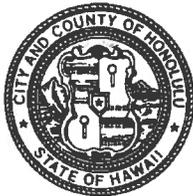


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
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KIRK CALDWELL
MAYOR



GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2014/ELOG-1476(ST)
2014/ED-1

August 26, 2014

Ms. Jessica Wooley, Director
Office of Environmental Quality Control
State Office Tower, Room 702
235 South Beretania Street
Honolulu, Hawaii 96813-2437

Dear Director:

SUBJECT: Chapter 343, Hawaii Revised Statutes (HRS)
Final Environmental Assessment (EA)

Project: Lee Residence and Shoreline Protection Structure
Applicant: Kyoung-Su Im
Agent: Group 70 International, Inc. (Jeffrey Overton)
Location: 4465 and 4469 Kahala Avenue - Waialae Kahala
Tax Map Key: 3-5-3: 2 and 3
Request: Special Management Area Use Permit (SMP) and
Shoreline Setback Variance (SV)
Proposal: New Residence over 7,500 square-feet and Shoreline Structure within
the 40-foot shoreline setback.

Attached and incorporated by reference is the Final EA prepared by the Applicant for the above project pursuant to Chapter 343, HRS. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that the preparation of an Environmental Impact Statement is not required, and have issued a Finding of No Significant Impact (FONSI). Please publish this FONSI determination in the next available issue of The Environmental Notice.

Enclosed are two hard copies of the Final EA and a copy in pdf format on a compact disk, and the completed OEQC Publication Form and project summary. Simultaneously, these documents were also sent via electronic mail to your office.

If you have any questions, please contact Steve Tagawa of our staff at 768-8024.

Very truly yours,

George I. Atta, FAICP
Director

Attachments



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August 25, 2014

SEP 08 2014

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**Subject: Kāhala Residence and Shoreline Structure
Accepted Final Environmental Assessment/FONSI**

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU, HI

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Paul T. Matsuda
PE, LEED AP

OF COUNSEL

Ralph E. Portmore
FAICP

Dear Participant:

On behalf of the applicant, please find the enclosed Final Environmental Assessment (EA) for your review. This Final EA was prepared pursuant to the Hawai'i State environmental law (Chapter 343, HRS and Chapter 11-200, HAR).

Name of Project: Kāhala Residence and Shoreline Structure
Island and District: Island of O'ahu, Kona District
Tax Map Key (s): 3-5-003: 002 & 003

Applicant: Mr. Kyong-su Im
1608 Laukahi Street
Honolulu, HI 96821
Phone: 808-258-7877

Applicant's Agent: Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813
Contact: Jeff Overton
Phone: 808-523-5866

Approving Agency: City and County of Honolulu
Department of Planning and Permitting
650 S. King Street
Honolulu, HI 96813
Contact: Steve Tagawa
Phone: 808-768-8024

The Department of Planning and Permitting will be issuing acceptance of the Final EA with a Finding of No Significant Impact (FONSI). Thank you for your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

REC'D
14 AUG 26 P4:18
QUALITY CONTROL

APPLICANT ACTIONS
SECTION 343-5(C), HRS
PUBLICATION FORM (JANUARY 2013 REVISION)

Project Name: Lee Residence and Sloping Rubble Revetment in the 40-foot shoreline setback
Island: Oahu
District: Waialae-Kahala
TMK: (1)3-5-3: 2 and 3
Permits: Special Management Area Use Permit and Shoreline Setback Variance
Approving Agency: Department of Planning and Permitting

City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813
Steve Tagawa, (808) 768-8024

Applicant: Kyong-su Im
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Consultant: Group 70 International, Inc.
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Jeffrey Overton, (808) 523-5866

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DEPARTMENT OF PLANNING AND PERMITTING

Status (check one only):

- DEA-AFNSI** Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day comment period ensues upon publication in the periodic bulletin.
- FEA-FONSI** Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov; no comment period ensues upon publication in the periodic bulletin.
- FEA-EISPN** Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day consultation period ensues upon publication in the periodic bulletin.
- Act 172-12 EISPN** Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov. NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
- DEIS** The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.
- FEIS** The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
- Section 11-200-23 Determination** The approving agency simultaneous transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.
- Statutory hammer Acceptance** The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.
- Section 11-200-27 Determination** The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
- Withdrawal (explain)**

Summary: The Applicant seeks a Shoreline Setback Variance for the construction of a hybrid sloping rubble revetment, which includes a three-foot vertical concrete section at its crest, which will replace an unauthorized vertical seawall and rubble revetment which were removed along the 120-foot long makai boundary of the site. The Applicant has worked with the State Office of Conservation and Coastal Lands to remove the illegal structures and to establish a shoreline which was certified by the State on August 1, 2014 (File No.: OA-1573). The proposal includes an integrated concrete stairway accessing the shoreline, open steel cable, safety fencing, paved walkway with view area, and concrete fencewalls along both left and right boundaries.

The Applicant also seeks a Special Management Area Use Permit to construct two dwellings and a garage/mechanical building. The two-story dwellings will have about 16,526 square feet and 6,691 square feet of floor area. The detached garage/mechanical building will have about 3,820 square feet of floor area.

The proposal will also require grading, stockpiling and building permits from the Department of Planning and Permitting. When development permits are received, the Applicant anticipates construction to take approximately 22 months to complete.

Kahala Residence and Shoreline Structure Final Environmental Assessment (8/11/14)

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Bertrand Kobayashi
19th Representative District
Hawaii State Capitol, Room 304
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Hawaii State Senator Sam Slom
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Council District #4
530 S. King St. #202
Honolulu, HI 96813

Honolulu City County Council
Councilmember Ikaika Anderson
Chair, Zoning and Planning
530 S. King St. #202
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Honolulu, HI 96813

DEPT. OF ENVIRONMENTAL
QUALITY CONTROL

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AND PERMITTING
CITY & COUNTY OF HONOLULU, HI

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KĀHALA RESIDENCE AND SHORELINE STRUCTURE

TMK (1) 3-5-003:002 & 003
Kāhala, O'ahu, Hawai'i

Final ~~Draft~~ Environmental Assessment

Applicant:

Mr. Kyong-su Im
1608 Laukahi Street
Honolulu, HI 96821

Approving Agency:

City and County of Honolulu
Department of Planning and Permitting
650 S. King Street
Honolulu, HI 96813

Prepared by:



Group 70 International, Inc.
Architecture • Planning & Environmental Services • Interior Design • Civil Engineering
Honolulu, Hawai'i

July ~~February~~ 2014

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

TMK (1) 3-5-003:002 & 003

Kāhala, O'ahu, Hawai'i

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Department of Planning and Permitting
650 S. King Street
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Prepared by:



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Architecture • Planning & Environmental Services • Interior Design • Civil Engineering
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July February 2014

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KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

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KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

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1.0 INTRODUCTION

1.0 INTRODUCTION

This ~~Draft~~ Final Environmental Assessment (EA) was prepared in accordance with Hawaii Revised Statutes (HRS) Chapter 343, Revised Ordinances of Honolulu (ROH) Chapter 23 Shoreline Setbacks and ROH Chapter 25 in support of a Special Management Area (SMA) Permit application.

1.1 INFORMATION SUMMARY

Type of Document:	Environmental Assessment (EA)
Name of Proposed Action:	Kāhala Residence and Shoreline Structure
Applicant:	Mr. Kyong-su Im 1608 Laukahi Street Honolulu, HI 96821 Phone: 808-258-7877
Applicant's Agent:	Group 70 International, Inc. 925 Bethel Street, 5 th Floor Honolulu, HI 96813 Contact: Jeffrey H. Overton, AICP, LEED-AP Phone: 808-523-5866 x104
Approving Agency:	City and County of Honolulu Department of Planning and Permitting 650 S. King Street Honolulu, HI 96813
EA Trigger:	HRS 343-5(a)(3) Use within a Shoreline Setback Area ROH Chapter 23, Shoreline Setbacks ROH Chapter 25, Special Management Area
Site Location:	4465 & 4469 Kāhala Avenue, Kona District, Kāhala, O'ahu, Hawai'i (Figure 1-1)
Tax Map Key:	(1) 3-5-003: 002 and 003 (Figure 1-2)
Landowner:	Mr. Kun Hee Lee

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

Land Area:

LOT	Square Feet
18-B	17,349
18-B-1	1,750
19	17,332
19-A	1,873
*Shoreline Area	-2,351
TOTAL	35,953 SF

*The portion of land within the shoreline area is approximate and pending the certified shoreline.

State Land Use District: Urban District (*Figure 1-3*)

City & County of Honolulu
Zoning: R-7.5 Residential (*Figure 1-4*)

City & County of Honolulu
Primary Urban Center
Development Plan: Low-Density Residential

Special Design District: None

Special Management Area: Within SMA (*Figure 1-5*)

Flood Zone: Zone X (*Figure 2-X*)

Anticipated Determination: Finding of No Significant Impact (FONSI)

1.2 SITE LOCATION AND CHARACTERISTICS

The subject properties are located in Honolulu, east of Diamond Head in the Kāhala area, roughly at the intersection of Kala Place and Kāhala Avenue. The site consists of two adjacent parcels: TMK 3-5-003:002 located at 4469 Kāhala Avenue, and TMK 3-5-003:003 located at 4465 Kāhala Avenue. The parcels are owned by Mr. Kun Hee Lee. The site is bordered by the Pacific Ocean to the south and surrounded by low-density residential development on all other sides (*Figure 1-2 Topographic Survey Map*).

The site is primarily vacant and overgrown with grasses, weeds and limited vegetation. Remnants of the prior residential use include a partial stone tile walkway, patio area, and wooden deck platform. Several coconut palms exist on the property. ~~There is a seawall structure separating the upland property from the shoreline area.~~

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final ~~Draft~~ Environmental Assessment

1.3 OVERVIEW OF THE PLANNED RESIDENTIAL USE

The owner is seeking to joint develop the two lots to construct two single-family residences, a garage, pool, driveway and new shoreline structure with landscaping. The total floor area of improvements will be approximately 27,037 square feet. Refer to *Figure 2-2 Site Plan*. Prior to construction, the existing remnant structures (walkway, patio, deck, and seawall) will be removed. A new sloping rock revetment will be constructed.

1.4 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

This Environmental Assessment (EA) was prepared in accordance with HRS 343 for use in a shoreline area and Chapter 25, Revised Ordinances of Honolulu in support of a Special Management Area (SMA) Permit application. The EA was also prepared to address use in the shoreline setback pursuant to ROH Chapter 23. The Draft EA ~~will be~~ was published in the Office of Environmental Quality Control *Environmental Notice* on March 8, 2014, following which, ~~which will commence~~ a 30-day public review period ensued. The City and County of Honolulu Department of Planning and Permitting is the Approving Agency for the EA.

The ~~Draft~~ Final EA is presented in eight sections and includes the following: a summary description of the planned residential use; a list of necessary approvals; a description of the environmental setting; a section that identifies potential impacts and proposed mitigation measures on identified natural, cultural, and socioeconomic resources as well as existing infrastructure; a discussion of alternatives; a discussion of the relationship of the proposed action to State and County land use designations and regulations; the anticipated determination and justification; an updated list of agencies and organizations that participated in the pre-consultation phase of the ~~Draft~~ Final EA; and a list of references cited or used in preparing the EA.

After the 30-day review period of the Draft EA ~~has~~ concluded, public comments received ~~will be~~ were considered and addressed to the extent feasible within the scope and evaluation of the proposed action. A Final EA ~~will be prepared~~, highlighting document revisions based upon information received during the public comment period.

It is anticipated that DPP will issue a Finding of No Significant Impact (FONSI) upon acceptance of the Final EA.

1.5 PERMITS AND APPROVALS REQUIRED

Other approvals are required from the County and State to implement the proposed action, some of which include:

- Certified Shoreline Survey (DLNR)
- Conditional Use Permit Minor for Joint Development (DPP)
- Special Management Area Use Permit Major (DPP, Honolulu City Council)

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

- Shoreline Setback Variance Permit (DPP, Honolulu City Council)
- Building Permits (Buildings, Electrical, Plumbing), and Sidewalk/Driveway Work (DPP)
- Grading, Grubbing, Trenching and Stockpiling Permits (DPP)
- Sewer Connection Permits (DPP)
- Plan Approval (BWS)
- Plan Approval (HECO)
- Trenching Permit (DPP)
- Street Usage (DTS)
- Zoning Adjustment (Retaining Walls) (DPP)

1.6 AGENCIES, ORGANIZATIONS AND INDIVIDUALS CONTACTED DURING THE PRE-CONSULTATION PROCESS

A Participant Letter with Pre-Consultation request was issued in January 2014 to initiate the environmental review process.

A list of agencies and other parties contacted during the EA pre-consultation period is provided in *Section 8.0* of this document. Additionally, *Section 8.0* provides a list of the individuals and agencies that received copies of the Draft and will receive the Final EA.

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment



FIGURE 1-1: PROJECT LOCATION

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment



FIGURE 1-2: TAX MAP KEY (3-5-003: 002 & 003)

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

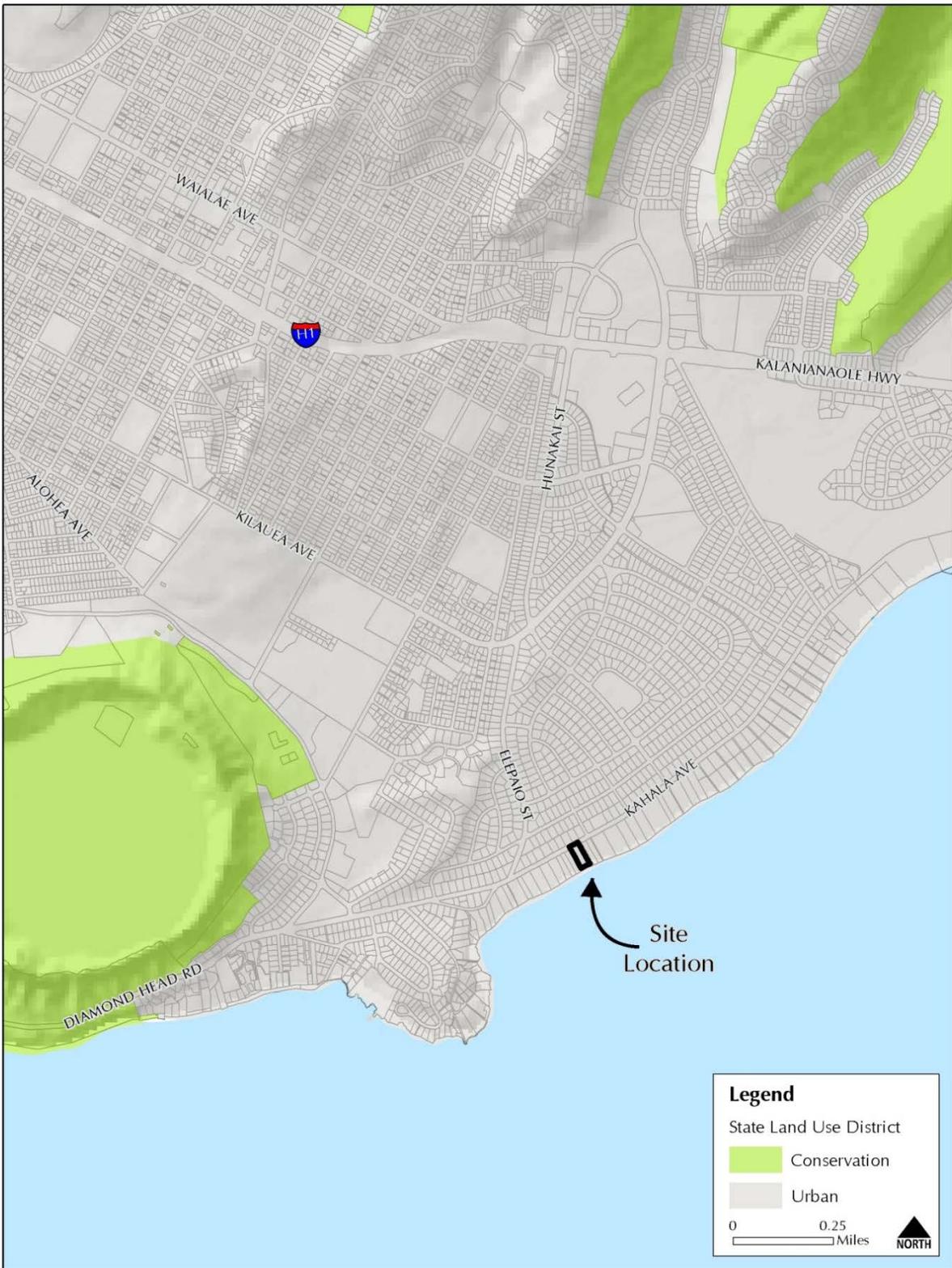


FIGURE 1-3: STATE LAND USE DESIGNATION MAP

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment



FIGURE 1-4: CITY AND COUNTY OF HONOLULU ZONING MAP

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

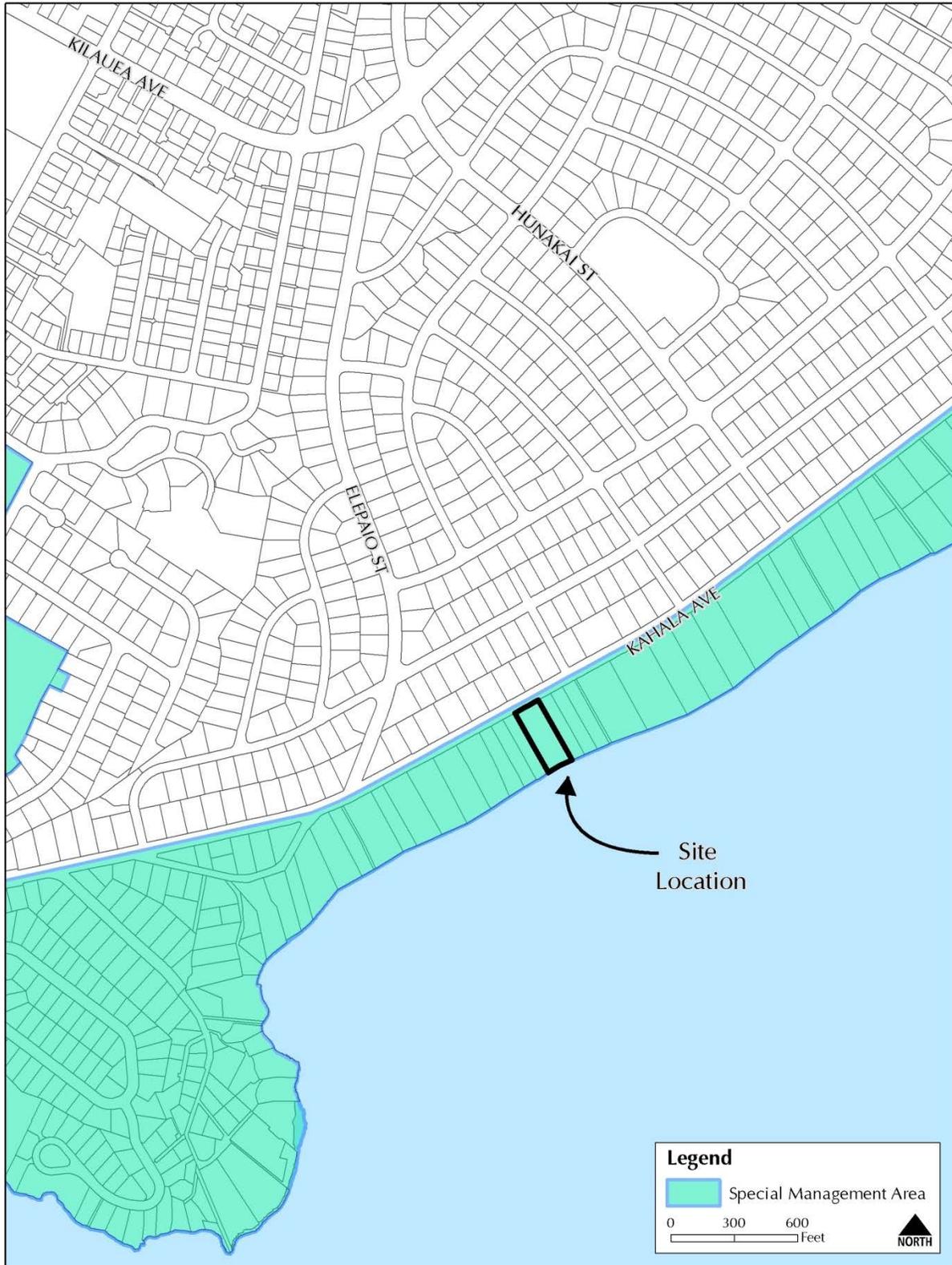


FIGURE 1-5: CITY AND COUNTY OF HONOLULU SPECIAL MANAGEMENT AREA MAP

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 EXISTING CONDITIONS AND SITE PREPARATION

The site is comprised of two adjacent parcels and is currently vacant. While previously developed with single family residences on each parcel, the existing dwelling structures have been demolished. A concrete pad, a partial stone tiled pathway and several coconut trees remain on Parcel 002 (Lot 18-B and 18-B-1). The remaining area of Parcel 002 and the whole of Parcel 003 (Lot 19 and 19-A) have limited ground cover with grass and weeds. Both parcels are protected by a shoreline structure (“seawall”) fronting the shoreline. Parcel 002 has a stacked boulder wall approximately 3-4 feet high with a stairway and wrought iron fence along the top and naupaka shrub. The seawall at Parcel 003 is a hollow tile wall approximately 3 feet high, built atop a grouted stacked rock wall approximately 2 to 3 feet high. There are no fences or shrubs along the top of the wall. The shoreline walls are in various stages of deterioration and will be removed and replaced. (*Figure 2-1 Topographic Survey Map.*) To prepare the site for construction, the remnants of prior structures on each lot will be removed and minor grading and leveling is required.

2.2 DESCRIPTION OF PROPOSED ACTION

The subject properties are vacant, with remnants of prior structures and the seawalls. The owner of the vacant lots will improve the site with a new residence, a cottage for staff quarters, a swimming pool, a garage, landscaping and a new shoreline structure. Each of these site components is described below. Please refer to *Figure 2-2 Site Plan*. *Table 2-1* presents a preliminary selected site program. The preliminary program is subject to final design.

Primary Residence

Construction on the site will be governed by development requirements such as lot coverage, setbacks (required yards) and height restrictions per the Land Use Ordinance (LUO), Chapter 21, Revised Ordinances of Honolulu (ROH) and the rules of the Special Management Area and shoreline setback ordinance. The primary residence will be two stories in height and have a floor area of approximately 16,526 square feet. The residence building is designed to maintain an appropriate sense of scale with the surrounding area, and will not exceed the 25-foot height limit for the R-7.5 Residential District.

The primary residence is located on the makai portion of the site and outside of the 40-foot shoreline setback. The entrance on the mauka side leads into a great hall. To the west, an elevator provides access to the second floor. Makai of the receiving area are living and dining areas with views of the front lawn and ocean. The first floor also includes a bedroom, bath, kitchen, pantry and storage. The second story of the residence includes the master bedroom and bath, living area, dining area and fitness room. Other bedrooms are included on the second story.

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Secondary Residence

A second residence is located on the northwest corner of the project area. This residence is two-stories, approximately 6,691 SF, and serves the dual purpose of providing guest quarters for visitors and living quarters for staff. The first floor includes living, dining, kitchen areas and three detached bedrooms. Master and secondary bedroom and baths are located on the second floor, with an additional three detached bedrooms.

Garage/MEP

A 3,820 SF garage/mechanical building is located on the northeast corner of the property. The first floor holds up to four vehicles and includes storage, maintenance space and a small mechanical room. The second story of the garage will house electrical, mechanical and plumbing systems for the primary residence. The second story roof will be open to the air to allow adequate ventilation for MEP systems.

Shoreline Structure and Property Boundary Walls

The subject properties both have an existing vertical shoreline structure extending approximately 60 feet across each lot, separating the upland area from the shoreline area. These are older shoreline structures that were constructed as unauthorized structures many decades ago. In order to correct this situation, the applicant ~~will removed~~ the existing unauthorized shoreline structures in May 2014 and ~~reconstruct a legal conforming structure at the~~ to allow for a certified shoreline survey. This action ~~will removed~~ the existing CMU wall on Parcel 003 and a rock rubble revetment on Parcel 002. Following a series of consultations with Department of Land and Natural Resources (DLNR), the shoreline survey application was re-submitted for certification in February June 2014. The new shoreline structure will be a sloping rock revetment ~~vertical poured in place concrete structure~~ located at the certified shoreline. The mauka side of the structure will have granular backfill material wrapped with filter fabric. Refer to Figures 2-9, 2-10, 2-11 *Shoreline Revetment Structure*.

In addition to the reconstructed seawall, existing perimeter property boundary walls will be reconstructed on the Diamond Head, Koko Head, and mauka sides of the property. New wall construction will conform to construction standards and height regulations.

Landscaping and Pool

The physical development of the Kāhala coastline is dependent upon integrating the natural shoreline and built environment together. Key elements in this integration are the appropriate design, context, and materials used in developing the overall landscaping and exterior features of the area. There will be new landscaping along the perimeter of the property in natural rain gardens within the driveway, central area and in the makai area front lawn. Plant species will be chosen that are representative of the natural and cultural landscape. Exterior landscape features will be appropriate for the climate, and favor salt and wind-tolerant, native Hawaiian and introduced species including coconut palm, thornless hala, “queen emma” spider lily and beach naupaka at the makai areas. A combination of native Hawaiian and introduced plants such as plumeria, ginger, na’u (native gardenia) and fern will also be planted. Refer to Figure 2-2

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Ground Level and Landscape Plan and Figure 2-7 Plant Palette. A pool and patio is planned in the open courtyard area between the two residences.

2.3 SPACE PROGRAM

A preliminary space program for the proposed action is shown below. Program elements are subject to change prior to submittal of building permit as the design is refined.

Table 2-1 Preliminary Space Program

MAIN RESIDENCE	SF
1st Floor <i>Living, Dining, Office, Kitchen, Hall etc.</i>	8,608
2nd Floor <i>Master Bedroom, Bath, Fitness, Storage etc.</i>	7,918
TOTAL	16,526
SECOND RESIDENCE	SF
1st Floor <i>Living, Dining, Staff Rooms</i>	3,396
2nd Floor <i>Bedroom, Staff Rooms, Storage</i>	3,295
TOTAL	6,691
GARAGE/MECHANICAL/ELECTRICAL/PLUMBING	
1st Floor <i>Car Parking, Storage, MEP</i>	1,771
2nd Floor <i>MEP</i>	2,049
TOTAL	3,820
OVERALL TOTAL SF	27,037

2.4 LUO REQUIREMENTS

The proposed action will adhere to the development standards for R-7.5 Residential zoning as defined by the Land Use Ordinance (LUO). LUO development standards are shown below in Table 2-2:

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Table 2-2: Compliance with LUO Development Standards for R-7.5 District

LUO STANDARD	R-7.5 ZONE	PROJECT PLANS (all in Compliance)
Minimum Lot Area	7,500 sf	38,304 sf
Front Yard	10 ft.	10 ft.
Side Yard	5 ft.	5 ft.
Maximum Bldg. Area	50% of zoning lot	50% of zoning lot
Maximum Height	25 ft.	25 ft.
Multiple Homes on Lot (LUO Section 21-8.20A)	Max. of 8 dwellings on single zoning lot. Lot area must be equal or greater than minimum lot size for underlying zoning district, times the number of dwelling units.	Two homes proposed. (Five homes allowed.)

Source: LUO Table 21-3.2 Residential Districts Development Standards, Section 21-8.20A

2.5 PROPERTY PROVISIONS

The Kāhala Community Association (KCA) upholds the Declaration of Protective Provisions and Supplemental Declaration of Protective Provision originally connected to the Kāhala landholdings of Kamehameha Schools/Bishop Estate. KCA continues to provide oversight to renovation and new development to ensure that projects abide by these provisions. The subject residential action is subject to these provisions, which notably limit development to one single family residence per lot of record. The two residences comply with the applicable covenant.

2.6 SUSTAINABLE DESIGN

The building design and construction will incorporate sustainable design standards and practices. Design strategies will include incorporating natural lighting to illuminate interior spaces, energy-efficient mechanical and electrical systems to maximize energy savings, efficient plumbing systems to save water, Volatile Organic Compound (VOC)-free building materials and finishes to provide healthy interior environments. Buildings will incorporate architectural design features such as energy-efficient windows to decrease cooling loads on the building and increase interior thermal comfort levels.

2.7 PROJECT UTILITIES AND INFRASTRUCTURE

A Preliminary Engineering Report for the proposed action was completed by Group 70 International, Inc. and is provided as *Appendix A*. Overall existing conditions, impacts, and mitigation measures for utilities are discussed in *Section 3.0* of this document.

The existing project site has water and electric services, sewer connections, and solid waste collection services. The following section describes the physical characteristics of these site utilities.

2.7.1 Water

Existing potable water service is provided by the Board of Water Supply (BWS). A 6-inch diameter BWS water line is located in Kāhala Avenue directly fronting Parcels 002 and 003. This water line will serve the new buildings. Hydrant spacing and fire flow requirements will conform to BWS standards. A mechanical engineer will specify the fire protection system for the buildings.

2.7.2 Wastewater

The properties are currently being served by existing 6-inch sewer laterals connected to the City sewer system located in Kāhala Avenue. The on-site sewer system will consist of a gravity-flow lateral serving the residence. Sewer system components will comply with design standards of the City and County of Honolulu Department of Wastewater Management.

2.7.3 Drainage System

There are no existing storm drain systems either fronting the project parcels or on the site interior. Stormwater generated on-site infiltrates or sheet flows towards and onto Kāhala Avenue or the ocean. The proposed action will utilize infiltrative BMPs and sustainable design strategies to retain the stormwater generated by the 10-year 1-hour design storm event. The drainage system is described in more detail in *Section 3.8.3*.

2.7.4 Solid Waste Disposal

Solid waste from the project site will be collected curbside by the City and County of Honolulu Waste Management.

2.8 ACCESS, ROADWAYS, AND PARKING

A driveway off Kāhala Avenue provides vehicular access. The driveway is approximately 180 feet long, and ends in a cul de sac approximately in the middle of the property. A porte-cochere covers the cul de sac at the main entrance to the primary residence. The roadway width will be 20-ft. to accommodate fire trucks.

A total of eight parking spaces will serve the residence. A garage will provide four covered parking stalls, with an additional four grass-paved parking spaces.

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2.9 CONSTRUCTION CHARACTERISTICS

The proposed action requires removal of an existing shoreline structure and remnant deck and walkway materials from the site. The site will require some vegetation clearing, grubbing, minor grading and excavation (cut and fill), general construction, and landscaping.

2.10 SUMMARY OF PROJECTED COSTS

Total costs for the proposed action are estimated between \$15 to \$20 million. Seawall removal and revetment reconstruction account for approximately \$400,000 to \$500,000 worth of that total cost.

2.11 SCHEDULE

The applicant will expect to complete the Environmental Assessment, Special Management Area Permit, Shoreline Setback Variance and Conditional Use Permit/Joint Development Agreement during 2014. The Building Permit and other site development approvals are anticipated in early 2015. Construction will follow for approximately 22 months.

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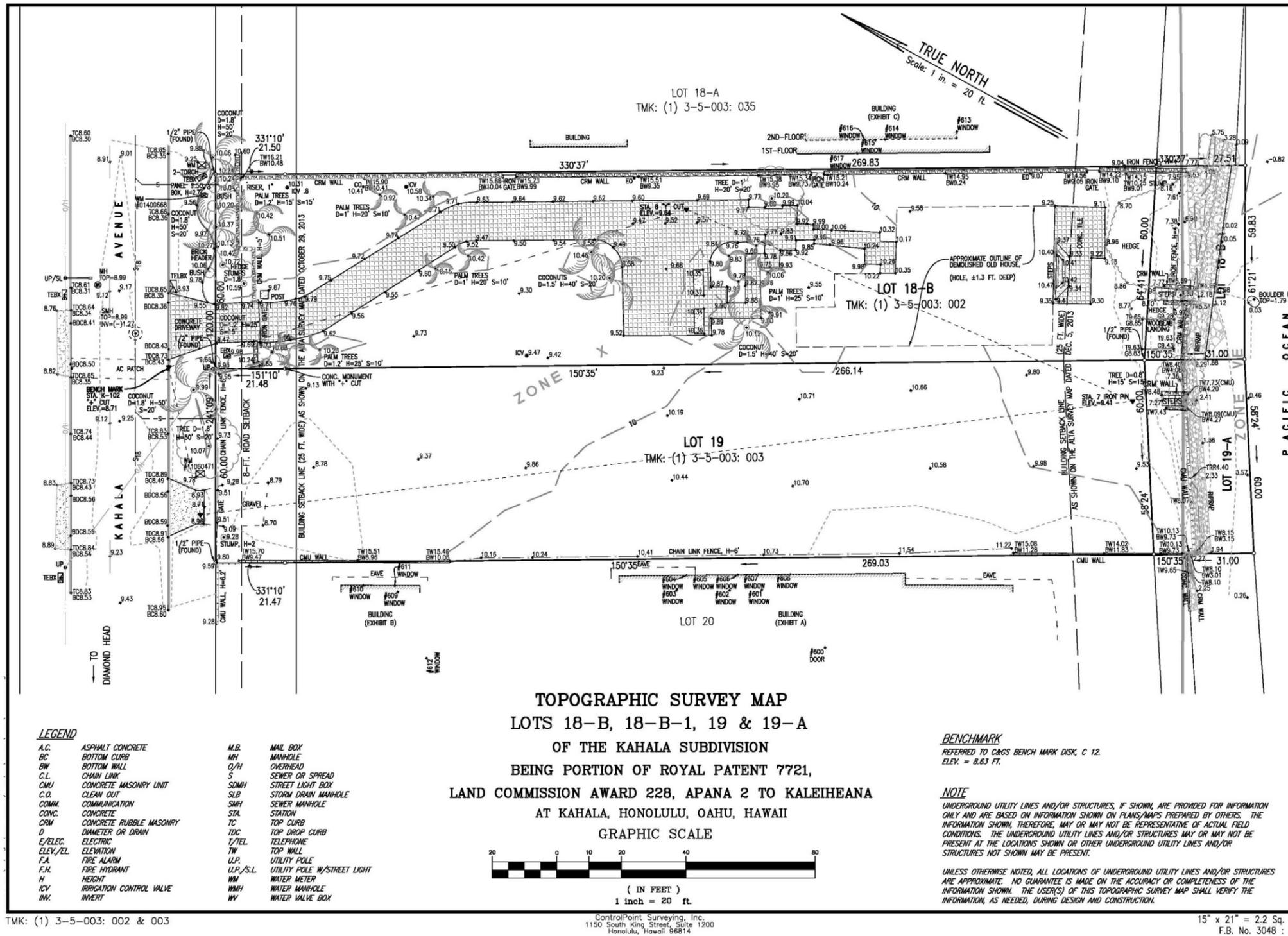


FIGURE 2-1: TOPOGRAPHIC SURVEY MAP (2/18/14 4/10/14) (Note: Seawall removed May 2014.)

