc: D. Minakami, CCHH

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

April 18, 2008

CHIYOME LERMAULA FURUKO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD 7482

LUD - 06 8 003 001

RECEIVED
APR 18 2008
WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza Suite 40099
Honolulu, Hawaii 96826

Subject: Pre-Assessment Consultation,
Draft Environmental Assessment (EA) for
Kaialuha-Mokuleia Beach Cottages,
Mokuleia, North Shore, Oahu, Hawaii,
68-379 Farrington Highway,
TMK: (1) 6-8-003: 001 9.16 acres

Thank you for allowing us the opportunity to review the above subject project which proposes the demolition and reconstruction of three (3) beach cottages at Kaialuha in Mokuleia on the North Shore. We have the following comments and information on the above subject property:

The subject project is located in the Critical Wastewater Disposal Area as determined by the Oahu Wastewater Advisory Committee. It is also located in the Pass Zone. We have no records of cesspools or treatment individual wastewater systems (IWSs). As indicated in your letter of April 10, 2008, the wastewater is presently disposed of on-site through cesspools. However, no locations of cesspools were provided in your attached site plan.

In 1999, EPA promulgated regulations under the Safe Drinking Water Act's Underground Injection Control (UIC) Program required closure of all existing large capacity cesspools (LCC) by April 5, 2005. Under federal regulations, a large capacity cesspool is a cesspool which serves multiple dwellings, or for non-residential facilities has the capacity to serve 20 or more persons per day. Operation of a large capacity cesspool after this date is a violation of federal regulations and subject to enforcement and fines. If you have any questions about LCC, please contact Rebecca Tuden of EPA at (415) 972-3538 or by email at tuden.rebecca@epa.gov.

Mr. Earl Matsukawa
April 18, 2008
Page 2

it appears that the cottages are located in high groundwater elevations. For new IWS, septic tank treatment system may not be allowed if wastewater is discharge directly to the groundwater. Aerobic treatment system may be required. The disposal component of the individual wastewater systems (IWS) shall have a minimum horizontal distance of 50 feet from stream, the ocean at the vegetation line, pond, lake, or other water body.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at telephone 586-4294.

Sincerely,

TOMAS S. SEE, P.E., CHIEF
Wastewater Branch

EYM



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7630-01
 June 27, 2008

Mr. Thomas S. See, P.E., Chief
 Wastewater Branch
 State of Hawaii Department of Health
 P.O. Box 3378
 Honolulu, Hawaii 96801

Subject: Pre-Assessment Consultation
 Draft Environmental Assessment (EA) for Kaihulu-Mokuleia
 Beach Cottages, Mokuleia, North Shore, Oahu, Hawaii
 Tax Map Key 6-8-003:001; Response to Comment

Dear Mr. See:

Thank you for your letter of April 18, 2008 (EMD/WB LUD-06 & 003 001) regarding the proposed reconstruction of Kaihulu-Mokuleia Beach Cottages. We appreciate the information you provided concerning the project site's location in the Critical Wastewater Disposal Area and in the Pass Zone. This information will be incorporated into the Draft EA in the sections on hydrology and wastewater disposal.

Although considered a corporate retreat by the City and County of Honolulu for LUD purposes, the beach cottages were originally constructed as residences and continue to be used as residences when they are occupied. The size of groups using the cottages ranges from a few persons to groups of 15 or more, and year round occupancy of the cottages averages about 60 percent. The waste disposal system at the site consists of three individual cesspools adjacent to each of the three cottages. For these reasons, the waste disposal system does not meet the definition of a large-capacity cesspool. A map of cesspool locations is attached for your information and records.

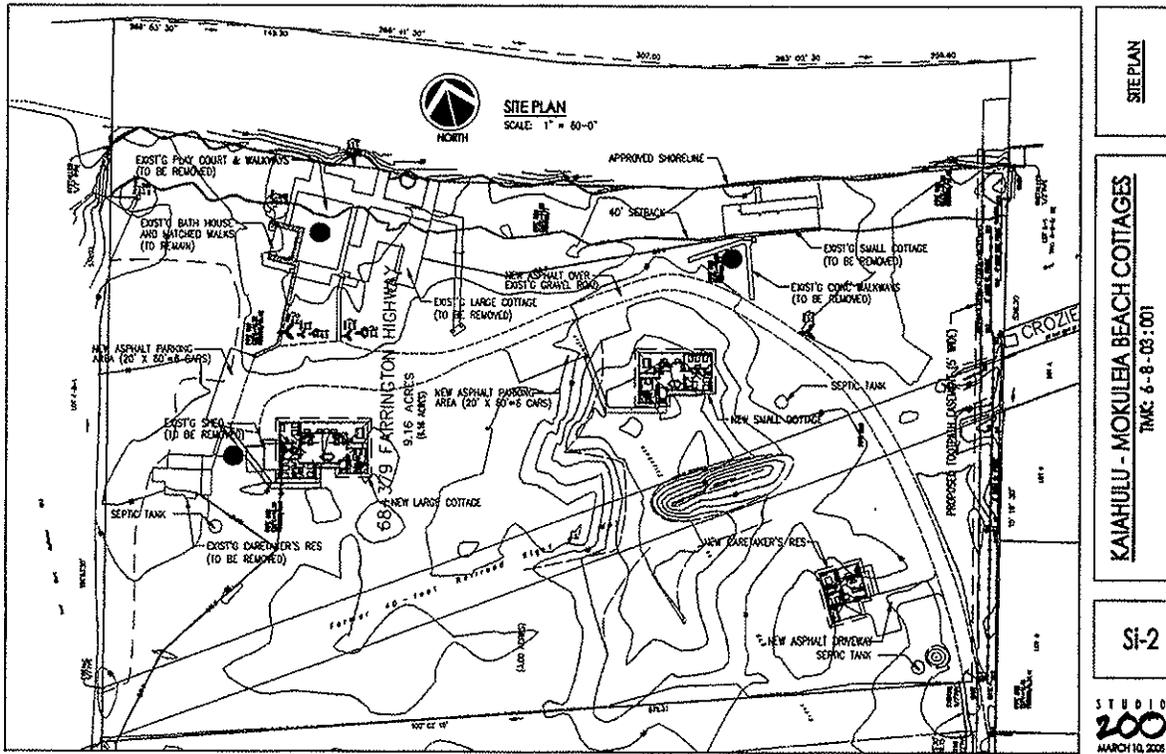
We acknowledge that due to the high groundwater elevations at the project site, it is likely the new wastewater system will require aerobic treatment. Wastewater plans will comply with applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." Detailed wastewater plans will be provided to your office for review when they are prepared.

We appreciate your participation in the pre-assessment consultation process. Your office will be sent a copy of the Draft Environmental Assessment.

Sincerely,

Earl Matsukawa
 Earl Matsukawa, AICP
 Project Manager

encl.
 cc: D. Minakami, CCHH



DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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MUFI HANSEN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUÉ
COUNTY DIRECTOR

2008/ELOG-883(pd)

April 25, 2008

RECEIVED
APR 25 2008

WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation
Draft Environmental Assessment
68-379 Farrington Highway - Waialua
Tax Map Key 6-8-3: 1

This is in regard to your April 10, 2008 letter (with accompanying map and site plan), requesting comments on the proposed "Kaiahulu-Mokuleia Beach Cottages" project.

On April 25, 2007, the Department of Planning and Permitting (DPP) prepared a Zoning Confirmation for the site (copy enclosed), in which we addressed the use classification, permits required, sequencing of permits, and other issues (such as road-widening) for the proposed project. At this time, we have nothing further to add.

Should you have any questions, please contact Pamela Davis of our staff at 768-8017.

Very truly yours,

Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:cs

Encl.

Doc#11689



7630-01
June 27, 2008

Mr. Henry Eng, Director
Department of Planning and Permitting
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Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA) for Kaiahulu-Mokuleia
Beach Cottages, Mokuleia, North Shore, Oahu, Hawaii
Tax Map Key 6-8-003:001
Response to Comment

Dear Mr. Eng:

Thank you for your letter of April 25, 2008 (2008/ELOG-883(pd)) regarding the proposed reconstruction of the Kaiahulu-Mokuleia Beach Cottages. We acknowledge that you have nothing further to add to your previously issued zoning confirmation dated April 25, 2007.

We appreciate your participation in the pre-assessment consultation process. Your office will be sent a copy of the Draft Environmental Assessment.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: D. Minakami, CCHH

8. REFERENCES

1. City and County of Honolulu. *Land Use Ordinance*. April 2003.
2. City and County of Honolulu, Department of Planning and Permitting. *North Shore Sustainable Communities Plan*. July 2000.
3. Cultural Surveys Hawaii. *Archaeological Literature Review and Field Inspection for the Castle and Cooke Corporate Retreat Kaiahulu Project, Mokuleia Ahupuaa, Waialua District, Island of Oahu, TMK [1] 6-8-003:001*. Prepared for Wilson Okamoto Corporation. March 2008.
4. Federal Emergency Management Agency Flood Insurance Rate Map Number 15003C0085F. Map revised September 30, 2004.
5. Title 11 Hawaii Administrative Rules State of Hawaii Department of Health Chapter 46 Community Noise Control. September 23, 1996.
6. U.S. Department of Agriculture, Soil Conservation Service. *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai*. August 1972.
7. Wilson Okamoto Corporation. *Environmental Assessment for Mokuleia Exploratory Well, Mokuleia, Oahu, Hawaii*. Prepared for Board of Water Supply. June 1990.
8. University of Hawaii. *Land Study Bureau. Detailed Land Classification – Island of Oahu*. December 1972.

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APPENDIX A

Archaeological Literature Review and Field Inspection Report

Prepared by Cultural Surveys Hawaii, Inc.

**Archaeological Literature Review and Field Inspection for
the Castle and Cooke Corporate Retreat Kaiahulu Project
Mokulē‘ia Ahupua‘a, Waialua District, Island of O‘ahu
TMK: [1] 6-8-003:001**

**Prepared for
Wilson Okamoto Corporation**

**Prepared by
Trevor M. Yucha, B.S.
and
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: MOKULEIA 1)**

March 2008

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Management Summary

Reference	Archaeological Literature Review and Field Inspection for the Castle and Cooke Corporate Retreat Kaiahulu Project Mokulē'ia Ahupua'a, Waialua District, Island of O'ahu TMK: [1] 6-8-003:001 (Yucha and Hammatt 2008)
Date	March 2008
Project Number	Cultural Surveys Hawai'i Inc. (CSH) Job Code: MOKULEIA 1
Investigation Permit Number	The fieldwork component of the archaeological literature review and field inspection study was carried out under CSH's annual archaeological permit number 08-14 issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-282.
Project Location	The project area is located at the west end of Crozier Drive on the beachfront. An access road connects with Farrington Highway. The project is bordered by Mokulē'ia Beach Park to the west and private residences to the south and east. This area is depicted on the 1998 USGS 7.5-Minute Series Topographic Map, Ka'ena Quadrangle.
Land Jurisdiction	The proposed project is located within TMK [1] 6-8-003:001 owned by Castle and Cooke Inc.
Project Description	The proposed project consists of several modifications within the project area including the construction of new cottages and a caretaker's residence, resurfacing and expanding the driveway and parking area, and removal of existing structures and walkways.
Historic Preservation Regulatory Context	The project is subject to Hawai'i State environmental and historic preservation review legislation [Hawai'i Revised Statutes (HRS) Chapter 343]. This investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR Chapter 13-276); however, through detailed historical, cultural, and archaeological background research, and a field inspection of the area, this investigation identifies the likelihood that historic properties may be affected by the project.
Document Purpose	This archaeological literature review and field inspection study was to determine if there are any major archaeological concerns within the study area and to develop data on the general nature, density, and distribution of the archaeological resources.
Fieldwork Effort	The fieldwork component of the archaeological literature review and field inspection study was accomplished March 5, 2007, by two CSH archaeologists, Doug Borthwick, B.A., and Trevor Yucha, B.S., under the general supervision of Hallett H. Hammatt, Ph.D (principal investigator). The fieldwork required approximately 1 person-day to complete.

Results Summary	The remnants of the OR&L railway (SIHP #50-80-12-9714) and the location of an inadvertent human burial find and reburial location were identified as being within the project area. Based on observations during the field inspection and background research, additional human burials, prehistoric subsurface features, and cultural material associated with the former OR&L railroad may be encountered during subsurface excavation activities within the project area.
Recommendations	Based on the results of this study, CSH recommends an inventory survey for the proposed Castle and Cooke corporate retreat Kaiahulu project. The inventory survey should focus on testing in areas where construction activity will have subsurface impact.

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Section 1 Introduction

1.1 Project Background

At the request of the Wilson Okamoto Corporation, Cultural Surveys Hawai'i, Inc. (CSH) completed this archaeological literature review and field inspection study for the proposed Castle and Cooke Retreat Kaiahulu Project, Mokulē'ia *ahupua'a*, Waialua District, Island of O'ahu TMK: [1] 6-8-003:001. The project area (Figure 1) is located at the west end of Crozier Drive on the beachfront. An access road extends south to connect with Farrington Highway. The project is bordered by Mokulē'ia Beach Park to the west and private residences to the south and east. The proposed project is located within TMK [1] 6-8-003:001 owned by Castle and Cooke Inc.

The project is subject to Hawai'i State environmental and historic preservation review legislation [Hawai'i Revised Statutes (HRS) Chapter 343]. This investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR Chapter 13-276); however, through detailed historical, cultural, and archaeological background research, and a field inspection of the area, this investigation identifies the likelihood that historic properties may be affected by the project. This archaeological literature review and field inspection study was to determine if there are any major archaeological concerns within the study area and to develop data on the general nature, density, and distribution of the archaeological resources.

1.2 Scope of Work

The agreed upon scope of work for the archaeological literature review and field inspection was as follows:

1. Historical research including study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near the project area.
2. Field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment identifies sensitive areas that may require further investigation or mitigation before the project proceeds.
3. Preparation of this report, including the results of the historical research and the field inspection, with an assessment of archaeological potential based on that research and recommendations for future archaeological work. The report also provides mitigation recommendations for archaeologically sensitive areas that need to be taken into consideration.