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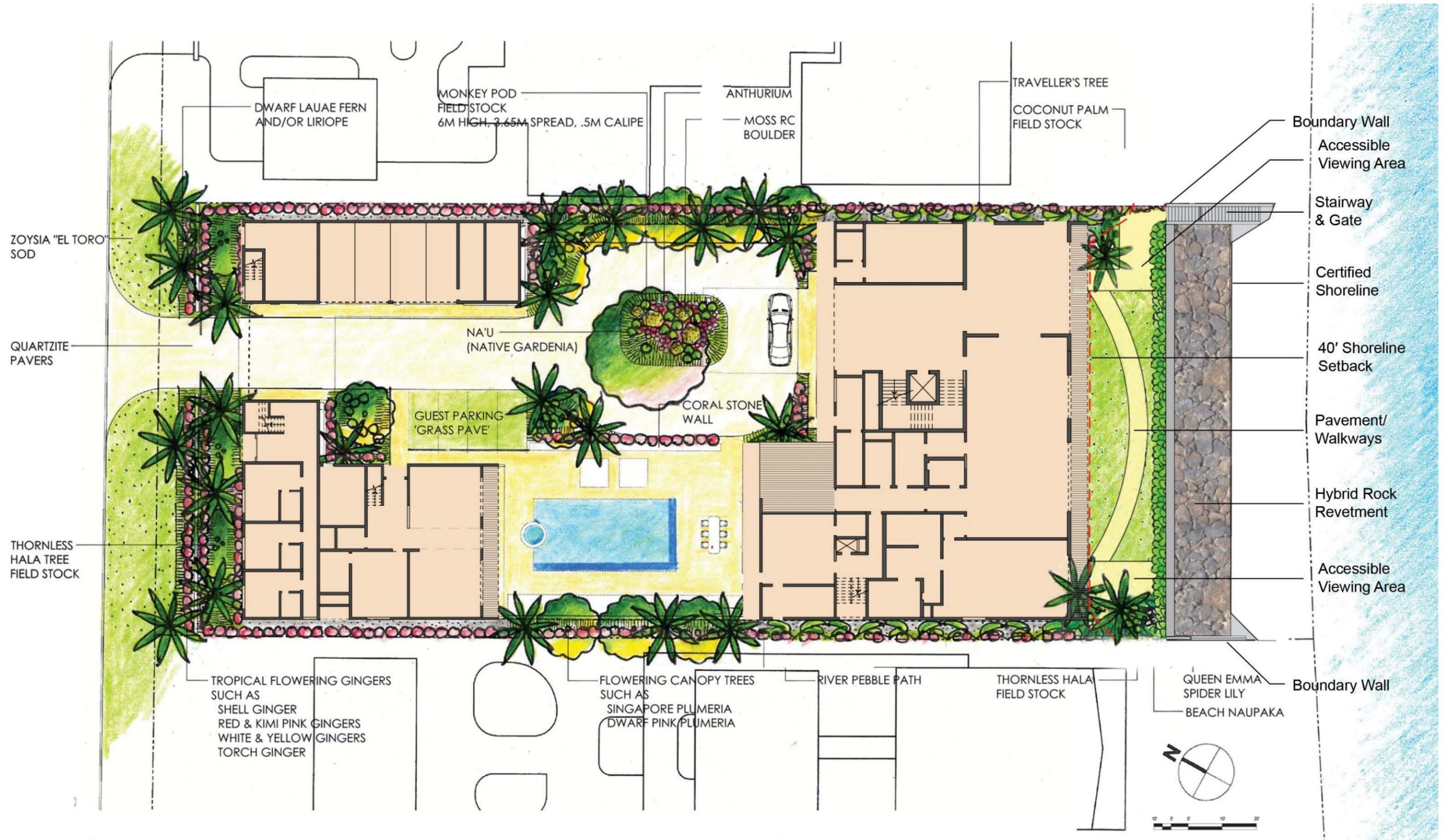


FIGURE 2-2: GROUND LEVEL, SITE PLAN AND LANDSCAPE PLAN (NOT TO SCALE) (2/7/14) (7/02/14)

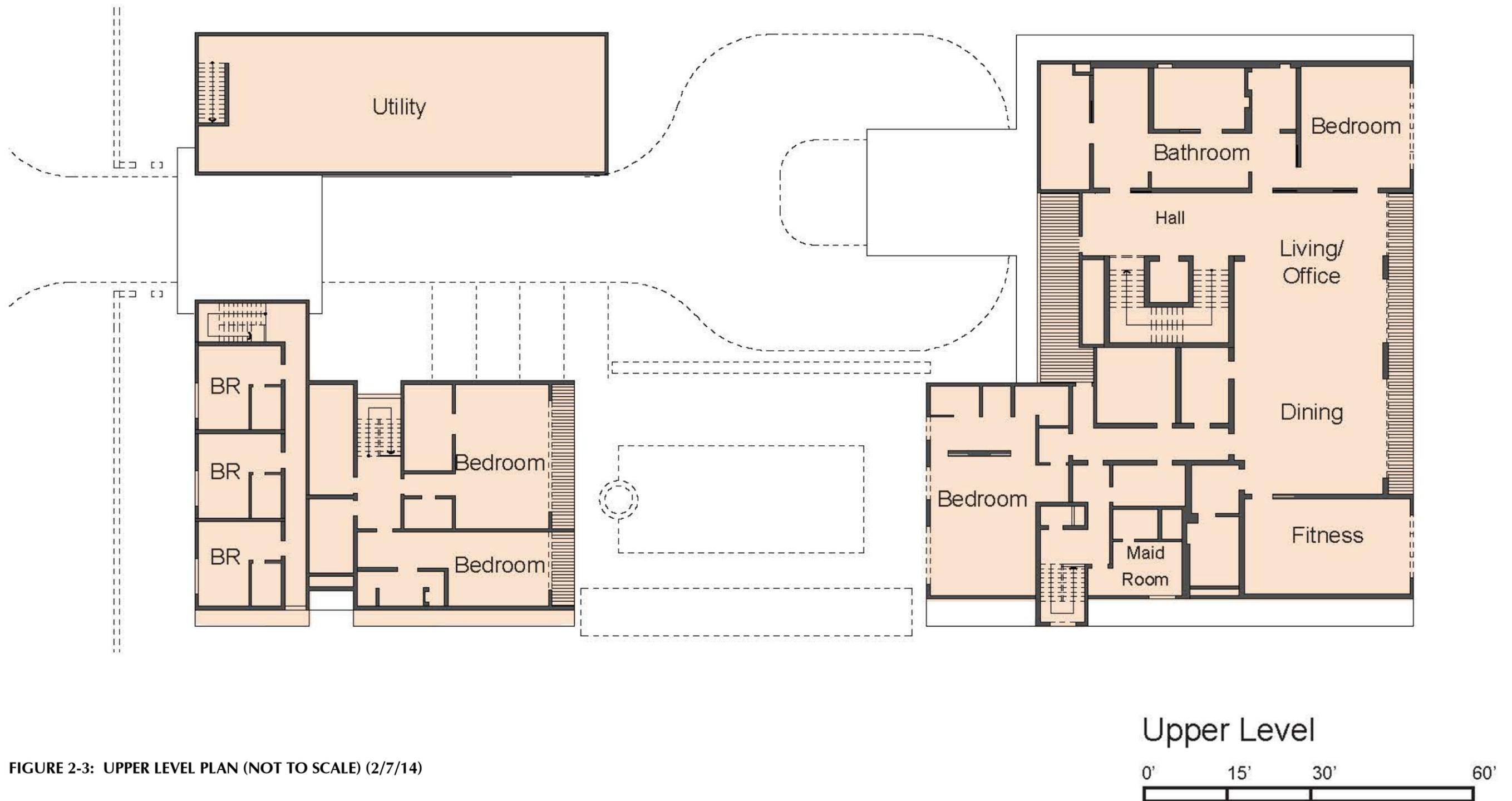


FIGURE 2-3: UPPER LEVEL PLAN (NOT TO SCALE) (2/7/14)

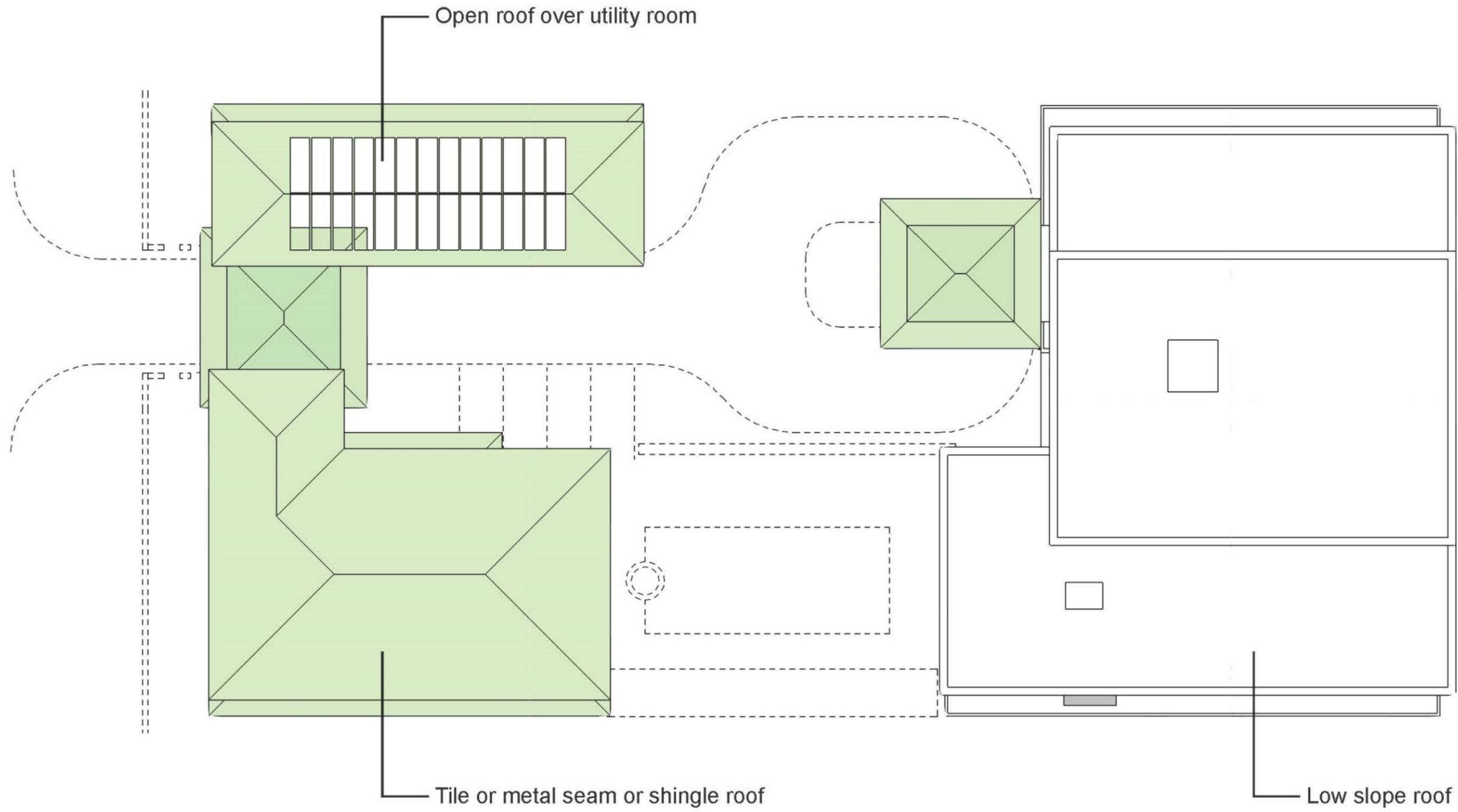


FIGURE 2-4: ROOF PLAN (NOT TO SCALE) (2/7/14)

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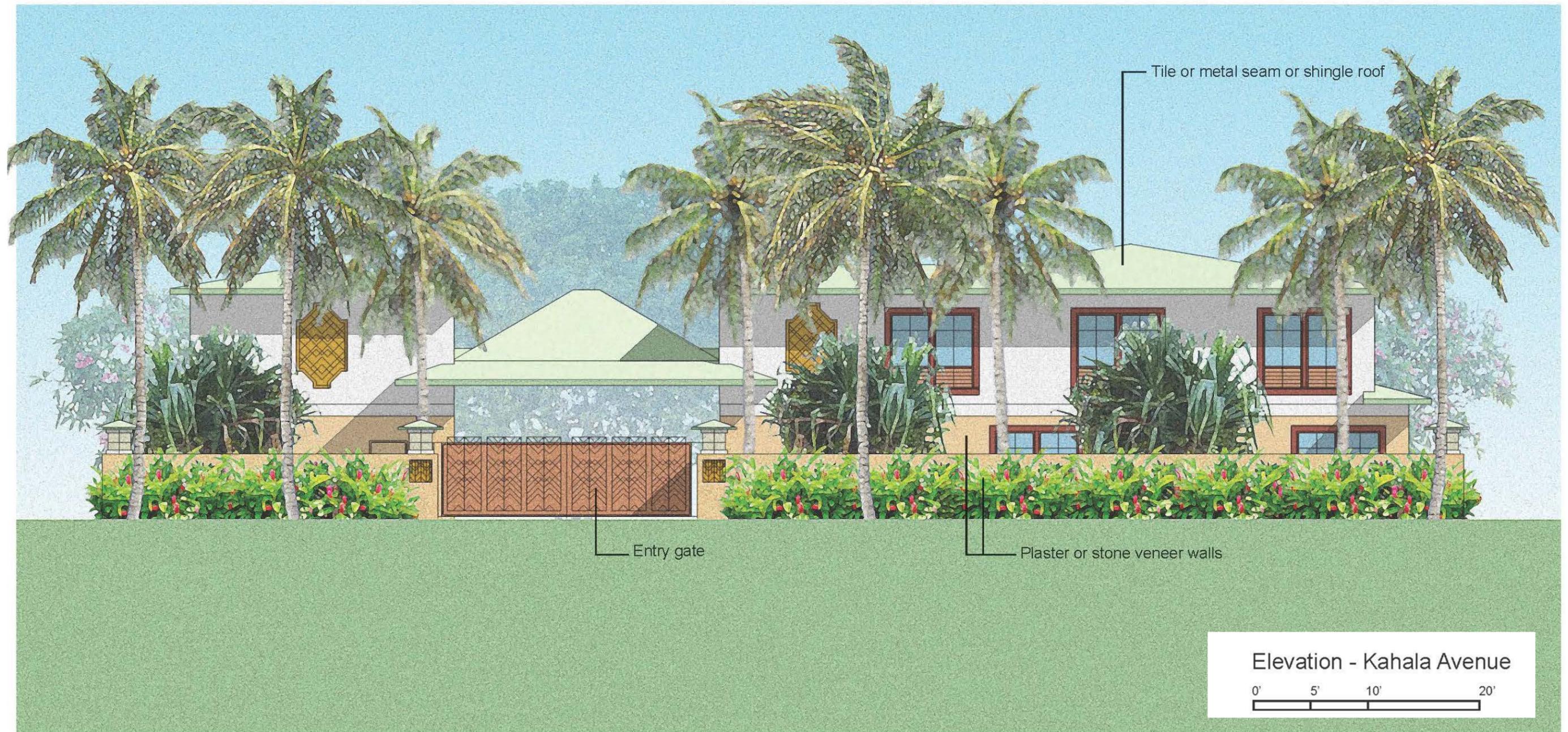


FIGURE 2-5: ELEVATION – KĀHALA AVENUE (NOT TO SCALE) (2/7/14)

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FIGURE 2-6: ELEVATION – MAKAI (NOT TO SCALE) (2/7/14) (7/2/14)

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coconut palm



monkeypod tree



thornless hala



traveller's tree



singapore plumeria



dwarf singapore plumeria



"queen emma" spider lily



shell ginger



red ginger



"kimi" pink ginger



white ginger



yellow ginger



torch ginger



na'u (native gardenia)



anthurium



dwarf lau'a'e fern



green liriope



beach naupaka



FIGURE 2-7: PLANT PALETTE

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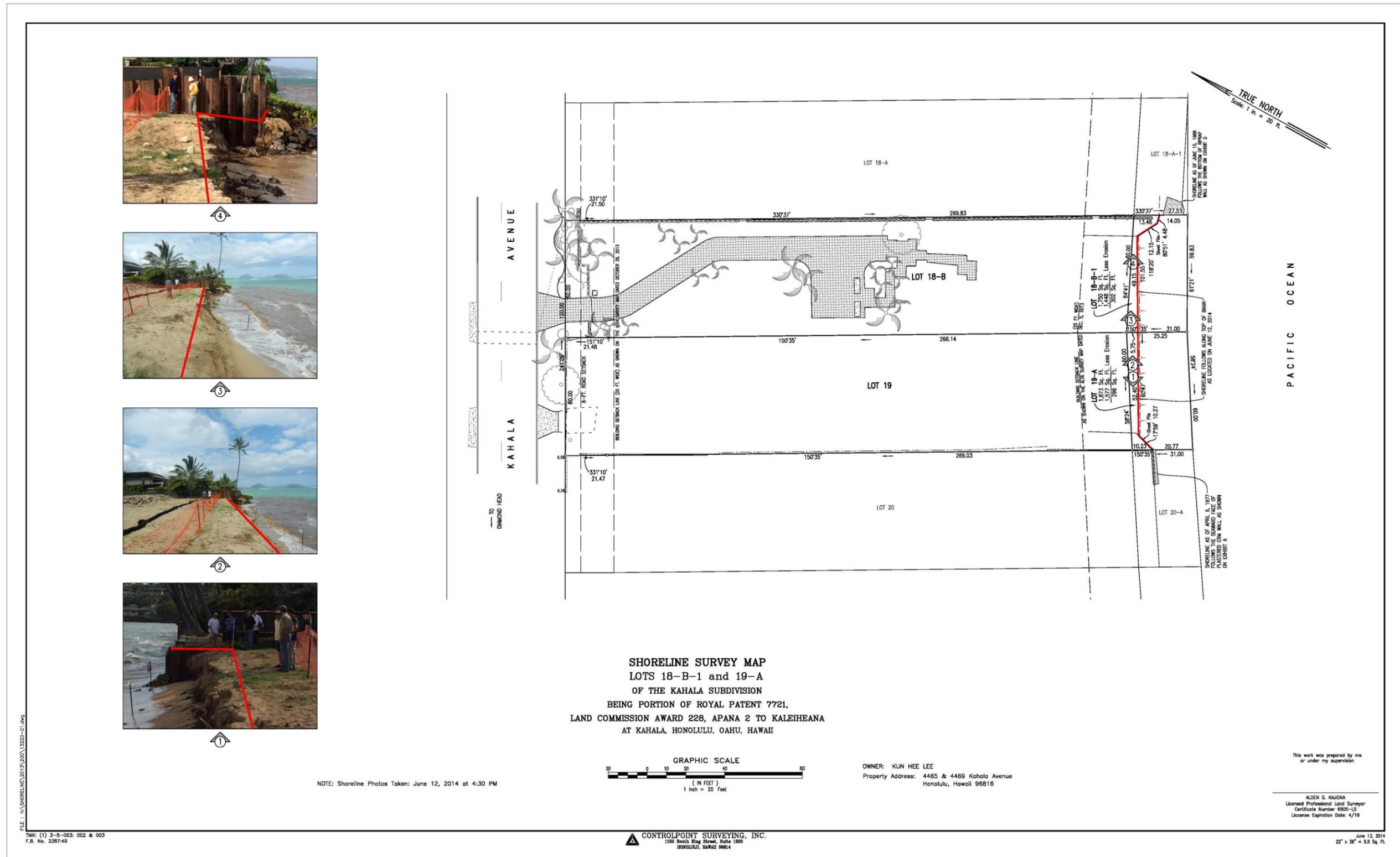


FIGURE 2-8: PROPOSED CERTIFIED SHORELINE (2/12/14 6/12/14)

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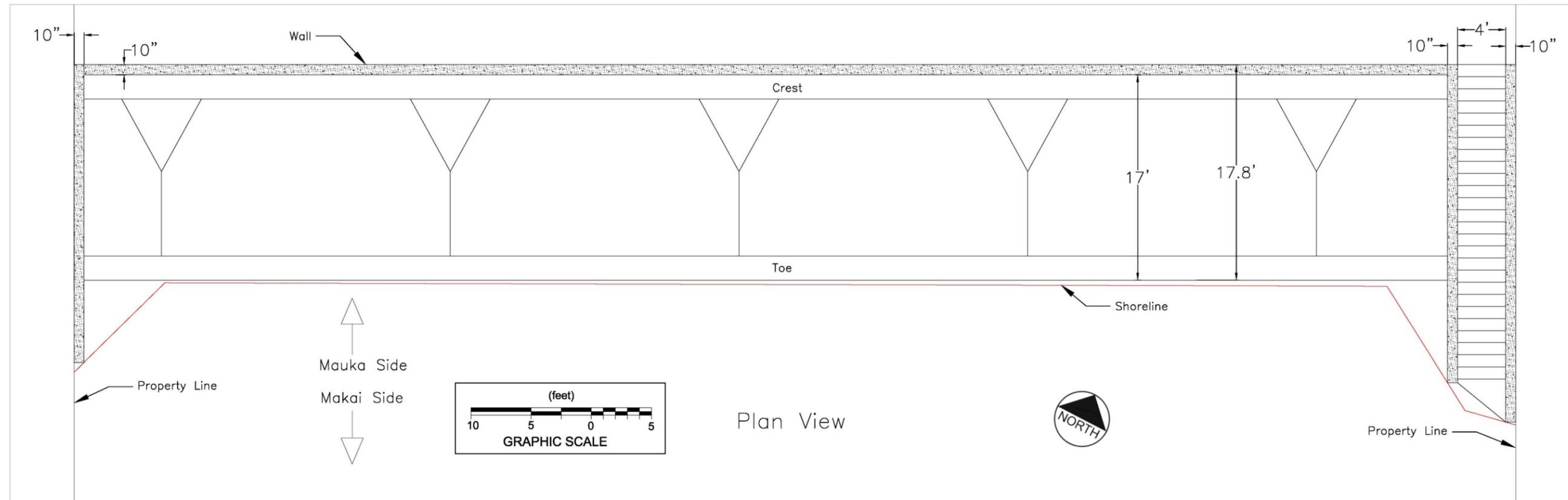
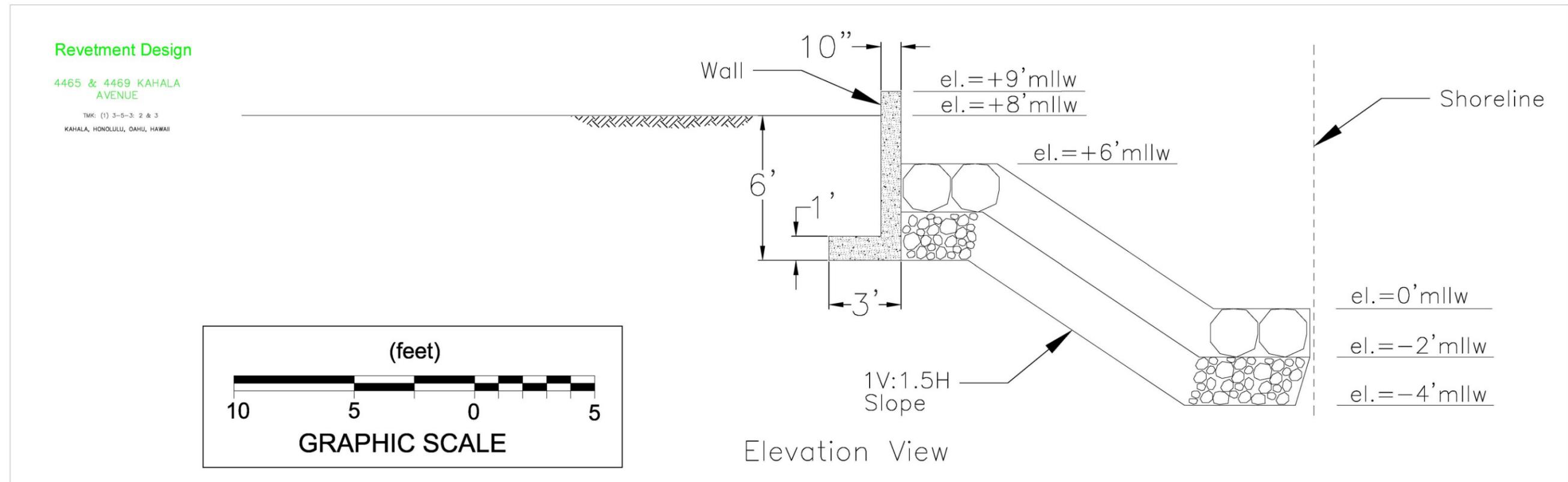
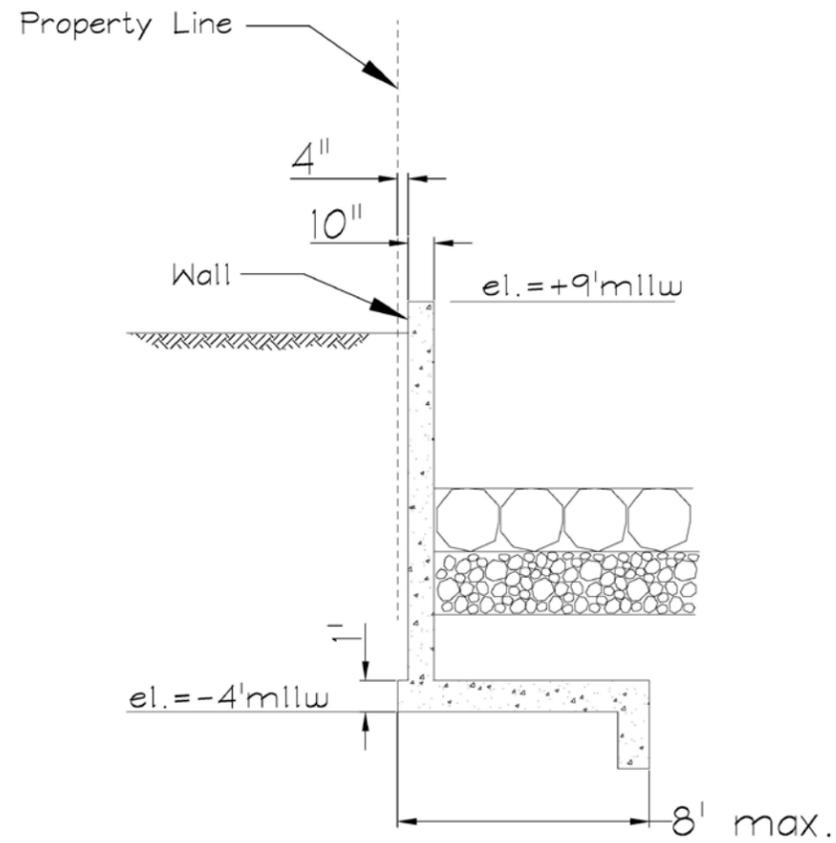


FIGURE 2-9: PROPOSED PRELIMINARY SHORELINE REVETMENT STRUCTURE: PLAN AND SECTION VIEWS (NOT FOR CONSTRUCTION) (2/26/14) (7/02/14)

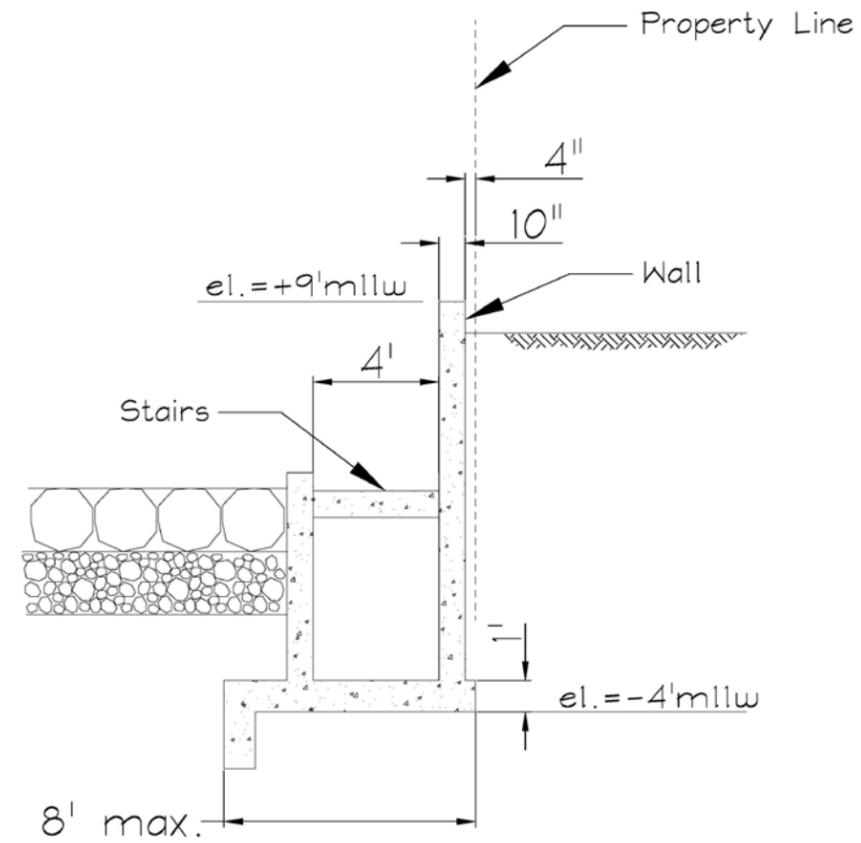


Source: Sea Engineering Inc. (July 2014)

FIGURE 2-10: PROPOSED SHORELINE REVETMENT STRUCTURE: SECTION VIEW I (NOT FOR CONSTRUCTION) (7/02/14)



Section thru Ewa Wing Wall



Section thru Koko Head Wing Wall

Source: Tanimura and Associates (July 2014)

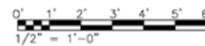


FIGURE 2-11: PROPOSED SHORELINE REVETMENT STRUCTURE: SECTION VIEWS II (NOT FOR CONSTRUCTION) (7/2/14)

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS AND MITIGATION MEASURES

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing environmental setting and identifies possible impacts of the new residence and shoreline structure. Strategies to mitigate those potential impacts are also identified.

3.1 TOPOGRAPHY

Existing Conditions

The terrain within the property is unevenly graded, and a small embankment separates the project site creating gentle slopes in multiple directions, with the center and west side of the site at the highest elevation at approximately 12 feet above mean sea level (MSL). The site was previously graded to slope toward Kāhala Avenue (to the north), towards the ocean (southeast), and to the south west. Elevations range from 9 to 12 feet along the top of the seawall, to roughly eight feet near Kāhala Avenue. Stormwater runoff generally sheet flows in these directions, towards Kāhala Avenue or towards the ocean. See *Figure 2-1: Topographic Survey Map*.

Potential Impacts and Mitigation Measures

No substantial changes to the site's topography will be made. Excavation and grading will be required during the construction process. Earthwork associated with the action is estimated at approximately 500 cubic yards of fill. This estimate includes the residences, seawall removal and revetment reconstruction. Best Management Practices will be implemented pursuant to the required Grading Permit to mitigate potential soil erosion and fugitive dust during grading and excavation.

3.2 SOILS & GEOLOGICAL CONDITIONS

Existing Conditions

The Kāhala beach area lies between Leahi and Koko Head. Soil types within the project site are identified in the U.S. Department of Agriculture, Natural Resources Conservation Service (formerly known as the Soil Conservation Service), Soil Survey of Islands of Kaua'i, O'ahu, Maui, Moloka'i, and Lāna'i, State of Hawai'i, (August 1972). As depicted in *Figure 3-2*, the site consists of Beaches (BS) and Jaucus Sand (JaC), 0 to 15 percent slopes. BS areas consist of light colored sands from seashells and coral. Beach areas have no farming value. JaC soil permeability is rapid but runoff is very slow. The water erosion hazard is slight but wind erosion is a severe hazard in places where the soil is not anchored by vegetation.

Potential Impacts and Mitigation Measures

The proposed residential use will not change the overall soil composition at the site. Grading and leveling will redistribute soil on the site. Earth moving activities during construction (e.g., grading, clearing, excavation) have potential to affect air quality through fugitive dust and water quality through storm water runoff, addressed in *Section 3.6 Air Quality* and *Section 3.8.3 Storm Drainage*. Best management practices will be implemented as described in these sections to mitigate potential adverse impacts.

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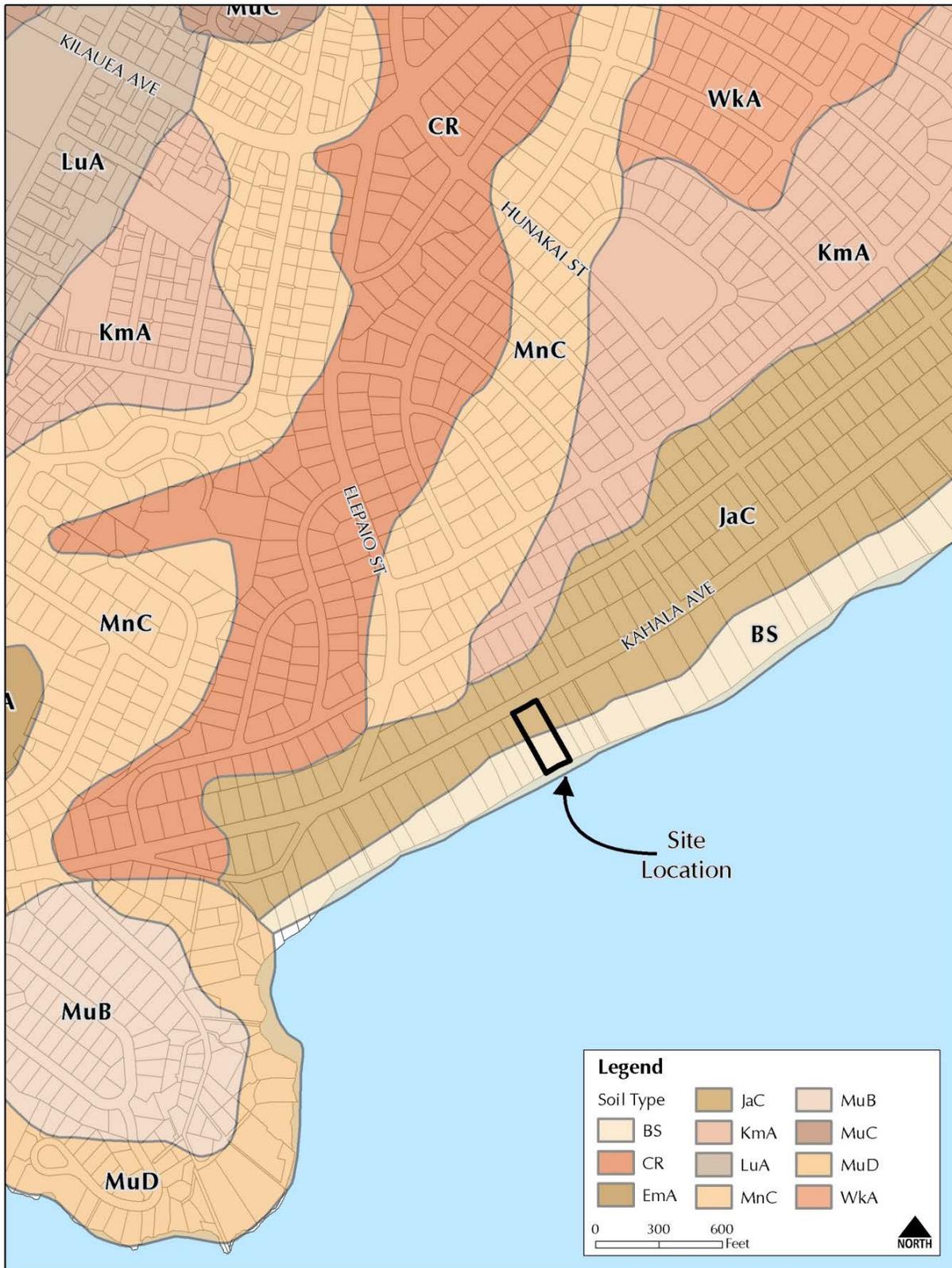


FIGURE 3-1: USDA NRCS SOILS MAP

3.3 CLIMATE

Existing Conditions

Climate on O'ahu can be characterized as having low day-to-day and month-to-month variability. Differences in the climates of various areas are generally attributable to the island's geologic formation and topography creating miniature ecosystems ranging from tropical rain forests to dryer plains along with corresponding differences in temperature, humidity, wind, and rainfall over short distances (Dept. of Geography, 1998). Annual and daily variation in temperature depends to a large degree on elevation above sea level, distance inland, and exposure to trade winds.

Winds are predominantly "trade winds" from the east-northeast except for occasional periods when "Kona" storms may generate strong winds from the south, or when the trade winds are weak and land breeze to sea breeze circulations develop. Wind speeds typically vary between about 5 and 20 miles per hour providing relatively good ventilation much of the time. Lower velocities (less than 10 mph) occur frequently and the usual northeasterly trade winds tend to break down in the Fall giving way to more light, variable wind conditions through the Winter and on into early Spring.

The project area's temperatures generally have small seasonal variations between the warmest months (August and September) and the coolest months (January and February). Daily maximum temperatures usually run from the low-80's in winter to the low-90's in summer, while daily minimum temperatures run from the mid-60's to the low-70's, respectively. Average monthly temperatures in nearby Waikiki were between 72 and 81 degrees Fahrenheit.

Rainfall in general is highly variable depending upon elevation and location with respect to the tradewinds. The Diamond Head area is one of the drier areas on O'ahu, with an average annual rainfall of about 25 inches. Most of the rainfall occurs during winter storms usually taking place from October through April.

Potential Impacts and Mitigation Measures

The proposed action will have no effect on climate conditions, and therefore no mitigation measures are required.

3.4 NATURAL HAZARDS

Existing Conditions

Based on the Federal Emergency Management Agency's *Digital Flood Insurance Rate Map, DFIRM data Community Panel No. 15003C0370F*, effective November 30, 2004 2011, the project area is located in "Zone X". As depicted in *Figure 3-2*, the flood Zone X designation indicates the area is outside of the 0.2% annual chance floodplain. The parcels are not located in a Flood Hazard District as defined by LUO Section 21-9.10.

The adjacent coastal area is located in the VE zone, indicating an area along the coast subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. No hurricanes have significantly impacted the project area in recent history; however, the potential for tropical storms to cause future damage cannot be

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dismissed. For more information on coastal hazards see *Appendix D Coastal Assessment Study*, Section 4, Coastal Hazards.

Earthquakes, landslides, volcanic eruptions and explosions can all cause a series of large waves called tsunamis. Hawai'i is susceptible to tsunamis from earthquakes in the Pacific Rim of Fire which encompasses most of the Pacific Ocean. However, the most frequent impacts occur from local earthquakes like the 1976 Halapē quake, or quakes occurring off Japan, the Aleutian Chain or South America. The project area is located within the City and County of Honolulu tsunami evacuation zone.

The majority of earthquakes in Hawai'i are directly related to volcanic activity on the Island of Hawai'i. The entire City and County of Honolulu lies in a seismic zone designated as 2A. Under the International Building Code (IBC) seismic provision, a Zone 2A area could experience seismic activity between .75 and .10 of the earth's gravitational acceleration (g-force).

Potential Impacts and Mitigation Measures

The site is located outside of the 0.2% annual chance floodplain and well away from stream courses. Although the site is secure from stream flooding as well as coastal inundation, the adjacent makai coastal area has a slight chance for flooding and storm-induced waves. A reconstructed shoreline structure will provide a physical barrier between the residence and the ocean. To prevent ponding or localized flooding resulting from storm run-off, existing drainage infrastructure will be maintained. New site infrastructure will be designed and constructed to meet applicable standards.

In the event of a tsunami, occupants will need to evacuate the property to avoid risk of tsunami inundation.

All construction will conform to relevant building codes to mitigate the risk of wind and seismic damage.

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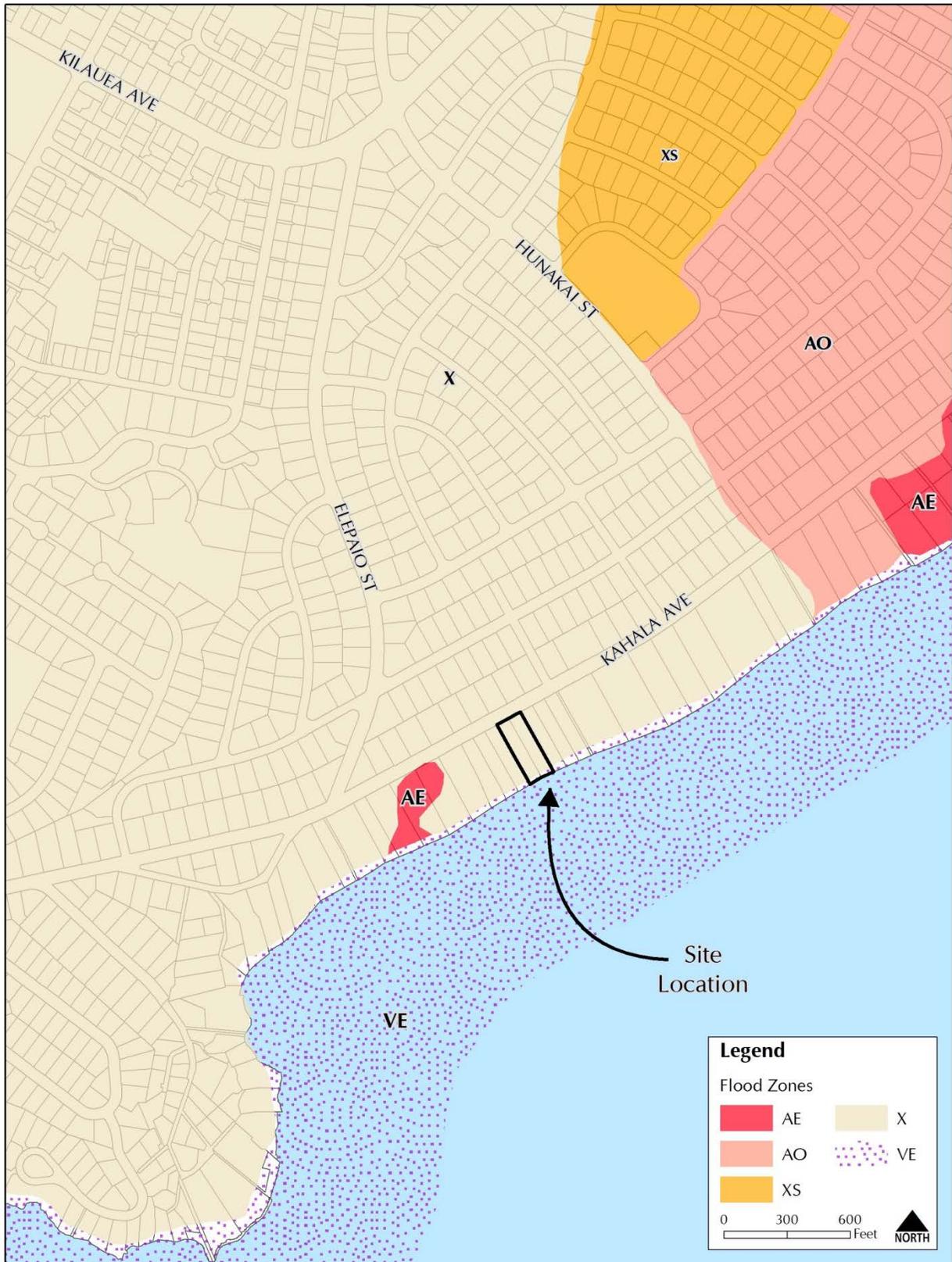


FIGURE 3-2: FEMA FLOOD INSURANCE RATE MAP

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FIGURE 3-3: TSUNAMI ZONE

3.5 FLORA AND FAUNA

Existing Conditions

The ground surface of the property has been completely disturbed with development and structures for many decades. Both parcels support remnants of modern landscaping vegetation, such as grass lawns, coconut and other palms, ~~mango trees~~, a variety of flowering trees. An overgrowth of naupaka plants occurs above the old seawall on lot 18-B-1. A collection of shrubs and weeds have sprouted since the main lots have been vacant. Most of these plants grow in fill topsoil that was imported to cover calcareous sands that occur naturally on both parcels.

No fauna or avian species were observed during a site visit, however, it is expected that common established alien rodent and avian species can be found on the site. The following introduced birds could be seen on the subject lots: Japanese white-eyes (*Zosterops japonica*), Java sparrows (*Padda oryzivora*), Spotted doves (*Streptopelia chinensis*), Zebra doves, (*Geopelia striata*), house finch (*Carpodacus mexicanus*), and Red-vented bulbuls (*Pycnonotus cafer*). The indigenous Wedge-tailed Shearwater (*Puffinus pacificus*) is known to have a small established colony in the Black Point area of Kahala. The Wedge-tailed Shearwater is not a listed species under the Endangered Species Act, but they are protected under the Migratory Bird Treaty Act (MBTA). Common rodent species that could be found on the site include the roof rat (*Rattus rattus*), Norway rat, (*Rattus norvegicus*), small Indian Mongoose (*Herpestes auropunctatus*), house mouse (*Mus musculus*) and house cat (*Felis cattus*).

A description of potential flora and fauna located seaward of the shoreline in the fringing reef flat off the Kahala coast is provided in Appendix D as follows:

The inner reef flat off Kahala Beach is dominated by algae, which cover around 40% of hard bottom areas. Seventeen species are noted, with *Acanthophora spicifera*, *Dictyota acutiloba*, *Dictoyota Liagora* (sp.), and *Lynghbya majuscula* most abundant. *Halimeda discoidea*, *Liagora* (sp.), *Hypnea cervicornis*, and *Laurencia* (sp.) are common. Two of the more popular edible seaweeds, *Gracilaria burspastoris* and *G. coronipifolia*, occur in low abundance. Corals contribute less than one percent bottom cover, although coral cover increases and algal cover decreases seaward across the reef. *Pocillopora damicornis* is the most commonly encountered species. Only eight species of fishes are recorded on the shallow reef platform. *Stethojulis balteata* and *Acanthurus triostegus* are the most often encountered species. Large fishes, especially surgeonfishes, are abundant along the reef face. Seaward of the reef margin, coral cover reaches 30%, with *Porites lobata* the dominant form present (Aecos, 1979).

Potential Impacts and Mitigation Measures

There are several mature trees located on the parcels that will be removed prior to construction. The City and County of Honolulu oversees the protection of exceptional trees in accordance with Revised Ordinances of Honolulu, Chapter 41, Article 13 Protective Regulations for Exceptional Trees. The statute includes the Register of Exceptional Trees on O'ahu. There are no exceptional trees on the properties. The site will be landscaped to include non-invasive

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indigenous, Polynesian-introduced, and introduced species. Drought-tolerant species will be used, wherever possible, to minimize irrigation requirements and water needs. (See *Figure 2-7: Plant Palette*).

The development and operation of the residential improvements and sloping rock revetment are not expected to result in adverse effects to plant or animal species. There are no anticipated adverse impacts to the area's wildlife or habitat.

In the Black Point area, some limited areas of shoreline vegetation are known to host nesting habitat for the Wedge-tailed Shearwater. Although no nesting sites or seabirds were identified during multiple surveys of the subject property, the shoreline vegetation poses the remote potential to support shearwater nesting. The site was surveyed and found no nesting seabirds.

In addition, if a new shoreline structure is not constructed, this would cause the imminent erosion of the fast land, releasing quantities of earth material into the nearshore environment. The proposed mitigation is to construct a new sloping rock revetment, as called for in the proposed action.

3.6 AIR QUALITY

Existing Conditions

As required by the Clean Air Act of 1970 (as amended in 1977 and 1990), National Ambient Air Quality Standards (NAAQS) were established by the U.S. Environmental Protection Agency (USEPA) for six criteria pollutants: carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO₂), lead, ozone (O₃), particulate matter smaller than 10 microns (PM₁₀), and particulate matter smaller than 2.5 microns (PM_{2.5}). Ambient air is defined as the "general outdoor atmosphere, external to buildings, to which the general public has access." These standards then define the maximum levels of these pollutants allowed with an adequate margin of safety in order to ensure and to protect the public's health and welfare.

The State Department of Health (DOH), Clean Air Branch (CAB) has established the State Ambient Air Quality Standards (SAAQS). The DOH-CAB regularly samples ambient air quality at monitoring stations throughout the State and annually publishes this information. On O'ahu, there are six monitoring stations. The closest station to the project site is located in Downtown Honolulu on the roof of the DOH (Kīna'u Hale) building (1250 Punchbowl Street), which measures SO₂, O₃, PM₁₀, PM_{2.5}.

Consistent trade winds regularly blow from a northeasterly direction, creating conditions for excellent air quality over the islands because the prevalent wind directions moves generated air pollutants on land to the southwest out to the open ocean. Present air quality in the project area is mostly affected by motor vehicles, with carbon monoxide being the most abundant of the pollutants emitted. Carbon monoxide is a colorless, odorless, tasteless gas under atmospheric conditions and is produced by the incomplete combustion of carbon fuel.

The State and Federal standards for carbon monoxide are set at 9 parts per million (ppm) and 35 ppm in one hour, respectively. The closest monitoring station on Punchbowl Street shows that

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the concentrations of carbon monoxide are below the State (9 ppm) and Federal (35 ppm) standards with an annual mean of 0.4 ppm (DOH 2012).

Potential Impacts and Mitigation Measures

There will be two types of short-term air quality impacts that will result from construction of the residence and shoreline structure: 1) fugitive dust generation and 2) on-site/off-site emissions from moving construction equipment and commuting construction workers. Air quality monitoring can be implemented, if needed, to ensure compliance with State Ambient Air Quality Standards. Strict compliance with State and County pollution control requirements, such as dust-watering programs and covering dirt-hauling trucks will mitigate fugitive dust from construction activities. On-site and off-site emissions from construction equipment and workers can be controlled, through the use of properly maintained equipment and standard construction work hours.

3.7 NOISE

Existing Conditions

The primary source of existing noise levels at the project site is traffic on Kāhala Avenue. The ambient noise levels around the subject parcels are typically consistent with noise levels found in urbanized residential areas.

Potential Impacts and Mitigation Measures

In the long-term, the residential use will not result in an increase in ambient noise levels in the area. Significant amounts of noise will, however, be generated during the short-term construction period and may impact existing residents in the neighborhood. Construction activities will be monitored by the State to comply with the provisions of the regulations for community noise control. The contractor will be required to obtain a noise permit if the noise levels from construction activities are expected to exceed the allowable levels. Heavy vehicles traveling to and from the property will comply with the State's administrative rules for vehicular noise control.

3.8 UTILITIES AND INFRASTRUCTURE

Group 70 International, Inc. (Group 70) prepared a preliminary engineering report for the proposed action in February 2014 (*Appendix A*).

3.8.1 Water System

Existing Conditions

Existing water lines servicing the area include:

- A 6-inch diameter Board of Water Supply (BWS) cast iron (CI) water line in Kāhala Avenue directly fronting Parcels 002 and 003, which appear to serve each property.
- A 12-inch diameter BWS CI water line in Elepaio Street approximately 800 feet west of the site and connecting to the 6-inch in Kāhala Ave.
- A 6-inch diameter BWS CI water line in Kala Place approximately 170 feet east of the site and connecting to the 6-inch in Kāhala Ave.
- A 6-inch diameter BWS CI water line in Uliuli Street approximately 750 feet east of the site

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and connecting to the 6-inch in Kāhala Ave.

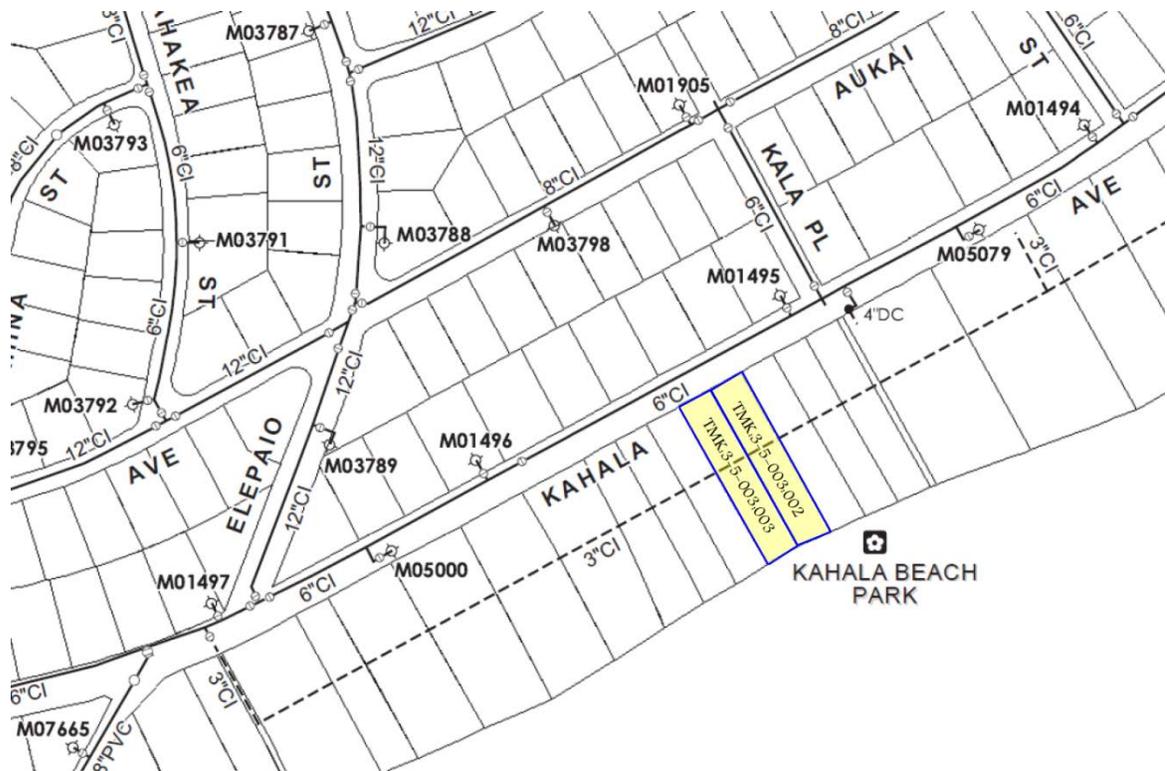


FIGURE 3-4: EXISTING BWS WATER DISTRIBUTION MAP (NOT TO SCALE)

The Board of Water Supply (BWS) distribution maps, record drawings and consultation indicate that Parcels 002 and 003 are both immediately served by the 6-inch CI line in Kāhala Avenue. Parcel 002 is served by a 1-1/2-inch Type "C" single service lateral, with a 1-inch water meter (Premise ID# 1055406; Meter ID# 014-00668). Parcel 003 appeared to be served by a 2-inch Type "D" single service lateral with a 1-1/2-inch water meter (Premise ID# 1055405), but the meter has been removed by the BWS due to inactivity at the property.

The 6-inch diameter water main located in Kāhala Avenue fronting the site serves multiple fire hydrants spaced approximately 300 to 600 feet apart along Kāhala Avenue around the site. There do not appear to be fire hydrants directly fronting or adjacent to the two parcels. There is one fire hydrant (M-01495) within the vicinity of the subject properties at the northwest corner of the Kala Place and Kāhala Avenue intersection, approximately 170 feet east of the site. Hydrant M-10496 is located west of the site on Kāhala Avenue.

Potential Impacts and Mitigation Measures

Parcel 002 is currently served by an existing BWS 1-inch water meter that is connected to the BWS water main in Kāhala Avenue, and may be utilized for the proposed development. Parcel 003 was previously served by an existing BWS 1-1/2-inch water meter that was connected to the BWS water main in Kāhala Avenue before it was removed. BWS may be approached to reinstall the meter for utilization at this property. Water meters and laterals would likely remain in place, but may also need to be relocated and/or reconstructed at the property line

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depending on the site plan, should any improvements conflict with the existing meter location. When water is made available to the property, the applicant will pay the BWS Water System Facilities Charges for resource development, transmission and daily storage.

Existing fire hydrants located on Kāhala Avenue fronting the subject parcels will likely satisfy the fire protection requirements. However, due to the length of the existing parcels, portions of the property appear to be beyond 150-feet of Kāhala Avenue and available fire access. Fire apparatus access road will be provided for the buildings when any portion of the facility or exterior wall of the first story of the building is located more than 150 feet from a fire apparatus access, as measured by an approved route around the exterior of the building or facility. In addition, a fire access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. Fire access roads shall meet County requirements for unobstructed width and unobstructed vertical clearance. County-approved water supply that is capable of supplying the required fire flow or fire protection to all facilities and buildings within the project's premises will be provided. On-site fire hydrants and mains will be provided when any portion of the facility or building is in excess of 150 feet from a water supply on a fire apparatus access road. Civil and construction drawings will be submitted to the Honolulu Fire Department for review and approval during building permitting period. To address the potential need for additional fire water supply, fire access requirements will be further addressed during entitlements (SMA) and Building Permit.

If existing fire hydrants are determined to be inadequate, fire sprinkler services may need to be included as part of the building design to satisfy the fire protection requirements. It is suggested that a 6-inch detector check meter be installed, with plans reviewed and approved by BWS.

With proposed mitigation measure, no significant impacts to water systems are anticipated.

3.8.2 Wastewater

Existing Conditions

A City 18-inch diameter vitrified clay pipe (VCP) sewer main flows east along Kāhala Avenue. This sewer line flows into the Kāhala Sewage Pump station located approximately 1 mile east of the properties. The 18-inch sewer main serves residential properties on both the mauka and makai side of Kāhala Avenue.

Sewer service for Parcel 003 is through a 6-inch VCP sewer lateral along the property's Kāhala Avenue frontage. Sewer service for Parcel 002 is through a 6-inch VCP sewer lateral located on the property's Kāhala Avenue frontage, but per HoLIS, appears to combine with the neighboring property's (TMK 3-5-003:035) 6-inch VCP sewer lateral prior to discharge to the 18-inch main in Kāhala Avenue.

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FIGURE 3-5: EXISTING SEWER INFRASTRUCTURE (HOLIS) (NOT TO SCALE)

Potential Impacts and Mitigation Measures

The properties are currently being served by existing 6-inch sewer laterals connected to the City sewer system located in Kāhala Avenue. At least one, if not both of the sewer laterals, may be utilized by the development, based upon the expected fixture unit count and peak flow from the development. Projected sewer demand shall be provided by the mechanical engineer.

A Sewer connection application has been submitted and approved for both parcels for a residential dwelling. The sewer connection license (2013/SCA-0911) will be used during the building permit process as proof of obtaining approval to connect to the City sewer system.

On-site sewer systems will consist of the lateral serving the residence only and will flow by gravity. A sewer cleanout at the sewer lateral should be installed.

The City sewer system is anticipated to have capacity to serve the residential use. No significant wastewater impacts are anticipated.

3.8.3 Storm Drainage

Existing Conditions

The existing properties are currently undeveloped as existing improvements have been removed or abandoned. Existing stormwater runoff flow patterns for the lots will generally be maintained as able, with portions of the parcels flowing into Kāhala Avenue and the remaining portions flowing towards the ocean. Proposed site grading will direct runoff away from structures and door openings to reduce potential stormwater flooding. However, site grading, excavation, fill, and the construction of new structures and pavements will also modify the existing drainage patterns and increase the amount of stormwater runoff generated within the property (due to increased impervious areas). As a result, proposed on-site drainage improvements will be designed per the City and County of Honolulu, Department of Planning

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and Permitting, *Rules Relating to Storm Drainage Standards* (Effective January 1, 2000 with subsequent amendments effective May 1, 2011 and June 1, 2013). Design values will be obtained from various design plates, tables and charts in the City and County of Honolulu's *Rules Relating to Storm Drainage Standards* (Effective January 1, 2000 with subsequent amendments effective May 1, 2011 and June 1, 2013).

Probable Impacts and Mitigation Measures

During the construction period, erosion will be minimized through compliance with the City and County's grading ordinance and the applicable provisions of the DOH's Water Quality Standards (Title 11, Chapter 54, HAR) and Water Pollution Control requirements (Title 11, Chapter 55, HAR). Additionally, standard Best Management Practices (BMPs) will be employed to minimize impacts, as detailed in subsequent construction plans.

It is expected that after grading and construction of on-site structures and pavements, runoff quantities will increase due to an increase in impervious surfaces. Pervious pavements and landscaped areas will be used to increase pervious areas on-site to minimize the increase in stormwater runoff. Runoff quantities will be determined after design has been finalized.

A subsurface drainage pipe system will likely be installed to collect roof runoff via downspouts from the residential structure along with floor drains and area drains located at graded low points within the development, including the open pool deck area, driveways, and landscaped areas. The piped system will convey stormwater runoff towards infiltrative BMPs located on-site, and may include and not limited to infiltration trenches or basins, subsurface infiltration chambers under the driveways or parking areas, rain gardens, or other stormwater quality facilities. Other downspouts located along the perimeter may utilize downspout disconnections with rain gardens to collect and retain/infiltrate stormwater.

Due to the unavailability of existing storm drain systems fronting the parcels, it is assumed that the majority of existing stormwater generated on-site infiltrates or sheet flows towards and onto Kāhala Avenue or the ocean. Therefore, downstream capacity of receiving systems and waters is unlikely to be affected by the residential use.

Infiltrative BMPs and sustainable design strategies will be used to retain the stormwater generated by the 10-year 1-hour design storm event, including the expected slight increase in runoff quantities over existing conditions. Although the residential use is not required to implement stormwater quality BMPs in accordance with the City and County's *Rules Relating to Storm Drainage Standards*, it is the goal to reduce the pollution associated with stormwater runoff from development. Proposed infiltrative BMPs for retention and stormwater quality facilities are described in detail below:

- **Infiltration Basin**

Infiltration basin is a shallow impoundment with no outlet, where storm drain runoff is stored and infiltrates through the basin invert and into the soil matrix. Treatment and removal of suspended pollutants/sediment occurs as water infiltrates instead of being conveyed to the public storm drain system. Typically, these basins are used when existing soil percolation rates are high. The location of the basins would be integrated in the landscape and maintenance would be minimal.

- **Infiltration Trench or Chamber System**

Infiltration trenches consist of subsurface gravel storage areas through which stormwater is retained and infiltrated. Proprietary chamber systems utilize storage within underground pipes in lieu of fully filled gravel trenches. Treatment and removal of suspended pollutants/sediment occurs as water infiltrates instead of being conveyed to the public storm drain system. Typically, these trenches or chambers also contain a pre-treatment system. They can be more difficult to maintain as they are larger structures and are beneath grade. However, they are utilized where on-site space is at a premium because they can be located underground beneath driveways and parking areas.

- **Pervious Pavements (Paver System)**

Pervious pavers collect stormwater runoff through the compacted sand joints in the paver system. Runoff infiltrates through the joints and into a gravel layer under the pavement, where runoff can be stored and infiltrated instead of being conveyed to the public storm drain system. Pollutants and sediment are removed from the runoff as it infiltrates through the sand and gravel layers. The joints should be cleaned periodically to remove surface pollutants and sediment and to maintain the capacity of the pervious paver system. Pervious paver costs may be slightly higher than typical pavement, but in general are not prohibitive.

- **Bioretention Planter (Rain Garden) / Biofiltration Planter (Planter Box)**

These planters utilize natural treatment processes through which stormwater is conveyed to the planter, and is filtered by an organic mulch layer and sandy soil suitable for plantings. The runoff can then be stored and infiltrated in a gravel layer at the bottom for infiltration, or conveyed to a storm drain system if infiltration is not allowed. Stormwater is also taken up by the plants and evapotranspiration. These BMPs are well suited for treating both the roof downspouts and at-grade parking areas where grade allows.

- **Enhanced Swale or Biofiltration Swale (vegetated swale)**

Enhanced swales are similar to the bioretention planters in terms of design, and contain layers of organic mulch, sandy soil for planting, and a bottom gravel layer for infiltration or conveyance. However, the swale has a slope (instead of being flat like a planter). Biofiltration swales rely on surface flow of runoff along the planted swale during which pollutants are removed, in lieu of infiltration through media (mulch/sandy soil), and tend to contain simple vegetation.

Such facilities will mitigate the increase in runoff, and will reduce runoff quantities entering Kāhala Avenue. The BMPs will also improve water quality as pollutants and sediments are retained and treated on-site instead of being discharged to Kāhala Avenue and directly and/or indirectly to the ocean fronting the property. The proposed BMPs will have overflow systems to bypass runoff volumes and flows from larger storm events.

With the inclusion of BMPs and LID techniques, no significant stormwater impacts are anticipated.

3.8.4 Roadways

Existing Conditions

Kāhala Avenue is the main access road running parallel to the coastline in the east-west direction that serves the majority of the beach front houses from Diamond Head to the Waialae Country Club in Kāhala. The two-lane roadway is under the jurisdiction of, and maintained by, the City and County of Honolulu. The existing 60 foot right-of-way (ROW) consists of 15 foot wide grassed shoulders and 6 inches high concrete and/or rock curbs on both sides, as well as a 12-foot wide west bound lane and an 18-foot wide east bound lane with permitted parking. The posted speed limit is 25 miles per hour (MPH) in both directions. The roadway is primarily used for residential traffic, but also serves as access to the Waialae Country Club and the Kāhala Hotel which are located at the east end of Kāhala Avenue approximately a mile away.

Various documents of record indicate an 8 foot wide future road widening setback along the street frontage for both parcels. Discussions with the Department of Planning and Permitting (DPP), Traffic Review Branch (TRB) confirmed that there are no future plans to widen Kāhala Avenue beyond the existing right-of-way. Although there are no future plans for frontage improvements such as sidewalks and additional landscaping, if required, TRB said that the existing 15 foot shoulder would be utilized. Further investigation will be required to determine the validity of the setback.

Probable Impacts and Mitigation Measures

Access to the property will be provided by a new 20-foot to 22-foot wide concrete drop driveway along Kāhala Avenue. The driveway will provide access to an interior courtyard and parking area, as well as a vehicular drop-off and turnaround area in front of the main residence entryway. Surface parking for guests and staff will also be provided.

Sustainability and Low Impact Development (LID) design strategies are proposed for the site and reflect the goal for promoting stewardship in Hawai'i's unique environment. Permeable pavements such as pavers or grasscrete products may be used for the driveway surfaces which increase stormwater infiltration and percolation while still providing an aesthetic enhancement over typical concrete or asphalt pavements. Reducing runoff from the site and promoting infiltration mimics existing drainage patterns and prevents runoff and pollutants / sediment from entering the storm drain system, and at this particular location, the adjacent oceanfront waters.

Improvements to Kāhala Avenue are not expected. As previously mentioned, an 8 foot wide future road widening setback exists along the street frontage for both parcels, but discussions with Traffic Review Branch (TRB) confirmed that there are no future plans to widen Kāhala Avenue. However, the residence design and layout will minimize the scope of improvements within the road widening setback should future plans require widening of Kāhala Avenue.

No impacts to roadway systems are anticipated.

3.9 ELECTRICAL AND COMMUNICATIONS

Existing Conditions

The property is currently served by HECO overhead power lines along Kāhala Avenue and overhead telecommunication lines by various providers.

Electrical service for the site is provided by Hawaiian Electric Company (HECO). Hawaiian Telcom and Sprint provides telephone and long distance service.

An existing utility pole is located along the property frontage (makai side) on Kāhala Avenue, which appears route overhead 12 kV electrical and telecom lines that branch off of the main overhead lines on the mauka side of Kāhala Avenue.

Potential Impacts and Mitigation Measures

The residential use will add demand for electrical and communication services, since the parcels are currently not being utilized. Adequacy of existing electrical and telephone service to the Kāhala Avenue area was not examined in this report and will be verified with HECO and Telcom companies during design. Electrical and communications systems at this Kāhala location should be assessed by an electrical engineer to provide the design team with detailed information on systems availability and capacities. Service capacity to the Kāhala Avenue area for electrical and communications are anticipated to be adequate.

Off-site improvements required to provide the additional services will be the responsibility of each service provider, respectively. Required connections to the services systems will be coordinated with the respective service providers.

An existing utility pole is located along the project's frontage on Kāhala Avenue, on the makai side of the street, which previously served the previous residence. The pole appears to be located directly at the lot line between Parcels 002 and 003, but within the public right of way (ROW). The pole may be removed or relocated during the joint development of the parcels, as the pole may be located within the driveway area. The removal or relocation of the pole will be determined when the site layout is finalized. Coordination with HECO and other utility pole users is required. If necessary, coordinate removal or relocation of utility pole with HECO and others.

Electrical and communications service providers are anticipated to support the residential use. With the implementation of proposed mitigation measure, no significant impact is anticipated.

3.10 PUBLIC FACILITIES AND SERVICES

This section discusses the project's probable impact on public facilities and services of the project site and surrounding area.

3.10.1 Educational Facilities

Existing Conditions

KCC, an element of the University of Hawai'i (UH) System, is located west of the parcels. A number of other public and private elementary, middle and high schools are located throughout the neighboring communities.

Potential Impacts and Mitigation Measures

The residential action will have no educational impacts.

3.10.2 Police

Existing Conditions

The project site is located in District 7 of the Honolulu Police Department, and is served from the main police station on Beretania Street. Private security guard services may provide additional protection.

Potential Impacts and Mitigation Measures

This project should have minimal impact on the police department's operations or ability to provide adequate protection services to the surrounding community. District 7 police protection, combined with on-site private security guards, should be adequate for the proposed project. No adverse impacts or mitigation are anticipated.

3.10.3 Fire

Existing Conditions

Primary fire protection to the area is provided by fire stations located in both Waikīkī and Kaimukī, each approximately 5-7 minutes away from the site.

Potential Impacts and Mitigation Measures

This project is expected to have minimal impact on the Fire Department's operations or ability to provide fire protection services to the area and surrounding community. The planned structures will be designed to meet fire and building code requirements. Appropriate design plans will also be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department for their review during the design phase.

3.10.4 Medical Emergencies

Existing Conditions

Numerous major hospitals and clinics are located in relative proximity to the residential site. The nearest emergency hospital, Kapi'olani Medical Center is located approximately 4 miles from the project site taking an average response time of 8-10 minutes.

Potential Impacts and Mitigation Measures

The proposed action will not impact the handling of medical emergencies. The Kapi'olani Medical Center will continue to function in its present locations and will be accessible to the area. No mitigation is proposed.

3.11 SOLID WASTE MANAGEMENT

Existing Conditions

Solid waste is collected on a weekly basis by the City and County of Honolulu Waste Management Division.

Potential Impacts and Mitigation Measures

No mitigation is proposed but recycling programs should reduce overall levels of generation.

3.12 ARCHAEOLOGICAL RESOURCES

Existing Conditions

In February 2014, an *Archaeological Assessment of Two Lots in Kahala* was completed by Scientific Consulting Services (SCS). This study was designed to address archaeological site types and locations and to identify, if possible, a comprehensive report of known cultural resources and historic properties and to provide recommendations as related to the State of Hawai'i's historic review process. The submittal and study are included as *Appendix B* in this EA.

Previous Archaeological Research in the Vicinity

SCS examined past research within the vicinity of the subject parcels to assess site types that may potentially be encountered. The numerous archaeological sites recorded in the area consist mainly of human burials identified during construction activities, as well as cultural remains relating to both prehistoric and historic time periods.

Results of Archaeological Assessment

A Field Inspection was conducted on January 13 to 14, 2014 by SCS Archaeologist Guerin Tome, B.A. under the overall guidance of Robert L. Spear, Ph.D. (Principal Investigator). Pedestrian survey was conducted across 100 percent of the property. No Pre-Contact or Historic structures were identified during the pedestrian survey.

Limited subsurface testing was conducted during the current Archaeological Inventory Survey in order to identify human alteration, archaeological features, and associated artifacts in subsurface contexts. Ten subsurface test trenches (ST-1 through ST-10) were mechanically excavated during the current survey (Figure). All excavations produced negative results.

The pedestrian survey and subsurface testing revealed three modern structures associated with modern habitation. No cultural or historic sites or features were identified in the property. Several of the test trenches encountered buried A-Horizon soils, but no cultural material was discovered. An old ceramic insulator was identified whose provenance could not be determined. The cultural material identified during the subsurface testing was confined to modern rubbish (wire, plastic bags, glass sherd and ceramic sherd) and modern construction debris (PVC pipe sections, red brick, concrete bricks, and fragments of red brick). One sub-adult faunal bone (possible avian) was identified in a layer of fill. Refer to *Appendix B* for testing results.

Potential Impacts and Mitigation Measures

Based on the historic use of the project area as well as the results of previous archaeological studies in the vicinity of the property, it was determined that potential site types might include pre-Contact or Historic habitation features related to the sites location on the shoreline, and that burials might be found during excavations on the property.

Although no cultural or historic sites were identified during the current survey and subsurface testing, there is potential for inadvertent discoveries of historic or cultural sites during construction. Given the findings of previous archaeological work documented in the area (e.g., human burials and cultural deposits), Archaeological Monitoring is recommended for future ground disturbance activities associated with construction. Archaeological Monitoring was completed for the seawall removal with no findings.

With the lack of historic and cultural properties identified on the site and implementation of Archaeological Monitoring during construction, significant impacts to on-site archaeological and historic resources are not anticipated.

3.13 CULTURAL PRACTICES AND RESOURCES

Existing Conditions

A *Draft Cultural Impact Assessment for Two Lots in Kahala* was completed by SCS in February 2014 and is included as *Appendix C*. The project requires compliance with the State of Hawai'i environmental review process under Chapter 343, HRS, which requires consideration of a proposed project's effect on traditional cultural practices. Through document research and cultural consultation efforts, the report provided preliminary information that was applicable to the assessment of the proposed action and its potential impacts to cultural practices.

Hawaiian organizations, agencies and community members have been and continue to be contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area and the vicinity. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the O'ahu Island Burial Council (OIBC), Hawaiian Civic Club, Kumu Hula Victoria Holt-Takamine and other community members and cultural organizations.

The noteworthy findings and applicable recommendations from this study include the following:

- (1) Cultural community consultations were sought for this study, including government agency or Hawaiian cultural community organization representatives, or individuals such as long-time area residents and cultural practitioners. Kūpuna (elders) and/or kama'āina (native born) were contacted, as available, to obtain direct commentary.

The results of the cultural consultation process identified concerns about the possibility of inadvertent discoveries of Hawaiian artifacts or iwi (human remains) during the construction phase of the proposed action. However, this concern that is one common to any proposed development on the island as the potential for unknown discoveries always exist. The history of the project area does suggest that there is potential for such discoveries in this area. One of

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the informants mentioned that a hālau has used Kahala beaches for hi'uwai (water purification) practices and off-shore night fishing has been observed in the general area. Another shared the story of her family's limu gathering practices, which sometimes extended into the Kāhala area.

Potential Impacts and Mitigation Measures

Background research and community consultation indicates that the proposed project will have minimal to no impacts to Hawaiian cultural beliefs, practices, resources (historic and/or cultural properties) sites, and traditions. Any existing cultural practices that occur in the area will not be affected as public access to the shoreline area will not be impacted. It is recommended that project personnel be alerted as to the potential for inadvertent cultural finds. If iwi or cultural resources are found during the ground disturbance and construction phases of this proposed project, cultural and lineal descendants of the area and appropriate agencies (e.g. SHPD, OHA, OIBC) will be notified and consulted in regard to preparation of appropriate mitigation plans, including a burial treatment plan.

The findings of the ongoing community consultation effort as well as an assessment of potential cultural impacts and recommended mitigation measures are will be presented in the final Cultural Impact Assessment and the Final EA.

3.14 COASTAL ASSESSMENT

In support of the EA and SMA permit for the property and seawall reconstruction, Sea Engineering, Inc. (SEI) conducted a coastal assessment of the project shoreline, included in *Appendix D*. The coastal assessment addresses Office of Environmental Quality Control (OEQC) guidelines for assessing shoreline alteration projects, including: a detailed description of the existing shoreline and coastal processes; historical shoreline erosion rates; site maps; oceanographic setting; coastal hazards; description of improvements; and alternative.

Existing Conditions

The shoreline at this property is characterized by a wide fringing limestone reef flat over 850 feet in width. The reef flat widens to about 1,500 feet at the eastern end of Kāhala Beach. Water depths on the reef flat range from one foot near the shoreline to two to three feet along the seaward margin. The fringing reef flat provides substantial protection to the shoreline from storm waves. During typical conditions, little wave energy reaches the shoreline. Very little sand has accumulated along the shore in this area, existing as small pockets that are mostly covered during higher tide levels. There is little evidence of active sand transport along the shoreline. Aerial photographs indicate that there is little sand present on the reef flat or further offshore. Basalt boulders and cobbles exist intermittently in this area – they are probably derived from the lava flow that forms the headland at Black Point. In general, there appears to be very little sand available in the region for beach building processes.

Shoreline Profiles

Three shoreline profiles were taken at the property, at either end and at the middle of the property shoreline, extending approximately 175 to 200 feet offshore of the coastal structures. The profiles show the CRM/tile seawall rises to an elevation of eight feet at the western end of the property and six feet for a short segment adjoining the revetment. The revetment rises to an elevation of five to six feet; the revetment crest is obscured by thick naupaka. The limestone reef

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flat has a typical relief less than 1.0 foot. The reef flat elevation generally ranges from about -2.0 to -3.0 feet msl at 50 feet offshore, and grades to a more consistent -2.0 feet msl by 200 feet offshore. See *Appendix D Coastal Assessment Study Section 2.2 Beach Profiles* for additional information.

Shoreline History

The erosion history of Kāhala has been analyzed with aerial photographs by the U.H. Coastal Geology Group (2010). The U.H. Coastal Geology Group compared the low water mark digitized from 8 aerial photographs between 1949 and 2005, and a National Ocean Survey topographic survey chart (T-sheet) from 1925. In the project vicinity, only aerial photographs from 1967, 1971, 1975, 1996 and 2005 were available and adequate quality for use in the analysis. Though a narrow beach is visibly present in 1967 and 1975, it has narrowed to a small sand patch by 1996, when the U.H. Coastal Geology Group identifies it as an area with no beach. The 1996 shoreline, located at the face of the shoreline structures, is the last point used for calculating erosion rates at the site.

Historical shoreline positions from each photograph and the T-sheet were measured every 66 ft (20 m) along the shoreline, as denoted by the yellow transect lines in *Figure 3-6*. The shoreline positions were used to calculate annual shoreline change rates and the results of this study for the project vicinity are presented in *Figure 3-6*.