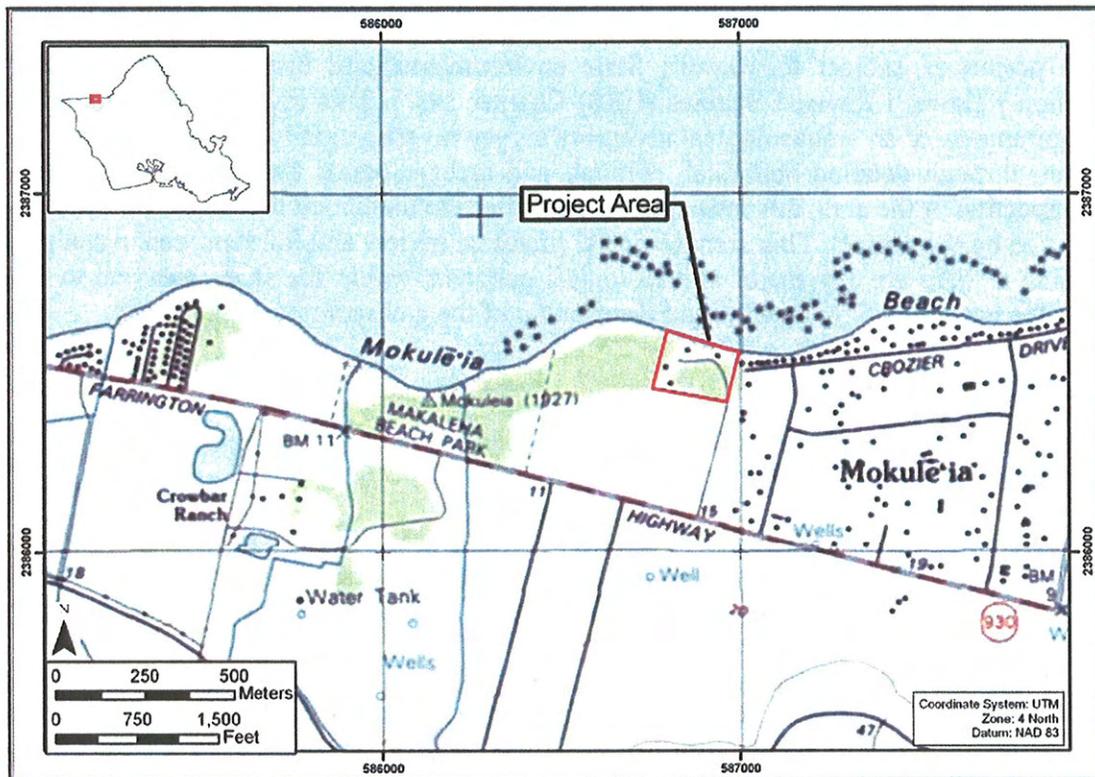


Figure 1. Portion of 1998 USGS 7.5-Minute Series Topographic Map, Ka'ena Quadrangle showing the project area

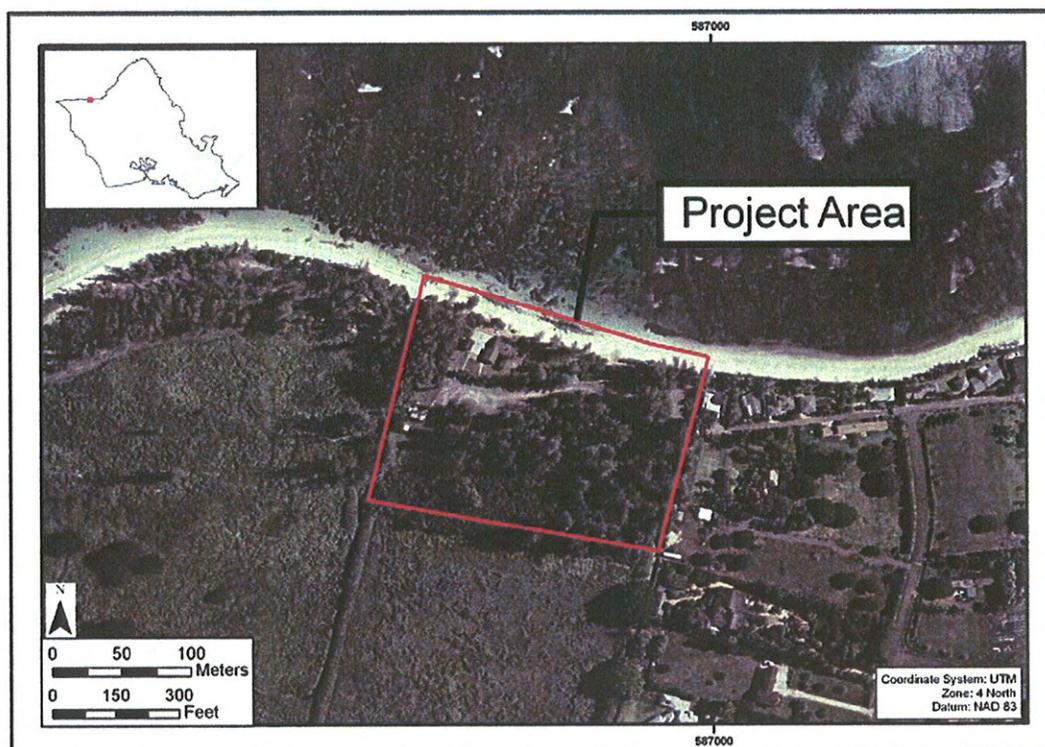


Figure 3. Aerial photograph showing the location of the project area (source: U.S.G.S Orthoimagery 2005)

1.3 Environmental Setting

1.3.1 Natural Environment

The current project site is an approximately 9.16-acre coastal parcel in the *ahupua'a* of Mokulē'ia, on Mokulē'ia Beach. The entire six-mile stretch of shoreline from Camp Harold Erdman to Pu'uiki is familiarly called Mokulē'ia Beach today, even though it runs through four separate *ahupua'a*, Ka'ena, Keālia, Kawaihāpai, and Mokulē'ia (Clark 1977:103). The coastal area called Mokulē'ia Beach is generally a relatively narrow beach, often undercut by the high tides. The adjacent area is a flat coastal plain that gradually slopes upward to the foothills of the Wai'anae Mountain Range.

Soils within the project corridor primarily consist of Jaucas Sand (JaC) and Mokuleia Clay Loam (Mt) (Figure 4). Soils of the Jaucas Series consist of "excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean... developed in wind and water deposited sand from coral and seashells" (Foote et al. 1972). Soils of the Mokuleia Series consist of "well-drained soils along the coastal plains... formed in recent alluvium deposited over coral sand" (Foote et al. 1972). The project area receives an average of approximately 800-1000 mm (31-39 in.) of annual rainfall (Giambelluca et al. 1986).

Vegetation in the project area predominantly consists of *naupaka*, (*Scaevola* spp.) and grasses. Most of the vegetation visible in aerial photographs (see Figure 3) was cleared before the start of this field inspection. Removal of tall ironwood trees (*Casuarina equisetifolia*) and Kamani (*Calophyllum inophyllum*) from the project area including subsurface roots and stumps resulted in the inadvertent discovery of human remains. Once cleared, the sparsely vegetated, grassy surface allowed for easy surface inspection throughout the undeveloped portions of the project area.

1.3.2 Built Environment

The project area contains one large cottage and bathhouse, one small cottage, and a caretaker's residence located along the western edge and separated by a sand and partially gravel-paved access road, which connects with Farrington Highway. Several tiled walkways, a patio, and a concrete-paved volleyball court are connected to the large cottage. The alignment of the Oahu Railway and Land (OR&L) Railroad, SIHP # 50-80-12-9714, which in part is the present day Crozier Drive was observed to continue through the project area from the eastern central boundary to the southwest corner of the project area. A linear depression and a scattering of historic material including bricks and bottle glass is all that was observed in the current project area.

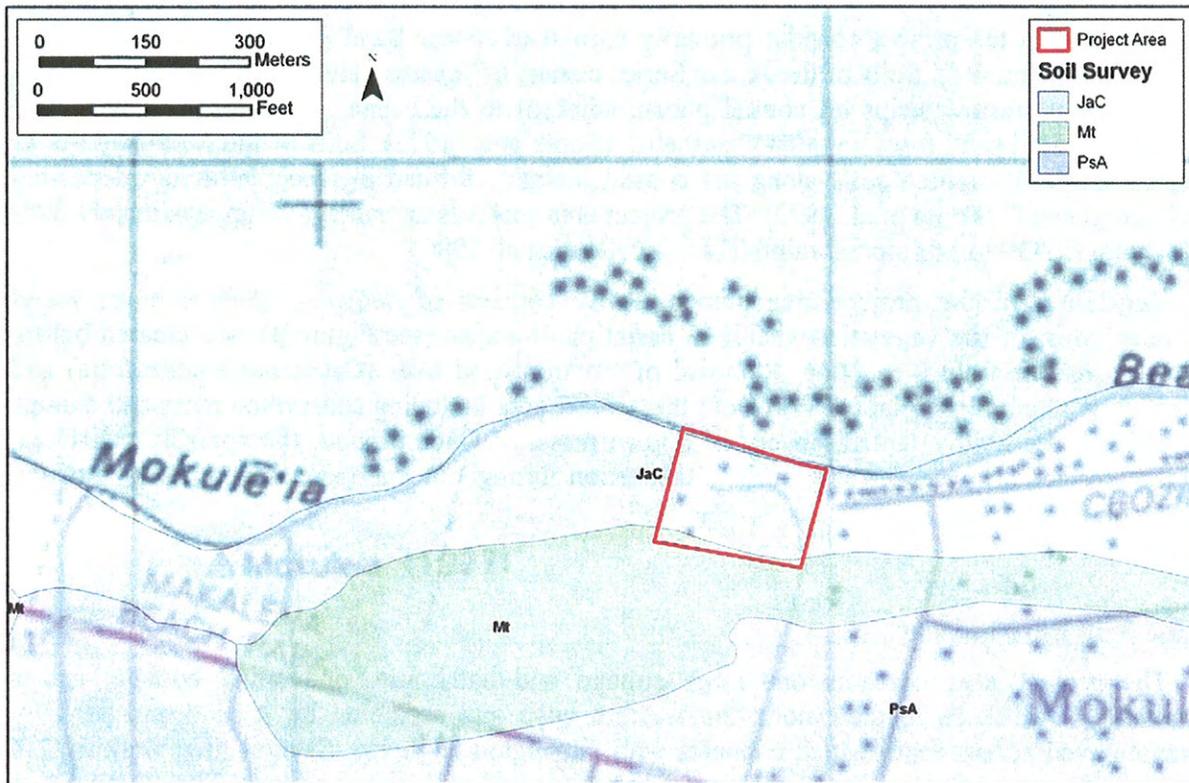


Figure 4. Overlay of Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating soil types within project area.

Section 2 Methods

2.1 Document Review

Historic and archival research included information obtained from the UH Hamilton Library, the State Historic Preservation Division Library, the Hawai'i State Archives, the State Land Survey Division, and the Archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. Information on Land Commission Awards was accessed through Waihona Aina Corporation's Mahele Data Base (<www.waihona.com>).

2.2 Field Methods

The fieldwork component of the archaeological literature review and field inspection study was accomplished March 5, 2007, by two CSH archaeologists, Doug Borthwick, B.A., and Trevor Yucha, B.S., under the general supervision of Hallett H. Hammatt, Ph.D (principal investigator). The fieldwork required approximately 1 person-day to complete.

In general, the purpose of the field inspection was to develop data on the nature, density, and distribution of archaeological sites within the study area. Although this field inspection was not conducted with 100% coverage, the majority of the entire project area was covered. The spacing between the archaeologists was generally 5-20 m. Potential archaeological sites or site areas were documented with brief written descriptions, and photographs, and were located with Garmin GPS survey technology (accuracy 3-5 m). A GPS track log to document pedestrian coverage of the area was also recorded.

Section 3 Background Research

3.1 Traditional and Historical Background

3.1.1 Mythological and Traditional Accounts

The district of Waialua is rich in legends, stories, proverbs, and myths. Waialua, literally translated as “two waters” (Clark 2002) may refer to the two large stream drainages (Anahulu and Helemano-Poamoho-Kaukonahua) that were once used to irrigate extensive taro fields in the *ahupua'a* of Kamananui, Pa'ala'a, and Kawaihoa, the more populous *ahupua'a* on the eastern side of the district. The *ahupua'a* of Keālia, Kawaihāpai, and Mokulē'ia, on the western side of the district, were more arid, and were not as well-watered as the three eastern *ahupua'a*. However, these western lands were famed for their warm climate, cooling breezes, plant resources, and especially marine resources.

3.1.1.1 References to the Environment

Kūali'i was a legendary 18th-century chief of O'ahu (Cordy 2002:32). A chant, or *mele*, on his genealogy (Fornander 1986 IV-II:374) includes a description of his lands on O'ahu and Kaua'i:

Kaena is a point,	<i>He lae Kaena,</i>
Kahuku is hala-wreathed, covered with dew is the back of Kaala;	<i>He hala o Kahuku He kuamauna hono i kehau Kaala</i>
There below doth Waialua sit, That is Waialua.	<i>Noho mai ana Waialua i lalo-e— O Waialua ia.</i>
Mokuleia with its dish of Kahala; A fish-pond, like cooked shark,	<i>O Mokuleia, Kahala ka ipu Ka loko ia mano lalawahu,</i>
The tail of the hammer-headed shark is Kaena, The shark that travels at the bottom of Kauai,	<i>Hiu lalakea o Kaena, Mano hele lalo o Kauai-e—</i>
At the bottom of Kauai my land;	<i>Olalo o Kauai, kuu aina,</i>

In this chant, the general aspect of the land in Waialua and the vicinity is illustrated. Ka'ala is the tallest peak in the Wai'anae Range, and its sharp ridgeline resembles the tail of a shark, running down to the sea. The sloping tablelands at the foothills of the mountains in Mokulē'ia resemble a bowl or pond.

In the legend of Pele and Hi'iaka (Emerson 1993), Hi'iaka, the sister of the volcano goddess Pele, travels around the islands. In one instance, Hi'iaka's canoe is beached on the sands of Mokulē'ia. Hi'iaka leaves her companions to pay her respects to her ancestor, Pōhaku-o-Kaua'i, and to her ancestral divinity Ka'ena. She passes Ka'ena Point on O'ahu, and enters the hot and arid region of Waialua. As she climbs up into the Wai'anae Mountains above the lands of Keālia and Kawaihāpai, she offers the following chant (Emerson 1993:157-158):

Ka'ena's profile fleets through the calm,	Kunihi Kaena, holo i ka malie:
---	--------------------------------

With flanks ablaze in the sunlight –
 A furnace heat like Kilauea;
 Ke-awa-ula shelters in heat;
 Kohala-lele revives in the breeze,
 That breath from the sea, Kai-a-ulu.