The project site corresponds to Transects 320, 321, and 322. The study indicates that the project shoreline was eroding at a rate of approximately one ft/yr prior to loss of the beach. The erosion rate was calculated using shoreline positions from the first T-sheet until the 1996 shoreline, which is identified as a shoreline with no beach. Seawalls at the project site were presumed to have been built prior to the late 1980s.

The subject property shoreline is located in the middle of a nearly 0.5-mile long stretch of coastline that has been identified as having no beach by the U.H. Coastal Geology Group. This entire length of coastline is protected from continued erosion of the fast land by shoreline structures.

During high tide conditions, the modern shoreline does not have dry sand between the shoreline structures at the subject property and the waterline. A photograph taken on April 2, 2014, shows typical conditions with water elevations near mean higher high water (*Figure 3-7*). Given the current shoreline condition, and the U.H. Coastal Geology determination that no beach has been present since at least 1996, it is documented that sand has not been accumulating along the shoreline. Rather, sand has been largely absent from the shoreline at the subject property, and for more than 1,000 feet to either side.

~~In the project vicinity, only photographs 1967, 1971, 1975, 1996 and 2005 were used in the analysis. The results of this study for the property vicinity are presented in *Figure 3-6*. Historical shoreline positions from each photograph and the T sheet were measured every 66 ft (20 m) along the shoreline, as denoted by the yellow transect lines in *Figure 3-6*. The shoreline positions were used to calculate annual shoreline change rates.~~

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The subject property corresponds to Transects 320, 321, and 322. The study indicates that the shoreline was eroding at a rate of approximately 1 foot per year at this location. The erosion rate was calculated only to the time that seawall first appeared at the site and fixed the shoreline position.



FIGURE 3-6: HISTORICAL SHORELINE CHANGE ANALYSIS (UH COASTAL GEOLOGY GROUP)

(Yellow lines indicate transect locations spaced 66 ft apart. Red bar graph indicates annual erosion rate calculated for each transect location. White lines through bar graph represent 1 foot per year erosion rate increments.)



FIGURE 3-7: GROUND PHOTOGRAPH OF SHORELINE NEAR HIGH TIDE

Potential Impacts and Mitigation Measures

The project shoreline is located in the middle of a 2,500-foot long segment of shoreline extending east of Black Point. This section of coastline is entirely hardened by vertical seawalls, and the occasional interspersed revetment. There is no sand beach along this stretch of shoreline, only occasional small patches of sand that are mostly covered during higher tide levels. A wide, shallow fringing reef flat significantly limits wave energy reaching the shoreline, and there was no evidence of active sand transport. Removal of the existing non-permitted seawall and revetment and replacement with an engineered seawall located approximately five feet further inland, is therefore not expected to alter existing conditions at the site or have negative impacts on the environment.

Potential negative impacts could occur if a shoreline structure is not maintained at the subject property. Removal of the existing shoreline structures would expose the subject property and both adjoining properties to land erosion and the potential instability of adjacent shoreline structures. Reconstruction of a new, properly engineered sloping rock revetment at the subject property will prevent the loss of land and property due to erosion at the subject property and adjoining properties. The shoreline width will increase 12 to 20 feet with removal of the old seawall structures and installation of a new revetment at the new shoreline location.

3.15 VISUAL RESOURCES

Existing Conditions

The site is located in Kāhala, along the shoreline approximately mid-way between Diamond Head Crater and the Kāhala Hotel. Residential uses are located adjacent to the site on three sides, with the ocean on the fourth. *Figure 1-2* provides an aerial perspective of the general area.

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The project site is not located within a Special District and does not interfere with significant mauka-makai or East-West views, as designated by the City and County of Honolulu Primary Urban Center Development Plan.

The site is presently vacant and shielded from view by fencing along Kāhala Avenue frontage. There are no existing ocean views from Kāhala Avenue. The accompanying photos provide visual perspectives of the existing conditions of the project site, and immediate vicinity. *Figure 3-78* is an aerial photo with a key to photos that show views and existing land uses and *Figures 3-89 and 3-9* provides a selection of site photos. The site is surrounded by luxury residential areas.

Potential Impacts and Mitigation Measures

The proposed action will involve construction of two residences on two jointly developed lots. *Figures 2-5 and 2-6* present two elevations of how the proposed action will look once constructed from Kāhala Avenue and from the shoreline area. The conceptual elevations show that the project will be similar in height, scale, massing and design to surrounding residential uses.

The proposed action will conform to design controls established by the LUO including the 25 foot height limit. Construction will be set back 40-foot from the shoreline in accordance with Revised Ordinances of Honolulu Chapter 23 Shoreline Setbacks. Landscaping will be used to improve the visual character of the project site from pedestrian and roadway perspectives along Kāhala Avenue.

The proposed action will meet the design controls established by the LUO and applicable policies. Prominent public vantage points will be maintained and the residential character of Kāhala will be preserved. Accordingly, significant adverse impacts on visual resources are not anticipated.

3.16 POTENTIAL CUMULATIVE AND SECONDARY IMPACTS

Cumulative effects are impacts which result from the incremental effects of an activity when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertake such other actions. The proposed action is consistent with applicable development plans and policies. The applicant will seek a Shoreline Setback Variance/Special Management Area permit and will adhere to the applicable terms and conditions of approval tied to these permits.

Construction activities during the proposed project may generate direct employment in construction-related industries. The removal of the shoreline structure and existing encroachment in the shoreline area will offer a secondary beneficial impact of restoration of natural shoreline area. Over the long-term, no cumulative impacts are anticipated from residential activities.

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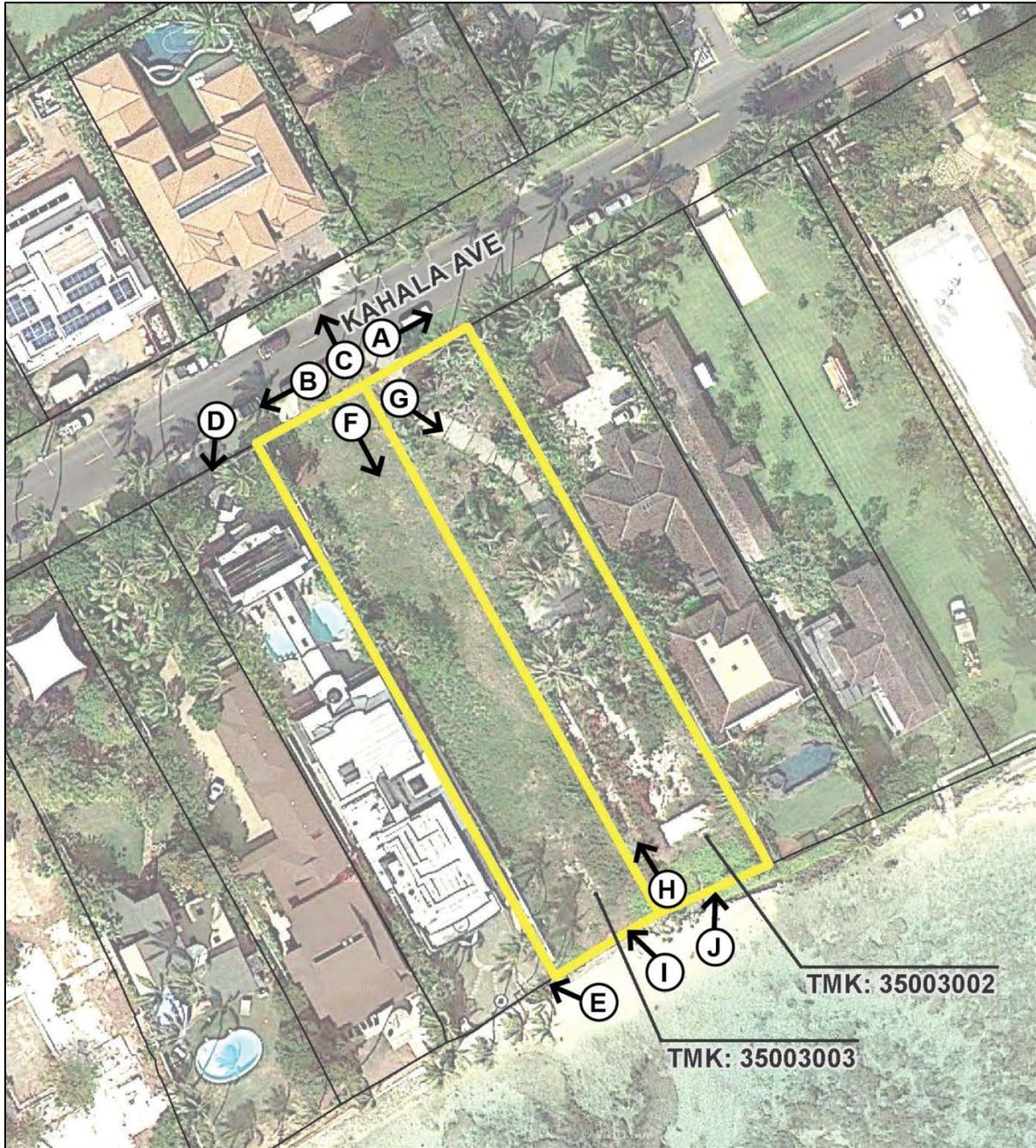


FIGURE 3-78: VIEW ANALYSIS PHOTO KEY

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A. Kāhala Avenue looking east from site



B. Kāhala Avenue looking west from site



C. Residential character – across Kāhala Avenue



D. Residential character – 4461 Kāhala Avenue



E. Residential character – from shoreline area



F. Project site – looking makai

FIGURE 3-89: SITE PHOTOS

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Figure 3-89: Site Photos

4.0 ALTERNATIVES TO THE PROPOSED ACTION

4.0 ALTERNATIVES TO THE PROPOSED ACTION

This Environmental Assessment evaluates reasonable alternatives to the proposed action described in *Section 2.0*. Alternative sites were not considered as the landowner owns the parcels under consideration in this EA.

The objective of the proposed action is to construct residential structures in accordance with Land Use Ordinance Section (LUO) regulations, replace an illegal shoreline structure with a new legal shoreline structure and to prevent negative impacts to the inland and marine environments. Alternative B presents a residential alternative while assuming a reconstructed vertical seawall, while Alternatives C – F evaluate shoreline structure alternatives while assuming construction of the proposed residential action as presented in Chapter 2. Alternative G presents the preferred alternative of a residential plan with a sloping rock revetment.

4.1 ALTERNATIVE A – NO-ACTION ALTERNATIVE

The “no-action” is the baseline against which all other alternatives are measured. “No-action” refers to the future site and program conditions that will likely result should the proposed project not proceed.

Under this alternative construction of the proposed residential use would not occur and the anticipated improvements to the subject parcels would be foregone. Under existing R-7.5 Residential District zoning and LUO 21-8.20A Multiple Homes on Lot, a maximum of five single family dwellings could be allowed on the joint developed lots. Only one residence per lot is allowed under the recorded covenants for these properties. (See *Table 2-2 Compliance with LUO Development Standards for R-7.5 District*) There would be no residential development-related impacts under the no-action alternative. However, this alternative would result in underutilization of the sites for their intended uses under existing R-7.5 zoning and the covenant provisions.

With respect to the seawall, the no-action alternative involves leaving the existing non-permitted structures in place. Permits for any development plans for the property would be contingent on acquisition of a Certified Shoreline from the State. A Certified Shoreline, however, could not be obtained until the unpermitted status of the structures is resolved. This alternative would therefore require that the properties remain undeveloped, or that after-the-fact permits be obtained for the existing shoreline structures. Obtaining an After-The-Fact-permit is an uncertain and complex process that would entail the following:

- Initiating a violation procedure with the State to start an official process for dealing with the legal status of the structures, either through After-The-Fact permits or removal;
- Coordination with the State on a Certified Shoreline location;
- Portions of the existing structures would likely be determined to be encroaching on State land due to shoreline location, and thus might require an easement for the encroachment; and
- Certification of the design of the existing structures by a registered Professional Engineer.

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Successful completion of this process is highly uncertain. It is entirely possible that the existing shoreline structures are not certifiable by a professional engineer, or that an After-The-Fact permit will not be granted in the Conservation District, or that the encroachment is not resolvable, eventually requiring removal and replacement of the structures.

The existing shoreline structure would eventually fail and expose the property to ocean erosion at the rate of one foot per year, expose the marine environment to an influx of sedimentation in the nearshore waters and open the parcels to unauthorized access. Selection of the no-action alternative would not achieve the objectives of the residential use as outlined in Chapter 2. ~~Additionally, this alternative would result in underutilization of the sites for their intended uses under existing R-7.5 zoning and the covenant provisions.~~ For these reasons, the no-action alternative was considered, but is not a practical solution and was ultimately not chosen.

4.2 ALTERNATIVE B – ONE RESIDENCE

The development of one residence with the reconstructed shoreline structure seawall was considered as an alternative action. Construction of only a smaller residence (less than 7,500 sf) would result in approximately two-thirds of the area (sf) proposed for the action described in Section 2.0. While this alternative would result in a smaller scale action, it would only slightly reduce environmental impacts project effects in comparison to the proposed action. Alternative B would not accommodate the owner's requirements for the new residential uses as allowed under existing land use controls. For these reasons, Alternative B was rejected. (It is noted that an SMA Use Permit and EA would not be required for the development with a floor area of a residence of less than 7,500 sf.)

4.3 ALTERNATIVE C – VERTICAL SEAWALL

A seawall is a vertical or sloping concrete or concrete-rock-masonry wall used to protect the land from wave damage and erosion. When properly designed and constructed, a seawall is a proven, long-lasting, and relatively low maintenance shore protection method. Seawalls also have the advantage of requiring limited horizontal space along the shore. Seawalls are not flexible structures, and their structural stability is dependent on the stability of their foundations. Vertical seawalls armor the entire Kāhala shoreline to the west of the project site up to Black Point. To the east, there is a short segment of revetted shoreline, followed by several hundred feet of primarily vertical seawalls.

Seawalls tend to reflect incoming waves rather than absorb them. This characteristic makes them a less attractive erosion solution on many sandy shorelines as the reflected waves can scour the sand in front of the walls. However, there is little or no sand in the inter-tidal zone for at least 1,000 feet to either side of the project site, along a shoreline that is primarily armored by vertical seawalls. In addition, there are no sand beaches that are dry during high-tides in the region. Removal of the existing non-permitted structures, and construction of a properly designed seawall located five feet inland is not anticipated to alter the environment or change coastal processes at the site. As a result, coastal access along State land fronting the structure will not be impacted, with lateral access likely enhanced.

This alternative would include a vertical seawall replacement at the property, tied into the neighboring structures to prevent flanking of the neighbor's shoreline protection structures.

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The vertical seawall alternative would be located entirely inland of the certified shoreline. In addition, proper seawall design that ensures the structures are legally built on private property to limit potential future encroachments onto State lands.

For these reasons, a reconstructed, properly engineered and permitted vertical seawall could be a contextually appropriate solution given the current state of the shoreline and existing neighboring structures. It would give the owners the greatest potential front yard space. However, a reconstructed vertical seawall is not the selected approach, since this type of shoreline structure would create wave energy reflection, which reduces opportunities to retain/accumulate a small sand patch “beach” along this narrow shoreline.

4.4 ALTERNATIVE D – BEACH NOURISHMENT

In the absence of a seawall, beach nourishment is another alternative which may be considered. There is a general lack of sand both at the shoreline and offshore at the project site. With sand available, it is possible that beaches would form naturally in the area. However, sand placed locally at the project site would become part of the larger regional system of nearshore sediment. It is unlikely that sand placed at the subject properties would remain in front of the site, unless placement was accompanied by construction of groin structures to minimize sand movement. Beach nourishment in this area would only be conceivable on a grand scale as part of a larger regional effort.

In addition to the necessary scale of a successful beach restoration project, finding an appropriate source of beach sand has become a significant problem for projects in the Hawaiian Islands. Offshore sand mining has become a successful alternative to terrestrial sand mining, however, high costs and equipment requirements for the operation only make it feasible for larger beach nourishment operations.

Beach nourishment is not a practical engineering solution or the size and location of this action and was not selected.

4.5 ALTERNATIVE E – SHORELINE STRUCTURE REMOVAL WITHOUT REPLACEMENT

This alternative would consist of removing the non-permitted structures, and allowing the shoreline to erode for the foreseeable future. Long-term erosion rates for the subject property have been documented at approximately one foot per year. The long-term erosion rate is not expected to change for this shoreline.

A major problem with this alternative is that it would create flank erosion exposure of the adjoining seawall to the west, and revetment to the east. This alternative would most likely result in failure of shoreline structures fronting the neighboring properties and side yard encroachment. The owners at the subject property would become liable for this damage. Removal of the walls would release the earth fill material into nearshore waters as the bank erodes. The primary benefit resulting from this alternative is the potential for a small sand patch “beach” to develop within this narrow shoreline reach. The assumption is that there is sufficient sand available to develop a beach strip in this location. At this time, however, there

is only enough sediment for a small, intermittent, wet sand patch fronting one of the structures at low tide.

In conclusion, this alternative would result in the combination of short-term erosion related to equilibration of the coastline after structure removal, and continuation of the long-term erosion trend of one foot per year. With the absence of significant volumes of nearshore sand, there would be no net engineering or coastal benefit to removal of the structures. This action would also pose significant risk to the neighboring properties. For these reasons, structure removal without replacement was not selected.

4.6 ALTERNATIVE F – SAND BAG SYSTEM

In recent years, the State and Counties have granted permission for property owners to place large geotextile sandbags on the beach fronting their property as emergency measures to prevent erosion. While they are expedient, there are several reasons why they are not appropriate as a long-term solution at the project site:

- Geotextile sand bags are aesthetically un-pleasing.
- Sand bags become slippery with algae growth under repeated inundation and are therefore hazardous.
- Sand bags are difficult to fill and place, especially in the quantity needed at this site.
- Sand bags require beach quality sand as fill material, which is difficult to find in sufficient quantities to construct a sand bag structure.
- As with a revetment, sand bags need to be stacked on a slope, and therefore would require a broad footprint.
- Geotextile sand bags deteriorate and fail with time, and are susceptible to vandalism and are, at best, a temporary solution.
- Placing sand bags in front of the existing wall would require encroachment on State land, requiring an easement.

For these reasons, geotextile sand bags fronting the existing structures were not considered as an alternative to a new shoreline structure at the subject property.

4.37 ALTERNATIVE GC – SLOPING ROCK SHORELINE REVETMENT (PREFERRED ALTERNATIVE)

~~The shoreline structure that will be built to replace the existing seawall is a vertical poured in place concrete structure.~~ Alternatively, the structure could be designed as a sloping rock revetment. A revetment is a sloping, un-cemented structure built of wave resistant material. The most common method of revetment construction is to place an armor layer of stone, sized according to the design wave height, over an underlayer and filter fabric designed to distribute the weight of the armor layer and to prevent loss of fine shoreline material through voids in the revetment. Properly designed and constructed rock revetments are durable, flexible, and highly resistant to wave damage. One major advantage of revetments is that the rough porous rock surface and relatively flat slope of the structure will tend to absorb wave energy, reduce wave reflection, and help to promote accretion of sand on a sandy beach – when sufficient sand volume is available in the littoral environment.

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Revetments in Hawai'i are typically built on a 1.5 horizontal to 1.0 vertical slope to ensure stability. Conditions at the project site would call for a revetment to extend about 17 feet inland on this property. With the combination of short-term erosion related to equilibration of the coastline after structure removal, continuation of the long-term erosion trend of one ft per year, and absence of significant volumes of nearshore sand, there is no net engineering or coastal benefit to the removal of the existing structures.

Though revetment design is flexible by nature, it does present unique design issues when attempting to tie the structure to vertical seawalls that are seaward of the proposed revetment location. Revetments protect the land landward of the structure. When the revetment is located inland from the face of the adjacent seawall, either a tie-back wall or curving revetment will need to be designed to protect the exposed flank of the neighboring parcel. These will be designed to protect the common side boundary as far inland as the filter fabric beneath the crown of the revetment. A vertical upper section ending as a landscape wall would be a hybrid structure, allowing 2 to 3 feet of additional yard space.

A properly designed revetment would be located entirely behind the newly certified shoreline. Figure 4-1 shows the extent of a new sloping rock revetment footprint in comparison to the previous illegal shoreline structures. The revetment requires excavation into the limestone substrate to -4.0 feet (mean low low water) for placement of the revetment toe. A sloping revetment would be inset into the property, causing loss of useable land, and interface with the adjacent neighbor shoreline structures. Due to the location of the shoreline, a concrete tie-back wall or "wing wall" would extend 25 to 30 feet inland from the shoreline. The tie-back wing wall would need to extend down to limestone substrate for the portion that is exposed to ocean energy forces.

~~This design allows for greater wave energy dissipation. However,~~ The revetment design would require much greater land area due to the angular design. Revetments are typically recommended for shorelines with a wide sandy beach. In addition, a sloping revetment ~~would~~ can sometimes interfere with lateral beach access, as evidenced by the existing rip rap material on the neighboring property to the east extending into the ocean. Design of this revetment would be mauka of the certified shoreline, which would not interfere with shoreline lateral access. The shoreline width will increase 12 to 20 feet with removal of the old seawall structures and installation of a new revetment at the new shoreline location. With the benefits of wave energy dissipation and natural rock slope character, the revetment design is the most appropriate engineering solution for the subject property. The sloping rock revetment with residential plan was selected as the preferred alternative.

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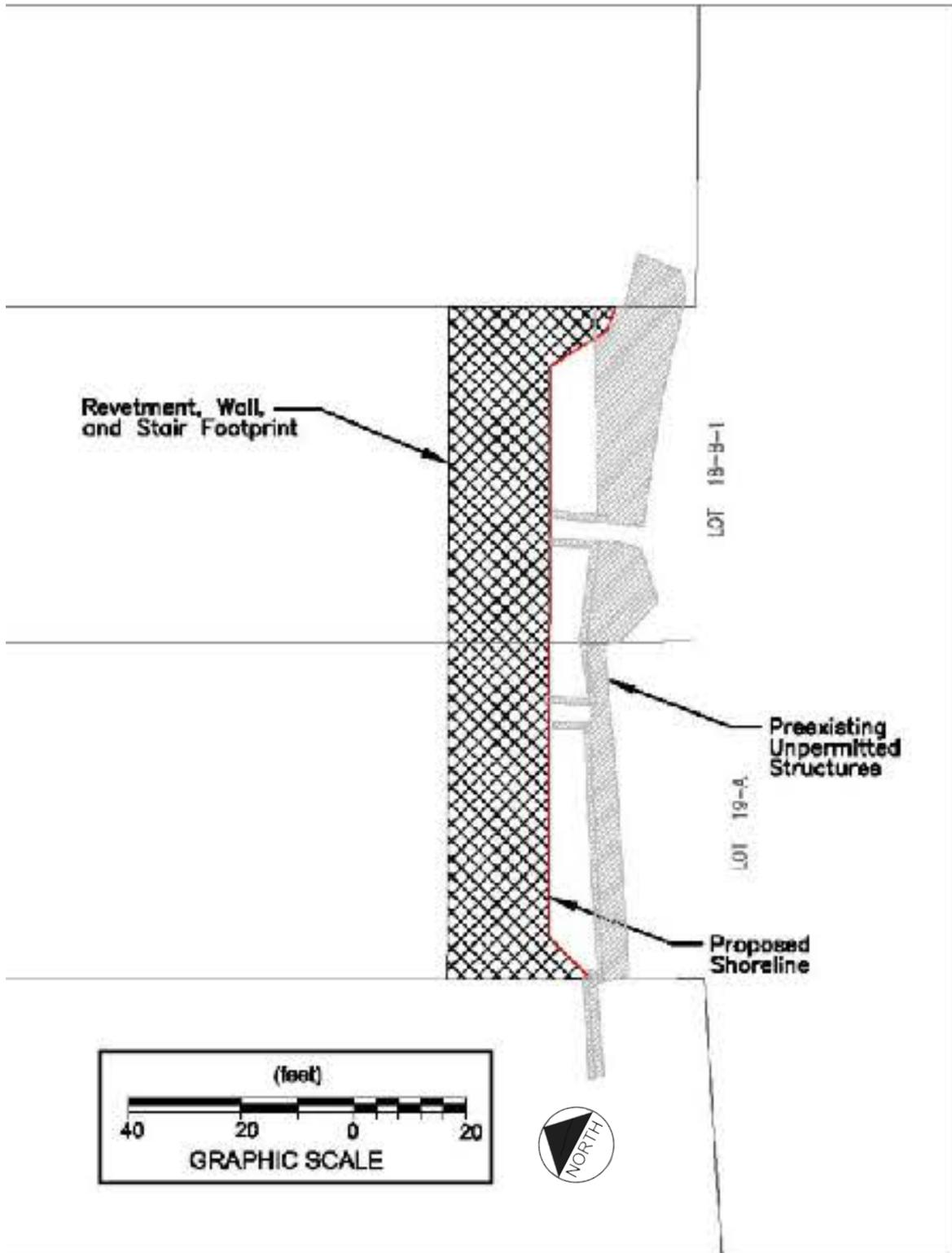


FIGURE 4-1: SITE PLAN PROPOSED REVETMENT FOOTPRINT

5.0 PLANS AND POLICIES

5.0 PLANS AND POLICIES

In this chapter, the proposed action's consistency with applicable land use policies set forth in the State Land Use Law, State Coastal Zone Management Program, City and County of Honolulu General Plan, Primary Urban Center Development Plan, Land Use Ordinance and Special Management Area are discussed.

5.1 HAWAI'I STATE LAND USE DISTRICT BOUNDARIES

The State of Hawai'i Land Use Law regulates the classification and uses of lands in the State to accommodate growth and development, and to retain the natural resources in the area. All State lands are classified by the State Land Use Commission, as Urban, Rural, Agricultural, or Conservation, with consideration given to the General Plan of the County.

Discussion:

The location of the proposed action includes lands that are designated Urban District. The Hawai'i State Plan, Chapter 205-2 (b) Hawai'i Revised Statutes, states that:

"Urban districts shall include activities or uses as provided by ordinances or regulations of the county within which the urban district is situated."

The proposed action is consistent with this Statute, as the proposed land uses are consistent with City and County of Honolulu General Plan, Primary Urban Center Development Plan, and Land Use Ordinance, as discussed below.

5.2 HAWAI'I COASTAL ZONE MANAGEMENT PROGRAM

The Coastal Zone Management Act of 1972 (16 USC Section 1451), as amended through Public Law 104-150, created the coastal management program and the National Estuarine Research Reserve system. The coastal states are authorized to develop and implement a state coastal zone management program. Hawai'i Coastal Zone Management (CZM) Program received federal approval in the late 1970's. The objectives of the State's Hawai'i Coastal Zone Management (CZM) Program, Section 205A-2, HRS, are to protect valuable and vulnerable coastal resources such as coastal ecosystems, special scenic and cultural values and recreational opportunities. The objectives of the program are also to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone. Each county is responsible for designating a Special Management Area (SMA) that extends inland from the shoreline. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the Hawai'i CZM Program

The site is within the SMA as delineated by the City and County of Honolulu.

Described below are the seven objectives of the Hawai'i CZM Program and an assessment of the action's impacts relative to the State's CZM objectives and policies. The specific City and County SMA policies are also discussed in *Section 5.10*.

RECREATIONAL RESOURCES

Objective: Provide Coastal Recreational Opportunities Accessible to the Public

- (A) *Improve coordination and funding of coastal recreation planning and management.*
- (B) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
- *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
 - *Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites and sandy 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;*
 - *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
 - *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
 - *Encouraging expanded public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value;*
 - *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;*
 - *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, artificial reefs for surfing and fishing; and*
 - *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use Commissions, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of section 46-6.*

The proposed impact would have no impact on coordination and funding of coastal recreation planning and management.

The proposed action includes removal of an unauthorized shoreline structure out of the State shoreline area and reconstruction of a new, authorized shoreline structure outside of the State jurisdiction. The proposed action will comply with State CZM guidelines and improve public coastal recreational opportunities.

The proposed action will be constructed and operate in accordance with State and federal water quality regulations. Storm water and sewer management systems will be maintained and new infrastructure will be constructed to meet applicable standards. The sewer systems have adequate capacity to address the anticipated load from the action. There are no septic tanks, leach fields, or injection wells proposed. There will be no discharge points into coastal waters.

HISTORIC RESOURCES

Objective: Protect, Preserve and, Where Desirable, Restore Those Natural and Man-Made Historic and Pre-Historic Resources in the Coastal Zone Management Area that are Significant in Hawaiian and American History and Culture

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- (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.*

An *Archaeological Assessment Report* (SCS, February 2014) was conducted to assess the potential for locating archaeological resources at this site. The study did not identify evidence of archaeological remains at the site. The site area has undergone extensive disturbances from previous development. Consistent with the archeological investigation, the cultural assessment (SCS, February 2014) determined the site does not possess culturally significant resources. The report recommends archaeological monitoring during construction.

SCENIC AND OPEN SPACE RESOURCES

Objective: Protect, Preserve and, Where Desirable, Restore or Improve the Quality of Coastal Scenic and Open Space Resources

- (A) *Identify valued scenic resources in the coastal zone management area;*
- (B) *Insure 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.*

As described in Section 3.15, the action will not affect vistas or scenic resources.

The proposed action is consistent with the County General Plan, Primary Urban Center Development Plan, and Zoning regulations. The residential uses will blend into the surrounding urban residential neighborhood. The scale and size of the action are appropriate to the site meet the design controls established in the LUO. The facility will not exceed 25 feet in height and will not interfere with existing prominent public vantage points from which significant public views of Diamond Head and the ocean exist. Therefore, the proposed action will not have any impacts on scenic resources. Perimeter landscaping on the site will serve as a visual buffer to surrounding residential areas.

COASTAL ECOSYSTEMS

Objective: Protect Valuable Coastal Ecosystems from Disruption and Minimize Adverse Impacts on all Coastal Ecosystems

- (A) *Improve the technical basis for natural resource management;*
- (B) *Preserve valuable coastal ecosystems 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*

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- (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.*

The action will not affect coastal ecosystems or natural resource management. During construction and operation, all storm water will be retained onsite. Infiltrative BMPs and sustainable design strategies will be used for on-site retention of stormwater generated by the 10-year 1-hour design storm event. Operations will comply with State and federal water quality standards.

ECONOMIC USES

Objective: Provide Public or Private Facilities and Improvements Important to the State's Economy in Suitable Locations

- (A) *Concentrate in appropriate areas the location of coastal dependent development necessary to the state's economy;*
- (B) *Ensure that coastal dependent development such as harbors and ports, visitor industry 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 development 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:*
- *Utilization of presently designated locations is not feasible;*
 - *Adverse environmental effects are minimized; and*
 - *Important to the State's economy.*

The action is consistent with State and County plans and land regulations and will not result in any adverse social, visual, and environmental impacts in the coastal zone management area.

COASTAL HAZARDS

Objective: Reduce Hazard to Life and Property From Tsunami, Storm Waves, Stream Flooding, Erosion and Subsidence.

- (A) *Develop and communicate adequate information on storm wave, tsunami, flood, erosion, and subsidence hazard;*
- (B) *Control development in areas subject to storm wave, tsunami, flood, erosion, and subsidence hazard;*
- (C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*
- (D) *Prevent coastal flooding from inland projects.*

The site is within FIRM zone X indicating an area outside of the 0.2% annual chance floodplain (Figure 3-2). The site is located within the tsunami evacuation zone (Figure 3-3). The site is not located in a coastal floodplain or storm wave action zone. To prevent ponding or localized flooding resulting from storm run-off, new on-site infrastructure will be constructed to meet

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applicable standards. A new shoreline structure will be constructed to protect the property from potential wave action associated with coastal hazards.

MANAGING DEVELOPMENT

Objective: Improve the Development Review Process, Communication, and Public Participation in the Management of Coastal Resources and Hazards

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

This EA communicates the potential short and long-term impacts of the action on the environment. Procedurally, this EA conforms to HRS Chapter 343. The Office of Environmental Quality Control (OEQC) publishes notice of the EA availability for public review. The public is allowed 30-days to submit comments on the EA. During pre-consultation agencies and organizations were consulted and will continue to be informed throughout the planning process. In addition, the planning process will include a presentation to the Wai'alaie-Kāhala Neighborhood Board No. 3 and plan review with the Kahala Community Association.

PUBLIC PARTICIPATION

Objective: Stimulate Public Awareness, Education, and Participation in Coastal Management

- (A) *Promote public involvement in coastal zone management processes;*
- (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 issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site specific mediations to respond to coastal issues and conflicts.*

Public participation is part of the HRS Chapter 343 environmental review process. The Office of Environmental Quality Control (OEQC) publishes notice of the EA availability for public review. The public is allowed 30-days to submit comments on the EA. Information regarding the coastal issues and processes is publically provided in the EA, along with proposed mitigation measures addressing any coastal concerns. Consulted parties in the environmental process are encouraged to provide comments regarding the project during the DEA public review period. Comments submitted through the public review process, and the responses they generate, are all included within the Final EA that is publicly available through the OEQC.

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BEACH PROTECTION

Objective: Protect Beaches for Public Use and Recreation

- (A) *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and 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.*

The proposed shoreline structure is to be located inland of the existing shoreline, as identified by the UH Coastal Geology Group for shoreline mapping, and as identified by the DLNR through the shoreline certification process. In addition, the subject property in the middle of a nearly 0.5 mile stretch of coastline that has been identified as having no beach by the U.H. Coastal Geology Group in the erosion study completed for the City and County of Honolulu. The U.H. Coastal Geology Group has not identified a beach at the shoreline along this stretch of coast since before 1996. This means that an identifiable beach has not been present for almost two decades.

This section of coastline has ephemeral sand patches that are occasionally present at lower tides, however no discernible beach was identified at the project site during field visits. The replacement of the shoreline structures further inland will not affect the existing coastal processes or coastal environment. A sandy beach will neither be lost nor created by migration of the structure. The shoreline width will increase 12 to 20 feet with removal of the old seawall structures and installation of a new revetment at the new shoreline location.

Conversely, replacing the existing structures with engineered shoreline structures will limit the potential loss of improvements due to erosion. The subject property had an erosion rate of one foot per year prior to 1996, when the shoreline was identified along the face of the structure. There are no physical changes to the environment that would preclude ongoing erosion of the fast land, at a rate of 1 foot per year, should shoreline structures be removed from the property. In the event that the structure is not replaced, erosion of property will result in release of sediment into the nearshore waters, which is an undesirable effect to nearshore water quality.

MARINE RESOURCES

Objective: Promote the Protection, Use, and Development of Marine and Coastal Resources to Assure Their Sustainability

- (A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (B) *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
- (C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United State exclusive economic zone;*

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- (D) *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*
- (E) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

The proposed action will not directly affect marine resources. The applicant has been working with DLNR to ensure the removal of debris and vertical shoreline structures in the shoreline area and to certify a new shoreline mauka of the structures. Together, these actions will reduce potential impacts on coastal and marine resources.

5.3 CITY AND COUNTY OF HONOLULU LAND USE ORDINANCE GUIDELINES

The purpose of the LUO is to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the County General Plan and development plans. The LUO is also intended to provide reasonable development and design standards. These standards are applicable to the location, height, bulk and size of structures, yard areas, off-street parking facilities, and open spaces, and the use of structures and land for agriculture, industry, business, residences or other purposes (Revised Ordinance for the City and County of Honolulu, Chapter 21).

Discussion:

The subject property is designated as “R-7.5: Residential” zone by the City and County of Honolulu (*Figure 1-4*). The action is not located within a Special District and is not subject to these additional design control standards. The design meets the R-7.5 standards as defined in the LUO. See Section 2.4 for discussion of compliance with LUO standards.

5.4 SPECIAL MANAGEMENT AREA

The site area is located within the Special Management Area (SMA) (*Figure 1-6*), which was established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai‘i. The action will comply with the requirements of the SMA. An SMA Approval application will be submitted to the City and County of Honolulu Department of Planning and Permitting.

Special controls on development within this area are necessary to avoid permanent loss of valuable resources. The review guidelines of Section 25-3.2 of the Revised Ordinances of Honolulu (ROH) are used by the Department of Planning and the City Council for the review of developments proposed in the Special Management Area (SMA). These guidelines are derived from Section 205A-26 HRS. The consistency of the proposed action with the guidelines is discussed below.

(1) All Development in the Special Management Area shall be subject to reasonable terms and conditions set by the council in order to ensure that:

- *Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles;*

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- *Adequate and properly located public recreation areas and wildlife preserves are reserved;*
- *Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources; and*
- *Alterations to existing land forms and vegetation, except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.*

Discussion:

The closest public access to the beach area in front of the site is located approximately 180 feet east of the parcels, across from Kala Avenue Place. The proposed action will not adversely affect access to any public shoreline or recreation area. The existing public beach area will be improved through the removal of ~~unauthorized~~ the vertical seawall and revetment materials.

No wildlife preserves or public areas are affected by the action.

Wastewater will flow to the City and County of Honolulu operated sewer system. Proposed improvements to the existing sewer will be carried out subject to the approval of the City and County of Honolulu, Department of Planning and Permitting, Wastewater Branch. The design of the sewer system will be in accordance with the "Design Standards of the City and County of Honolulu's Department of Wastewater Management.

Solid waste will be handled and disposed of by the City and County of Honolulu Waste Management.

Alterations to the land and vegetation will not adversely affect coastal areas or recreational resources. The action will implement required permit conditions and best management practices. The action is a redevelopment of an existing residential lot. The action will not increase the potential hazard risk associated with flooding, landslides, erosion, siltation or earthquake. The design and construction will meet or exceed County building standards.

(2) No development shall be approved unless the council has first found that:

- *The development will not have any substantial, adverse environmental or ecological effect except such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interests. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect, and the elimination of planning options;*
- *The development is consistent with the objectives and policies set forth in Section 25-3.2 and area guidelines contained in Section 205A-26, Hawai'i Revised Statutes; and*
- *The development is consistent with the County General Plan, Development Plans, Zoning and subdivision codes and other applicable ordinances.*

Discussion:

No substantial adverse environmental or ecological direct, indirect or cumulative impacts are anticipated from the action. The action is consistent with applicable plans and policies of the State of Hawai'i and the City and County of Honolulu.