Wela i ka La ke alo o ka pali;
 Auamo mai i ka La o Kilauea;
 Ikiiki i ka La na Ke-awa-ula,
 Ola i ka makani Kai-a-ulu Kohala-lele–
 He makani ia no lalo

The offshore winds of Mokulē'ia are also mentioned in the legend "The Wind Gourd of La'amaomao" (Nakuina 1992). In this story, a special gourd contained all the winds of Hawai'i, which could be summoned by calling their names. This gourd was an embodiment of Lono, the Hawaiian god of fertility and agriculture, who was also associated with winds, clouds, and rain. The gourd was passed down from La'amaomao, the Hawaiian wind goddess, to her granddaughter, who then passed it down through their line to Pāka'a and his son Kā'a Pāka'a, attendants to the high chief, Keawenuiaumi. On windless days, one could open the gourd, call the name of the wind, and cause this wind to blow. The winds of Waialua were named thus (Nakuina 1992:51):

The wind of Ka'ena turns in two directions,

Hinakokea is of Mokule'ia,

The winds of Waialua blow,

Moving silently at the cape of Ka'ena

3.1.1.2 References to Plant Resources

Although not as extensively cultivated as the more populous eastern portion of the district, there were several smaller streams and springs within Kawaihāpai and Mokulē'ia that could be used to irrigate crops. Kawaihāpai literally translates as "the carried water" (Pukui et al. 1974:99), with the origin of the place name described by the following passage:

Life on this land in the olden days was a life of plenty until trouble came, for plants died because of the lack of water. Everybody thought of going and leaving the land.

There were two old men who belonged to the priestly class of old, and they remained, setting up the kapu with prayers and after praying they saw a hog shaped cloud coming directly from Kahuku point and they guessed that it was going to rain, that their prayers were heard. They were waiting for rain and heard the splashing of raindrops on the cliff. When they went to look they saw water pouring from the cliff and they told everybody to stay for water was found.

This place where this strange water created by God is on the hill facing the length and breadth of the district of land called Kawaihāpai that lies between Waianae and Waialua, Oahu.

Because God created this water on the cliff, the name of the land from old was called Ka-wai-hapai (Lifted-water) because this water was lifted up and placed above and because no one knew the source of this water it is called Ka-wai-kumu-ole-i-ka-pa-i. (Water-without-source-on-the-cliff) to this day (Liokakele 1911, cited in Sterling and Summers 1978:99)

Research on the meaning of Mokulē'ia produced two different translations concerning cultivation. According to *Place Names of Hawai'i*, Mokulē'ia means "isle [of] abundance" (Pukui et al. 1974:155). The second translation, which may be of relatively modern origin, has the name as *moku-leia*, from the saying "*Moena pāwehe o Mokulē'ia*"-the patterned map of Mokulē'ia. This refers to the pattern of agricultural fields on the lowlands of Mokulē'ia in the early post-contact period (Pukui 1983:161).

Although wetland cultivation in Keālia is not mentioned, several legends refer to specific plants in the area. Keālia means "the salt bed" (Clark 1977:105). There is no salt pond at Keālia, but an association with salt is mentioned in a legend concerning Pele, the Hawaiian volcano goddess, and another of her sisters, Ka'ōhelo. Ka'ōhelo told her son that when she died, she wanted him to take her body to the top of Kīlauea, the home of her sister Pele. When he took the body to Kīlauea, her flesh became the creeping vine portion of the 'ōhelo plant (*Vaccinium reticulatum*), and the bones became the bush-plant portion of the 'ōhelo. Pele "retained Ka'ōhelo's head, which became the smoldering fire in the volcano; the rest of the body was thrown over to Haleakalā, Maui and to salty Keālia, O'ahu; some of it was thrown on Kaua'i, and some of it was left on Hawaii" (Fornander 1985:576). The 'ōhelo plant grows at high elevations, and was considered a sacred offering to the goddess Pele.

In the legend of Kalelealuaka (Thrum 1998:94-100), the hero uses his miraculous powers to fly to different parts of the island of O'ahu and wreathes himself in plants peculiar to that region. At the start of one battle, he flies to Wai'anae and covers himself with the fine-leaved *maile* (*Maile lauli'i*). Before the second battle, he flies to Waialua to array himself "in the rough and shaggy wreaths of *uki* (native sedges) from the lagoons of 'U'koa (a fishpond in eastern Waialua) and of *hinahina* (*Heliotropium anomalum*) from Keālia" (Thrum 1998:98). Before the third battle, he flies to Kahuku and adorns himself in a wreath of the pandanus fruit and flowers of the sugar cane. The heliotrope from Keālia is a low, spreading beach plant with small, white fragrant flowers.

3.1.1.3 References to Marine Resources

Several legends about Mokulē'ia concern marine resources, fishing practices, and ceremonial rites related to fishing. In an archaeological survey of the Mokulē'ia area conducted in the 1920s and 1930s, four surviving *ko'a* were recorded (McAllister 1933). *Ko'a* are usually natural boulders or rock mounds, used as shrines where fishermen could beseech the gods for a good catch or place offerings to thank the gods. One of the gods honored by the Hawaiians was Kāne'aukai, who first revealed himself to the people in Waialua. The following passage describes the appearance of Kāne'aukai to two fisherman, who were tasked with praying to him for a plentiful supply of fish:

One morning on going out upon the seashore they found a log of wood, somewhat resembling the human form, which they took home and set in a corner of their lowly hut, and continued their habit of praying to Kaneaukai. One evening, after having prepared a scanty supper of poi and salt, with perhaps a few roasted kukui-nuts, as a relish, and a couple of cocoanut cups of awa as their usual drink, they saw a handsome young man approaching, who entered their hut and saluted them. He introduced himself by saying, "I am Kaneaukai to whom you have been praying, and that which you have set up is my image; you have done well in caring for it."

He sat down, after the Hawaiian custom, as if to share their evening meal, which the two old men invited him to partake of with them, but regretted the scanty supply of awa. He said: "Pour the awa back into the bowl and divide into three." This they did and at once shared their meal with their guest.

After supper Kaneaukai said to the two old men, "Go to Keawanui and you will get fish enough for the present." He then disappeared, and the fishermen went as instructed and obtained three fishes; one they gave to an old sorceress who lived near by, and the other two they kept for themselves.

Soon after this there was a large school of fish secured by the fishermen of Mokuleia. So abundant were the fish that after salting all they could, there was enough to give away to the neighbors; and even the dogs had more than they desired. (Thrum 1998:251)

The two fishermen also described the variety of marine resources found at Mokulē'ia:

The fish that frequented the waters of Mokuleia are the *aweoweo* [bigeyes; *Priacanthus* sp.], *kala* [surgeonfish; *Naso* sp.], *manini*, [surgeonfish; *Acanthurus* sp.] and many other varieties that find their habitat inside the coral reefs. Crabs of the white variety burrowed in the sand near the seashore and were dug out by the people, young and old. The squid also were speared by the skillful fishermen, and were eaten stewed, or salted and sun-dried and roasted on the coals. (Thrum 1998:250)

The wooden idol described in the previous passage was eventually moved to Waimea Valley, O'ahu and placed next to a stone idol also representing the god Kāne'aukai. The stone idol was still in place when Thrum recorded this tale in 1907, but the wooden idol had long disappeared. Thrum speculated that it may have been destroyed on one of Ka'ahumanu's trips around the island, when she spread the word of Christianity and ordered all idols of the Hawaiian gods to be burned (Thrum 1998:253).

In the legend of Māikoha, the types of fish resources associated with certain *ahupua'a* are mentioned (Fornander V:II 1974). This legend concerns a man named Māikoha and his four sisters. Māikoha was sent away by his father for breaking several *kapu* (taboos). He left his family and settled in Kaupō, Maui. His four sisters later went in search of him, and found that he had changed into a *wauke* (paper mulberry; *Broussonetia papyrifera*) plant. After they had found him, they left again on a journey to O'ahu. The first sister, Kaihuopala'āina, met a man named Kapapa'apuhi in Honouliuli, 'Ewa. She married him, settled down, and eventually changed into a fishpond still present in the area. As the remaining three sisters traveled on, the second sister, Kaihukoa met a man named Ka'ena in Wai'anae, and decided to marry him. She settled in the area and changed into a fishing ground directly out from Ka'ena Point, famous for its *ulua* (trevally or jack), *kahala* (amberjack, *Seriola* sp.), and the *mahimahi* (dolphin fish; *Coryphaena hippurus*). The remaining two sisters traveled on to Waialua, where Ihukoko met a man named Kawailoa. They married and settled in the area, and Ihukoko was accompanied to the area by the fish *āholehole* (Hawaiian flagtail; *Kuhlia malo*). The final sister traveled to Lā'ie where she married a man named Laniloa. She brought with her the *'ama'ama* (mullet) (Fornander V:II, 1974:270-272).

A continuation of the legend of Māikoha contains another variation on the legend of the fishing god, Kāne'aukai:

After the sisters were all married and had been living with their husbands on Oahu for some time, Kaneaukai their oldest brother came in search of them. This man's body was in the shape of a log of wood, and after he had floated on the surface of the ocean for several days, it drifted to the seashore at Kealia in Mokuleia, Kawaihapai, Waialua, where it was carried in and out by the tide. After being in this form for some time it changed into a human being and journeyed to Kapaeloa, where two old men were living.

When he approached the home of the two old men, he saw them watching an umu (oven), and after it was covered up they set out to the beach to do some fishing. After fishing for some time without success Kaneaukai called out to them: "Say, you old men, which god do you worship and keep?" The old men replied: "We are worshiping a god, but we do not know his name." Kaneaukai then said: "You will now hear and know his name. When you let down your net again, call out, "Here is the food and fish, Kaneaukai, that is the name of the god." The old men assented to this, saying: "Yes, this is the first time that we have learned his name." Because of this fact, Kaneaukai is the fish god worshiped by many to this day, for Kaneaukai became their fish god, and from them others, if they so desired. (Fornander 1974: 272)

The *kahala* (amberjack [*Seriola dumerili*]) of Mokulē'ia are mentioned often in stories, such as the Legend of Kūali'i and the Legend of Māikoha, presented above. According to the "Hawaiian Dictionary: Revised and Enlarged Edition," the word *mokulē'ia* itself is a rarely used alternate name for this fish (Pukui and Elbert 1986:252). This species, the amberjack, is a deep water species that was caught on a hooked line at depths of 400-500 feet. It is a large, meaty fish that can reach a length of six feet (Tinker 1978:256-257). *Kahala* were commonly cooked in the *imu* (earth oven) or cubed and eaten raw with salt by native Hawaiians (Titcomb 1972:83).

The legend of The Hinalea Fish Basket also takes place in Mokulē'ia, which attests to the abundance of marine resources in the area (Kamakau 1870, cited in Sterling and Summers 1978:101-103). In this legend, Kalamainu'u, a *mo'ō* or goddess, resides in a cave in the Waile'a valley, west of the valley of Makaleha in Mokulē'ia. Kalamainu'u, in search of a husband, lures Puna'aikoa'e, a chief of Kapa'a, Kaua'i, out to sea while he was surfing. Puna'aikoa'e is taken by Kalamainu'u from Kaua'i to her cave in Mokulē'ia. The following passage describes the abundance of both land and marine resources at Makaleha:

They went to her home in Makaleha where sweet potatoes and both the kīhi and lapa varieties of taro grew abundantly and there was plenty of poi, 'awa and bananas. The woman supplied the fish of that land that was usually caught by torching, the kumu, the uhu (lobster), and all kinds of fish. (Kamakau 1870, cited in Sterling and Summers 1978:101)

The legend continues with Puna'aikoa'e observing the breaking surf along the Waialua shoreline. Longing for the surf of his homeland, Puna'aikoa'e asks the permission of Kalamainu'u to surf. Kalamainu'u granted him permission, as long as he did not speak to anyone on the way to the shoreline. Puna'aikoa'e is then caught speaking to two farmers, which leads Kalamainu'u to attempt to kill the two men. The men escape to a crack in the sea floor, where

Kalamainu'u is unable to reach them. Kalamainu'u, exhausted and lying on the beach is approached by two women, who teach her how to trap the two men:

"... They like the sand crabs on this beach to eat with the sweet potatoes which they cultivate in Kanoa, Keone'ae, and the uplands of Makaloha, but they are unskilled in torch fishing. This how you can catch them. Go gather some 'inalua vines under tapu and on your return weave (them into a trap), beginning at the opening. When the part that goes inward is formed, bend (the 'inalua) back to shape the basket. Add some 'inalua to increase the size of the basket as you work downward, and when you see that it is large enough then decrease the 'inalua that are standing upright and keep on decreasing. In that way the bottom of the basket is shaped and finished. When the weaving of the basket is finished the tapu is freed. Then dig sand crabs; carry the basket into the sea, weighted down with pebbles from the sea pools, and set it up in a favorable place where there is a depression so that the sea runs in and out, and remove the stones until it is properly balanced. Then go to a rock in the sea and chew the sand crabs, dive into the sea and place them in the basket, then return to some distance. After an interval, dive again. Hinalea and Akilolo will have come to eat their favorite food, and when you come you will find your enemies in the basket." Kalamainu'u heard and heeded these words. All went as they had said. She killed her enemies and tore them into pieces, and the pieces into which she tore them became hinalea fish. From that time down to the overthrow of the tapus those who wove baskets to trap hinalea fish observed these tapu rules; and there were always plenty of hinalea caught in the baskets during that period, so many that a stench arose from the frames where they were drying, from the water of Kumalaekawa to the cape of Ka'ena. Kalamainu'u became an 'aumakua for basket fishing in these places. (Kamakau 1870, cited in Sterling and Summers 1978:102-103)

3.1.1.4 Other Legendary References

The plains of Mokulē'ia were said to have once been inhabited by cannibal chiefs, as told in "The Legend of Oahunui" (Thrum 1998). These cannibal chiefs from the South Seas were:

... driven from the plains of Mokuleia and Waialua by the inhabitants of those districts; for the people had been exasperated by the frequent requisitions on the *kama'ainas* (original inhabitants) by the stranger chiefs to furnish material for their cannibal feasts. (Thrum 1998:140)

Kawaihāpai was also known to be one of the places that the lights of the *menehune* (legendary little people) could be seen. These lights have been described as:

Here in the arm of Haleiwa Bay, strange things can be seen at night. Looking over toward the point to the right, when the night is dark, rows of twinkling light show upon the water. It is the menehunes at their fishing, working fast against the coming of the dawn. (Raphaelson 1925, cited in Sterling and Summers 1978:100)

3.1.2 Early Historic Period

3.1.2.1 Early Descriptions

A picture of pre-contact Hawai'i is painted by the recorded accounts of early foreign explorers. After the death of Captain James Cook on the Island of Hawai'i, the crew of the

Resolution continued to sail toward O'ahu under the leadership of Captain Charles Clerke. Clerke, after anchoring in Waimea Bay, describes the highly populated and lush northwest coast of O'ahu:

I stood into a Bay just to the Wtward [Westward] of this point the Eastern Shore of which was by far the most beautifull Country we have yet seen among these Isles, here was a fine expanse of Low Land bounteously cloath'd with Verdure, on which were situate many large Villages and extensive plantations; at the Water side it terminated in a fine sloping, sand Beach... This Bay, its Geographical situation consider'd is by no means a bad Roadsted, being sheltered from the NEbN [Northeast by North] SEterly [Southeasterly] to SWbW [Southwest by West] with a good depth of Water and a fine firm sandy Bottom; it lays on the NW [Northwest] side of this Island of Wouahoo [O'ahu]... surrounded by a fine pleasant fertile Country. (Beaglehole 1967:569)

In 1813, Waialua was described by John Whitman, an early missionary visitor, as:

... a large district on the N.E. extremity of the island, embracing a large quantity of taro land, many excellent fishing grounds and several large fish ponds one of which deserves particular notice for its size and the labour bestowed in building the wall which encloses it. (Holt 1979:78)

Another missionary, Levi Chamberlain, described the vicinity of Kawaihāpai in 1826:

At 11 o'ck [sic] we set out and walked along a path leading over an extended plain covered with high grass. After walking about 3 miles we took a path leading over a marshy tract to the mountains which we were designing to cross in order that we might avoid a bad piece of traveling along the western shore. The mountains here run in nearly a N.W. and N.E. direction being somewhat circular. We ascended by a rough & difficult path, shrubs, long grass, wild plants and bushes sprung up grew luxuriantly among the rocks being plentifully moistened by little streams which trickled down the steep sides of the mountains. After ascending several hundred feet, we came to a beautiful little run of water conducted by sprouts [sic] furnishing sufficient moisture for a number of taro patches below. I was told that the water never failed and the district into which it passes is called Kawaihapai (Water lifted Up) on account of the water's being conducted from such an elevation.

The prospect from the acclivity is very fine. The whole district of Waialua is spread out before the eye with its cluster of settlements, stragglng houses, scattering trees, cultivated plats & growing in broad perspectives the wide extending ocean tossing its restless waves and throwing in its white foaming billows fringing the shores all along the whole extent of the district (Chamberlain 1823-1827, cited in Alameida 1993:14-15).

3.1.2.2 *Economic Changes*

About A.D. 1720-1740, the island of O'ahu was united under the high chief Kūali'i after a series of battles with the chiefs of Kona and 'Ewa. Kūali'i continued his wars of conquest by carrying out raids on the islands of Moloka'i and Hawai'i. This began a time period of intra-island and inter-island wars, referred to as the Conquest Period, that culminated in the conquest of O'ahu by the Hawai'i Island chief, Kamehameha, in A.D. 1795 (Sahlins 1992:36). In 1804, the Hawaii chiefs who supported Kamehameha occupied O'ahu, taking control of the lands of

the former ruling chiefs. In 1806, Kamehameha traveled around the island of O'ahu to encourage people to rebuild their war-ravaged agricultural fields and fishponds by his own example.

Kamehameha stayed for only one day to farm at Wai'anae, then went to Waialua. He stayed at least 3 or 4 days with the chiefs and people of Waialua working in the *lo'i* [irrigated fields] which extended from the famous *pawehe* (geometric patterns) mats [of Mokulē'ia] to the waters of Waimea. From Waialua he went to Laie and farmed there (*Ka Nai Aupini*, newspaper article, cited in Alameida 1993:39).

Kamehameha not only encouraged his people to rebuild areas devastated by the wars, but also to expand into new areas. "He cleared the land at Waikiki, Honolulu, Kapalama, Kapa'auki, Keone'ula, Kapa'eli, and all the other places, and when all the lands were under cultivation he cultivated *mauka* in Nu'uaniu as far as Keawewawapu'ahanui" (Kamakau 1961:192). This passage indicates that there may have been an intensification of agriculture after 1804, which included expanding the irrigation system into new lands upland (*mauka*) of the former pre-contact fields (Sahlins 1992:52). Some of these agricultural endeavors may be connected to the new trade that developed with visiting foreign ships. During the Conquest Period, food and other provisions were sold to visiting ships involved in the Canton trade. Ships would travel to the Northwest Coast for furs, stop in Hawaii for provisions, and journey on to Canton, China to trade the furs for luxury goods, such as fine ceramics and silk (Sahlins 1992).

Kamehameha died in 1819, and his son Liholiho and wife Ka'ahumanu shared the duties of ruling the new kingdom. In 1823, Liholiho addressed a gathering of chiefs at Maui and told them that he wished to visit England. He selected his younger brother Kauikeaouli to be his chief during his absence and heir in the event that he did not return. Both Liholiho and his wife died in 1824 while in England, and Kauikeaouli, later known as Kamehameha III, became the king at the age of nine, with a guardian Kahalai'a as his *kahu* (personal attendant). This took place during the Sandalwood Period (A.D. 1812-1830), when the *ali'i* (high chiefs) made enormous demands upon the common people to gather sandalwood in the upland forests. The wood was sold to foreigners in trade for Western luxury goods (Sahlins 1992:82).

Kau-i-ke-aouli's assumption of control was marked by the selection of a group of young chiefs and children of important persons, of resident foreigners, and of commoners, to become his favorites, friends, members of his household, and soldiers and sailors to form his bodyguard. After Kahala'ia's death all repaired to the uplands of Waialua adjoining Waimea, to upper Kolokini, Wao'ala, 'Aikanaka, Kaloka in upper Makaleha, and to upper Mokule'ia to cut sandalwood. Kau-i-ke-aouli was but a boy in his thirteenth year while cutting at upper Wao'ala and lower Maeaea, but he attended to the work himself and when he sailed in his two-masted boat to Mokule'ia or other places after sugarcane, sweet potatoes, melons, pigs, and fowl, he handled the boat in true sailor fashion, dressed in his sailor blouse and cap. (Kamakau 1992:278-279)

This period ended in the exhaustion of the sandalwood on the islands. Trade continued with visiting whaling ships during the Whaling Period (A.D. 1830-1848) for provisions, but this did not generate the same profits for the *ali'i* as did the early sandalwood trade. The *ali'i* became greatly indebted to Western merchants, and made increasing demands upon the common people for goods and work to pay off these debts and to buy yet more goods (Sahlins 1992:108).

Between 1830 and 1850, the demands of the *ali'i* on the *maka'āinana* (common people) were severe. The missionary, John Emerson, commenting on the burdensome taxes on the people, wrote that the ruling chiefs “get hungry often and send a vessel to Waialua for food quite as often as it is welcomed by the people” (MsL: 10 Feb 1834, cited in Sahlins 1992:145). The chiefs also demanded food be brought to them:

Last Sat some 2 or 300 men went from this place to H[onolulu] to carry food for the chiefs and this [is] often done... Each man carried enough food to maintain 4 persons one week & will cost each man beside the time spent in [indecipherable] and cooking it 4 days time and 70 miles travel to get it to H[onolulu], and yet each man's load would only bring 50 cts. (Locke, journal, 26 June 1837; cf. MsL: Emerson, 11 Jan 1835, cited in Sahlins 1992:145)

John Emerson also began growing sugarcane on his land in Waialua as early as 1836. He “made his own molasses, grinding a few bundles of cane in a little wooden mill turned by oxen, and boiling down the juice in an old whaler trypot” (*The Friend*, cited in Condé and Best 1973:340). This early sugarcane plantation later passed through several hands, including the Levi and Warren Chamberlain Sugar Company, established 1865, Halstead & Gordon, and the Halstead Brothers.

3.1.2.3 Population Decline

In the pre-contact period, villages in the Waialua District were concentrated along the coast and the well-watered valleys of the *ahupua'a* on the eastern side of the district. The population of these *ahupua'a* had been estimated at 6,000 to 8,000 people before Western Contact (Sahlins 1992:20).

In 1832, the missionary Ephraim Walter Clark reported that:

Waialua on the eastern part of the island is a populous region. A mission can be located at a central point in this vicinity, [and] by preaching at different places that are within 5 or 6 miles of each other & of easy access, [we] would probably have 3,000 or 4,000 bearers [followers] (Letter from E. W. Clark 1932, cited in Alameida 1993:4).

A small school was also established at Kawaihāpai in 1839, near Kawaihāpai Stream.

The first missionary census of the district, in 1831-32, recorded 2,640 people in Waialua, probably down 20-30 percent from the first decade of the century. The population continued to decline in the first part of the nineteenth century, and by 1848, the population was down to 1,616 persons. Much of this decline was due to a high death rate from newly introduced diseases, such as smallpox, typhus, and venereal diseases.

In 1850, the missionary Emerson wrote:

I went to Kawaihapai, distant about 6 miles to preach to a small congregation. Found many sick on the road calling for medicine; & when [I] arrived at the place of meeting I found two unburned corpses, but a few steps from the schoolhouse & other sick-apparently nigh unto death... The past epidemic has been of a very strange character. Many were taken with violent pains in the head or stomach, which would soon spread over the whole system; & some times in one or two days the patient would die, but more frequently he would linger along six or ten days

(Emerson 1850, cited in Alameida 1993:84; Letter, Emerson to Anderson. May 22, 1850. Hawaiian Mission Children's Society Library).

The adult to child ratio in 1831-32 was three to one (Schmitt 1977:9). This is not only a reflection of the low birth rate during these years, but also indicates that many young people were moving out of the district. They left to escape the increasing demands of the *ali'i* during the Sandalwood Period and to seek a better life in the new urban centers of the islands. This trend in population decline continued until 1866, when the population reached a low of 851 persons (Schmidt 1977: 13-14).

3.1.3 Mid- to late-1800s

Following the death of Ka'ahumanu's father, Ke'eaumoku, in 1804, Ka'ahumanu's brother Kahekili Ke'eaumoku, also known as George Cox, became the *ali'i 'ai moku* (governing high chief) of Waialua. In 1824, Kahekili Ke'eaumoku died and his sister, Lydia Kekuapi'ia Nāmāhana, also known as Pi'ia, inherited the entire *moku* (district) of Waialua. When she died, her husband La'anui was confirmed as the *huna* (landlord or supervisor) by Ka'ahumanu, who was again considered the owner. Ka'ahumanu, who died in 1832, willed all of her lands to her niece, Kīna'u. After Kīna'u's death in 1839, the *kalana* (land division smaller than a *moku*) within Waialua was inherited by her daughter, Victoria Kamāmalu, along with many other lands in the islands (Kame'eiehiwa 1992:106,120-124).

In 1845, the Board of Commissioners to Quiet Land Titles, also called the Land Commission, was established "for the investigation and final ascertainment or rejection of all claims of private individuals, whether natives or foreigners, to any landed property" (Chinen 1985:8). This led to the *Māhele*, the division of lands between the king of Hawaii, the *ali'i*, and the common people, which introduced the concept of private property into the Hawaiian society. In 1848, Kamehameha III divided the land into four divisions: certain lands to be reserved for himself and the royal house were known as Crown Lands; lands set aside to generate revenue for the government were known as Government Lands; lands claimed by *ali'i* and their *konohiki* (supervisors) were called Konohiki Lands; and habitation and agricultural plots claimed by the common people were called *kuleana* (Chinen 1985:8-15).

Upon the confirmation of a land claim, the *ali'i* were required to pay a commutation to the government. This commutation (meaning a substitution of one form of payment or charge for another) could be satisfied with a cash payment or the return of land of equal value. This payment was usually one-third of the value of the unimproved land at the date of the award (Chinen 1985:9-12). Victoria Kamāmalu gave up all of her lands in Kamananui, Mokulē'ia, Kawaihāpai, Keālia, and Ka'ena, all within the Waialua District, to the Government to satisfy the one-third-commutation requirement in order to claim all of her other extensive land titles. These *ahupua'a* then became Government Lands. In 1848, Government Lands became available for purchase, ". . . in lots of from one to fifty acres in fee simple, to residents only, at a minimum price of fifty cents per acre" (Chamberlain, no date). These costs did not include the survey fee, which was to be paid by the interested buyer.

Many of the native Hawaiians living in the area bought the lands they lived and worked on through the Waialua land agent, the missionary John Emerson. Emerson had encouraged the natives of these five *ahupua'a* in western Waialua to withdraw from the *Māhele* and not

prosecute their claims through the Kuleana Act of 1850. Instead, he encouraged them to buy the lands they worked. In this way they could not only obtain house and agricultural lots, but also pasturage and upper forest lands, which were usually not awarded as *kuleana* claims (Sahlins 1992:168).

A total of 27 land grants were purchased in the *ahupua'a* of Mokulē'ia. The current project area is located entirely within one land grant (Figure 5). Table 1 shows the land grants purchased in the vicinity of the project area. The land grants in the area generally consisted of long, narrow rectangular pieces of land, with the long axis running *mauka-makai* (upslope-downslope).

In 1850, a law was passed that allowed foreigners to buy land fee-simple. Two descendants of missionaries, William Emerson and John T. Gulick, were the first foreigners to buy land in Mokulē'ia and Kawaihāpai. Over the next few years, Emerson continued to buy land from the original grantees or later owners until he owned a total of 2,605 acres in Waialua (Alameida 1993:xii).

In 1852, the first Chinese were brought to the islands to work in the sugar cane fields. Some of these Chinese later moved to Waialua to begin rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-19th century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market for rice developed:

By 1876 there was still a considerable amount of former taro land available for rice farming. The great demand for rice land brought disused taro patches into requisition – especially because water rights attached to them...

As the demand for rice continued, it became profitable to bring into use land hitherto unused. The land most easily rendered fit for rice cultivation was swamp or marsh land of which there was a large amount in the islands. At Waialua on Oahu, about three hundred acres of swamp land were reclaimed for rice farming (Coulter and Chun 1937:11).

In 1892, there were 180 acres of land under cultivation for rice in the Waialua District; these rice fields were located in the *ahupua'a* of Mokulē'ia, Kamanau, and Kawailoa (Coulter and Chun 1937:12, 21). The immigrant Chinese may account for the rise in the Waialua District population during the last quarter of the 19th century. In 1866, the population of Waialua had reached a low of 851 persons. This trend reversed in 1878, with a small increase to 939 people and a count of 1,349 in 1886 (Schmidt 1977: 13-14).