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(3) The Council Shall Seek to Minimize, Where Reasonable:

- Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;
- Any development which would reduce the size of any beach or other area usable for public recreation;
- Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;
- Any development which would substantially interfere with or detract from the line of sight toward the sea from the State highway nearest the coast; and
- Any development which would adversely affect water quality, existing areas of open water free of visible structure, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

Discussion:

There will be no adverse impact to public accesses, public beaches or recreation areas. The action will positively impact public access to State shoreline areas through removal of unauthorized seawall and revetment structures. The shoreline width will increase 12 to 20 feet with removal of the old seawall structures and installation of a new revetment at the new shoreline location. The action will have no adverse impacts on areas of open water, potential fisheries, fisheries, wildlife habitat, or agricultural land. The action will adhere to LUO height and size restrictions and would be similar in size and scale to existing residential development in the vicinity of the action. The action would not adversely limit the line of sight to the ocean from the nearest State highway.

5.5 CITY AND COUNTY OF HONOLULU - PRIMARY URBAN CENTER DEVELOPMENT PLANS

The Primary Urban Center Development Plan (PUCDP) by the City and County of Honolulu Department of Planning and Permitting establishes policy to shape the growth and development of the PUC over the next 20 years. The planning goal of the PUCDP is to enhance the livability of the PUC while accommodating a moderate amount of growth. The PUCDP establishes the region's role in O'ahu's development pattern by establishing policies in the following areas:

- Natural, historic, cultural and scenic resources
- Parks and recreation areas
- Lower- and higher-density residential neighborhoods
- Commercial and visitor industry facilities
- Military installations, transportation centers and industrial areas
- Design of streets and buildings
- Neighborhood planning
- Transportation networks and systems

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Discussion:

The PUCDP serves to guide development on a neighborhood and regional scale, and the policies are not applicable to a small-scale residential development. The site is designated Lower Density Residential on the PUCDP Land Use Map (Figure 5-1). The residential action is consistent with the PUCDP Land Use Map.

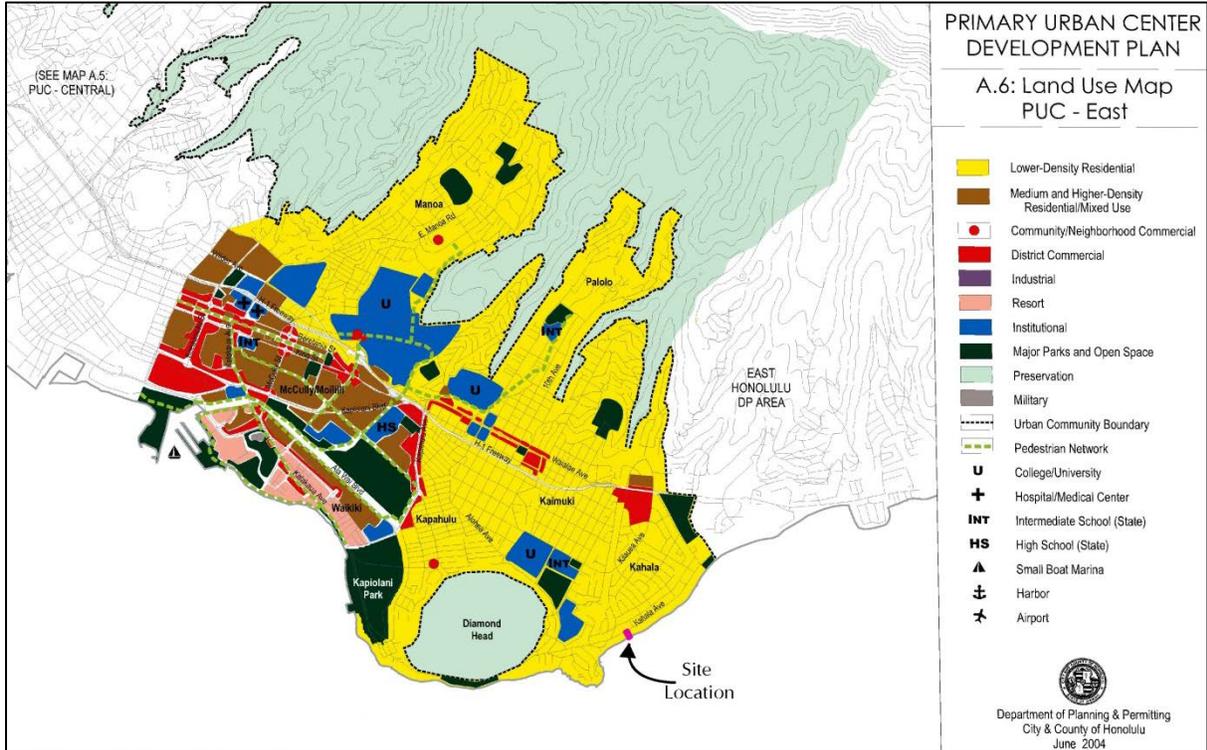


Figure 5-1 Primary Urban Center Development Plan Map Department of Planning and Permitting City and County of Honolulu, June 2004.

5.6 KAHALA COMMUNITY ASSOCIATION

The Kahala Community Association (KCA) is charged with upholding the Declaration of Protective Provisions and Supplemental Declaration of Protective Provision originally connected to the Kāhala landholdings of Kamehameha Schools/Bishop Estate. KCA continues to provide oversight to renovation and new development to ensure that projects abide by these provisions. A discussion of the proposed action in relation to the protective provisions is provided below.

Protective Provision: Use

Provision states that each residential lot should be occupied by one single-family residence for residential uses only, with the exception of outbuildings. Structures also shouldn't be used as a tenement, rooming, or apartment houses or be connected with any business.

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The proposed action will include construction of two single-family residences on two lots. The lots will be jointly developed, as they have a single owner. The property will be used for residential purposes only. Residential space has been provided for the owner's personal staff, and will not be used as rental or apartment units. Commercial business will not be conducted on the property and the property will not be utilized by commercial employees. The proposed action is in compliance with the KCA Protective Provision regarding use.

Protective Provision: Subdivision and Consolidation

Provisions prohibit the existing residential lots from being subdivided or consolidated to create additional residential lots. The proposed action will not further subdivide or consolidate the existing residential lot. The two adjacent lots will be jointly developed, as they have the same owner.

Protective Provision: Setback Lines

Provisions enforce compliance with any existing setbacks. The proposed action will comply with all existing setback lines.

Protective Provision: Repair and Maintenance

Provisions require that buildings and residential lots be properly repaired and maintained. The property owner will provide regular building and grounds maintenance to preserve the attractive residential character of the area.

Protective Provision: Landscaping

Provisions require well-maintained landscaping along street frontages. Landscape architects Walters, Kimura, Motoda designed a landscape plan for the property which includes green lawn, Hala trees and tropical flowering ginger plants along the Kāhala Avenue frontage. The landscape will be regularly maintained to preserve the attractiveness of the property and views from Kāhala Avenue.

Discussion

As discussed above, the proposed action conforms with the protective provisions tied to the land. All design plans will undergo design review with KCA to ensure the action meets Kāhala community standards.

5.7 SHORELINE SETBACK VARIANCE

A shoreline setback variance is required when structures are planned within the shoreline area. Shoreline area is defined by HRS Chapter 205A-41 as,

“Shoreline area’ shall include all of the land area between the shoreline and the shoreline setback line and may include the area between mean sea level and the shoreline; provided that if the highest annual wash of the waves is fixed or significantly affected by a structure that has not received all permits and approvals required by law or if any part of any structure in

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violation of this part extends seaward of the shoreline, then the term ‘shoreline area’ shall include the entire structure.”

Non-permitted shoreline structures existed fronting the ocean side of both lots. The eastern lot is protected by a sloping rock revetment 10 to 15 feet wide and reaching an elevation of approximately seven feet. The lot to the west is protected by a vertical seawall with a CRM base and stepped face, rising to an elevation of approximately nine feet feet.

Certified Shoreline Requirement

The Office of Conservation and Coastal Lands (OCCL), at the Department of Land and Natural Resources (DLNR), is the regulatory agency responsible for managing land uses on the State’s submerged lands, which extend to the highest wash of the highest wave, as identified by the certified shoreline defined in HRS 205A. Permits for any development on the property are contingent upon a new approved certified shoreline from DLNR. However, DLNR cannot grant a certified shoreline until the un-permitted status of the existing shoreline structures is resolved.

The OCCL and DLNR Land Division have both coordinated the shoreline certification process to assist the subject property in pursuing and attaining a certified shoreline. To this end, the owners voluntarily removed the un-permitted vertical seawall and revetment structures in May 2014. The revised shoreline survey was completed in June 2014, and a certified shoreline was issued in July 2014. To pursue development of a new revetment structure located mauka of the Certified Shoreline, the applicant must obtain approvals from the City and County of Honolulu for a Special Management Area Use Permit (Major) and a Shoreline Setback Variance.

Proposed Improvements in the Shoreline Setback Area

Sloping Rock Revetment

The sloping rock revetment will be located just inland of the certified shoreline. See *Figure 2-9: Proposed Revetment Structure: Plan View*, *Figure 2-10: Proposed Revetment Structure: Section Views I* and *Figure 2-11: Proposed Revetment Structure: Section Views II*. The sloping rock revetment will incorporate a stairway and gate, reaching beach level providing entrance to the property. Figure 5-1 summarizes proposed improvements in the Shoreline Setback Area.

The revetment will be located entirely behind the proposed certified shoreline location, which is approximately 10 to 20 feet inland of the location of the pre-existing seawall and revetment. The revetment crest and face consist of a single layer of armor stone overlying an underlayer and filter fabric. The revetment crest elevation will be +6.0 ft MLLW which is slightly below existing grade of +8 ft MLLW. The revetment crest will support a landscape retaining wall rising to an elevation of +9 ft. The revetment crest is two stones wide, or approximately 4 ft. The revetment face has a slope of 1H:1.5V, which is the steepest face recommended by the USACE’s Shore Protection Manual. The armor stone should be placed in a keyed-and-fitted configuration to increase stability. The revetment toe is two stones wide (approximately 4 feet) and will be trenched into the hard, limestone substrate. The horizontal footprint of the revetment is 17 feet.

The rough face and porosity of the revetment and toe stones should help dissipate wave energy, reduce wave reflection, and potentially assist in the accretion of sand at the structure toe. Termination at the ends of the revetment should be constructed such that the structure ties into

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the vertical seawall at the west side of the property, and the revetment on the east side. Proper end termination is important in order to prevent flanking, which occurs when an unprotected section lies next to the revetment, and is eroded to the point where supporting sediments behind revetment are exposed. The termination will consist of a vertical wall extending inland approximately 25 feet from the seaward face of the neighboring structures to the east and west to the proposed retaining wall location at the revetment crest. Stairway access and gate to the shore will be built into the termination wall at the east end of the property.

Perimeter Walls

Existing perimeter walls around the property will be removed and replaced with a six-foot high CMU wall. Within the 40-foot shoreline setback area, the mauka 25 feet will step down to four-foot tall and the makai 15 feet will step down again to two feet tall. See *Figure 5-2*.

Walkways and Paved Areas

Approximately 120 linear feet of five-foot wide stone walkways are proposed within the 40-foot setback. The walkways would cover approximately 900 SF. The pathways are wide enough for wheelchair accessibility and lead to the beach stairs and two beach viewings sites in each corner of the property (approximately 900 SF each).

Landscaping

Inland of the proposed shoreline structure is the proposed location of an approximately two-foot wide landscaping bed which may include naupaka and other plants as shown on *Figure 2-7: Plant Palette*.

Fencing

Low fencing is proposed behind the landscaping bed. Fencing would be approximately 3 ft. 6 in. tall, constructed of steel posts and steel tension wires, spanning approximately 120 linear feet in front of the property. The fence will extend down the west wall of the stairway.

Drainage System Improvements

Based on the current design, there will be no drainage structures proposed within the 40-foot shoreline setback. If the proposed finish floor elevation for the residence is required to be lowered during the building permit review process, the topography of the lot may necessitate a subsurface drainage system to be installed to mitigate the increase in stormwater. The proposed subsurface drainage design may consist of infiltrator trenches and/or a proprietary chamber system that provides storage for stormwater while it infiltrates through the ground. The drainage system would be installed underground in the lawn area along the makai side of the dwelling.

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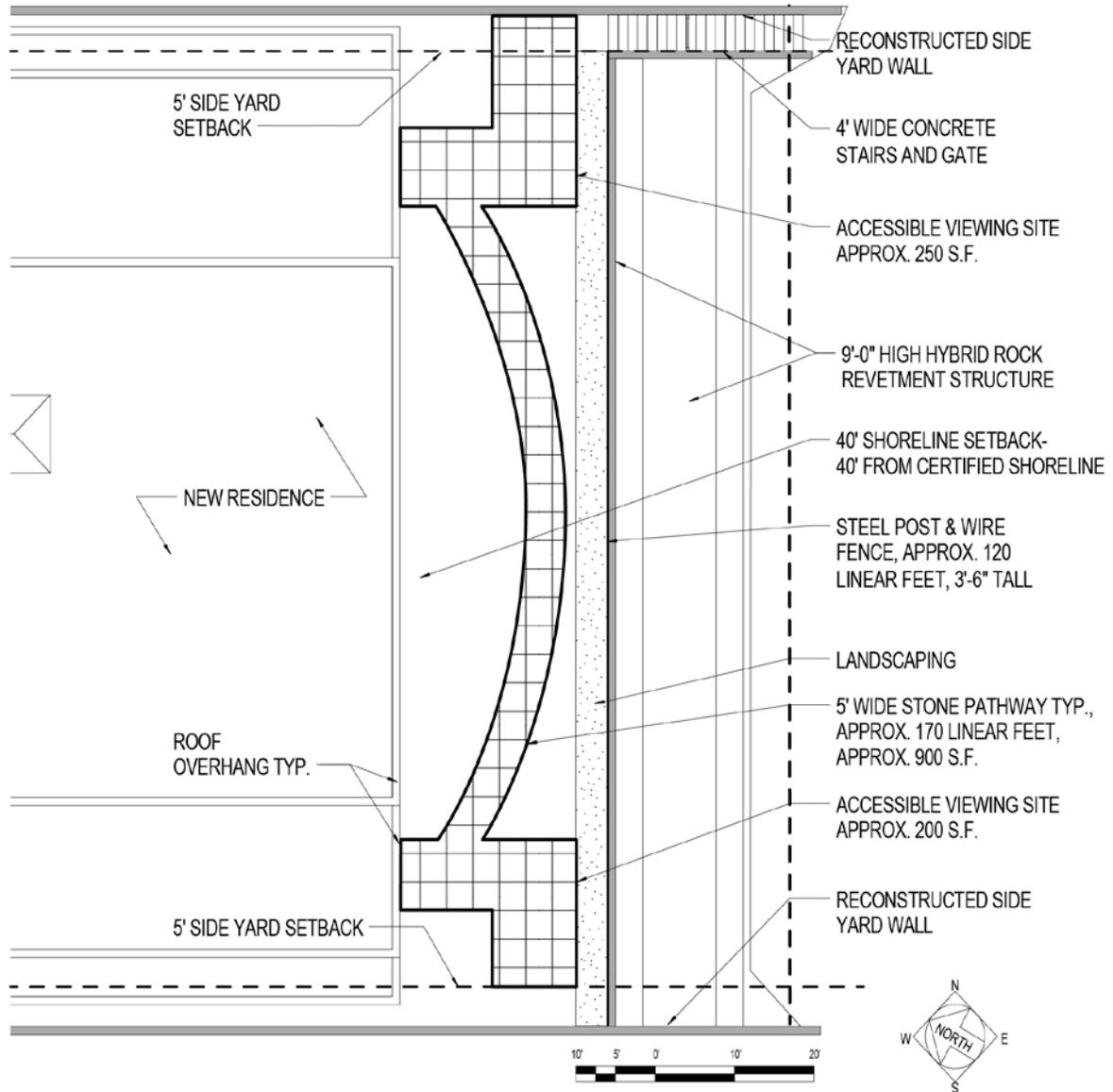


Figure 5-2 Planned Improvements in the Shoreline Setback Area (7/02/14)

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Criteria for Granting a Shoreline Setback Variance

Criteria for granting a shoreline setback variance are provided in Part III of HRS Chapter 205A-46 and Chapter 23-1.8, ROH. The planned sloping rock revetment is anticipated to meet the criteria required for a Shoreline Setback Variance under both regulations.

HRS Chapter 205A-46 (a) (9) reads:

- (a) A variance may be granted for a structure or activity otherwise prohibited in this part if the authority finds in writing based on the record presented that the proposed structure of activity is necessary or ancillary to:
 9. Private facilities or improvements that may artificially fix the shoreline; provided that the authority also finds that the shoreline erosion is likely to cause hardship to the applicant if the facilities or improvements are not allowed within the shoreline area, and the authority imposes conditions to prohibit any structure seaward of the existing shoreline unless it is clearly within the public interest.

Erosion is a serious concern with the removal of the seawall structures at the subject properties. According to Sea Engineering, Inc.'s Coastal Assessment (July 2014), the subject property had an erosion rate of one foot per year for several decades prior to 1996, when the shoreline was officially designated along the face of the structure. There are no physical changes to the environment that would preclude ongoing fast land erosion (at a rate of one foot per year) should shoreline structures be removed from the property. Erosion of property without the seawall would result in release of sediment into the nearshore waters as the bank erodes. Removal of the shoreline structure would result in negative environmental impacts to the marine environment and further encroachment of the shoreline into the property. Fixing the shoreline with a new permitted shoreline structure located inland of the new certified shoreline will prevent environmental degradation and loss of property resulting from erosion.

The proposed action will also meet the required conditions listed in 205A-46(c). A reconstructed shoreline structure will help to: (1) enlarge and maintain safe lateral shoreline access, (2) minimize adverse impacts on shoreline sediment movement processes, and (3) improve public views along the shoreline.

ROH Chapter 23-1.8 (3) (B) reads:

(3) Hardship Standard.

- (A) A variance may be granted for an activity or structure that is necessary or ancillary to the following private facilities or improvements, if hardship will result to the applicant if the facilities or improvements are not allowed within the shoreline area:
 - (i) Private facilities or improvements which will neither adversely affect beach processes nor artificially fix the shoreline; and
 - (ii) Private facilities or improvements that may artificially fix the shoreline, but only if hardship is likely to be caused by shoreline erosion and conditions are imposed prohibiting any such structure seaward of the existing shoreline unless it is clearly in the public interest.
- (B) For the purposes of this subsection, hardship may be found only if:
 - (i) The applicant would be deprived of reasonable use of the land if required to comply fully with the shoreline setback ordinance and the shoreline setback rules;
 - (ii) The applicant's proposal is due to unique circumstances and does not draw into question the reasonableness of this chapter and the shoreline setback rules; and

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(iii) The proposal is the practicable alternative which best conforms to the purpose of this chapter and the shoreline setback rules.

(C) Before granting a hardship variance, the director must determine that the applicant's proposal is a reasonable use of the land. Because of the dynamic nature of the shoreline environment, inappropriate development may easily pose a risk to individuals or to the public health and safety. For this reason, the determination of the reasonableness of the use of land should properly consider factors such as shoreline conditions, erosion, surf and flood conditions and the geography of the lot.

(D) Hardship shall not be determined as a result of a zone change, plan review use approval, subdivision approval, cluster housing approval, planned development housing approval, conditional use permit, or any other discretionary land use permit granted after June 16, 1989.

The proposed action meets the ROH 23 Hardship standard for the following reasons:

(B)(i): The proposed action meets this hardship standard, as it is a private facility that will artificially fix the shoreline due to hardship caused by erosion. The removal of the existing structures without replacement would instantly result in erosion of the fast land at an active erosion rate (one foot per year). This action would release large quantities of earth material into the nearshore water while causing a significant landward movement of the shoreline, and potentially destabilizing neighboring shoreline structures. Replacement of the structure would prevent further erosion and provide stability to neighboring structures.

(B)(ii): The request for a sloping rock revetment at the subject property is due to unique circumstances. Two non-conforming shoreline structures were located on the subject properties. The State DLNR OCCL has requested removal of these structures and is in agreement to reconstructing conforming structures behind a new Certified Shoreline. The removal of these shoreline structures will remove remnants of the old seawalls from the State jurisdiction, and restore lateral shoreline access for the public. The shoreline width will increase 12 to 20 feet with removal of the old seawall structures and installation of a new revetment at the new shoreline location. Removal of the existing seawalls and reconstruction of legal sloping rock revetment would bring the properties into compliance with the State and the City shoreline regulations.

(B)(iii): In Chapter 4.0 Alternatives to the Proposed Action, a number of different alternatives to seawall construction were considered, including structure removal, revetment, sand bags, beach nourishment and the proposed seawall. From an engineering, geological and environmental standpoint, a sloping rock revetment was determined to be the best practicable alternative that best met the purpose of the shoreline setback rules.

5.8 CITY & COUNTY OF HONOLULU SPECIAL MANAGEMENT AREA GUIDELINES

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. An SMA Permit application will be submitted to the City and County of Honolulu Department of Planning and Permitting.

The objectives, policies and SMA guidelines, as set forth in Chapter 205A, Hawai'i 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.

Special controls on development within this area are necessary to avoid permanent loss of valuable resources and foreclosure of management options. Sections 25-3.1 and 3.2 of the Revised Ordinances of Honolulu (ROH) are used by the City and County of Honolulu Department of Planning and Permitting and the Honolulu City Council for the review of developments proposed in the Special Management Area (SMA). The objectives and policies for Section 25-3.1 are contained in HRS Section 205A 2 and are addressed in this chapter in Section 5.2 Hawai'i Coastal Zone Management Program. ROH Section 25-3.2 Review Guidelines are derived from Section 205A-26 HRS. The consistency of the proposed project with these guidelines is discussed below.

1. All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that:

- a. Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles;
- b. Adequate and properly located public recreation areas and wildlife preserves are reserved;
- c. Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources; and
- d. Alterations to existing land forms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.

Discussion: The project will require a Special Management Area Use Permit (Major). This environmental assessment is being prepared pursuant to Chapter 25 ROH and Chapter 343 HRS to support the SMA permit application. Public access to the shoreline area will be preserved and lateral shoreline access will be enhanced. Provisions will be made to ensure solid and liquid waste treatment, disposition, and management will have minimum adverse effects upon Special Management Area resources. Refer to the Preliminary Engineering Report in Appendix A. The project will require removal of scrub/weed vegetation (non-native species) and grading and grubbing for the construction of new facilities. The proposed new shoreline structure will minimize the adverse effects to water resources due to erosion, siltation and flooding. Views from Kāhala Avenue will also be improved with new landscaping.

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2. No development shall be approved unless the council has first found that:

- a. *The development will not have any substantial, adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect and the elimination of planning options;*
- b. *The development is consistent with the objectives and policies set forth in Section 25-3.1 and area guidelines contained in HRS Section 205A-26;*
- c. *The development is consistent with the county general plan, development plans and zoning. Such a finding of consistency does not preclude concurrent processing where a development plan amendment or zone change may also be required.*

Discussion: Potential environmental impacts of the proposed project and the mitigation strategies to minimize adverse effects are described in Chapter 3 of this EA. Chapter 5 of this EA describes the action's consistency with applicable plans and policies.

3. The council shall seek to minimize, where reasonable:

- a. *Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;*
- b. *Any development which would reduce the size of any beach or other area usable for public recreation;*
- c. *Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;*
- d. *Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and*
- e. *Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.*

Discussion: The project will not restrict or negatively impact public access to the ocean and shoreline area. Site improvements will be mauka of the shoreline setback. The shoreline width will increase 12 to 20 feet with removal of the old seawall structures and installation of a new revetment at the new shoreline location. Best management practices and other mitigative strategies will be utilized to minimize effects on water quality.

5.9 LAND USE ORDINANCE SECTION 21-9.10 FLOOD HAZARD DISTRICTS

The Honolulu Land Use Ordinance Section 21-9.10 is enacted pursuant to the U.S. national Flood Insurance Act of 1968, as amended, and the U.S. Flood Disaster Protection Act of 1973, as amended. Areas that are subject to periodic inundation by flooding and/or tsunami may result in loss of life and property. The purposes of establishing flood hazard districts are to protect life and property and reduce public costs for flood control, rescue, and relief efforts. The parcels are located in Zone X as shown on the 2011 FEMA Digital Flood Insurance Rate Map (DFIRM) (refer to Figure 3-2). Zone X is described as area outside of the 0.2% annual chance floodplain.

Discussion: The parcels are not located in a Flood Hazard District as defined by the LUO Sec. 21-9.10. The project is not subject to development standards within the Flood Hazard District.

6.0 FINDINGS SUPPORTING ANTICIPATED DETERMINATION

6.0 FINDINGS SUPPORTING ANTICIPATED DETERMINATION

6.1 ANTICIPATED DETERMINATION

After reviewing the significance criteria outlined in Chapter 343, Hawai'i Revised Statutes (HRS), and Section 11-200-12, State Administrative Rules, Contents of Environmental Assessment, the proposed action has been determined to not result in significant adverse effects on the natural or human environment. A Finding of No Significant Impact (FONSI) is anticipated.

6.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

The potential impacts of the residential improvements have been fully examined and discussed in this Draft Environmental Assessment. As stated earlier, there are no significant environmental impacts expected to result from the proposed action. This determination is based on the assessments as presented below for criterion (1) to (13).

(1) *Involve an irrevocable loss or destruction of any natural or cultural resources.*

The archaeological and cultural landscapes have been documented in studies conducted specifically for the project area. As detailed in *Section 3.12 and 3.13* of this report, the project does not involve any known loss or destruction of existing natural or cultural resources. The only specific area of concern is the unknown potential for the inadvertent discovery of subsurface historical or cultural resources, including the unknown possibility of iwi kūpuna (ancestral remains).

Given the potential for an inadvertent find, archaeological monitoring is recommended during demolition and construction. If any cultural, historic, or archaeological resources are unearthed or ancestral remains are inadvertently discovered, the State Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD), the O'ahu Island Burial Council representative and participating interests from lineal descendents and individuals will be notified. The treatment of these resources will be conducted in strict compliance with the applicable historic preservation and burial laws.

No threatened or endangered species would be impacted by the proposed action.

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

The proposed activities will not curtail the range of beneficial uses of the environment. Existing uses conform to existing land use designations. The project would actually increase beneficial uses of the parcels, replacing vacant, untended land with a residential use, seawall and landscaping.

There will be no impact on public access to the shoreline and no significant change in lateral access along the shore. The shoreline width will increase 12 to 20 feet with removal of the old

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seawall structures and installation of a new revetment at the new shoreline location. There will be no impact to fishing on the reef flat seaward of the project site.

- (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 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. State waters will not be impacted in any way.

- (4) *Substantially affects the economic or social welfare of the community or State.*

The project would have no adverse social or economic impact to the state. Short-term economic benefits anticipated during construction will include direct, indirect, and induced employment opportunities and multiplier effects but not at a level that would generate significant economic expansion. The seawall will have some positive economic impact to the applicant by preventing erosion and loss of land.

- (5) *Substantially affects public health.*

The project is consistent with existing land uses and is not expected to affect public health, except in beneficial ways mentioned in item (4) above. However, there will be temporary short-term impacts to air quality emanating from possible dust emissions and temporary degradation of the acoustic environment in the immediate vicinity resulting from construction equipment. Construction-related impacts of noise, dust, and emissions will be mitigated by compliance with the State Department of Health Administrative Rules.

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

The approval will not have substantial secondary impacts, such as population changes or effects on public facilities.

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

The project will have no significant adverse environmental impacts nor will it degrade environmental quality. It will not degrade water quality, nor impact marine flora and fauna. The proposed seawall is visually consistent with the existing protected shore on both sides of the project site.

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

The project would not involve cumulative impacts and is not a precursor for other future actions.

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

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

The project area does not contain identified rare, threatened or endangered species or habitat. No impact is anticipated.

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

General temporary impacts associated with construction have been identified in this EA. Mitigation measures which are outlined in this EA will be applied during the on-going construction activity. No debris, petroleum products, or other construction-related substances or materials will be allowed to flow, fall, leach or otherwise enter the coastal waters. Best Management Practices will be adhered to during construction to minimize environmental pollution and damage. There will be some additional noise above ambient during construction resulting from equipment operation (trucks, back hoe, concrete operations). No detrimental long-term impacts to air, water, or acoustic quality are anticipated with the proposed residential action.

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

The proposed seawall revetment may be subject to prevailing wave conditions at the shoreline, particularly during summer season high surf or Kona storms. The seawall revetment will provide erosion and storm wave protection. The seawall revetment will not alter erosion or coastal processes because it is in the middle of 2,500 feet of shoreline hardened by vertical seawalls and the occasional revetment. If a shoreline protection structure is not maintained at the subject property, then both the subject property and the abutting properties may be affected by erosion.

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

The site is only visible from Kāhala Avenue and the public shoreline. The residence will not exceed 25 feet in height will have a no effect on public views of Diamond Head or other scenic view planes. Landscaping will enhance views from Kāhala Avenue.

(13) *Require substantial energy consumption.*

The action will increase power consumption from the island's electrical grid. However, energy-saving measures such as a selection of energy-efficient systems for air-conditioning, lighting and water heating will help to reduce consumption.

6.3 SUMMARY

Based on the above findings, the residential action does not have significant socio-economic or environmental impacts. The Environmental Assessment recommends mitigation measures to alleviate impacts when such impacts are identified. The action is consistent with the Hawai'i State Land Use District Boundaries; the Hawai'i Coastal Zone Management Plan, the City's General Plan and Development Plan; the City's Zoning Ordinance, and Special Management Area regulations.

7.0 LIST OF REFERENCES

7.0 LIST OF REFERENCES

City and County of Honolulu, Planning Department, 1992. General Plan for City and County of Honolulu.

City and County of Honolulu, Department of Planning and Permitting, April 2003. Land Use Ordinance.

City and County of Honolulu, Department of Planning and Permitting, June 2004. Primary Urban Center Development Plan.

U.S Department of Agriculture, Soil Conservation Service, August 1972. Soil Survey of Islands of Kaua'i, O'ahu, Maui, Moloka'i and Lāna'i, State of Hawai'i. Prepared in cooperation with the University of Hawai'i Agricultural Experiment Station.

Group 70 International, Inc., February 2014. Preliminary Engineering Report for Kahala Residence.

Rider Levett Bucknall, January 2014. 4465/4469 Kahala Avenue Residence Construction Cost Estimate.

Scientific Consulting Services, February 2014. An Archaeological Assessment of Two Lots in Kahala.

Scientific Consulting Services, February 2014. A Cultural Impact Assessment for Two Lots in Kahala.

Sea Engineering, Inc., February 2014. Coastal Assessment for 4465 and 4469 Kahala Avenue.

State of Hawai'i, Department of Business, Economic Development, and Tourism, OSP, Coastal Zone Management Program (1996). Hawai'i's Coastal Nonpoint Pollution Control Program Management Plan, Volume I.

State of Hawai'i, Department of Health (September 2013). State of Hawai'i Annual Summary 2012 Air Quality Data.

<https://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/MBTANDX.HTML>

7.1 GEOGRAPHICAL INFORMATION SYSTEMS DATA

All maps produced using GIS are based on source data available from the Federal Government, State of Hawai'i and County of Hawai'i resources.

Aerial Imagery

Google Earth Aerial Imagery, 2013.

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

Agricultural Lands of Importance to the State of Hawai'i (ALISH)
State Department of Agriculture, 1977 (Original).

DFIRM/Flood Hazard Zones
FEMA 2011

Land Ownership
City and County of Honolulu, July 2013

Land Study Bureau (LSB) Detailed Land Classification
State of Hawai'i Office of Planning, December, 2012

Parks
City and County of Honolulu, July 2013

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City and County of Honolulu, July 2013

Soils
U.S. Department of Agriculture, Natural Resources Conservation Service, 2002

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Office of Planning, State of Hawai'i, October, 2009

State Land Use District
Office of Planning, State of Hawai'i, July, 2013

Tax Map Key
City and County of Honolulu, July, 2013

Tsunami Evacuation Zone
City and County of Honolulu, August, 2010

Zoning
City and County of Honolulu, July 2013

8.0 AGENCIES AND PARTIES CONSULTED

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

8.0 AGENCIES AND PARTIES CONSULTED

Table 8-1 lists the agencies, organizations, and individuals who were contacted during the planning process. Copies of the written comment letters and responses are included in this section.

Table 8-1: Agencies and Parties Consulted

DISTRIBUTION	EA Pre-Consultation (1/24/14)	EA Pre-Consultation Comments Received	Receiving Draft EA	Comments Received	Receiving Final EA/FONSI
A. Federal Agencies or Affiliates					
U.S. Army Corps of Engineers, Honolulu District			X		X
U.S. Dept. of the Interior, Fish and Wildlife Service			X	X	X
B. State Agencies					
DBEDT, Office of Planning			X	X	X
Department of Health (DOH)			X		X
Department of Land and Natural Resources (DLNR)			X	X	X
DLNR, State Historic Preservation Division			X (HC)		X
DLNR, Office of Conservation and Coastal Land (OCCL)	X		X		X
Office of Environmental Quality Control			X		X
Office of Hawaiian Affairs (OHA)			X		X
University of Hawai'i, Environmental Center			X		X
C. City and County of Honolulu					
Board of Water Supply			X	X	X
Department of Planning and Permitting (DPP), Land Use Approval Branch	X		X	X	X
Honolulu Police Department			X	X	X
Honolulu Fire Department			X	X	X
Wai'alaie-Kāhala Neighborhood Bd. No. 3 (Chair Arnold Annie Brady)	X		X		X
D. Elected Officials					
State House Rep. Bertrand Kobayashi (District 19)			X	X	X

KĀHALA RESIDENCE AND SHORELINE STRUCTURE

Final Draft Environmental Assessment

DISTRIBUTION	EA Pre-Consultation (1/24/14)	EA Pre-Consultation Comments Received	Receiving Draft EA	Comments Received	Receiving Final EA/FONSI
State Senator Sam Slom (District 9)			X		X
Councilmember Stanley Chang (Council District 4)			X		X
Councilmember Ikaika Anderson, Chair, Zoning and Planning Committee			X		X
E. Libraries					
Hawai'i State Library			X		X
Kaimuki Public Library			X		X
F. Organizations, Individuals					
Kahala Community Association	X		X		X
John and Lucinda Pyles				X	X

2014/EL07-862



RECEIVED
United States Department of the Interior



14 MAY 13 12:31
FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122,
Honolulu, Hawaii 96850

DEPT OF PLANNING AND PERMITTING
CITY & COUNTY OF HONOLULU

In Reply Refer To:
2014-TA-0227

Mr. George I. Atta
FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

MAY 12 2014

Subject: Technical assistance for the proposed Kahala Residence and Shoreline Structure Draft Environmental Assessment (DEA)

Dear Mr. Atta:

The U.S. Fish and Wildlife Service (Service) received your letter, dated March 18, 2014, in which you requested our comments on the Draft Environmental Assessment for the proposed residential structures and replacement of a seawall and revetment in Kahala, Oahu. This response is in accordance with sect 7 of the Endangered Species Act (ESA) of 1973, as amended [16 U.S.C. 1531 *et seq.*]. The proposed project involves the construction of two new two-story residential structures, a garage, and a pool; and the replacement of an existing seawall and revetment with one single newly constructed seawall spanning both TMKs. The existing seawall and revetment are approximately 60-foot (ft) in length and between 5 and 8-foot in height. All new residential structures will be developed outside of the 40-foot shoreline setback, and the new seawall will be set back 5-foot from the existing seawall and revetment and rise to an elevation between eight and 10-foot. The new structures will have a connection to the main water line, a sewer connection, and solid waste collection services. In addition, a drainage system will be put in place to retain the storm water generated by the 10-year 1-hour design storm event and the excess runoff that will be generated by the proposed development. The new seawall will consist of vertical poured-in-place concrete located at the certified shoreline. The inland side of the seawalls will have granular backfill material wrapped with filter fabric.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity Mapping Program. There is no designated or proposed critical habitat under the ESA, or National Wildlife Refuges, wilderness areas, or wildlife preserves in the vicinity of the proposed project. However, our records indicate the federally endangered hawksbill sea turtle (*Eretmochelys imbricata*) and the federally threatened green sea turtle (*Chelonia mydas*) may occur within the project vicinity. In addition, the federally endangered Hawaiian monk seal (*Monachus schauinslandi*) may use beach habitat in the vicinity of the proposed project. The National Marine Fisheries Service (NMFS) is the

Federal agency that consults on potential impacts to monk seals, both in their on-shore and ocean habitats. Therefore, we did not review the proposed project for potential project impacts to monk seals. We recommend that you contact NMFS regarding the presence of monk seals in the area and potential impacts to the species from the project.

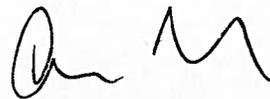
Sea Turtles

The proposed project is within the vicinity of nesting habitat for the endangered hawksbill turtle and threatened green turtle, collectively referred to as sea turtles. Artificial lighting can disorient adult sea turtles and hatchlings by affecting their ability to find the ocean. To minimize potential impacts to sea turtles that may utilize beaches in the project vicinity, no light from the proposed project should be visible from the beach. We recommend installation of shielded lighting at construction sites near beaches and around shoreline developments. Shielded lights reduce the direct and ambient lighting of beach habitats within and adjacent to the project site. Effective light shields should be completely opaque, sufficiently large, and positioned so that light from the shielded source does not reach the beach. Projects should also be designed to minimize adverse impacts to basking or nesting sea turtles from off-leash pets, mammalian predators, and human disturbance.

The incorporation of infiltrative best management practices (BMP) and sustainable strategies to retain storm water and expected increase in runoff quantities over existing conditions, as described in the DEA, will benefit the nearby marine habitat. Additionally, the setback of the new seawall by 5-ft further inland will increase the natural shoreline area. However, because the destruction of the old seawall and revetment, and the construction of the new seawall, may cause soil erosion and sedimentation in the marine environment, we are attaching the Service's recommended BMPs regarding sedimentation and erosion in aquatic environments. We encourage you to incorporate the relevant practices into your project design and final EA.

We appreciate your efforts to conserve endangered species. If you have any questions concerning these recommendations please contact Carrie Harrington, Fish and Wildlife Biologist (phone: 808-792-9400; fax: 808-792-9581).

Sincerely,



Aaron Nadig
Acting Assistant Field Supervisor:
Oahu, Kauai, NWHI, Am. Samoa

Attachment:

**U.S. Fish and Wildlife Service
Recommended Standard Best Management Practices**

The U.S. Fish and Wildlife Service (USFWS) recommends the following measures to be incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the USFWS, other federal, state or local agencies. If you have questions concerning these BMPs, please contact the USFWS Aquatic Ecosystems Conservation Program at 808-792-9400.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.
2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.
3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.
4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see <http://www.haccp-nrm.org/Wizard/default.asp>) can help to prevent attraction and introduction of non-native species.
5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.
6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.
7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.



August 19, 2014

Aaron Nadig, Acting Assistant Field Supervisor
US. Dept. of the Interior, Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

PRINCIPALS

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Tom Young, MBA
AIA

Paul T. Matsuda
PE, LEED AP

OF COUNSEL

Ralph E. Portmore
FAICP

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Mr. Nadig,

Thank you for sharing the comment letter to DPP Director George Atta dated May 12, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure. We provide the following responses.

The existing unauthorized seawalls were removed from the property in May 2014 to allow for the shoreline survey to be completed. Soil erosion protection measures were taken during the removal. With the removal of the unauthorized structures this added roughly 12 to 20 feet to the width of the public shoreline area. In addition, the project plans were changed from a vertical seawall to a sloping rock revetment, located at a position approximately 10 feet inland of the location previously shown in the Draft EA.

The Final EA shows the planned location of the new revetment structure, which will widen the shoreline frontage. This action provides a greater area of sand patch/beach habitat which is potentially available for infrequent/occasional use by sea turtles and monk seals referenced in your letter. Our discussion with Tracy Wurth, Biologist at NOAA Fisheries, Hawaiian Monk Seal Research Program, indicates very few monk seals sightings at the Kahala beaches. Lighting planned for the new residence and landscape is designed with shielding to avoid adverse effects to the beach habitats. Best Management Practices (BMP) will be followed during the construction period.

We appreciate your participation in the environmental review. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im; George Atta, DPP



HOUSE OF REPRESENTATIVES

STATE OF HAWAII
STATE CAPITOL
415 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813

April 11, 2014

RECEIVED

'14 APR 11 P2:02

DEPT OF PLANNING
AND PERMITTING
CITY & COUNTY OF HONOLULU, HI

George I. Atta, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Subject: Draft Environmental Assessment
Chapter 343, Hawaii Revised Statutes

Applicant: Kyong-su 1m Agent: Group 70 International
Tax Map Key: 3-5-3: 2 and 3
Request: Special Management Area Use Permit and Shoreline Setback Variance
Proposal: Reconstruction of a seawall within the 40-foot-shoreline setback and construction of two new single-family dwellings.

Dear Director Atta,

As the State Representative for Kahala, I would like to support the attached comments from John and Lucinda Pyles whose photos of Kahala beach over several decades show clearly that man-made seawalls reduce the sandy beach in the area and that removal or lack of man-made seawalls enhance and enlarge the beach.

I assume that you have already seen the letter to you from John and Lucinda Pyles dated April 7, 2014 with the accompanying photos as I have attached. These attached photos while good evidence in themselves can be supplemented by Mr. and Mrs. Pyles with other photos taken over the decades which dramatically show enlarged beaches, where and when there are no man-made seawalls.

Please help improve and enlarge the beach at Kahala by not allowing reconstruction of a man-made seawall.

Sincerely yours,

A handwritten signature in black ink that reads "Bertrand Kobayashi".

Bertrand Kobayashi
State Representative
House District 19
Diamond Head, Kahala, Kaimuki, Kapahulu

Enclosure



August 5, 2014

Bertrand Kobayashi, State Representative
State of Hawai'i, State Capitol
415 South Beretania Street
Honolulu, HI 96813

PRINCIPALS

Francis S. Oda, Arch.D.,
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Tom Young, MBA
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Paul T. Matsuda
PE, LEED AP

OF COUNSEL

Ralph E. Portmore
FAICP

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Rep. Kobayashi,

Thank you for your comment letter to DPP Director George Atta dated April 11, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kāhala Residence and Shoreline Structure. We also thank you for forwarding the letter and exhibits from John and Lucinda Pyles dated April 7, 2014. The historical account of the Kāhala beachfront parcels is very informative.

We acknowledge your comments on the Draft EA and offer the following in response to your comments.

1. The Department of Land and Natural Resources (DLNR) Office of Coastal and Conservation Lands (OCCL) is the regulatory agency responsible for managing land uses on the State's submerged lands, which extend to the highest wash of the highest wave, as identified by the certified shoreline defined in HRS 205A. The OCCL and DLNR Land Division have both coordinated the shoreline certification process to assist the subject property in pursuing and attaining a certified shoreline. The process requires removal of the existing shoreline structures, and will result in placement of new, engineered structures inland of the certified shoreline location. The OCCL, the regulatory agency responsible for the State's submerged lands, is supportive of this effort, with the understanding that the project will not change the existing coastal processes or coastal environment.
2. Reconstruction with a sloping rock revetment is a better alternative to continuing the existing situation at the subject properties. The new certified shoreline will be mauka of the existing wall and the existing structure, revetment and rubble will be removed from the State jurisdiction, bringing the properties into compliance with DLNR OCCL regulations. The action would visually improve the shoreline area through construction of a new, authorized, properly-engineered shoreline structure, inland of the certified shoreline. With removal of the old seawall and revetment structures, lateral public access to the shoreline area will be restored.
3. The subject properties include shoreline structures which are located in the middle of an almost 2,500-foot length of armored shoreline in Kāhala. The presence of the seawall does not appreciably change the character of this shoreline.
4. The erosion history of Kāhala has been analyzed with aerial photographys by the University of Hawai'i (UH) Coastal Geology Group (CGG), the officially

recognized beach erosion experts for the State and counties. The UHCGG compared the low water mark on a series of aerial photographs between 1949 and 2005 and a National Ocean Survey topographic survey chart from 1925. Although a narrow beach was visibly present in 1967 and 1975, the UHCGG has not identified a true beach in this area since before 1996.

5. As with other areas on O'ahu, the entire Kāhala coastline has seen some retreat over past decades. There is a deficit in available sand that would be needed for beach development in this portion of Kāhala's coastline. The primary reason why there are no beaches in this stretch of coastline is due to the lack of sand resources and shallow near shore reef flats which limits sand movement.
6. A team of coastal engineers and scientist studied the Kāhala shoreline in this area. The studies indicate that local shoreline sand patches are of small volume and low elevation, and are only exposed at the lowest tides. The sand patch is very narrow fronting 4465 Kāhala and non-existing at 4469 Kāhala.
7. The removal of the existing structures without replacement would instantly result in erosion of the fast land. This action would release large quantities of earth material into the nearshore water while causing a significant landward movement of the shoreline.
8. The suggestion to remove the existing structures without replacement would also destabilize the neighboring shoreline structures. The resulting liability for loss of the neighboring structures, lawn, and potential impacts to the neighboring homes, would fall on the subject property owner.
9. The shoreline is subject to an active erosion rate (one foot per year). The basic physical characteristics of the nearshore ocean and shoreline environment have not changed since before the shoreline structures were built along this area of Kāhala. There is no evidence or technical data to support a claim that the unprotected shoreline areas in Kāhala will not continue to erode at a similar rate in the foreseeable future.

The evaluation of shoreline dynamics at Kāhala concluded that the removal of the former unauthorized structures, and plans to replace with a sloping rock revetment will enlarge the fronting sand patch beach. We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Bertrand Kobayashi, State Representative
Kāhala Residence and Shoreline Structure, Draft EA
August 5, 2014
Page 3 of 3

Please contact me or Kyong-su Im if you have additional questions regarding this project.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

A handwritten signature in black ink, appearing to read "Jeffrey H. Overton". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im
Councilmember Stanley Chang, Senator Sam Slom, Representative Mark Hashem,
Administrator Sam Lemmo DLNR/OCCL

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 4, 2014

Mr. Kyong-su Im
1608 Laukahi Street
Honolulu, HI 96821

via email: imlaw@hawaii.rr.com

Dear Mr. Kyong-su Im,

SUBJECT: Kahala Residence and Shoreline Structure, Draft Environmental Assessment

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Engineering Division; and (2) Division of Aquatic Resources. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji
Land Administrator

Enclosure(s)

c: Group 70 International, Inc.
Attn: Jeffrey H. Overton via email: jho@group70int.com
City and County of Honolulu, Dept. of Planning and Permitting
Attn: Steve Tagawa via email: stagawa@honolulu.gov

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



WILLIAM J. ALFA, JR.
CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 11, 2014

MEMORANDUM

2014 MAR 17 PM 3:50
RECEIVED
LAND DIVISION
14 MAR 12 PM 09:39 ENGINEERING
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

TO: FR:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Oahu District *Benny Chen*
- Historic Preservation

FROM: *LD* Russell Y. Tsuji, Land Administrator
 SUBJECT: Kahala Residence and Shoreline Structure, Draft Environmental Assessment
 LOCATION: Island of O'ahu, Kona District; Tax Map Key(s): 3-5-003: 002 & 003
 APPLICANT: Mr. Kyong-su Im by agent Group 70 International, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found here:

1. Go to: <https://sp01.ld.dlnr.hawaii.gov/LD>
2. Login: Username: LD\Visitor Password: Opa\$\$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Kahala Residence and Shoreline Structure, Draft Environmental Assessment" then click on "Files" and "Download a copy". (Any issues accessing the document should be directed to Jonathan Real, Applications/Systems Analyst at 587-0427.)

Please submit any comments by **April 4, 2014**. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

() We have no objections.
 () We have no comments.
 (/) Comments are attached.

Signed: *Cory S. Chong*
 Print Name: Cory S. Chong, Chief Engineer
 Date: 3/17/14

**DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION**

LD/Russell Y. Tsuji
REF: DEA for Kahala Residence and Shoreline Structure
Oahu.016

COMMENTS

- (X) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.**
- () Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone ____.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

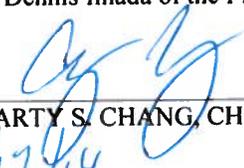
- () Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
- () Mr. Carolyn Cortez at (808) 270-7813 of the County of Maui, Department of Planning.
- () Mr. Stanford Iwamoto at (808) 241-4884 of the County of Kauai, Department of Public Works.

- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

- () Additional Comments: _____

- () Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed:  _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 3/17/14 _____



FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- Zone A:** No BFE determined.
- Zone AE:** BFE determined.
- Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** 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.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY: HONOLULU
TMK NO: (1) 3-5-003-002
PARCEL ADDRESS: 4469A KAHALA AVE
 HONOLULU, HI 96816
FIRM INDEX DATE: JANUARY 19, 2011
LETTER OF MAP CHANGE(S): NONE
FEMA FIRM PANEL(S): 15003C0369G
PANEL EFFECTIVE DATE: JANUARY 19, 2011

PARCEL DATA FROM: APRIL 2013
IMAGERY DATA FROM: MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator
 City and County of Honolulu
 Mario Siu-Li, CFM (808) 768-8098
State NFIP Coordinator
 Carol Tyau-Beam, P.E., CFM (808) 587-0267

Disclaimer: The Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR from any liability, which may arise from its use.

If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



RECEIVED
LAND DIVISION

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

2014 APR -1 PM 2:47



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 11, 2014

MEMORANDUM



DAR #4948

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Oahu District *Danny Chen*
- Historic Preservation

JK ✓
AT ✓

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Kahala Residence and Shoreline Structure, Draft Environmental Assessment

LOCATION:

Island of O'ahu, Kona District; Tax Map Key(s): 3-5-003: 002 & 003

APPLICANT:

Mr. Kyong-su Im by agent Group 70 International, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found here:

1. Go to: <https://sp01.ld.dlnr.hawaii.gov/LD>
2. Login: Username: LDVisitor Password: 0pa\$\$word0 (first and last characters are zeros)
3. Click on: Requests for Comments
4. Click on the subject file "Kahala Residence and Shoreline Structure, Draft Environmental Assessment" then click on "Files" and "Download a copy". (Any issues accessing the document should be directed to Jonathan Real, Applications/Systems Analyst at 587-0427.)

Please submit any comments by **April 4, 2014**. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed:

Print Name:

Date:

[Signature]
FRASER MCGILWRAY
MAR 31 2014

Date: March 28, 2014
DAR # 4948

MEMORANDUM

TO: Frazer McGilvrey, Administrator
FROM: Annette Tagawa, Aquatic Biologist *AT*
SUBJECT: Draft Environmental Assessment

Comment	Date Request	Receipt	Referral	Due Date
	March 11, 2014	March 12, 2014	March 12, 2014	April 4, 2014

Requested by: Russell Y. Tsuji, Land Division Administrator

Summary of Proposed Project

Title: Kahala Residence and Shoreline Structure, Draft Environmental Assessment

Project by: Mr. Kyong-su Im by agent Group 70 International, Inc.

Location: Island of Oahu, Kona district; Tax Map Key(s): 3-5-003: 002 & 003

Brief Description: The owner is seeking to joint develop the two lots to construct two single-family residences, a garage, pool, driveway and new shoreline structure with landscaping. The total floor area of improvements will be approximately 27,037 square feet. The proposed action requires removal of an existing shoreline structure and remnant deck and walkway materials from the site. The site will require some vegetation clearing, grubbing, minor grading and excavation (cut and fill), general construction and landscaping.

Comments: The Division has no objections to the proposed project since it is not expected to have significant adverse impact on aquatic resource values in this area. The Division is also in agreement with the Best Management Practices (BMPs) that have been suggested by the applicant. In addition to the listed BMPs, we request that the applicant should take mitigative measures during construction activities to prevent contaminants such as sediment, pollutants, petroleum products, and other debris from possibly entering the aquatic environment. We also suggest that site work be scheduled during periods of minimal rainfall and lands denuded of vegetation be replanted or covered as quickly as possible to control erosion.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plans, DAR requests the opportunity to review and comment on those changes.



August 5, 2014

State of Hawaii Department of Land and Natural Resources
Land Division
Attn: Russell Y. Tsuji
P.O. Box 621
Honolulu, HI 96809

PRINCIPALS

Francis S. Oda, Arch.D.,
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Tom Young, MBA
AIA

Paul T. Matsuda
PE, LEED AP

OF COUNSEL

Ralph E. Portmore
FAICP

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Mr. Tsuji,

Thank you for the Department's letter dated April 4, 2014 with comments concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure. We acknowledge the Draft EA comments from Engineering Division and Division of Aquatic Resources and offer the following responses:

Engineering Division

Thank you for confirming that the parcels are located within the Flood Insurance Rate Map Zone X, and that the National Flood Insurance Program does not regulate developments within Zone X.

Division of Aquatic Resources

Thank you for confirming the Best Management Practices (BMPs) proposed in the Draft EA. Regarding construction-period BMPs, additional language has been added to *Section 3.8.3 Storm Drainage*:

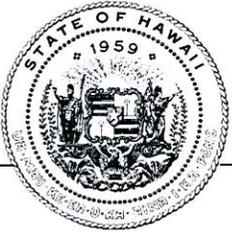
"During the construction period, erosion will be minimized through compliance with the City and County's grading ordinance and the applicable provisions of the DOH's Water Quality Standards (Title 11, Chapter 54, HAR) and Water Pollution Control requirements (Title 11, Chapter 55, HAR). Additionally, standard best management practices will be employed to minimize impacts. These BMPs will be detailed in subsequent construction plans."

We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im



OFFICE OF PLANNING STATE OF HAWAII

NEIL ABERCROMBIE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: <http://planning.hawaii.gov/>

Ref. No. P-14316

March 17, 2014

Mr. Jeffrey H. Overton
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kahala, Oahu, Tax Map Key (TMK): (1)3-5-003: 002 and 003

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (EA) for the subject project at Kahala, Oahu.

According to the Draft EA, the purpose of the proposed project is to jointly develop the two adjacent lots to construct two single-family residences, a garage, pool driveway and new shoreline structure with landscaping. The subject EA was prepared in accordance with Hawaii Revised Statutes (HRS) Chapter 343 for use within a shoreline area and Chapter 25, Revised Ordinance of Honolulu in support of a special management area (SMA) permit application.

The Office of Planning has reviewed the subject Draft EA and has the following comments.

1. Pages 1-3 and 1-4, the Draft EA provided a list of required permits and approvals. The Final EA should correct the term "Shoreline Setback Variance Permit" as "Shoreline Setback Variance." The purpose of shoreline setbacks is to provide a buffer zone to protect beach processes, public access and shoreline open space, and to minimize the risk of coastal hazards to life and property. Pursuant to HRS § 205A-44, structures are prohibited within the shoreline area without a variance. Shoreline setback variance is not a permit.
2. The Final EA should provide references, site-specific aerial photographs and/or pictures under various time horizons for the statement of Draft EA on page 3-19 that very little sand has accumulated along the shoreline in the subject area and there is little evidence of active sand transport along the shoreline.
3. Page 3-20, the Draft EA states that the applicant will remove the existing seawall and revetment, and construct a new seawall approximately five feet further inland. The

RECEIVED

MAR 17 2014

GROUP 70 INTL

Mr. Jeffrey H. Overton

March 2, 2014

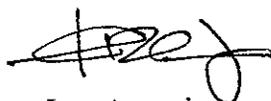
Page 2

Final EA should provide the distance of the proposed seawall from the anticipated certified shoreline, and assess the potential impact of the proposed seawall on the movement of the shoreline.

4. The Draft EA, **5.2 Hawaii Coastal Management Program**, pages 5-1 to 5-5, assessed the compliance of the proposed action with seven of ten coastal zone management (CZM) objectives and their policies. The Final EA should include an assessment as to how the proposed action conforms to all CZM objectives and their supporting policies set forth in HRS § 205A-2. The assessment on compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343 and obtaining the County SMA use approval.
5. For the proposed seawall within the shoreline area, the Final EA should include an assessment as to whether the proposed seawall will meet the required criteria for shoreline setback variance pursuant to Part III of HRS Chapter 205A, and Chapter 23, Revised Ordinance of Honolulu.

If you have any questions regarding this comment letter, please contact Shichao Li at (808) 587-2841.

Sincerely,



Leo Asuncion
Acting Director

c: Mr. Kyong-su Im
Mr. Steve Tagawa
Department of Planning and Permitting
City and County of Honolulu



August 5, 2014

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PE, LEED AP

OF COUNSEL

Ralph E. Portmore
FAICP

State of Hawaii Office of Planning
Attn: Leo Ascuncion, Acting Director
235 S. Beretania Street, 6th floor
Honolulu, HI 96804

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Mr. Ascuncion,

Thank you for your comment letter dated March 17, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure.

We take note of your comments relating to the Draft EA and offer the following in response to your comments.

1. Thank you for the clarification regarding Shoreline Setback Variance. The text on page 1-3 was edited to strikethrough the word "Permit."
2. To address the request for additional information concerning sand in the shoreline area, Sea Engineering, Inc. has updated their Coastal Assessment Study to include aerial photographs, additional ground photographs, an expanded discussion of UH Coastal Geology Group erosion rate data, and discussion of the lack of sediment along this segment of coast. Please refer to the updated Coastal Assessment Study in Appendix D of the Final EA.
3. The project shoreline is located in the middle of a 2,500-foot long segment of shoreline extending east of Black Point. This section of coastline is entirely hardened by vertical seawalls, and the occasional interspersed revetment. There is no sand beach along this stretch of shoreline, only occasional small patches of sand that are mostly covered during higher tide levels. A wide, shallow fringing reef flat significantly limits wave energy reaching the shoreline, and there was no evidence of active sand transport. Removal of the existing non-permitted seawall and revetment and replacement with an engineered seawall located approximately 5 feet further inland, is therefore not expected to alter existing conditions at the site or have negative impacts on the environment.

The shoreline identified by the U.H. Coastal Geology Group is along the face of the shoreline structures along this coastline. Movement of the shoreline structure will affect the shoreline location identified by U.H. Coastal Geology Group. It will move inland with the face of the new structure, approximately five feet. The face of the proposed seawall will be located approximately one foot back from the anticipated

certified shoreline, with the toe of the wall just inland of the pending certified shoreline.

The Office of Conservation and Coastal Lands (OCCL), at the Department of Land and Natural Resources (DLNR), is the regulatory agency responsible for managing land uses on the State's submerged lands, which extend to the highest wash of the highest wave, as identified by the certified shoreline defined in HRS 205A. The OCCL and DLNR Land Division have both coordinated the shoreline certification process to assist the subject property in pursuing and attaining a certified shoreline. The process requires removal of the existing shoreline structures, and will result in placement of new, engineered structures inland of the certified shoreline location. The OCCL, the regulatory agency responsible for the State's submerged lands, is supportive of this effort, with the understanding that the project will not change the existing coastal processes or coastal environment.

4. An assessment of the last three CZM objectives and supporting policies set forth in HRS Chapter 205A-2 has been provided in the Final EA. The additional discussion is provided below and in Section 5.2 of the Final EA.

PUBLIC PARTICIPATION

Objective: Stimulate Public Awareness, Education, and Participation in Coastal Management

- (A) *Promote public involvement in coastal zone management processes;*
- (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 issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site specific mediations to respond to coastal issues and conflicts.*

Public participation is part of the HRS Chapter 343 environmental review process. The Office of Environmental Quality Control (OEQC) publishes notice of the EA availability for public review. The public is allowed 30-days to submit comments on the EA. Information regarding the coastal issues and processes is publically provided in the EA, along with proposed mitigation measures addressing any coastal concerns. Consulted parties in the environmental process are encouraged to provide comments regarding the project during the DEA public review period. Comments submitted through the public review process, and the responses they generate, are all included within the Final EA that is publicly available through the OEQC.

BEACH PROTECTION

Objective: Protect Beaches for Public Use and Recreation

- (A) *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and 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.*

The proposed shoreline structure is to be located inland of the existing shoreline, as identified by the UH Coastal Geology Group for shoreline mapping, and as identified by the DLNR through the shoreline certification process. In addition, the subject property in the middle of a nearly 0.5 mile stretch of coastline that has been identified as having no beach by the U.H. Coastal Geology Group in the erosion study completed for the City and County of Honolulu. The U.H. Coastal Geology Group has not identified a beach at the shoreline along this stretch of coast since before 1996. This means that an identifiable beach has not been present for almost two decades.

This section of coastline has ephemeral sand patches that are occasionally present at lower tides, however no discernible beach was identified at the project site during field visits. Movement of the shoreline structures inland will not affect the existing coastal processes or coastal environment. A sandy beach will neither be lost nor created by migration of the structure.

Conversely, replacing the existing structures with engineered shoreline structures will limit the potential loss of improvements due to erosion. The subject property had an erosion rate of one foot per year prior to 1996, when the shoreline was identified along the face of the structure. There are no physical changes to the environment that would preclude ongoing erosion of the fast land, at a rate of one foot per year, should shoreline structures be removed from the property. In the event that the structure is not replaced, erosion of property will result in release of sediment into the nearshore waters, which is considered an undesirable effect to nearshore water quality.

MARINE RESOURCES

Objective: Promote the Protection, Use, and Development of Marine and Coastal Resources to Assure Their Sustainability

- (A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*

- (B) *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
- (C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United State exclusive economic zone;*
- (D) *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*
- (E) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

The proposed action will not directly affect marine resources. The applicant has been working with DLNR to ensure the removal of debris and unpermitted shoreline structures in the shoreline area and to certify a new shoreline mauka of the existing structures. Together, these actions will reduce potential impacts on coastal and marine resources.

5. Additional discussion addressing the required criteria for shoreline setback variance pursuant to Part II of HRS Chapter 205A and Chapter 23, ROH has been added to Section 5.7 of the Final EA as shown below:

“Criteria for granting a shoreline setback variance are provided in Part III of HRS Chapter 205A and Chapter 23, ROH. The proposed seawall is anticipated to meet the criteria required for a Shoreline Setback Variance. HRS Chapter 205A-46 (a) (9) reads:

- (a) A variance may be granted for a structure or activity otherwise prohibited in this part if the authority finds in writing based on the record presented that the proposed structure of activity is necessary or ancillary to:
 - 9. Private facilities or improvements that may artificially fix the shoreline; provided that the authority also finds that the shoreline erosion is likely to cause hardship to the applicant if the facilities or improvements are not allowed within the shoreline area, and the authority imposes conditions to prohibit any structure seaward of the existing shoreline unless it is clearly within the public interest.

Erosion is a serious concern with the removal of the seawall structures at the subject properties. According to Sea Engineering, Inc.’s Coastal Assessment (April 2014), the subject property had an erosion rate of one foot per year prior to 1996, when the shoreline was identified along the face of the structure. There are no physical changes to the environment that would preclude ongoing fast land erosion, at a rate of one foot per year, should shoreline structures be removed from the property. Erosion of property will result in release of sediment into the nearshore waters as the bank erodes. Removal of the shoreline structure would result in negative environmental impacts to the marine environment and further encroachment of the shoreline into the property. Removal of the seawall would also potentially expose the property to storm wave run-up and additional loss of property due to erosion.

Mr. Leo Asuncion, Acting Director, State Office of Planning
Kahala Residence and Shoreline Structure, Draft EA
August 5, 2014
Page 5 of 5

Artificially fixing the shoreline structure with a new, permitted shoreline structure located inland of the new certified shoreline will prevent environmental degradation and loss of property resulting from erosion.”

We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

A handwritten signature in black ink, appearing to read "Jeffrey H. Overton". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 2, 2014

KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
MAHEALANI CYPHER, Vice Chair
THERESIA C. McMURDO
ADAM C. WONG
DAVID C. HULIHEE

ROSS S. SASAMURA, Ex-Officio
GLENN M. OKIMOTO, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer *EW*

Mr. Jeffrey H. Overton, AICP, LEED AP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Your Letter Dated March 6, 2014 Regarding the Draft Environmental Assessment for the Kahala Residence and Shoreline Structure on Kahala Avenue – Tax Map Key: 3-5-003: 002, 003

Thank you for the opportunity to comment on the proposed residence and shoreline structure.

The existing water system is adequate to accommodate the proposed residence and shoreline structure. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: Kyong-su Im
Steve Tagawa, Department of Planning and Permitting



August 5, 2014

City and County of Honolulu
Board of Water Supply
Attn: Ernest Y. W. Lau, P.E., Manager and Chief Engineer
630 S Beretania Street
Honolulu, HI 96843

PRINCIPALS

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AIA, LEED AP

Tom Young, MBA
AIA

Paul T. Matsuda
PE, LEED AP

OF COUNSEL

Ralph E. Portmore
FAICP

**Subject: Draft Environmental Assessment for Kahala Residence and Shoreline
Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003**

Dear Mr. Lau,

Thank you for your comment letter dated April 2, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure.

We take note of the Honolulu Fire Department's (HFD) comments relating to the Draft EA and offer the following in response to your comments:

We note that the existing water system is adequate to serve the project, and that the final decision regarding water availability will be made during the building permit process. The applicant will pay the Water System Facilities Charge and Fire protection requirements will be coordinated with the Fire Prevention Bureau and the Honolulu Fire Department.

We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

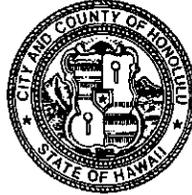
Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR



GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2014/ED-1(ST)

RECEIVED

April 9, 2014

APR 10 2014

GROUP 70 INTL

Mr. Jeffrey H. Overton, AICP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Overton:

**SUBJECT: Draft Environmental Assessment
Special Management Area Use Permit and Shoreline Setback Variance
Lee Residence and Seawall
4465 and 4469 Kahala Avenue - Waialae Kahala
Tax Map Key 3-5-3: 2 and 3**

Our comments on the Draft Environmental Assessment (EA) for the above project are as follows:

Section 2.2 Description of Proposed Action - The Final EA should be revised to clarify that the development requirements pertaining to lot coverage, setback (required yards), and height restrictions come from the Land Use Ordinance, Chapter 21, Revised Ordinances of Honolulu (ROH) and not the Special Management Area, Chapter 25, ROH.

The attached Makai-Elevation Plan, Figure 2-6, shows a lava rock seawall which is inconsistent with the described proposal for a vertical poured-in-place concrete structure (page 2-2). This information should be clarified.

Section 3.1 - Topography - The Final EA should include estimates of the amounts of earthwork anticipated for the construction of both the dwellings and the reconstruction, realignment of the seawall within the shoreline setback area.

Section 3.5 Flora and Fauna - Since this document is intended to address the environmental impacts of the reconstruction/realignment of the existing seawall, the Final EA must be expanded to include flora and fauna information on the shoreline and nearshore areas. Specific mitigation measures proposed during construction of the seawall must be described. The added information can be used in conjunction with the information contained in the Coastal Assessment prepared by Sea Engineering and attached as Appendix D.

Section 4.0 Alternative to Proposed Action - A meaningful exploration of alternative shore protection structures considered, but not selected, must be provided in the Final EA. In particular, a more thorough discussion should be provided on a revetment design that was evaluated. Although some comparative details are mentioned in the Coastal Assessment

Mr. Jeffrey Overton
April 9, 2014
Page 2

prepared by Sea Engineering, attached as Appendix D, no real evaluation of issues such as the developable area and the actual construction "tie-in" with adjacent shoreline structures is provided. Given that the site is nearly 36,000 square feet, statements such the "loss of useable land" and "difficult to interface with adjacent vertical seawalls" need to be carefully explained in the context of the vacant "blank slate" which currently exists.

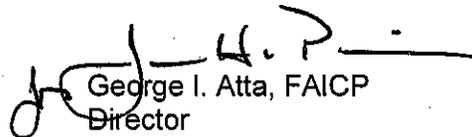
Section 5.0 Applicable Land Use Plans and Policies - This section of the Final EA should describe how the proposal conforms with the shoreline setback regulations of Chapter 205A-46, Hawaii Revised Statutes and Chapter 23, Revised Ordinances of Honolulu (ROH). As mentioned above, we strongly suggest that this section includes a comprehensive discussion of how the proposal meets the three tests of "hardship" necessary to obtain a shoreline setback variance; how the proposed improvements represents the alternative best that meets the objectives and criteria set forth by the shoreline setback regulations; and why other alternatives, which may be practicable, were deemed to have greater adverse impacts to the shoreline and coastal resources. Please note that in the absence of a meaningful exploration of alternatives, the "third test" of hardship cannot be established, Section 23-1.8(b)(3)(B)(iii), ROH.

Similarly, a new section should be added to address how the proposed single-family dwellings meet the objectives and policies of the SMA, pursuant to Sections 25-3.1 and 25-3.2, ROH.

We are also forwarding copies of the comment letters received so far for the proposed project.

If you have any questions, please contact Steve Tagawa of our staff at 768-8024.

Very truly yours,


George I. Atta, FAICP
Director

GIA:lf

cc: DLNR-OCCL
OEQC



August 5, 2014

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Ralph E. Portmore
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City and County of Honolulu
Department of Planning and Permitting
Attn: George I. Atta, Director
650 South King Street, 7th Floor
Honolulu, HI 96813

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Mr. Atta,

Thank you for your comment letter dated April 9, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure.

We take note of the Department of Planning and Permitting's (DPP) comments relating to the Draft EA and offer the following in response to your comments:

1. Section 2.2 Description of Proposed Action:

The wording in Section 2.2 of the Final EA was changed to indicate the Land Use Ordinance as the development governing document, as opposed to the Special Management Area, as shown below.

"Construction on the site will be governed by development requirements such as lot coverage, setbacks (required yards) and height restrictions per the Land Use Ordinance (LUO), Chapter 21, Revised Ordinances of Honolulu (ROH)."

Figure 2-6 has been updated to reflect the conceptual design of the poured-in-place shoreline structure with stone veneer.

2. Section 3.1 Topography:

An estimate of earthwork associated with the project was included in Section 3.1 of the Final EA as shown below.

"Earthwork associated with the action is estimated at approximately 500 cubic yards of fill. This estimate includes the residences, seawall removal and seawall reconstruction."

3. Section 3.5 Flora and Fauna:

In Section 3.5 Flora and Fauna, a more detailed description of the potential flora and fauna that could be encountered on the site was provided, along with additional construction-period mitigation that would minimize potential impacts to nesting shorebirds. The revised Section 3.5 is provided below.

3.5 Flora and Fauna

Existing Conditions

The ground surface of the property has been completely disturbed with development and structures for many decades. Both parcels support remnants of modern landscaping vegetation, such as grass lawns, coconut and other palms, mango trees, a variety of flowering trees. An overgrowth of naupaka landscaping remains above the revetment on lot 18-B-1. A collection of shrubs and weeds have sprouted since the main lots have been vacant. Most of these plants grow in fill topsoil that was imported to cover calcareous sands that occur naturally on both parcels.

No fauna or avian species were observed during a site visit, however, it is expected that common established alien rodent and avian species can be found on the site. The following introduced birds could be seen on the subject lots: Japanese white-eyes (*Zosterops japonica*), Java sparrows (*Padda oryzivora*), Spotted doves (*Streptopelia chinensis*), Zebra doves, (*Geopelia striata*), house finch (*Carpodacus mexicanus*), and Red-vented bulbuls (*Pycnonotus cafer*). The indigenous Wedge-tailed Shearwater (*Puffinus pacificus*) is known to have a small established colony in the Black Point area of Kahala. The Wedge-tailed Shearwater is not a listed species under the Endangered Species Act, but they are protected under the Migratory Bird Treaty Act (MBTA). Common rodent species that could be found on the site include the roof rat (*Rattus rattus*), Norway rat, (*Rattus norvegicus*), small Indian Mongoose (*Herpestes auropunctatus*), house mouse (*Mus musculus*) and house cat (*Felis catus*).

A description of potential flora and fauna located seaward of the shoreline in the fringing reef flat off the Kahala coast is provided in Appendix D as follows:

The inner reef flat off Kahala Beach is dominated by algae, which cover around 40% of hard bottom areas. Seventeen species are noted, with *Acanthophora spicifera*, *Dictyota acutiloba*, *Dictyota Liagora* (sp.), and *Lyngbya majuscula* most abundant. *Halimeda discoidea*, *Liagora* (sp.), *Hypnea cervicornis*, and *Laurencia* (sp.) are common. Two of the more popular edible seaweeds, *Gracilaria burspastoris* and *G. coronipifolia*, occur in low abundance. Corals contribute less than one percent bottom cover, although coral cover increases and algal cover decreases seaward across the reef. *Pocillopora damicornis* is the most commonly encountered species. Only eight species of fishes are recorded on the shallow reef platform. *Stethojulis balteata* and *Acanthurus triostegus* are the most often encountered species. Large fishes, especially surgeonfishes, are abundant along the reef face. Seaward of the

reef margin, coral cover reaches 30%, with *Porites lobata* the dominant form present (Aecos, 1979).

Potential Impacts and Mitigation Measures

There are several mature trees located on the parcels that will be removed prior to construction. The City and County of Honolulu oversees the protection of exceptional trees in accordance with Revised Ordinances of Honolulu, Chapter 41, Article 13 Protective Regulations for Exceptional Trees. The statute includes the Register of Exceptional Trees on O'ahu. There are no exceptional trees on the properties. The site will be landscaped to include non-invasive indigenous, Polynesian-introduced, and introduced species. Drought-tolerant species will be used, wherever possible, to minimize irrigation requirements and water needs. (See *Figure 2-7: Plant Palette*).

The development and operation of the new seawall and residential improvements are not expected to result in adverse effects to plant or animal species. There are no anticipated adverse impacts to the area's wildlife or habitat. However, there is a possibility that the Wedge-tailed Shearwater could be nesting within the shoreline vegetation. In order to prevent potential disturbance to nesting shorebirds and ensure compliance with the MBTA, prior to disturbance or construction a qualified ornithologist shall conduct a survey to assure that no Wedge-tailed Shearwaters are nesting within the shoreline area. If nesting Wedge-tailed Shearwaters are encountered, the appropriate regulatory agency will be contacted and appropriate mitigation measures will be enacted.

In addition, if the existing seawall structure is removed and not replaced with a new seawall, this would cause instant erosion of the fast land, releasing large quantities of earthen material into the nearshore environment, creating harmful impacts to reef-dwelling flora and fauna, including coral, algae, seaweed and fish. Proposed mitigation is construction of a new seawall as included in the proposed action.

4. Section 4.0 Alternatives to the Proposed Action:

Section 4.0 has been expanded and includes discussion of additional alternatives. The complete list of alternatives now includes No Action, One Residence, Shoreline Revetment, Beach Nourishment, Structure Removal, Sand Bags, and Preferred Alternative.

5. Section 5.0 Applicable Land Use Plans and Policies:

We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,

Mr. George I. Atta, Director
Kahala Residence and Shoreline Structure, Draft EA
August 5, 2014
Page 4 of 4

GROUP 70 INTERNATIONAL, INC.

A handwritten signature in black ink, appearing to read "Jeffrey H. Overton". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

KIRK CALDWELL
MAYOR



MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

March 24, 2014

RECEIVED

MAR 28 2014

GROUP 70 INTL

Mr. Jeffrey Overton, AICP, LEED AP
Principal Planner
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4398

Dear Mr. Overton:

Subject: Draft Environmental Assessment
Kahala Residence and Shoreline Structure
Honolulu, Hawaii
Tax Map Keys: 3-5-003: 002 and 003

In response to your letter of March 6, 2014, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1, Uniform Fire Code [UFC]TM, 2006 Edition, Section 18.2.3.2.2.)

A fire department access road shall extend to within 50 ft of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1, UFCTM, 2006 Edition, Section 18.2.3.2.1.)

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a

Mr. Jeffrey Overton, AICP, LEED AP
Page 2
March 24, 2014

water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1, UFC™, 2006 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1, UFC™, 2006 Edition, Section 18.2.3.4.1.1, as amended.)
4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Acting Battalion Chief Terio Bumanglag Jr. of our Fire Prevention Bureau at 723-7151 or tbumanglag@honolulu.gov.