3.1.4 1900s

By the early 1900s, sugarcane plantations and large ranches came to dominate the lands of western Waialua. Cattle were known to have grazed on the lowlands of Waialua as early as the 1840s (Sahlins 1992:148). In 1897, B.F. Dillingham purchased the Kawailoa Ranch in Mokulē'ia. The ranch included over 2000 head of cattle and over a hundred horses and mules on 10,000-acres of land (Yardley 1981:193). Dillingham also leased additional property in Mokulē'ia, including the Gaspar Silva Ranch, the James Gay Estate, and other lands in the area that he could secure. Dillingham's plan was to later sublease or sell the land at a profit, as the

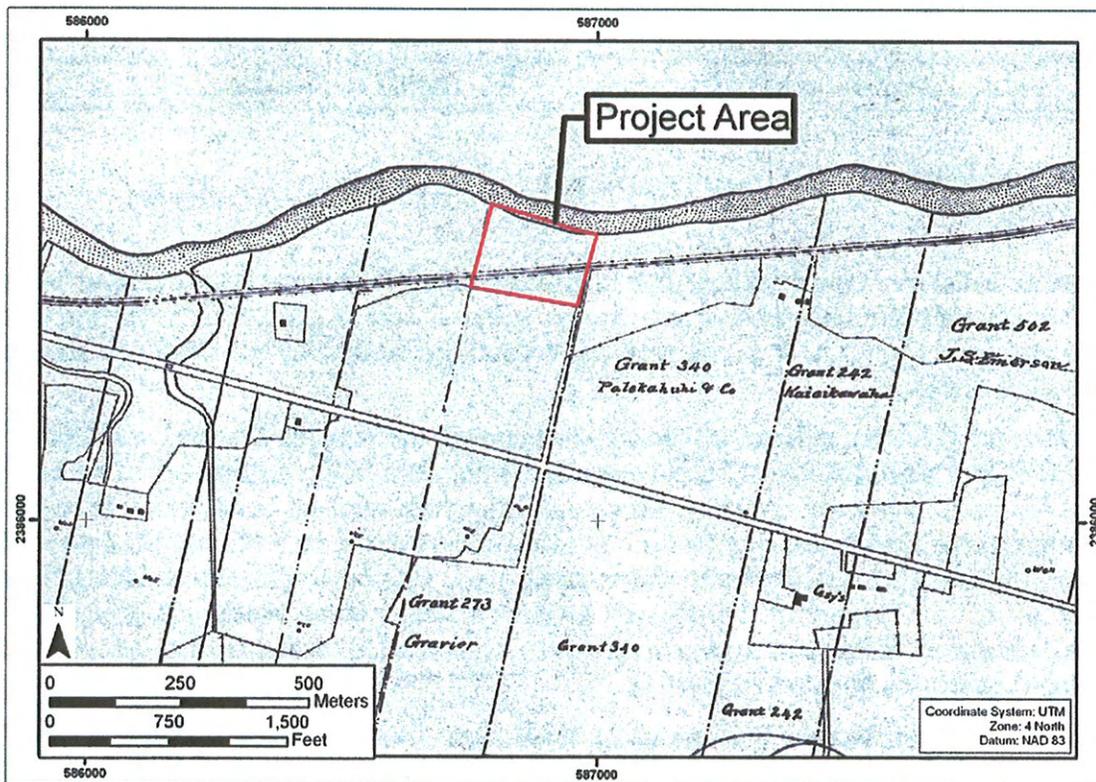


Figure 5. Portion of the 1900-1901 Waialua Agricultural Company map showing Land Grants in the vicinity of the project area

Table 1. Land Grants located in the vicinity of the project area

Grant #	Grantee	Year	TMK
273*	Elizabeth Gravier	1850	1-6-8-03
342	Puupuu, , Ao, Kalaikao & Malehine	1850	1-6-8-03
340	Palekaluhi, Kuiekala, Paakai, Huewaa	1850	1-6-8-04, -06, -07
233	Pohakahi & Naelele	1850	1-6-8-03
242	Kaiaikawaha	1850	1-6-8-06, -07

* Located within the CSH 9.16-acre project area

lands had potential for being developed into large-scale sugar plantations. He anticipated the land would become valuable once extensive irrigation systems were in place, and when the O'ahu Railway and Land Co. (O.R. & L.) railroad was constructed around Ka'ena Point and along the north shore to Kahuku.

By 1898, the O.R. & L railroad was constructed through the Waialua District, with stations in both Kawaihāpai and Mokulē'ia. Soon thereafter, Dillingham began selling off or subleasing much of his lands in western Waialua. However, Dillingham retained as his personal ranch "a great strip of mountainside and beaches with flat land in between and a homestead in the middle" (Yardley 1981:206). This land would remain ranch land, with sugar plantations located to the east and west. The Dillingham Ranch was developed into a horse ranch, including stables, pastures, equestrian areas, and a polo field, along with a large, wood-framed house for the Dillingham family (Yardley 1981:193-194).

Also in 1898, the Halstead Brothers had a small sugar cane plantation and mill at Waialua town. B. F. Dillingham believed that the Halstead Brothers' land could be turned into a profitable sugar plantation, especially since there was now a rail line to Honolulu. The Waialua Agricultural Company was established in 1898 by J.B. Atherton, E.D. Tenney, B.F. Dillingham, W.A. Bowen, H. Waterhouse and M.R. Robinson (Moblo 1991:4), and was incorporated by the company Castle & Cooke (Dorrance and Morgan 2000:47). They bought the Halstead Brothers' land and mill, and began to buy or lease the adjacent lands, many owned by native Hawaiians. They acquired many of the former irrigated taro lands in order to control the water rights of the region. It was during this time that E.D. Tenney came to own the land within the current project area and constructed a beach house "commonly known as Kaiahulu" on the premises (Letter, E.D. Tenney to F.C. Atherton 1927) (see Appendix A).

Ditches to control water flow began to be built around 1902 in Waialua. The Ito Ditch, built after 1911, diverted water from Kaukonahua Stream to the Mokulē'ia sugar cane fields. The Waialua Agricultural Company was famous for its system of flume irrigation. The portable

concrete flumes were set around the fields in a herringbone pattern and water was released to the field by small tin gates (Wilcox 1996:110). In addition, various artesian wells, pumping stations, reservoirs, and associated water control infrastructure were constructed to support the growing sugar plantations.

Land for a new railroad that would carry cane from the fields to the mill began to be surveyed in 1898, and by 1908 the new railroad connected the plantation lands in Waialua, Helemano and Kawaihoa. In 1910, it was reported in the *Louisiana Planter*:

Waialua is reached either by railroad, a distance from Honolulu of 58 miles, or wagon road, 28 miles. The plantation lands extend along the seacoast 15 miles and 10 miles back toward the mountains. The plantation has a good railway system.

There are nearly 600 cane cars and five locomotives: with 30 miles of permanent track and eight of portable track. One stretch of road is nine miles long (cited in Conde and Best 1973:341).

A 1913 Fire Control Map (Figure 6) illustrates the extent of plantation development in the vicinity and the location of the OR&L railroad within the current project area. In general, cane lands extend from the O.R. & L./Government Road that parallels the shoreline, to the base of the foothills of the Wai'anae Range. There are several structures indicated on the 1913 map, most of which are regularly spaced around the railroad tracks. These may be worker's houses and camps, or other structures associated with the sugar plantation. The OR&L's Mokuĕ'ia station, located approximately 500 m west of the current project area, is visible. The 1913 map also indicates the extent of Dillingham's personal ranch (labeled "Dillingham Ranch"), which was not cultivated in cane. The narrow strip of land extends from the Government Road west of the project area up into the foothills and is bordered by fence lines.

In 1918, the Waialua plantation railroad lines were connected to the main O.R. & L. lines. In 1927, the rail line was extended to the upper levels of the cane fields. Water flumes had been used to transport the cane in these upper fields to the lower tracks, but the use of these flumes caused a serious depletion of the water supply, and it was considered more economical to build more tracks.

In 1927, after the death of his wife, E.D. Tenney deeded his beach house and property within the current project area to Castle and Cooke for use by their employees during vacations and weekends (Letter, E.D. Tenney to F.C. Atherton 1927) (see Appendix A).

The 1928-29 series USGS map (Figure 7) continues to show the various plantation ditches, railroad lines, and various other plantation related structures in the vicinity of the project area. The portion of OR&L railroad that passes through the project area bisects three similar elongated depressions. It is unclear as to whether these depressions are natural or associated with agricultural, construction of the railroad, or the mining of sand. Also visible is the likely location of the E.D. Tenney beach house along the northern border of the project area.

Major land use changes occurred in western Waialua when the U.S. military began development in the area. Kawaihāpai Military Reservation was established c. 1927 at the site of the present Dillingham Airfield. Following the entrance of the U.S. into World War II, Kawaihāpai Military Reservation was expanded and became known as Mokuĕ'ia Airfield

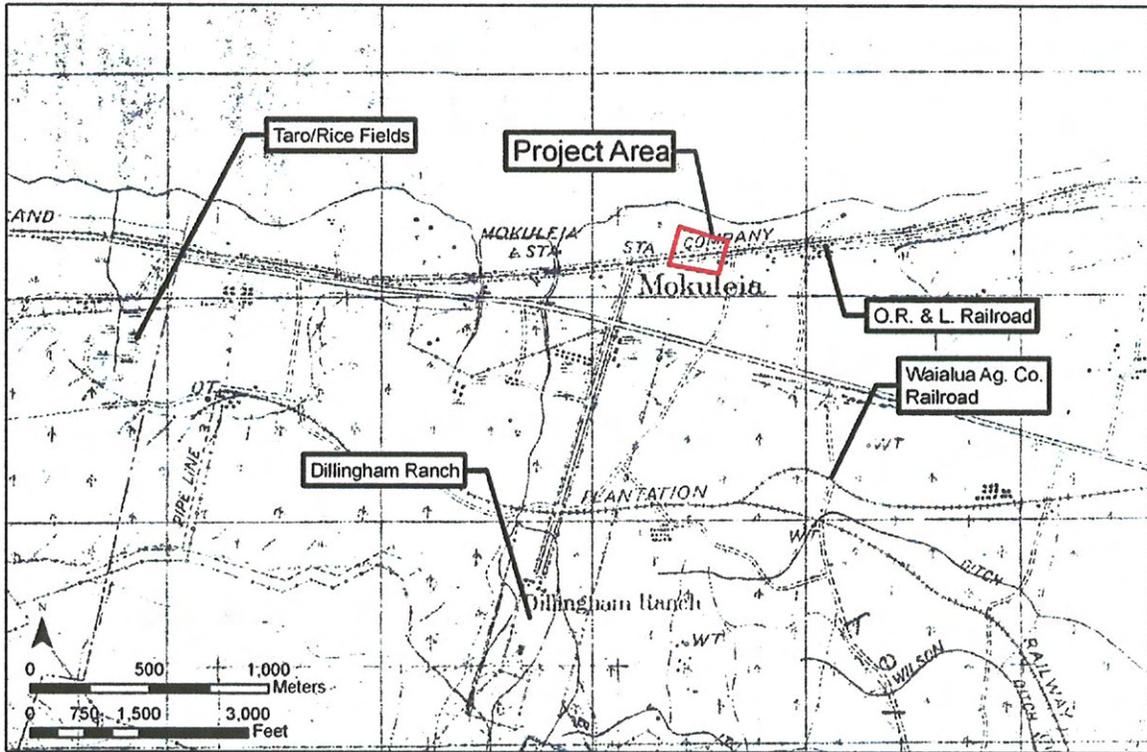


Figure 6. Portion of 1913 Fire Control Map, Ka'ena Quad., showing the extent of plantation development in the vicinity of the project area

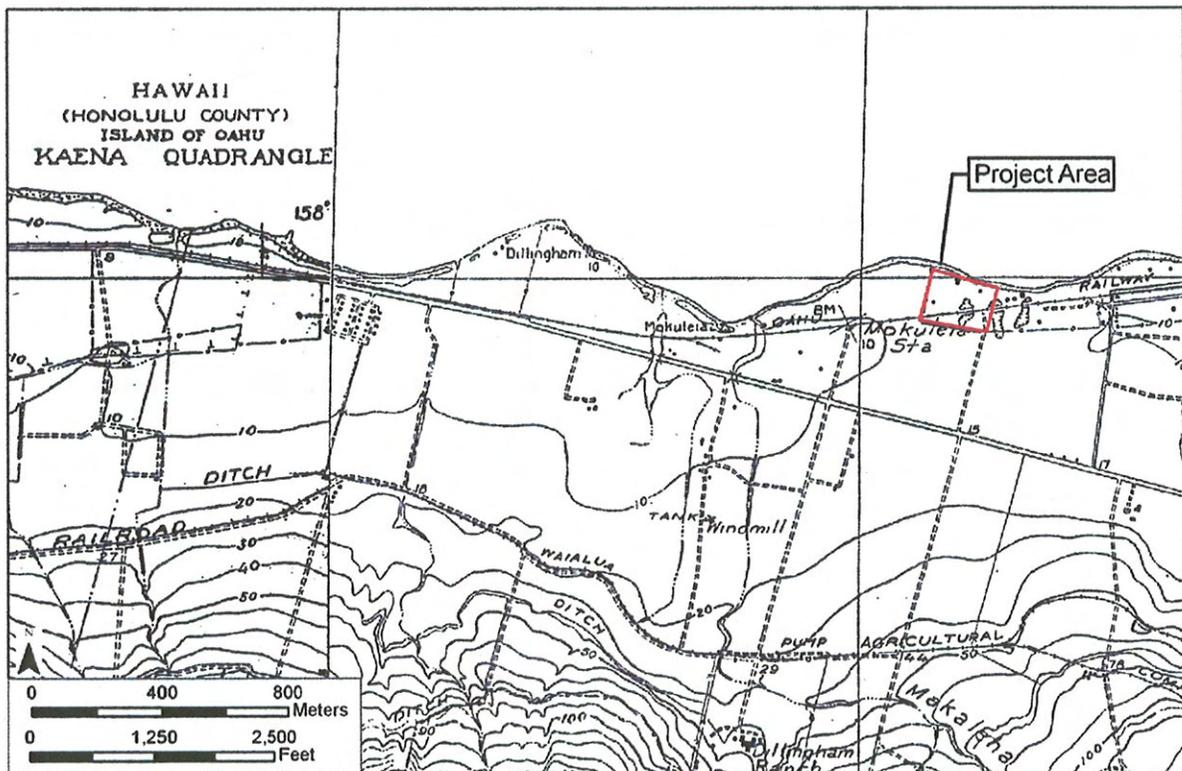


Figure 7. 1928-29 USGS Topographic Map, Ka'ena Quadrangle, showing project area

(Payette 2003). A small sand and grass runway was built and in use within a week after the attack on Pearl Harbor. The airfield was a training base for fighter planes, P-38s and later, P-51s.