Sincerely,



SOCRATES D. BRATAKOS
Assistant Chief

SDB/DO:bh



August 5, 2014

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OF COUNSEL

Ralph E. Portmore
FAICP

City and County of Honolulu
Honolulu Fire Department
Attn: Socrates D. Bratakos, Assistant Chief
636 South Street
Honolulu, HI 96813

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Mr. Bratakos,

Thank you for your comment letter dated March 24, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure.

We take note of the Honolulu Fire Department's (HFD) comments relating to the Draft EA and offer the following in response to your comments:

1. In accordance with your request in comment 1, the Draft EA Section 3.8.1 Water System states:

"Fire apparatus access road will be provided for the buildings when any portion of the facility or exterior wall of the first story of the building is located more than 150 feet from a fire apparatus access, as measured by an approved route around the exterior of the building or facility."

In this same section, a sentence was added to the Final EA to address the second paragraph of your first comment:

"In addition, a fire access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and that provides access to the interior of the building."

2. The Draft EA Section 3.8.1 Water System addresses comment 2:

"County-approved water supply that is capable of supplying the required fire flow or fire protection to all facilities and buildings within the project's premises will be provided. On-site fire hydrants and mains will be provided when any portion of the facility or building is in excess of 150 feet from a water supply on a fire apparatus access road."

3. In accordance with your request in comment 3, a sentence was added to the Final EA Section 3.8.1 Water System:

Mr. Socrates D. Bratakos, Assistant Chief
Kahala Residence and Shoreline Structure, Draft EA
August 5, 2014
Page 2 of 2

"Fire access roads shall meet county requirements for unobstructed width and unobstructed vertical clearance."

4. The Draft EA Section 3.8.1 Water System addresses comment 4:

"Civil and construction drawings will be submitted to the Honolulu Fire Department for review and approval during building permitting period."

We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

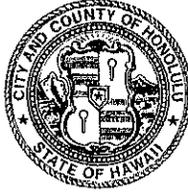
A handwritten signature in black ink, appearing to read "Jeffrey H. Overton".

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE **EO-WS**

March 24, 2014

RECEIVED

MAR 26 2014

Mr. Kyong-su Im
1608 Laukahi Street
Honolulu, Hawaii 96821

GROUP 70 INTL

Dear Mr. Im:

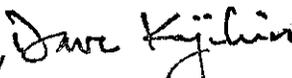
This is in response a letter dated March 6, 2014, requesting comments on the Draft Environmental Assessment for the Proposed Kahala Residence and Shoreline Structure project.

This project should have no significant impact on the services or operations of the Honolulu Police Department.

If there are any questions, please contact Major Calvin Tong of District 7 (East Honolulu) at 723-3369 or via e-mail at ctong@honolulu.gov.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By 
RANDAL K. MACADANGDANG
Assistant Chief
Support Services Bureau

cc: ✓Mr. Jeffrey H. Overton, Group 70 International, Inc.
Mr. Steve Tagawa, DPP



August 5, 2014

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OF COUNSEL

Ralph E. Portmore
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City and County of Honolulu
Police Department
Attn: Louis Kealoha, Chief of Police
801 S. Beretania Street
Honolulu, HI 96813

**Subject: Draft Environmental Assessment for Kahala Residence and Shoreline
Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003**

Dear Mr. Kealoha,

Thank you for your comment letter dated March 24, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure.

We appreciate notes that the project should have no significant impact on services or operations.

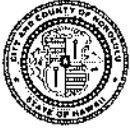
Thank you for your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

A handwritten signature in black ink, appearing to read "Jeffrey H. Overton".

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im



WAIALAE-KAHALA NEIGHBORHOOD BOARD NO. 3

c/o NEIGHBORHOOD COMMISSION • 530 SOUTH KING STREET ROOM 406 • HONOLULU, HAWAII 96813
PHONE (808) 768-3710 • FAX (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

May 15, 2014

George I. Atta, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813
Phone: (808) 768-8000
FAX: (808) 768-6041

SUBJECT: Draft Environmental Assessment
Chapter 343, Hawaii Revised Statutes

Applicant: Kyong-su 1m Agent: Group 70 International
Location: 4465 & 4469 Kahala Avenue -Waialae Kahala
Tax Map Key: 3-5-3: 2 and 3
Request: Special Management Area Use Permit and
Shoreline Setback Variance
Proposal: Reconstruction of a seawall within the 40-foot shoreline setback and
construction of two new single-family dwellings.

Dear Director Atta,

During the April 17, 2014 regular meeting of the Waialae-Kahala Neighborhood Board, Jeff Overton, representing Group 70 International, Inc., made a presentation regarding the proposed development plans for the above referenced property. The proposed project and DEA raised concerns regarding the desirability of, and public's interest in, perpetuating non-conforming structures that may involve an irrevocable commitment to loss or destruction of a natural public trust resource.

In order to address Neighborhood Board and citizen concerns, Mr. Overton offered to arrange a meeting between Group 70, representing the property owner, Board members and Sam Lemmo, DLNR/OCCL Chief, regarding the seawall proposed in the DEA. The meeting was held April 23rd. The Board is pleased that the property owner appears to be sensitive to the public's interest in the preservation of the public trust resource and desirous of seeking agreeable solutions. The meeting with DLNR/OCCL resulted in an agreement that the shoreline would not be arbitrarily determined, as the DEA proposes, but that the property owner will remove the unauthorized seawalls and rubble and the shoreline survey will be delayed several months, allowing for summer high tides to establish a natural high water line for the purpose of determining the certified shoreline.

General Comments

Both parcels are vacant land with no threatened structures. The existing seawalls are unauthorized as are others in the vicinity. Currently there are seven vacant ocean front parcels in the 4400 block of Kahala Avenue representing approximately 50% of the shoreline in the block.

Soils and Geological Conditions

The DEA states, "in general, there appears to be very little sand available in the region for beach building processes." However, the DEA study shows the site consists of "beach sand". This sand is presently trapped behind the unauthorized seawalls and therefore unavailable to the natural littoral process that beaches draw on for replenishment.

Public Use

The DEA characterizes the shoreline area as unused by the public. However, it has been observed that in fact there is beach in front of these parcels at mean high tide that is regularly utilized by the public, accessed via the Kala Street public access.



Lateral Access

In several places the DEA makes the statement that public access will not be impacted. However, this shoreline, like all shorelines, is very dynamic. Armoring the shoreline within the SMA definitely has the long-term potential to exacerbate erosion and impact lateral access. Unauthorized armoring has no doubt already impacted beach loss.

Selective Evidence

It appears the pictures submitted in the DEA are selectively supportive of its intent. The pictures of the beach were taken when the public was nowhere to be seen. The sand levels fluctuate in the area as they do all along Kahala Beach with various tides, storms and seasons. Several pictures depict only the lowest levels of sand rather than cycles of accumulated sand and eroded sand.

Recommendations regarding SMA Variance

At the May 15, 2014 meeting of the Waialae-Kahala Neighborhood the comments contained in this letter regarding the referenced DEA and the following recommendation were approved by a unanimous vote of all seven NH Board members present. The Board's recommendation is that once the Shoreline Management Area is defined, the Waialae-Kahala Neighborhood Board urges the Department of Planning and Permitting, while considering reasonable private property use, to also in its determination of whether a seawall is permitted and if so where it is located, to carefully consider the long-term restoration and preservation of littoral processes, public use and lateral access.

Sincerely,



Arnold Brady

Chair, representing Waialae-Kahala Neighborhood Board #3

Cc. Councilmember Stanley Chang, Senator Sam Slom, Representative Bert Kobayashi, Representative Mark Hashem, Chief DLNR/OCCL Administrator Sam Lemmo, Jeff Overton, planner for Group 70 International Inc.



August 5, 2014

Arnold Brady, Chair
Waialae-Kahala Neighborhood Board No.3
c/o Neighborhood Board Commission
530 South King Street, Room 406
Honolulu, HI 96813

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OF COUNSEL

Ralph E. Portmore
FAICP

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Chair Brady,

Thank you for sharing the comment letter to DPP Director George Atta dated May 15, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kahala Residence and Shoreline Structure. We have appreciated the solid working relationship with the Board, including three presentations (April, May, June 2014) to brief the Board on the owner's plans and responses to the complicated issues at this property. We take note of the Neighborhood Board's comments relating to the Draft EA and acknowledge the issues raised in the letter.

Shoreline Structures. The existing unauthorized seawalls were removed from the property in May 2014 to allow for the shoreline survey to be completed.

Soils. The Final EA indicates the NRCS soil classifications for the property, identified as Beaches (BS) and Jaucus Sand (JaC). The property also has imported topsoil from prior landscaping. The 2500 ft armored section of the Kahala shoreline has similar soils.

Public Use and Lateral Access. It is acknowledged that the shoreline area fronting the properties is used by the public. With the removal of the unauthorized structures and the planned new revetment, many of the stated concerns for improved lateral access and public use are ameliorated. With anticipated construction of the revetment at the new shoreline, this will add 12 to 20 feet to the width of the public shoreline area.

We trust that the information provided in the Final EA address the issues raised by the Board, with the new revetment at the shoreline location. We appreciate your participation in the environmental review. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im; George Atta, DPP

2014/ELO6-615

John and Lucinda Pyles
Kahala Avenue
Honolulu, HI 96816
732-6262, email: kahalabob@aol.com

2014 APR 9 AM 7 45

DEPT OF PLANNING
and PERMITTING
CITY & COUNTY OF HONOLULU

April 7, 2014

George I. Atta, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813
Phone: (808) 768-8000
FAX: (808) 768-6041

SUBJECT: Draft Environmental Assessment
Chapter 343, Hawaii Revised Statutes

Applicant: Kyong-su 1m Agent: Group 70 International
Location: 4465 & 4469 Kahala Avenue -Waialae Kahala
Tax Map Key: 3-5-3: 2 and 3
Request: Special Management Area Use Permit and
Shoreline Setback Variance
Proposal: Reconstruction of a seawall within the 40-foot shoreline setback and
construction of two new single-family dwellings.

Dear Director Atta,

We have lived on Kahala Avenue for more than forty years. We have both served on the Waialae-Kahala Neighborhood Board 3 (NHB-3), John presently and Lucinda formerly. At the last meeting, March 20th, the above referenced DEA came to the Board's attention. Your memorandum, dated March 17th, did not reach the Board in time to place review of the DEA on the agenda. Therefore the Board could not take action in order to officially submit comments as requested by your department. Unfortunately the Board will not meet again until after the comment deadline. However, in March 2006, NHB-3 did submit comments on a DEA proposing the construction of seawalls within the SMA on three consecutive vacant lots in the same block of Kahala Avenue, 4415, 4423 and 4433. The letter, dated April 7th, 2006, which expressed concern and questioned the construction of the seawalls, is enclosed. Although 2011 permits for new dwellings, etc. show in the records for these properties, no construction has occurred and all three nearly acre size lots remain vacant and are for sale.

Presently there are seven vacant lots fronting the shoreline in the 4400 block of Kahala Avenue. A review of the tax map would indicate that these seven properties make up approximately fifty percent of the total shoreline in the 4400 block, from the Kala Street public beach access to the Elepaio Street beach access (a quarter mile). Within this area there are still stretches of sandy beach accessible from the Kala Street and Elepaio accesses at low tides. There is public use of this beach as shown in the picture taken this past Saturday afternoon (enclosed). Some of the best beach in this section fronts the subject properties at 4465 and 4469. (It appears that at some time large boulders were dumped on the sand in front of 4469. However, there appears to be no permit on record for the boulders.) With fifty percent of the shoreline in this area unimproved, it would seem there might be a unique window of opportunity to disarm the beach in this area without creating a threat to existing improvements.

A review of the old tax maps for property fronting most of Kahala Beach during the years this land was leased by Bishop Estate shows a separate parcel that fronted the shoreline and a larger parcel landward. These small linear parcels were referred to in the old leases as the "*Beach Reserve*" and described as "for the people of Kahala". Originally they were not included in the leases but were held by Bishop Estate as a natural area along the shoreline guaranteeing the public access. Where seawalls were absent this allowed the shoreline the freedom from obstruction the natural littoral process requires. More recently (1970's) Bishop Estate began to include the "*Beach Reserve*" parcels in lease rents but continued to restrict any fencing or development within the parcel. At the conversion to fee simple, in the mid 1980's, these parcels in most cases were incorporated into a single lot. The HOLIS parcel and zoning data on the subject lots still show the break down of the two parcels that make up each lot.

Perhaps a review of 4577 Kahala Ave, TMK 35004008 (2nd property Diamond Head of the Hunakai Access) would provide a case history to consider. In 1990 the house was demolished and a new house was built in 2004. No seawall was allowed, though the properties on either side have seawalls. The depth of the sand fluctuates as much as 1-2 feet in this area around the Hunakai Access but there is always beach and the public heavily uses the area. Kahala Beach, north of the Hunakai Access, is the healthiest it has been in decades, I believe primarily due to the removal of very heavy encroaching vegetation that disrupted the littoral process.

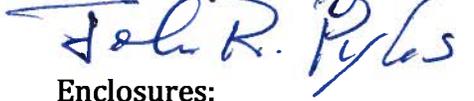
In conclusion, does the City and State have a responsibility to preserve and, in this case, restore the public trust resource that is the natural shoreline if the opportunity arises to do so. If the primary argument for a variance to construct a seawall is to mitigate a threat to a structure/improvement on the property, can such a variance be justified on a vacant lot?

We do not believe the concerns and questions expressed in the NHB-3, 2006 comments on the DEA for nearby property have changed, nor have the policies and laws expressed in the ROH and HRS changed to justify arming our shorelines unnecessarily.

The Department and Land and Natural Resources' Office of Conservation and Coastal Lands and the experts at UH SOEST, especially Dolan Eversole, have a decade of experience concerning Kahala Beach as there has been a collective public agency and private citizen effort to save Kahala Beach from induced and enhanced vegetation encroachment, fences, sandbags, boulders encroaching within the wash of the waves, causing interference with the natural processes and exacerbating erosion. With their removal, the beach is flourishing.

Thank you for your consideration.

Yours truly,

Enclosures:

April 7, 2006 NHB-3 DEA comment letter.

April 4, 2014 beach pictures of 4465 and 4469 Kahala Ave shoreline
4577 Kahala Ave, shoreline pictures spanning nine years.

Cc. Councilmember Stanley Chang, Senator Sam Slom, Representative Mark Hashem,
Representative Bert Kobayashi, Administrator Sam Lemmo DLNR/OCCL

WAIALAE-KAHALA NEIGHBORHOOD BOARD NO. 3

C/O NEIGHBORHOOD COMMISSION – 530 SOUTH KING STREET, ROOM 406- HONOLULU, HAWAII 96813

April 7, 2006

Director Henry Eng
Director of Planning and Permitting
City and County of Honolulu
C/O Ms. Ann Matsumura
650 S. King Street
Honolulu, HI 96813
Fax: 527-6743

Dear Director Eng:

Re: Comment on Draft Environment Assessment for improvements (DEA) within the Special Management Area (SMA) and 40 foot Shoreline Setback Area at TMK 3-5-003: 8, 9 & 10, 4433, 4423 & 4415 Kahala Ave respectively.

During the March 16, 2006 regular meeting of the Waialae-Kahala Neighborhood Board the above referenced DEA was discussed. The proposed project and DEA raised concerns regarding the desirability of, and public's interest in, perpetuating non-conforming structures that may involve an irrevocable commitment to loss or destruction of a natural public trust resource. While the EA should not be merely a self-serving recitation of benefits and a rationalization of the proposed action, it appears the focus of the DEA is on the impact of the environment on the seawall rather than the long-term impacts of perpetuating a non-conforming seawall on the surrounding environment and community.

The Hawaii Supreme Court has held that "registered ocean front property is subject to the same burdens and incidents as unregistered land, including erosion... The precise location of the high water mark on the ground is subject to change and may always be altered by erosion. Because the land seaward of the upper reaches of the wash of the waves, including the beach, is a public trust resource, the state, as trustee, can restrain those activities that damage the resource. A private property owner does not have the right to impair public trust resources."

Each parcel described in the DEA is, and has been for sometime, vacant land with no existing structures (houses, pools, etc.). Erosion is only a problem needing mitigation where human developments along the coast are threatened by shoreline fluctuations. Each parcel is nearly an acre in size and nearly 300 feet in depth. Apparently Bishop Estate's sub-division of oceanfront lots provided for very large parcels, compared with the non-oceanfront parcels in the rest of the Kahala subdivision, presumably in recognition of shoreline migration and potential erosion.

Parcel 10's proposed primary reinforcement structure, appears to be essentially another seawall behind the existing seawall, a very substantial and very permanent structure. The extent or percentage of seawall to be reinforced with a secondary seawall (or other reinforced support) is not specified. It could turn out to be 100 percent.

Alternatives discussed in the DEA include, no action. According to the DEA the "no action" alternative would result in the gradual deterioration of the existing seawall and, if the wall were allowed to fail, large amounts of soil and debris would spill into the nearshore area (Section 4.0 and Appendix 4.0). However, Section 3.3, *Soil and Topography*, states that the subsurface borings indicate the soils to be mostly sand and gravel, i.e. it appears beach sand, typically locked up behind seawalls, is unavailable to the natural beach process. Section 3.10 *Recreational*, describes the nearshore area as *little to no beach, even at low tide* and elsewhere describes the beach as *unused in its present situation, and lateral access being limited or restricted*. Remnants of a failed seawall could be assumed to be relatively temporary as compared to the permanence of the proposed actions.

While the DEA states that the proposed action will not change the existing natural littoral processes of the area, nor the pattern of beach erosion, alter the shoreline, affect lateral public access, nor further degrade environmental quality and will not affect views from and along the shoreline, the fact is the seawall does alter, affect, obstruct and impact, and this proposed project will substantially reinforce a non-conforming seawall. Therefore, it would seem that it could and perhaps should be considered, that the proposed action has a severe secondary long-term consequence in perpetuating the seawall.

The Waialae-Kahala Neighborhood Board is concerned that the proposed improvements set a precedent that conflicts with the county and state's long-term environmental policy and goals expressed in:

Chapter 23 of the Revised Ordinances of Honolulu;

- a. "It is the primary policy of the city to protect and preserve the natural shoreline, especially sandy beaches; to protect and preserve public pedestrian access laterally along the shoreline and to the sea; and to protect and preserve open space along the shoreline. It is also a secondary policy of the city to reduce hazards to property from coastal hazards." (23.1.2);

Chapter 344 and Chapter 205A of the Hawaii Revised Statutes;

- a. Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;
- b. Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;

- c. Promote open space in view of its natural beauty not only as a natural resource but also as an ennobling, living environment for its people.
- d. To discourage all shoreline hardening that may effect access to, or alter littoral processes affecting the shoreline.

In consideration of ROH Chapter 23, HRS Chapters 205A, 343 and 344 the Waialae-Kahala Neighborhood Board unanimously passed a resolution expressing concern that this project, in perpetuating a non-conforming use on vacant land, may have long term "significant effects" on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law of the community and State.

Yours truly,

Lester Fukuda
Chair

Cc. Councilmember Charles Djou, Senator Sam Slom, Representative Barbara Marumoto, Representative Lyla Berg, Administrator Sam Lemmo DLNR/OCCL

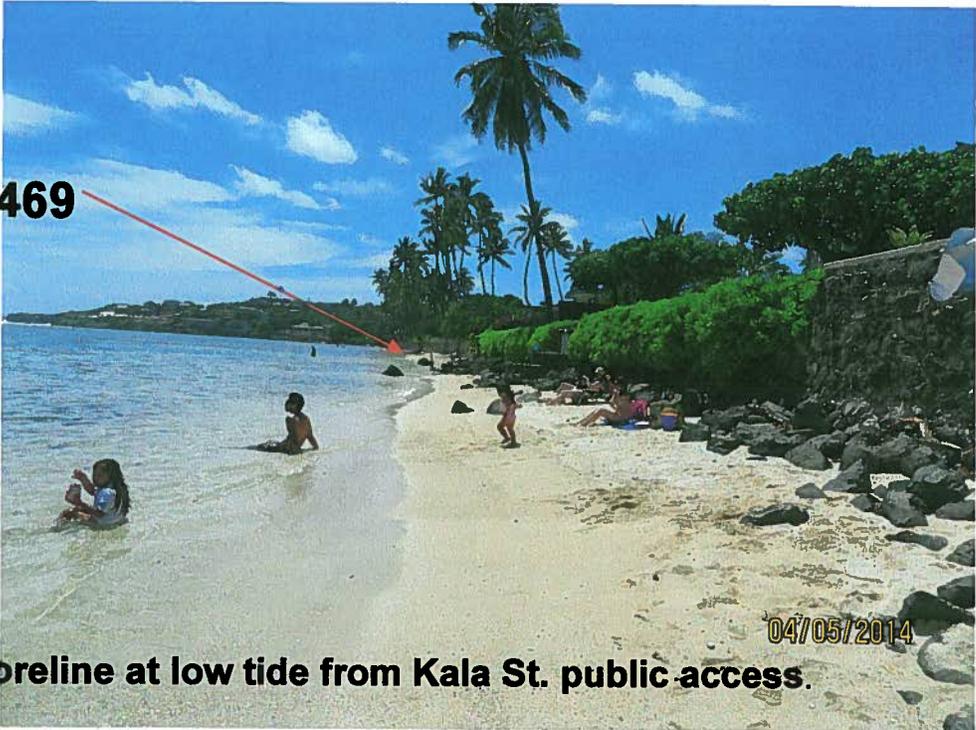
Adjacent vacant lots 4465 and 4469. Each a little over 19,000 Sq Ft.

4465, Kawamoto bought in 2004, demolished house in 2011,
A&B sold to Kun Hee Lee in Dec 2013

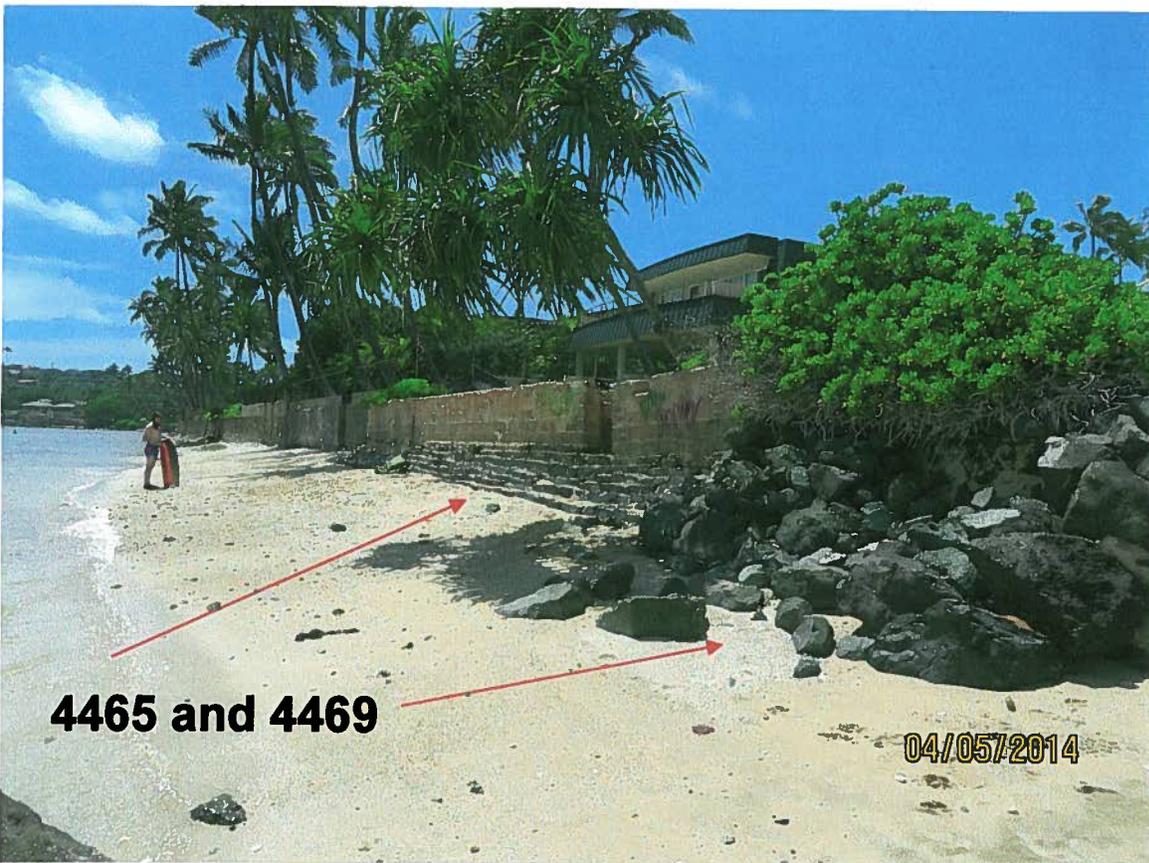
4469, Kawamoto bought in 2006, demolished house in 2009,
A&B sold to Kun Hee Lee in Dec 2013



4465 and 4469



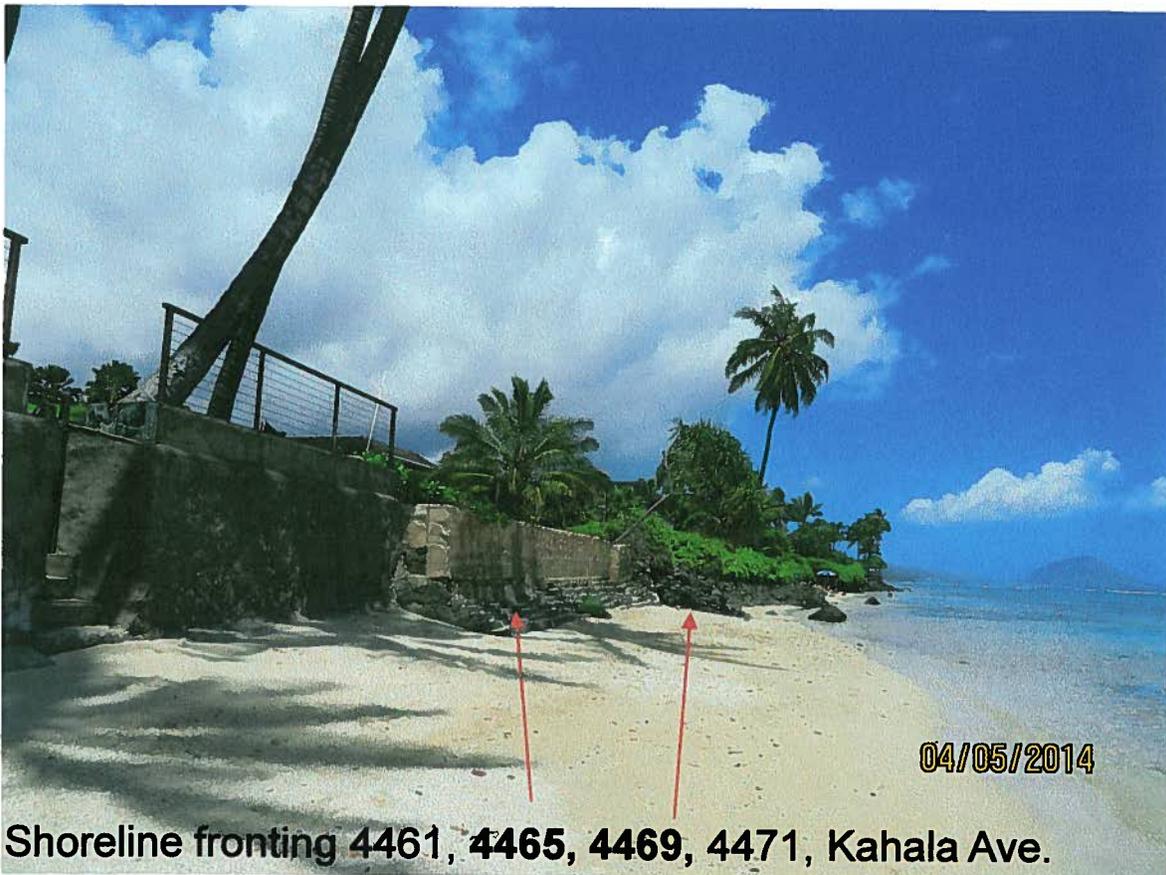
Kahala Beach shoreline at low tide from Kala St. public access.





4465 - existing seawall

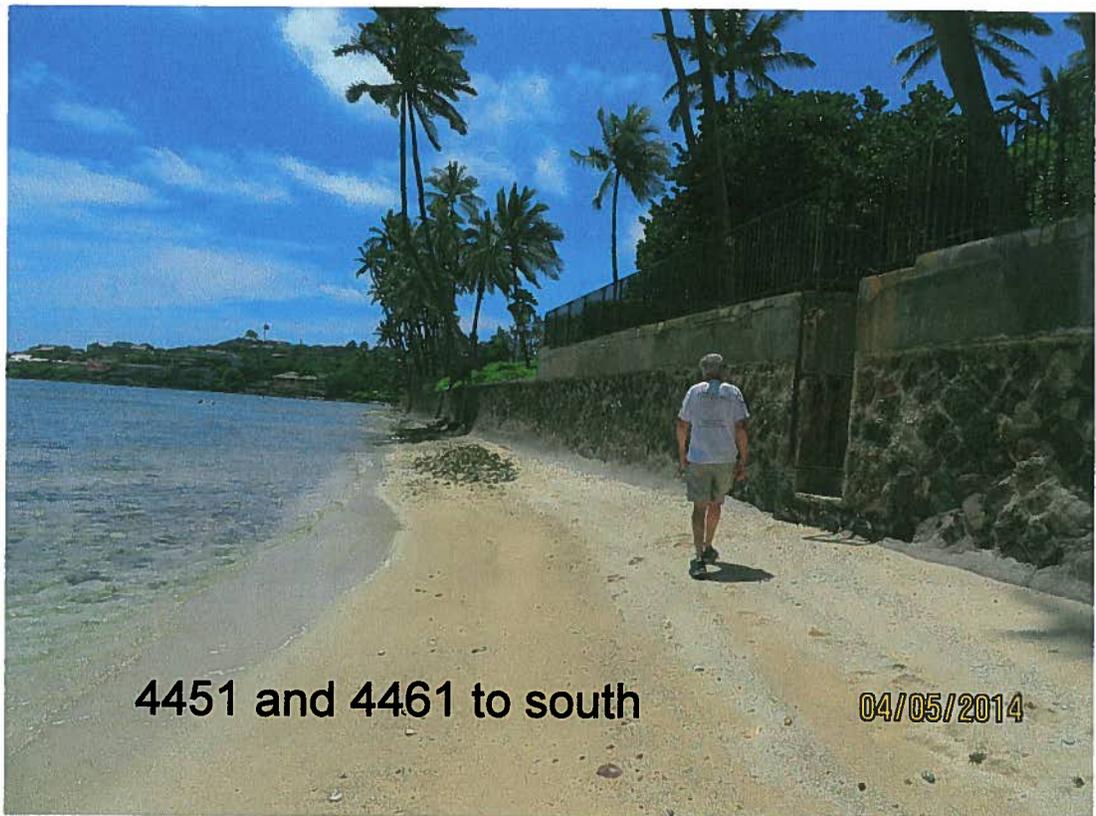
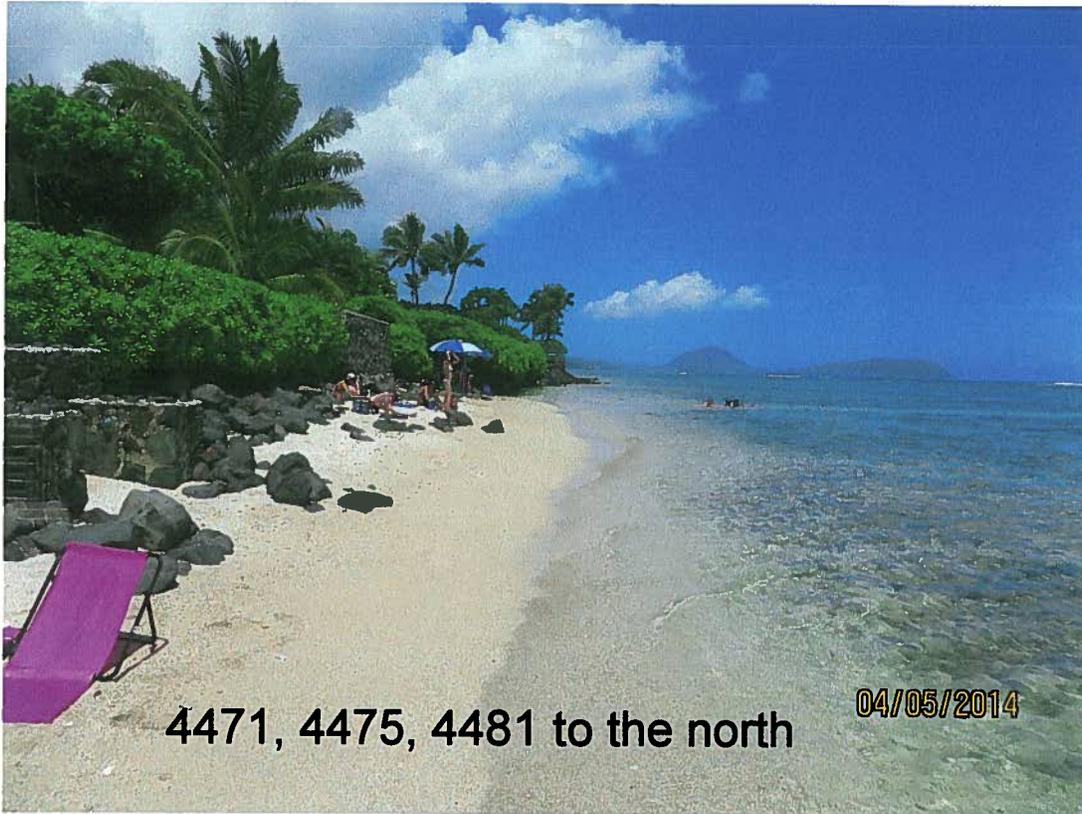
04/05/2014

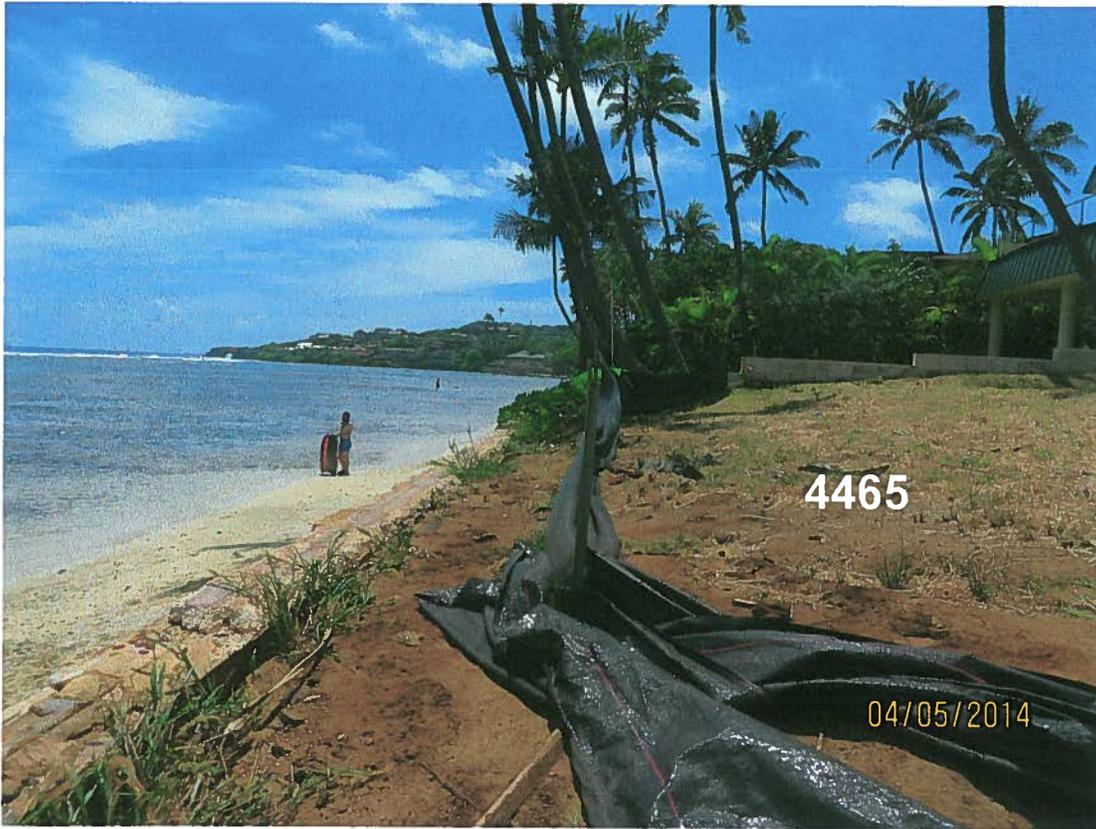


04/05/2014

Shoreline fronting 4461, 4465, 4469, 4471, Kahala Ave.