The continuation of the war required the expansion of the airfield, and by April 1942, the airfield had become an 8,000-foot runway, later expanded to 9,500 feet. It was the longest in the Hawaiian Islands at that time (Allen 1971:226-227). Also located at Mokulē'ia Airfield was Battery Dillingham, in use from 1942-1944. Battery Dillingham included a series of naval gun emplacements located both along the beach and further inland, and served as a field artillery training range (Payette 2003). Mokulē'ia Airfield was renamed Dillingham Air Force Base when the U.S. Air Force was formed in 1947. In 1948, the base was deactivated, but continued to be used for training activities by the U.S. Army. The site was also used as a NIKE missile base during the 1950s (Payette 2003).

Mokulē'ia Military Reservation, including Battery Mokulē'ia, was also established in 1942 and consisted of four gun emplacements located two miles inland (Payette 2003). In 1946, Robert P. Patterson, Secretary of War of the United States, executed a "Declaration of Taking," which stated that the land of Mokulē'ia, Auku'u, Kawaihāpai, Keālia, and Ka'ena, Waialua, O'ahu, Territory of Hawaii; Mokulē'ia Ranch and Land Company, Limited, et al. "is taken... to provide for a military airfield, an ordnance storage area, and related military purposes incident thereto. The said land has been selected by me for acquisition by the United States for use in connection with such purposes, and for such other uses as may be authorized by Congress or by Executive Order, and is [r]equired for immediate use." Several of the native Hawaiian families, who had retained their small plots of land through the 19th and early 20th centuries, now lost the lands through this confiscation (Alameida 1993:113).

3.1.5 Modern Land Use

With the announcement of the Oahu Railway and Land Company's decision to discontinue service in 1947, the Waialua Agricultural Company began to switch to truck transportation. The change was slowly made, until the last railroad line was closed in 1952. Subsequent historic maps and aerial photographs indicate a general lack of development in the area through the 1970s. The 1964 USGS map (Figure 8) indicates the Crowbar and Campbell ranches located approximately 1000 m southwest of the current project area. Most of the railroad lines have been replaced by modern roadways except within and to the west of the project area where the railroad grade remains. A curving access road and the locations of several present-day structures are visible. A 1977 aerial photograph (Figure 9) clearly depicts the various land use areas within and in the vicinity of the project area. Pasture, ranch lands, and sugar plantation fields surround the undeveloped project area. A portion of the OR&L railroad grade is still visible extending from the southwest corner of the project area parallel to the coast.

The lands occupied by the Crowbar Ranch, Campbell Ranch, and Dillingham Ranch were later consolidated under the control of the Mokulē'ia Land Company. At present, as per E.D. Tenney's request, Castle and Cooke, Inc. employees and their families use the cottages and land within the project area during vacations and weekends.

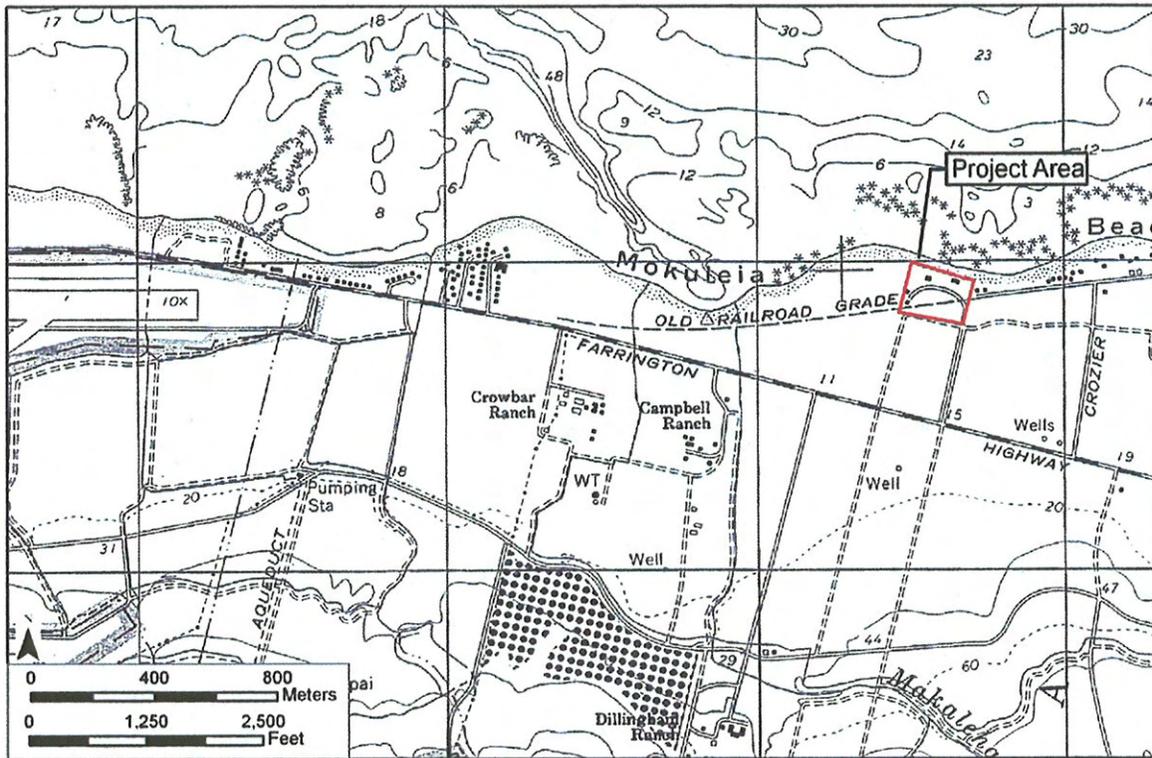


Figure 8. Portion of 1964 Defense Mapping Agency Topographic Map, Ka'ena Quad., showing development in the vicinity of the project area

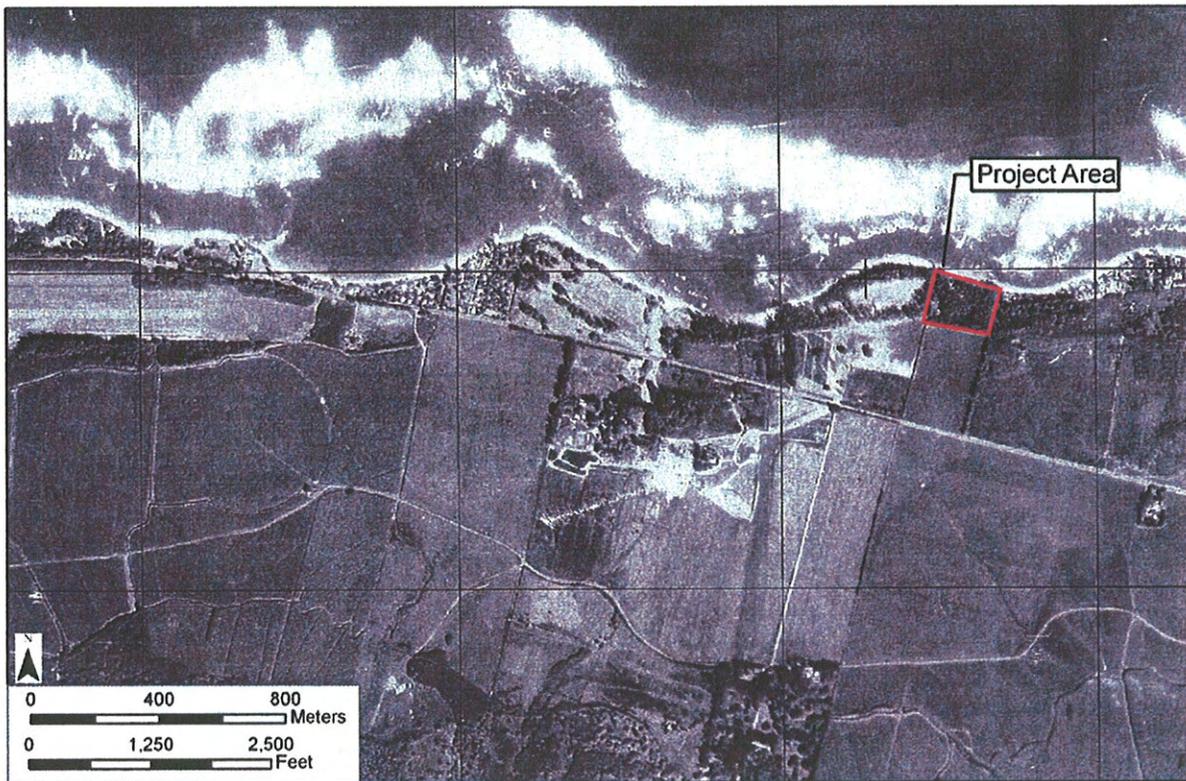


Figure 9. Portion of 1977 USGS Orthophotoquad, Ka'ena Quad., showing development in the vicinity of the project area

3.2 Previous Archaeological Research

There have been several archaeological investigations in the vicinity of the current project area, the majority of which have been limited to inadvertent finds of burial remains along the beach. Figure 10 illustrates project areas and site locations, and Table 2 presents the findings of the archaeological studies in the vicinity of the project area.

McAllister (1933) identified two sites within Mokulē'ia and Kawaihāpai Ahupua'a, in the vicinity of the project area. These sites, located along the coast, consisted of *ko'a*, or fishing shrines and were described as follows:

Site 195. Kolea fishing shrine (ko'a), Mokuleia, Fishing Shrine (Destroyed)

The shrine is located on the beach in a direct line with the Dillingham stables. The stones have been removed and only an indistinct line of stones 15 by 30 feet remains to mark the foundation. A stone in the water in front of Kolea was known as Mokupaoa. [McAllister 1933, cited in Sterling and Summers 1978:101]

Site 201. Fishing Shrine

Keauau fishing shrine was once located on the beach at Puuiki, at the Kaena end of a long row of ironwood trees. Nothing remains of the site. [McAllister 1933, cited in Sterling and Summers 1978:105]

In 1992, Drolet and Schilz (1992a) conducted an archaeological inventory survey of an approximately 840-acre portion of the Dillingham Ranch property proposed for golf course and residential development. The inventory survey consisted of a systematic pedestrian survey of the entire project area and a program of subsurface testing with a backhoe within the coastal plain portion of the project area. A total of twenty-eight trenches were excavated throughout the coastal testing area. No cultural material was recovered from the test excavations.

A total of 15 archaeological sites with 40 component features were identified through the pedestrian survey. Eleven (11) of the 15 sites were located within three site complexes described by Drolet and Schilz (1992a) as "settlement clusters." These settlement clusters are generally located in the foothills above the coastal plain to the base of the coastal cliffs far from the current project area.

In 1993, archaeological subsurface testing at the proposed 'Āweoweo Beach Park at the eastern end of Mokulē'ia Ahupua'a was conducted by Carlson and Cleghorn (1993). A cultural deposit was encountered 42 cm below the surface, from which a small amount of midden and one basalt flake were recovered. Charcoal collected from the cultural deposit yielded a radiocarbon date range of AD 1440-1700. The site was designated SIHP # 50-80-04-4657 and was interpreted to be a pre-contact temporary habitation deposit. The cultural deposit was also suggested to be associated with marine exploitation, based on the midden composition, and the close proximity to the location of McAllister's Site 201, the Keauau fishing shrine.

In 1996, an inadvertent burial discovery consisting of a sub-adult human mandible portion was recovered from Mokulē'ia Beach (Collins 1996). Upon examination, the remains were

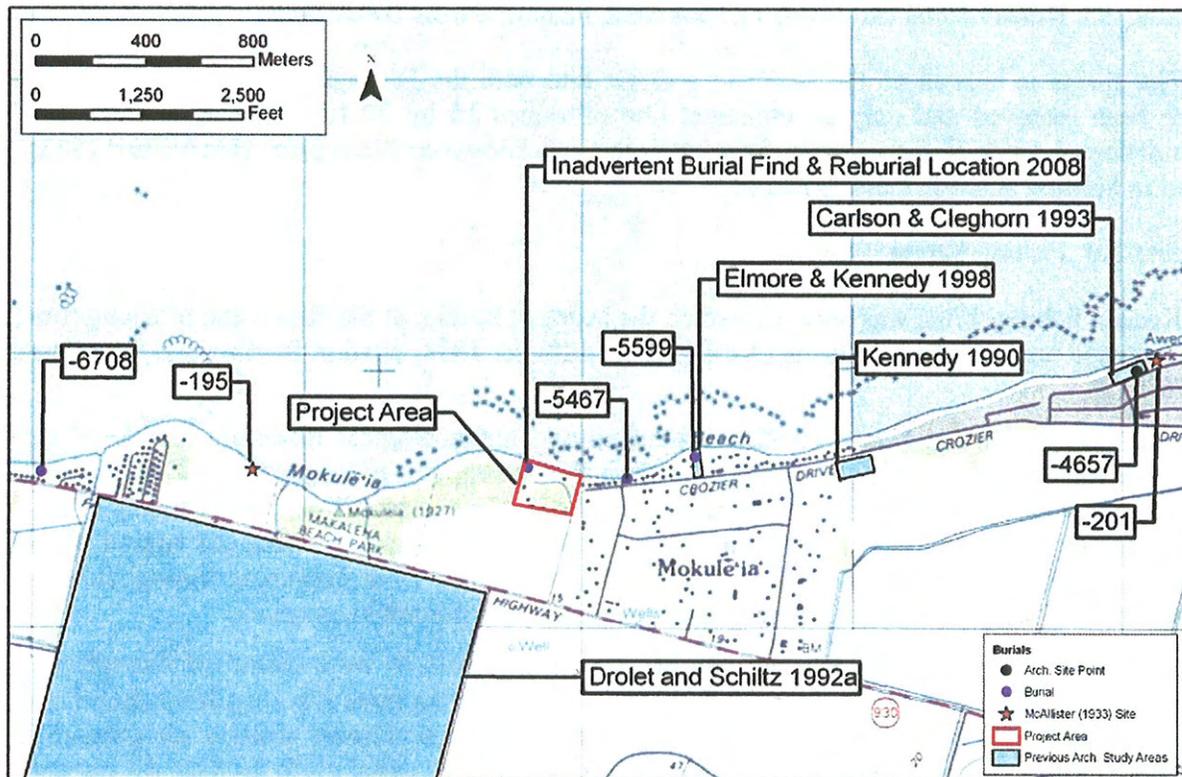


Figure 10. Locations of previous archaeological studies and identified archaeological sites in the vicinity of the project area

Table 2. Previous archaeological studies in the vicinity of the project area

REFERENCE	LOCATION	SIHP # 50-80-03-	DESCRIPTION AND RESULTS
McAllister 1933	Mokulē'ia	195, 201	Island-Wide Survey: McAllister recorded four sites in Mokulē'ia: Site 194, Poloaie Heiau; Site 195 Kōlea ko'a; Site 196, village in Mokulē'ia; Site 201, Keauau ko'a
Kennedy 1990	Lot 2C, Crozier Drive, Mokulē'ia		Subsurface Testing: Seven trenches were excavated in a property (TMK 6-8-06:15) which the owner wished to mine. No cultural remains were found in the trenches.
Drolet and Schiltz 1992a	Dillingham Ranch Property Kawaihāpai and Mokulē'ia	194, 4772 to 4786	Archaeological Inventory Survey: The archaeologists surveyed an 840-acre parcel, which extended from Farrington Highway to elevations of approximately 320 ft AMSL. They recorded 15 sites with 40 component features. The majority of the sites were located in three "settlement clusters". The clusters were agricultural fields with associated habitations. One site, Site 4772, may be Poloaie Heiau, originally designated Site 194 by McAllister (1933).
Carlson and Cleghorn 1993	'Āweoweo Beach Park, Mokulē'ia	50-80-04-4657	Archaeological Inventory Survey: One site (SIHP # 50-80-04-4657), a subsurface cultural deposit 42 cm below surface was identified. A small amount of midden, one basalt flake and a charcoal sample were recovered. The charcoal was dated to A. D. 1440-1700.
Kapeliela 1996	68-711 Crozier Drive, Mokulē'ia	5467	Inadvertent Find of Human Remains: Two cranial fragments were found in a sand berm subject to heavy erosion from high surf. The SHPD surveyed the area (TMK 6-8-04:2), but could not find any other remains. The location of the cranial fragments was designated SIHP # 50-80-03-5467.
Kapeliela 1998 Elmore and Kennedy 1998 Pietrusewsky 1998	63-639 Crozier Drive, Mokulē'ia 2 nd	5599	Inadvertent Find of Human Remains: Human remains were found at 63-639 Crozier Drive (TMK 6-8-04:2) during the excavation of a house foundation and reported to the SHPD (Kapeliela 1998). Additional remains in three locations were found, and the SHPD decided that a burial treatment plan needed to be implemented (Elmore and Kennedy 1998). Seven individuals were eventually identified (Pietrusewsky 1998), all of probable Hawaiian ancestry. Glass trade beads were found with one burial, suggesting an early post-contact date. The remaining six burials are probably pre-contact. The area was designated SIHP # 50-80-03-5599.
Gregg and Kennedy 2004	68-681 Farrington Hwy., Mokulē'ia	6708	Inadvertent Find of Human Remains: Partial remains of one individual were encountered during excavations for the repair of a seawall at 68-681 Farrington Hwy., Mokulē'ia (TMK 6-8-10:18), and designated SIHP # 50-80-03-6708. No <i>in situ</i> remains were recovered. Based on the burial location in a sand matrix, the remains were suggested to be of a pre-contact native Hawaiian individual.

determined to be not recent, and therefore considered pre-contact remains. The exact location of the burial was not given, nor was the burial location assigned a state site number.

In 1996, an inadvertent burial discovery consisting of two human cranium fragments, was recovered from the water's edge in the beach area fronting 68-711 Crozier Drive, at the east end of Mokulē'ia Ahupua'a. No other bones were recovered, though additional remains were believed to have been washed away by heavy surf. The burial location was designated SIHP # 50-80-03-5467 (Kapelieia 1996).

In 1998, seven inadvertent burial finds were encountered at 68-637 Crozier Drive in Mokulē'ia Ahupua'a by a construction crew during excavations for a house foundation (Kapelieia 1998; Elmore and Kennedy 1998; Pietrusewsky 1998). The burials were found at a depth of approximately 4.5 to 5 feet. Based on osteological features and the burial location, the remains were determined to be of Hawaiian ethnicity. Six of the burials were deemed pre-contact, while the seventh burial was more likely to be from the early post-contact period based on the presence of western trade items. The burial site was designated SIHP # 50-80-03-5599.

In 2004, human remains were inadvertently encountered during excavations associated with the repair of a seawall at 68-681 Farrington Highway, in Mokulē'ia Ahupua'a (Gregg and Kennedy 2004). The partial set of fragmented human remains was determined to likely have been previously disturbed prior to the repair of the seawall. Based on the location of the remains, it was suggested to be of pre-contact, native Hawaiian origin. The burial site was designated SIHP # 50-80-03-6708.

During some initial tree removal associated with current developments within the project area, human remains of at least 2 adult individuals were inadvertently discovered (Letter, SHPD to Castle and Cooke, Inc. 2008 [Log No. 2008.0971 Doc No. 0803KP08]) (see Appendix B). Through approval with Castle and Cooke, Inc., these remains, along with three other inadvertent burial discoveries from the immediate area stored within the SHPD repository, were reburied at this location.

3.3 Background Summary and Predictive Model

On modern maps, there are fifteen *ahupua'a* in the *moku* (district) of Waialua, extending from Ka'ena on the west end to Waimea (which was only annexed to the district in 1887) on the east end. In claims to the Land Commission, only six *ahupua'a* are mentioned: Ka'ena, Kawaihāpai, Mokulē'ia, Kamananui, Pa'ala'a and Kawailoa. Some of the smaller *ahupua'a* were probably considered segments of the more traditional *ahupua'a* (Sahlins 1992:18). A typical economic pattern for *moku* on O'ahu was to have one or more lands rich in all types of resources, with other outlying, poorer lands.

In Waialua, habitations were centered around Kaiaka and Waialua Bays, and on the inland floodplains, where densely packed irrigated fields of taro were cultivated along the four major streams. The population of these *ahupua'a* has been estimated at 6,000 to 8,000 people before Western Contact (Sahlins 1992:20).

Early Colonization (A.D. 300-600) would have favored the well-watered areas of the windward coast of O'ahu, so it is unlikely that any habitation or agricultural sites from this period would be found in the district of Waialua.

In the Expansion Period (A.D. 1100-1650), habitation and agricultural areas would have extended into the dryer western Waialua, with the plains used to grow dryland crops such as sweet potatoes and the larger streams used to irrigate taro terraces. Permanent habitation would be clustered on the coast. Evidence for habitation in Waialua for this period comes not only from the inland valley sites of Anahulu but also from coastal areas such as at Haleiwa State Park, where Moore et al. (1993:70) found three fire pits at a site (Site 50-80-04-4590) along the coast with dates ranging from A.D. 1399-1672 (A.D. 1448-1672, 1420-1628, and 1399-1642). During this period, the coast may have also been used for human interments.

In the Proto-Historic Period (A.D. 1650-1795), habitations would be found along the coast and in the inland agricultural areas. In this and the following post-contact Conquest period (A.D. 1778-1812), the construction of wetland agricultural features, such as taro terraces and *'auwai* (irrigation ditches) would have intensified. The Conquest period also marks the introduction of the cultivation of new crops, which were traded to visiting ships in the Sandalwood and Whaling Periods (A.D. 1812-1830; 1830-1848). In the western portion of Waialua, the greatest effect of these periods was the decline in population, from falling birth rates, high death rates, and the out-migration of young people to find better lives for themselves in the urban areas of the island. In the 1840s, there were cattle in Waialua, and this time period marks the beginning of the construction of large walls to keep the cattle contained (Sahlins 1992:148). Many of these walls were probably constructed by utilizing stones from existing pre-contact features. The entire coastal plain between the shoreline and the foothills was drastically modified during the sugar cane plantation era. Remnants of pre-contact and early post-contact habitation and agricultural features remain along the foothills and in gulch areas, as documented within the 861-acre Dillingham Ranch project area by Drolet and Schilz (1992). The construction of the Mokulē'ia Airfield in 1941, and the subsequent confiscation of surrounding land in 1946, likely ended the last vestiges of traditional Hawaiian lifestyle in the area.

It is anticipated that surficial remnants of pre-contact/early post-contact traditional Hawaiian agricultural and habitation features within the project area were likely removed or destroyed during the construction of the OR&L railroad, sugarcane cultivation, and modern developments. Based on numerous discoveries of inadvertent burial finds and cultural deposits along the coast of Mokulē'ia *ahupua'a*, including one burial recently discovered within the current project area, it is likely that subsurface cultural features including pre- and early post-contact human burials may be encountered during future excavations. Features and human remains may also be discovered during a field inspection of the property area if any significant erosion has exposed these deposits. In addition to traditional Hawaiian subsurface features, remnants of the OR&L railroad including surface modifications and associated historic artifacts will likely be encountered. Historic maps (see Figures 6-9) clearly show the extension of the railroad through the current project area.

Section 4 Results of Fieldwork

4.1 Survey Findings

Field inspection of the project area confirmed the findings and information provided in the background research. The remnant grade of the OR&L railroad (SIHP # 50-80-12-9714) and the site of a recent inadvertent burial discovery and reburial location were observed within the project area. The pedestrian survey involved a general inspection of the 9.16-acre project area. The spacing between the archaeologists was generally 10-20 m. A GPS track log to document pedestrian coverage within the project area was recorded.

The northern (*makai*) portion of the project area, located along the shoreline, consisted of a large cottage and associated bathhouse and volleyball court to the west, a small central cottage, and a concrete foundation to the east (Figure 11). These structures were bordered by *naupaka*, (*Scaevola* spp.) and landscaped grasses and bounded by the steeply sloping shoreline (Figure 12). The area of the recent inadvertent discovery and reburial, located in the northwest corner of the project area slightly west of the large cottage, was identified. A temporary perimeter was observed around the reburial area using metal rebar and caution tape. A large water-worn boulder was used as a visible marker of the burial/reburial location. GPS points were recorded along the temporary perimeter shown in Figure 13.

The central portion of the project area consisted of a modern sand and partially gravel-paved access road, a caretaker's residence, and the remnant grade of the OR&L railroad (SIHP # 50-80-12-9714) (Figure 14). The railroad alignment was examined and GPS points were taken intermittently along the centerline (see Figure 13). Historic material, including broken bottles, metal fragments, and window glass were observed in the vicinity of the former OR&L alignment. The existing caretaker's residence, lawn, and parking area are located just south of the modern access road (Figure 15).

The southern portion of the project area consisted of a heavily disturbed portion of the former OR&L alignment at the southwest corner of the project area and the generally flat, sparsely vegetated area south of the former OR&L alignment (Figure 16).

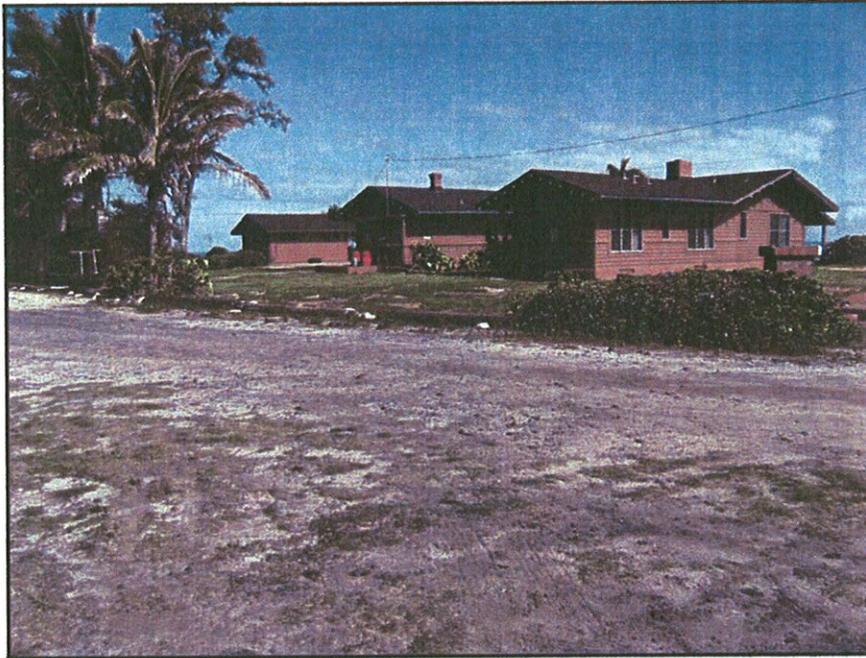


Figure 11. View of the existing large cottage near the northwest corner of the project area facing northwest

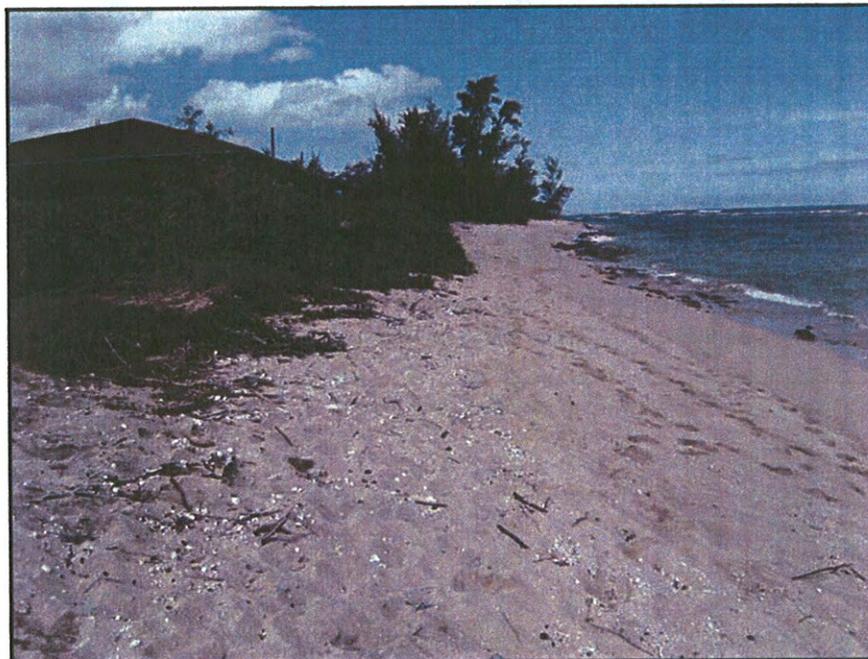


Figure 12. View of the existing cottages along the shoreline facing west

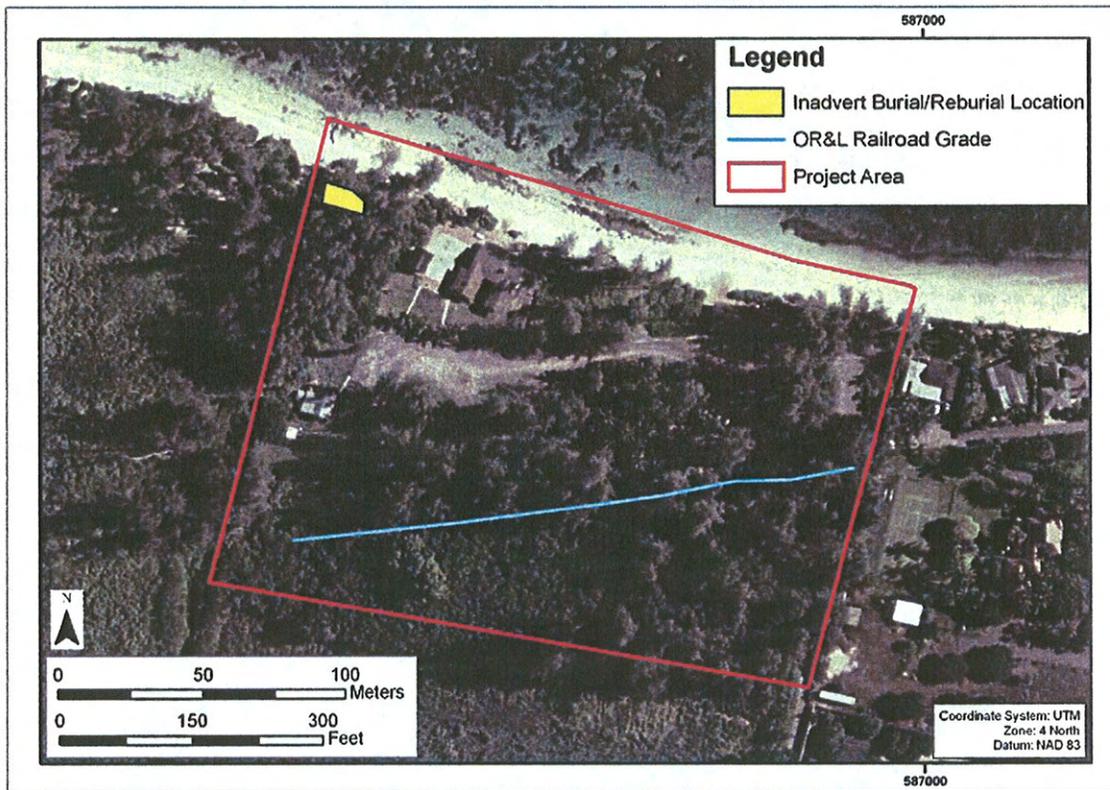


Figure 13. Aerial photograph showing the locations of sites within the project area (source: U.S.G.S Orthoimagery 2005)



Figure 14. View of the OR&L railroad grade from the modern access road facing west

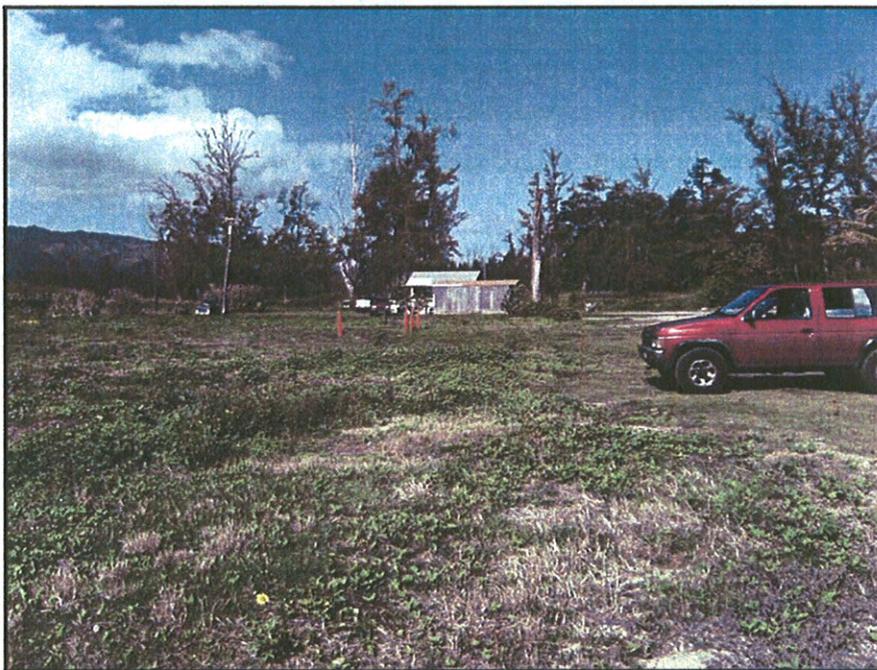


Figure 15. View of the existing caretaker's residence facing west

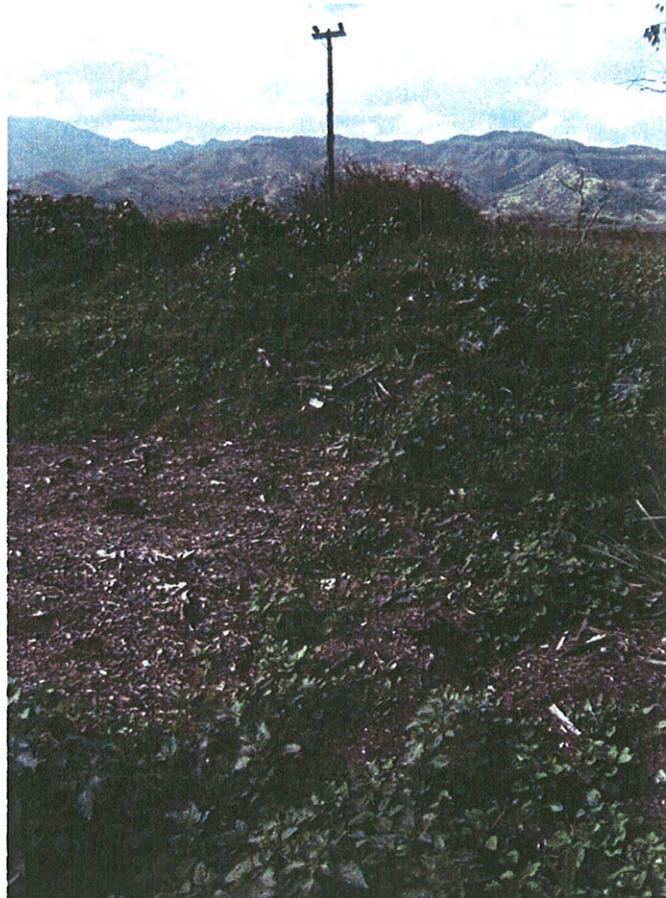


Figure 16. View of the heavily disturbed southwest corner of the project area facing south

Section 5 Summary and Recommendations

5.1 Summary

Background research indicated that pre-contact populations began living on the coastal (*makai*) portion of Mokulē'ia *ahupua'a* as early as A.D. 1100 if not earlier. Evidence for habitation in Waialua for this period comes not only from the inland valley sites of Anahulu but also from coastal areas such as at Haleiwa State Park, where Moore et al. (1993:70) found three fire pits at a site (Site 50-80-04-4590) along the coast with dates ranging from A.D. 1399-1672 (A.D. 1448-1672, 1420-1628, and 1399-1642). During this period, the coast may have also been used for human interments. Previous archaeological research indicates numerous human interments along the Mokulē'ia coastline. Several inadvertent discoveries of human remains (Kapeliela 1998; Elmore and Kennedy 1998; Pietrusewsky 1998; Gregg and Kennedy 2004) were recorded in the immediate vicinity.

Coastal settlement in Mokulē'ia *ahupua'a* intensified through the Proto-Historic Period (A.D. 1650-1795) along with inland agriculture. An archaeological inventory survey conducted by Drolet and Schilz (1992a) identified three site complexes composed of habitation areas with surrounding agricultural fields in the foothills above the current project area.

The Conquest period (A.D. 1778-1812) marks the introduction of the cultivation of new crops and a decline in population, from falling birth rates, high death rates, and the out-migration of young people to find better lives for themselves in the urban areas of the island. Pre-contact populations of the Waialua area had been estimated at 6,000 to 8,000 people before Western Contact (Sahlins 1992:20), but by 1848 the population was down to 1,616 persons.

In 1850, after the introduction of the *Māhele*, a total of 27 land grants were purchased in the *ahupua'a* of Mokulē'ia including one land grant encompassing the land within the current project area. It was during this time that rice cultivation in the Waialua district began to increase followed by the development of sugar cane plantations and cattle ranches. The majority of these operations seemed to have occupied *mauka* portions of the Mokulē'ia *ahupua'a* beyond the current project area.

By 1898, the O.R. & L railroad was constructed through the Waialua District, with stations in both Kawaihāpai and Mokulē'ia. The Mokulē'ia station was located approximately 500 m west of the current project area. Also in 1898, the Waialua Agricultural Company was established by J.B. Atherton, E.D. Tenney, B.F. Dillingham, W.A. Bowen, H. Waterhouse and M.R. Robinson (Moblo 1991:4), and was incorporated by the company Castle & Cooke (Dorrance and Morgan 2000:47). They bought the Halstead Brothers' land and mill, and began to buy or lease the adjacent lands, many owned by native Hawaiians. They acquired many of the former irrigated taro lands in order to control the water rights of the region. It was during this time that E.D. Tenney came to own the land within the current project area and constructed a beach house "commonly known as Kaihulu" on the premises (Letter, E.D. Tenney to F.C. Atherton 1927) (see Appendix A). In 1927, after the death of his wife, E.D. Tenney deeded his beach house and property to Castle and Cooke for use by their employees during vacations and weekends.

5.2 Recommendations

Within the project area itself, the remnant grade of the OR&L railroad (SIHP # 50-80-12-9714) and the site of a recent inadvertent burial discovery and reburial location were observed (see Figure 13). This recent inadvertent discovery along with previous archaeological research in the vicinity of the project area suggest that additional human remains or burials may be encountered during future subsurface excavation or vegetation removal.

Based on the results of this study, CSH recommends an inventory survey for the proposed Castle and Cooke corporate retreat Kaiahulu project. The inventory survey should focus on testing in areas where construction activity will have subsurface impact. These areas may include proposed locations of septic tanks and leach fields associated with new buildings within the project area. Testing may also be required within the remnant OR&L railroad grade based upon the location and impact of proposed construction activities in the vicinity of the former OR&L railroad.

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Appendix A E.D. Tenney Letter

March 11th, 1927.

Mr. F. C. Atherton, Vice Pres. & Gen'l Mgr.,
Castle & Cooke, Limited,
Honolulu, Hawaii.

Dear Frank:

My beach place at Mokuleia, Waialua, commonly known as Kaiahulu was the source of much pleasure to Mrs. Tenney, and she took particular delight in entertaining her friends there.

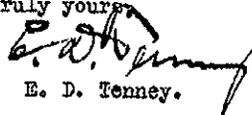
With her passing, I would like to deed this place to Castle & Cooke, Ltd. for its employees, to be used by them primarily as a place where they can spend week-ends and periods during their vacation. This, I feel, would insure the continued use of the property as a means of providing recreation and pleasure to others.

Should it be decided to discontinue the use of the property for the purposes indicated at any time, I request that the proceeds obtained from its sale be used for charitable or welfare purposes in Hawaii, to be expended under the direction of the Hawaiian Foundation or some similar organization.

There are several articles remaining on the premises which I may later desire to remove, such as Hawaiian Kahilis.

Will you kindly submit this offer to the Directors of Castle & Cooke, Limited, and upon their assent to its acceptance, I will then take steps to have the title of the property transferred.

Very truly yours,


E. D. Tenney.

Appendix B SHPD Reburial Summary



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

Theresa *Bea*

Laura H. Thiele
CHAIRPERSON
HAWAIIAN LAND ADMINISTRATION BOARD
1100 KANANI'OLE DRIVE, SUITE 1000, HONOLULU, HI 96813

Russell V. Tsui
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1600 ALI'OLE DRIVE, SUITE 1000, HONOLULU, HI 96813

James R. Bingham
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DEPARTMENT OF LAND AND NATURAL RESOURCES
1600 ALI'OLE DRIVE, SUITE 1000, HONOLULU, HI 96813

Industry Affairs
1600 ALI'OLE DRIVE, SUITE 1000, HONOLULU, HI 96813

March 10, 2008

Richard Mirikitani
Castle and Cook, Inc.
P.O. Box 898900
Mililani, HI 96789-8900

LOG NO: 2008.0971
DOC NO: 0803KP08
Culture

Dear Mr. Mirikitani:

SUBJECT: Chapter 6E-43.6 Inadvertent discovery of burial sites-Inadvertent Discovery of Human Remains at 68-379 Farrington Highway Mokule'ia Ahupua'a, Wai'anae District, Island of O'ahu
[TMK: (1) 6-8-003:001]

A reburial took place on March 3, 2008 to reinter remains found during tree removal on the property. Present were Beverly Kaku from Castle and Cook Inc. and Kaleo Paik, Cultural Specialist from State Historic Preservation Division. Archaeological Consultants of the Pacific retrieved the remains of least 2 adult individuals. The reburial was done at dusk with appropriate cultural protocol.

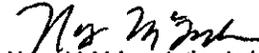
In addition to the remains found on the property, your company allowed other remains from our repository to be included in this reburial. The following remains are from our inventory:

00-OA-08	Aweoweo Beach Park	Fragments
00-OA-08	Kiapoko (associated with Aweoweo finds)	Fragment
07-OA-07	Puuiki Beach footpath	Skull

We are sincerely grateful to your company for allowing the inadvertent remains found on your property and those from our repository to be reburied on your property. In the near future, a reburial agreement will be drafted to further protect the burials through recordation in the Bureau of Conveyance.

Mahalo a nui loa for your kokua in the protection of our Iwi Kupuna. If you have questions, please contact Kaleo Paik, Cultural Specialist, at 692-8015.

Aloha,


Nancy McMahon, Acting Archaeology Branch Chief
State Historic Preservation Division

cc: Joe Kennedy, Archaeological Consultants of the Pacific



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