Properties on either side of 4465 and 4469



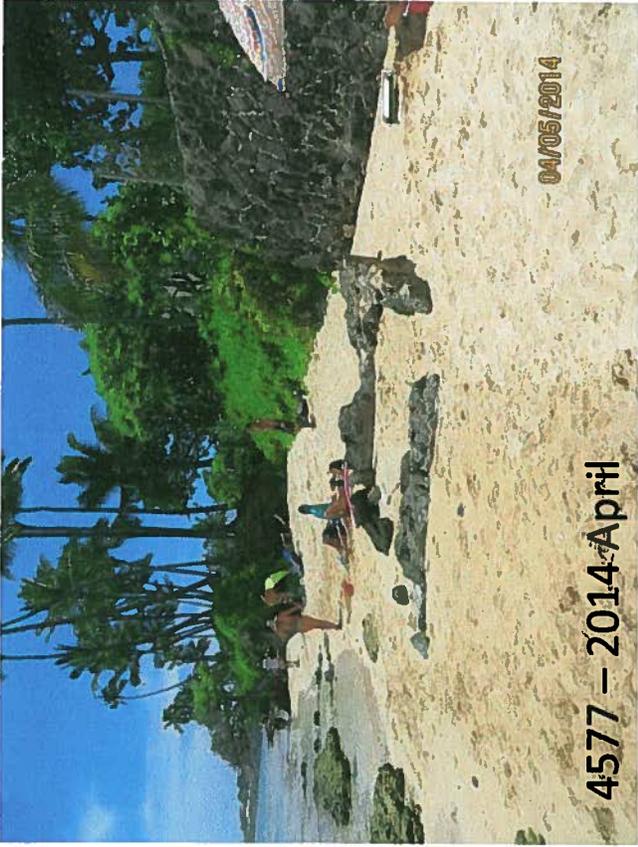


4577 Kahala Avenue

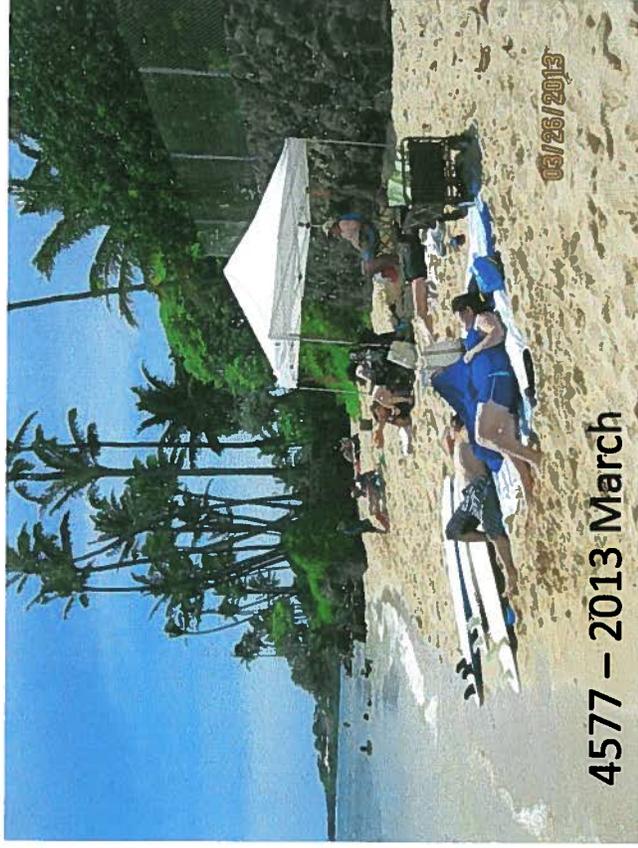
This is the 2nd property Diamond Head of the Hunakai Access. In 1990 the house was demolished and a new house was built in 2004. No seawall was allowed, though the properties on either side have seawalls. The depth of the sand fluctuates as much as 1-2 feet in this area near the Hunakai public access but there is always beach and the public heavily uses the area. There are periods when the coral at water's edge and the remnant of the old WW2 pill box are completely covered in sand as the second pictures shows (2013). The pictures are all dated and are shown from April 2014 progressing back to 2005. The shoreline and sand depth fluctuate with seasonal tides and storms.

Compare the sand depth in the 2010 picture with the 2006 picture.

Compare the pill box remnant in the 2014, 2013, 2010, 2008 and 2005 pictures.



4577 - 2014 April



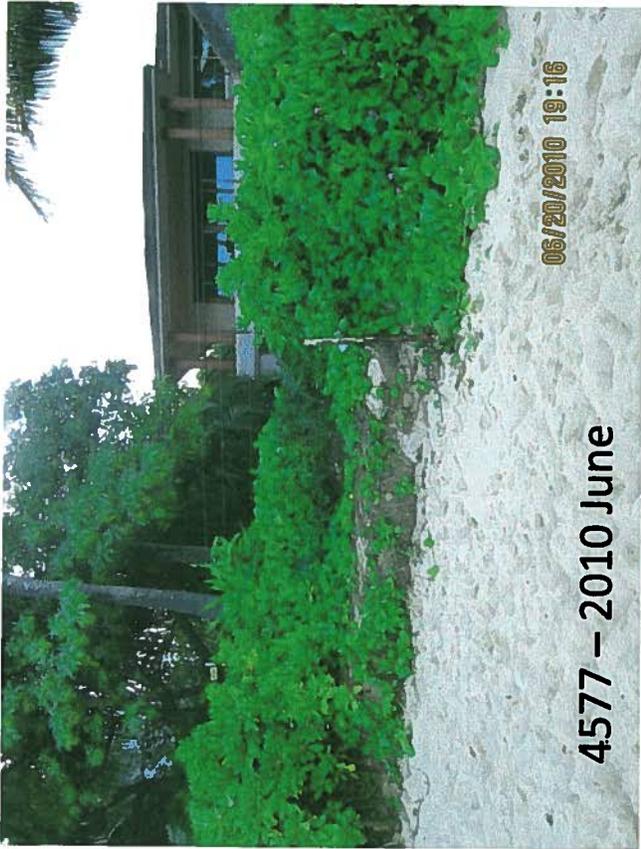
4577 - 2013 March



4577 - 2012 March



4577 - 2010 June



4577 - 2010 June

06/20/2010 19:16



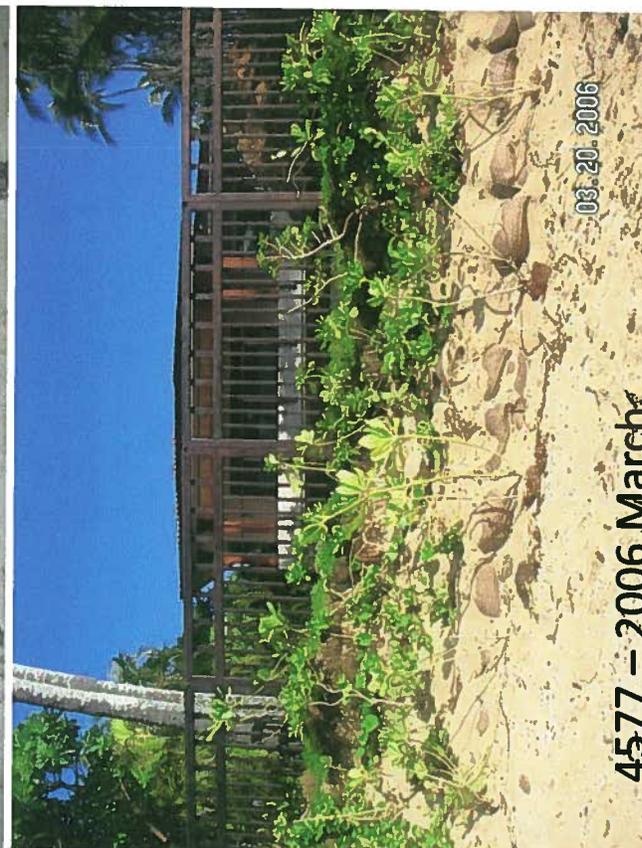
4577 - 2008 June

06.18.2008



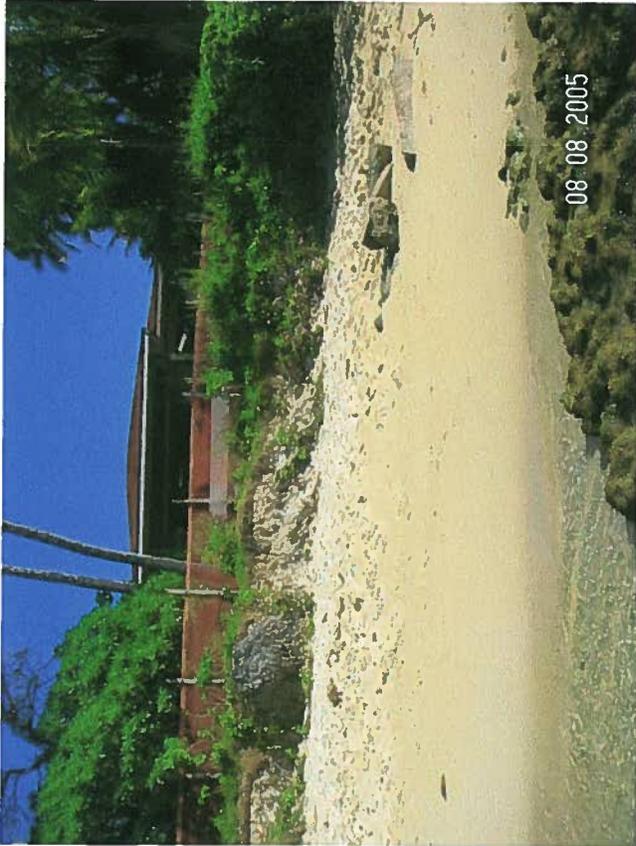
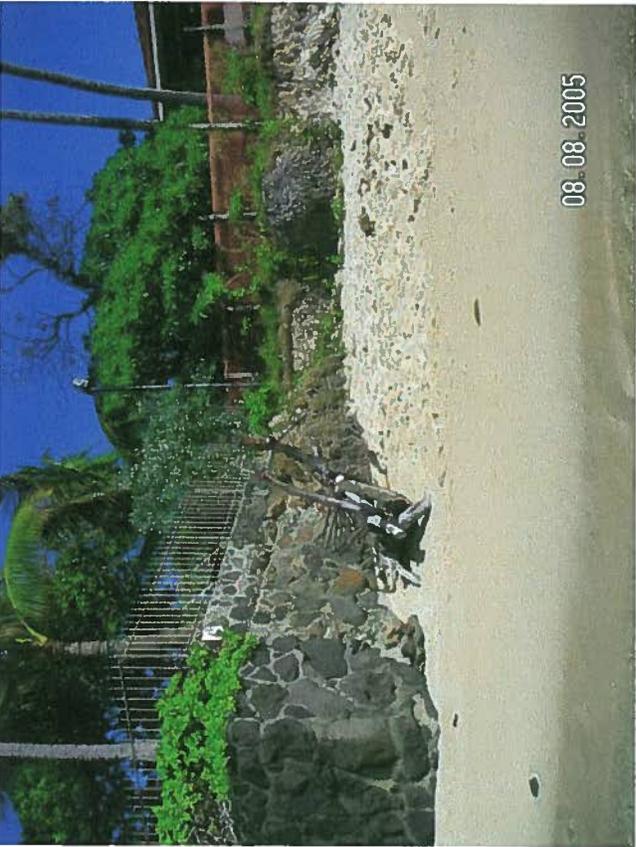
4577 - 2006 January

01.08.2006



4577 - 2006 March

03.20.2006



4577 Kahala Ave
2005



August 5, 2014

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John and Lucinda Pyles
Kahala Avenue
Honolulu, HI 96816
kahalabob@aol.com

Subject: Draft Environmental Assessment for Kahala Residence and Shoreline Structure, Kāhala, O'ahu, TMK 3-5-003: 002 and 003

Dear Mr. and Mrs. Pyles,

Thank you for your comment letter dated April 7, 2014 concerning the Draft Environmental Assessment (EA) for the proposed Kāhala Residence and Shoreline Structure.

We take note of your comments relating to the Draft EA and offer the following in response to your comments:

1. This is one wall located near the middle of an almost 2,500-foot length of armored shoreline. Its presence, or lack thereof, will not appreciably change the character of the coastline.
2. The University of Hawai'i (UH) Coastal Geology Group, the official beach erosion experts for the State and counties, hasn't identified a true beach in this area since before 1996.
3. There is a deficit in available sand that would be needed for beach development in this portion of Kāhala's coastline. That is why there are no beaches in this stretch now.
4. Site visits indicate that local shoreline sand patches are of small volume and low elevation, and are only usable at the lowest tides.
5. Removal of the structures would cause instant erosion of the fast land, releasing large quantities of earthen material into the nearshore water while causing a significant landward movement of the shoreline.
6. Removal of the structures will destabilize the neighboring shoreline structures. The liability for loss of the neighboring structures, lawn, and potential impacts to the neighboring homes, will fall on the subject property owner.
6. The area was subject to a one foot per year erosion rate before the structures were built. The basic characteristics of the region have not changed, so there is no evidence to support a claim that it will not continue to erode at one foot per year during the foreseeable future.

John and Lucinda Pyles
Kāhala Residence and Shoreline Structure, Draft EA
August 5, 2014
Page 2 of 2

In summary, it is not a simple conclusion that seawall removal at the subject properties will enlarge and improve the beach at Kāhala. UH has established that there has been no beach at the subject property since 1996. Removal of the structures has no clear and identifiable benefit, while removal has impacts to the nearshore water, destabilizes the neighbors' structures, lawns, and possibly impacts their homes, and results in significant and ongoing loss of land at the subject property.

We appreciate your participation in the environmental review process. You will receive a copy of the Final EA.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

A handwritten signature in black ink, appearing to read "Jeffrey H. Overton". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jeffrey H. Overton, AICP, LEED AP
Principal Planner

cc: Kyong-su Im

APPENDIX A
PRELIMINARY ENGINEERING REPORT

PRELIMINARY ENGINEERING REPORT

FOR

KAHALA RESIDENCE

Kahala, Oahu, Hawai'i
TMK: (1) 3-5-003:002 & 003

February 2014

APPLICANT:
Mr. Kyong-Su Im



THIS WORK WAS PREPARED
BY ME OR UNDER MY SUPERVISION

SIGNATURE
EXPIRATION DATE: 4-30-14

Prepared by:



925 Bethel Street, 5th Floor
Honolulu, HI 96813
Phone: (808) 523-5866
Fax: (808) 523-5874

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1.0 INTRODUCTION

1.1 OVERVIEW

The Kahala Residence is a planned residential property, located on two adjacent parcels of undeveloped land in Kahala, Honolulu, Oahu, Hawaii. The two parcels, TMK 3-5-003:002 and 3-5-003:003, combine to form an area of approximately 38,308 square feet. The parcels are currently zoned R-7.5 and are located within the Primary Urban Center.

The existing properties are located on Kahala Avenue and its northern boundaries fronts Kahala Avenue, its southern boundaries fronts the Pacific Ocean, and its western and eastern boundaries are adjacent to existing residential lots. **Refer to Figure 1 – Location Map, and Figure 2 – New Residences TMK Map.**

The existing properties will not require a zone change for the parcels, but each parcel will remain separate and a Conditional Use Permit (CUP) for Joint Development Agreement (JDA) will be processed to support the site. The CUP JDA will allow the landowner(s) to develop the combined parcels as one parcel, with the ability to construct structures crossing the joint property boundaries. This would allow a much larger building footprint and offers more flexibility in the design and layout of the new residence.

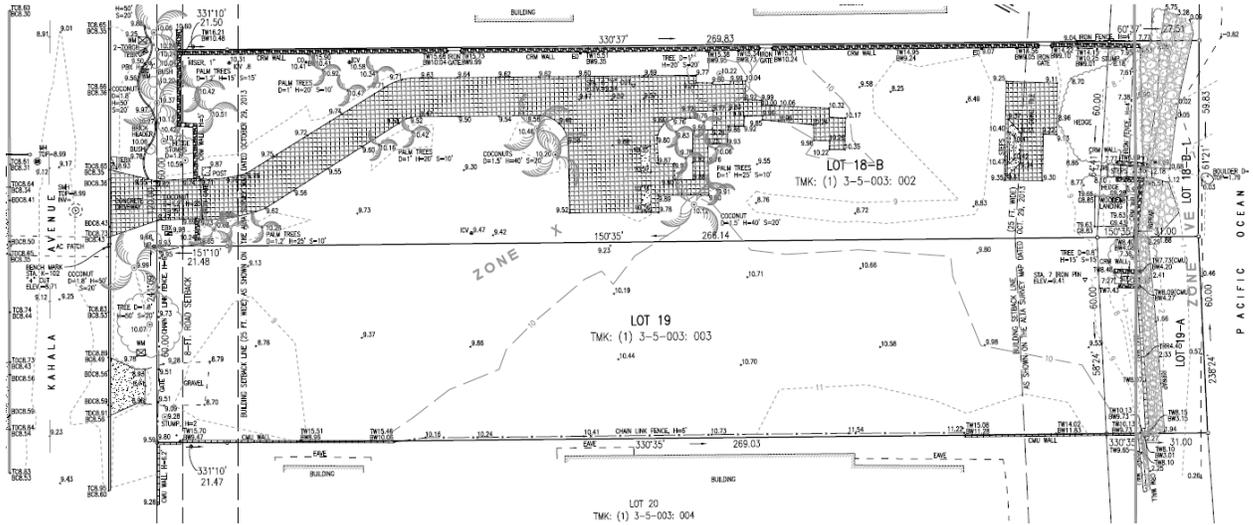
The purpose of this Preliminary Engineering Report is to describe the existing and new civil infrastructure and utilities that will serve the residential property. In addition, this report will also evaluate the adequacy of the existing infrastructure and will describe or detail anticipated improvements which may be required for the new residence.

1.2 EXISTING CONDITIONS

The existing properties are comprised of two adjacent parcels and are currently vacant. While previously developed with single family residences on each parcel, the existing dwelling structures have been demolished and only a concrete pad, a partial stone tiled pathway and some coconut trees remain on Parcel 002 (lot 18-B and 18-B-1). The remaining area of Parcel 002 and the whole of Parcel 003 (lot 19 and 19-A) are covered in bare soil and sand with some patches of grass. Both parcels contain different types of seawalls of varied heights along the shoreline. Parcel 002 has a stacked boulder wall approximately 3-4 feet high with a 3-foot high wrought iron fence on the top and is overgrown with Naupaka. Parcel 003 contains a hollow tile wall approximately 3 feet high on a grouted stacked rock wall approximately 2-3 feet high. There are no fences or shrubberies along the top of the wall. The conditions of the walls are in various stages of deterioration and needs to be assessed by a structural engineer to determine if it is structurally sound to remain.

The terrain within the existing properties is unevenly graded, and a small embankment separates the site creating gentle slopes in multiple directions, with the center and west side of the site at the highest elevation at approximately 12 feet above mean sea level (MSL). The property generally slopes to the roadway to the north, towards the southeast, and to the south west, as elevations range from 12 feet to 9 feet along the top of the sea walls, to about 8 feet near Kahala Ave. Stormwater runoff generally sheet flows in these directions, towards Kahala

Ave. or towards the ocean.



New Residences Topographic Survey (N.T.S.)

Soils are classified as Jaucus Sand (JaC) on the mauka half of the parcels and Beaches (BS) on the makai half of the parcels. Both classifications consist of mostly calcium carbonate with very low water capacity. Rainfall averages in the Kahala area are about 27 inches per year. Additionally, the subject parcels are located within Flood Zone X, outside of the FEMA designated 100-year floodplain. **Refer to Figure 3 – Soils Map, and Figure 4a and 4b – Flood Zone Maps.**

2.0 EXISTING INFRASTRUCTURE

2.1 ROADWAYS

Kahala Avenue is the main access road running parallel to the coastline in the east-west direction that serves the majority of the beach front houses from Diamond Head to the Waialae Country Club in Kahala. The two-lane roadway is under the jurisdiction of, and maintained by, the City and County of Honolulu. The existing 60-ft wide right-of-way (ROW) consists of 15-ft wide grassed shoulders and 6" high concrete and/or rock curbs on both sides, as well as a 12-ft wide west bound lane and an 18-ft wide east bound lane with permitted parking. The posted speed limit is 25 miles per hour (MPH) in both directions. The roadway is primarily used for residential traffic, but also serves as access to the Waialae Country Club and the Kahala Mandarin Hotel which are located at the east end of Kahala Avenue approximately a mile away.

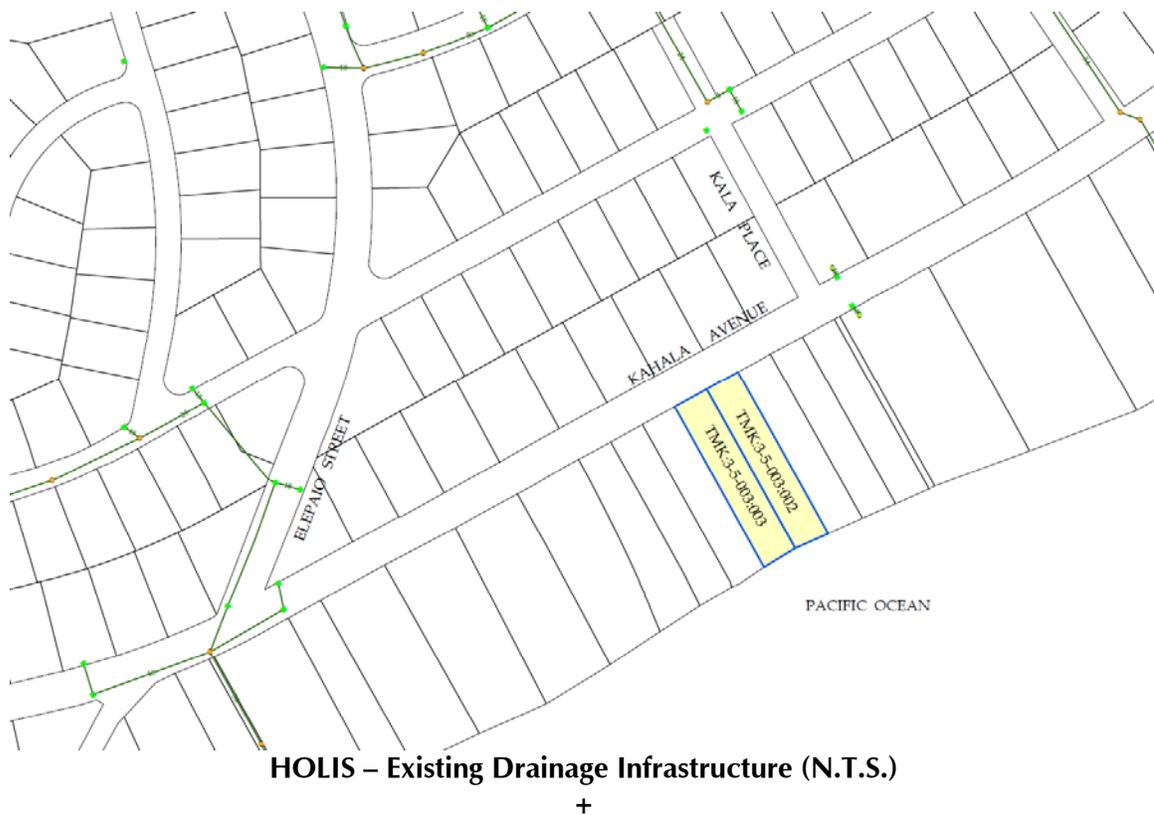
Various record documents indicate an 8-ft wide future road widening setback along the street frontage for both parcels. Discussions with the Department of Planning and Permitting (DPP), Traffic Review Branch (TRB) confirmed that there are no future plans to widen Kahala Avenue beyond the existing right-of-way. Although there is no future plans for frontage improvements such as sidewalks and additional landscaping for the area, if required, TRB said that the existing 15-ft wide shoulder would be utilized. Further investigation will be required to determine the validity of the setback.

2.2 DRAINAGE

The existing properties are relatively flat and appear to primarily slope toward Kahala Ave. and/or toward the ocean. However, due to the uneven topography as well as the undeveloped nature of the properties, the majority of the stormwater runoff generated within the properties generally remains on the properties in localized depressions and percolates into the ground during the smaller storm events. Excess runoff from larger storm events sheet flows towards Kahala Avenue or the ocean and over the existing sea walls.

There are no records of City storm drain systems directly fronting the existing properties. It is unknown whether private storm drain systems may exist within Kahala Avenue fronting the existing properties and would need to be researched and verified.

Two curb inlet (modified) catch basins are located a few hundred feet east of the existing properties which appear to collect stormwater runoff conveyed within Kahala Ave. Per the City and County Honolulu Land Information System (HoLIS), each catch basin is connected to an 18-inch reinforced concrete pipe (RCP) segment that then connects to a stormwater outfall structure at the coastline, where stormwater is discharged to the ocean. The two catch basins would appear to collect and convey a portion of the stormwater generated on the existing properties which flow towards and makes its way into Kahala Avenue.



2.3 FLOOD ZONE

Based on the 2011 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), the majority of the two parcels within the residential property are in Flood Zone X, outside of the 100-year floodplain. However, small southerly portions of both parcels are located within Flood Zone VE (EL 12), land within the 100-year coastal flood zone having a calculated inundation of up to the base flood elevation (BFE) indicated, which is 12 feet above mean sea level, with additional hazards due to storm-induced velocity wave action.

Development of the properties within the flood hazard zones will need to conform to government regulations including FEMA regulations and the City Land Use Ordinance (LUO). There are several alternatives for the development to comply with the flood hazard district regulations such as: flood proofing for structures, anchoring of foundations, and elevating the building's lower floor above the base flood elevation. For building permits and other administrative actions, compliance is generally outlined in the regulations. For discretionary approvals such as CUP JDA, approval may be subject to agency review and approval. **Refer to Figures 4a and 4b – Flood Zone Maps.**

2.4 SEWER

A City 18-inch diameter vitrified clay pipe (VCP) sewer main flows east along Kahala Avenue. This sewer line flows into the Kahala Sewage Pump station located approximately 1 mile east of the properties. The 18-inch sewer main serves residential properties on both the mauka and makai side of Kahala Avenue.

Sewer service for Parcel 003 is through a 6-inch VCP sewer lateral along the property's Kahala Avenue frontage. Sewer service for Parcel 002 is through a 6-inch VCP sewer lateral located on the property's Kahala Avenue frontage, but per HoLIS, appears to combine with the neighboring property's (TMK 3-5-003:035) 6-inch VCP sewer lateral prior to discharge to the 18-inch main in Kahala Avenue.

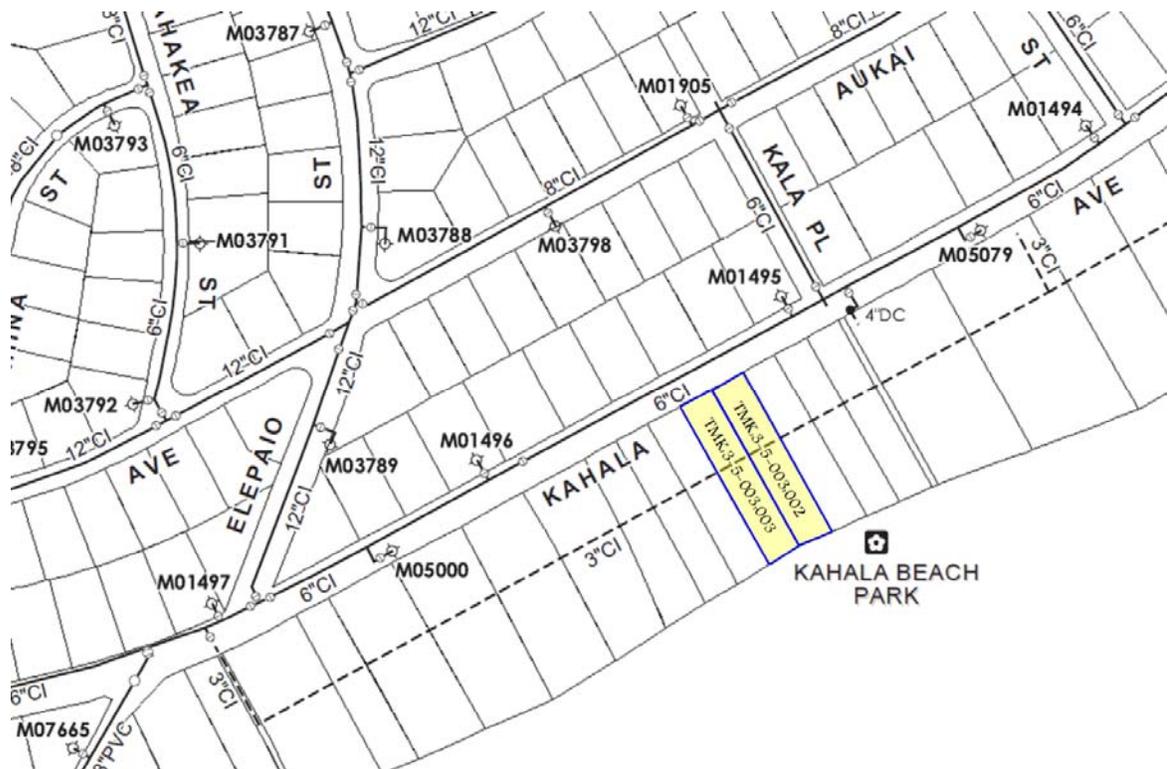


HOLIS – Existing Sewer Infrastructure (N.T.S.)

2.5 WATER (DOMESTIC AND FIRE PROTECTION)

Existing water lines servicing the area include:

- A 6-inch diameter Board of Water Supply (BWS) cast iron (CI) water line in Kahala Avenue directly fronting Parcels 002 and 003, which appear to serve each property.
- A 12-inch diameter BWS CI water line in Elepaio Street approximately 800 feet west of the site and connecting to the 6-inch in Kahala Ave.
- A 6-inch diameter BWS CI water line in Kala Place approximately 170 feet east of the site and connecting to the 6-inch in Kahala Ave.
- A 6-inch diameter BWS CI water line in Uliuli Street approximately 750 feet east of the site and connecting to the 6-inch in Kahala Ave.



BWS Water Distribution Map (N.T.S.)

The Board of Water Supply (BWS) distribution maps, record drawings and consultation indicate that Parcels 002 and 003 are both immediately served by the 6-inch CI line in Kahala Avenue. Parcel 002 is served by a 1-1/2-inch Type “C” single service lateral, with a 1-inch water meter (Premise ID# 1055406; Meter ID# 014-00668). Parcel 003 appeared to be served by a 2-inch Type “D” single service lateral with a 1-1/2-inch water meter (Premise ID# 1055405), but the meter has been removed by the BWS due to inactivity at the property. Water lateral sizes are based upon the corresponding meter size for a single service lateral from the Board of Water Supply’s *Water System Standards*, dated 2002.

The 6-inch diameter water main located in Kahala Avenue fronting the existing properties serves multiple fire hydrants spaced approximately 300 to 600 feet apart along Kahala Avenue around the parcels. There do not appear to be fire hydrants directly fronting or

adjacent to the existing properties. There is one fire hydrant (M-01495) within the vicinity of the existing properties at the northwest corner of the Kala Place and Kahala Avenue intersection, approximately 170 feet east of the site. Hydrant M-10496 is located west of the site on Kahala Ave.

The BWS has suspended fire flow tests on fire hydrants as a water conservation measure, but has provided calculated water pressures at the two above referenced hydrants. Static water pressures were determined to be 73 psi and residual pressures (with a flow of 1000 gpm) to be 50 psi. Pressures shall be verified by on-site pressure gauge readings.

There appears to be an existing 3-inch CI water line that runs in the east-west direction parallel to shore, through the majority of coastline properties within the area, and the 3-inch line appears to bisect both Parcels 002 and 003, per the available BWS Distribution Maps. The line connects to the 6-inch CI line in Kahala Avenue at various points. Per discussions with the BWS-Service Engineering Section, further research confirmed that the 3-inch line is no longer in service and the portions within the existing properties can be removed during construction.

2.6 ELECTRIC, TELEPHONE, AND CABLE

Available aerial imagery indicates existence of above-ground electrical/telcom in the general area as summarized below.

Street Name	Kahala Avenue
Existing Electrical / Telecom	O/H 12kV O/H Telecom
Location	Across the street from subject parcels (mauka side of Kahala Ave.)
Existing Structures	An existing utility pole is located along the subject parcel's frontage (makai side) on Kahala Avenue, which appears route O/H electrical/telecom lines that branch off of the main O/H lines on the mauka side of Kahala Ave.

Electrical and communications systems at this Kahala location should be assessed by an electrical engineer to provide the design team with detailed information on systems capacities.

3.0 PLANNED INFRASTRUCTURE IMPROVEMENTS

3.1 ROADWAYS

Access to the properties will be provided by a new 20-ft to 22-ft wide concrete drop driveway along Kahala Avenue. The driveway will provide access to an interior courtyard and parking area, as well as a vehicular drop-off and turnaround area in front of the main residence's entryway. Surface parking for guests and staff will also be provided. The exact layout of the interior driveways on the residence will be determined during design, and depending on the chosen layout, certain design criteria and requirements will be applied for the driveway widths and dimensions, parking area dimensions, turning radii, and grades or slopes.

Sustainability and Low Impact Development (LID) design strategies are anticipated for the residential properties and reflect the owners's goal for promoting stewardship in Hawaii's unique environment. Permeable pavements such as pavers or grasscrete products may be used for the driveway surfaces which increase stormwater infiltration and percolation while still providing an aesthetic enhancement over typical concrete or asphalt pavements. Reducing runoff from the properties and promoting infiltration mimics existing drainage patterns and prevents runoff and pollutants / sediment from entering the storm drain system, and at this particular location, the adjacent oceanfront waters.

Improvements to Kahala Avenue are not expected. As previously mentioned, an 8-ft wide future road widening setback exists along the street frontage for both parcels, but discussions with Traffic Review Branch (TRB) confirmed that there are no future plans to widen Kahala Avenue. However, the residence design and layout will minimize the scope of improvements within the road widening setback should future plans require widening of Kahala Avenue.

3.2 DRAINAGE

The existing properties are currently undeveloped as existing improvements have been removed or abandoned. Existing stormwater runoff flow patterns for the lots will generally be maintained as able, with portions of the parcels flowing into Kahala Avenue and the remaining portions flowing towards the ocean. The future grading will direct runoff away from structures and door openings to reduce potential stormwater flooding. However, site grading, excavation, fill, and the construction of new structures and pavements will also modify the existing drainage patterns and increase the amount of stormwater runoff generated within the property (due to increased impervious areas). As a result, the following drainage improvements within the properties will be recommended, and will be design based upon the following criteria:

3.2.1 DESIGN CRITERIA

City and County of Honolulu, Department of Planning and Permitting, *Rules Relating to Storm Drainage Standards* (Effective January 1, 2000 with subsequent amendments effective May 1, 2011 and June 1, 2013).

Recurrence Interval:

- For drainage areas of 100 acres or less, T_m (recurrence interval) = 10 year based on 1-hour storm, unless otherwise specified.

Runoff Quantity:

- Rational Method – For drainage area of 100 acres or less, the Rational Method along with the accompanying reference plates, tables, and charts, or latest revision thereof, shall be used to determine quantities of flow rate.
- For drainage areas where downstream capacities are inadequate to accommodate the post-development condition runoff quantity calculated, runoff quantities shall be limited to pre-development conditions and rates.

Stormwater Quality:

- For projects with a disturbed area of greater than one (1) acre, specific criteria for stormwater quality improvements based upon the City and County’s recently amended *Rules Relating to Storm Drainage Standards* must be met (Category A2). The combined area of this residential site is 38,308 square feet, or 0.88 acres, and therefore **not subject** to the City and County’s stormwater quality requirements.

- For projects with parking lots and driveways greater than 10,000 square feet in area, specific criteria for stormwater quality improvements based upon the City and County’s recently amended *Rules Relating to Storm Drainage Standards* must be met (Category B). The planned driveways and parking lots will be less than 10,000 square feet in area, and therefore **not subject** to the City and County’s stormwater quality requirements

- However, sustainability and Low Impact Development (LID) design strategies, as shown in the City and County’s *Rules Relating to Storm Drainage Standards*, are anticipated for the site and reflect the owners’s goal for promoting stewardship in Hawaii’s unique environment. Even though not required, this residential site will implement stormwater quantity and quality control Best Management Practices (BMP’s) where able.

- For a retention based water quality control treatment system, the required retention volume to be retained is based on the amount of runoff volume that would be produced from a design rainfall depth of 1 inch. The formula $WQFV=C \times 1'' \times A \times 3630$ is used to calculate the water quality volume.

- For a flow-through based water quality control treatment system, the required flow rate for flow-through treatment is based on the amount of runoff that would be produced from a peak rainfall intensity of 0.4 inches per hour. The formula $WQFR=C \times 0.4'' \times A$ is used to calculate the water quality flow rate.

3.2.2 HYDROLOGY METHOD

Since the total on-site drainage area is less than 100 acres, the hydrologic calculations for the existing conditions at the subject parcels are based on the Rational Method, $Q=CIA$. Design values will be obtained from various design plates, tables and charts in the City and County of Honolulu’s *Rules Relating to Storm Drainage Standards* (Effective January 1, 2000 with subsequent amendments effective May 1, 2011 and June 1, 2013).

Q=CIA

- Where:
- Q = Peak Runoff Flow Rate (cubic feet per second)
 - C = Coefficient of Runoff
 - I = Rainfall intensity in inches per hour (in/hr)
 - A = Total drainage area (acres)

3.2.3 HYDROLOGY & HYDRAULICS

It is expected that after grading and construction of on-site structures and pavements, runoff quantities will increase due to the increase in impervious surfaces. Pervious pavements and landscaped areas will be used to increase pervious areas on-site to minimize the increase in stormwater runoff. Runoff quantities calculated using the Rational Method above will be determined after design has been finalized.

A subsurface drainage pipe system will likely be installed to collect roof runoff via downspouts from the residential structure along with floor drains and area drains located at graded low points within the development, including the open pool deck area, driveways, and landscaped areas. The piped system will convey stormwater runoff towards infiltrative BMPs located on-site, and may include and not limited to infiltration trenches or basins, subsurface infiltration chambers under the driveways or parking areas, rain gardens, or other stormwater quality facilities. Other downspouts located along the perimeter may utilize downspout disconnections with rain gardens to collect and retain/infiltrate stormwater.

Due to the unavailability of existing storm drain systems fronting the existing properties, it is assumed that the majority of existing stormwater generated within the properties infiltrates or sheet flows towards and onto Kahala Avenue or the ocean. Therefore, downstream capacity of receiving systems and waters is unlikely to be affected by the residential use.

However, infiltrative BMPs and sustainable design strategies will be used to retain the stormwater generated by the 10-year 1-hour design storm event, including the expected slight increase in runoff quantities over existing conditions. Such facilities will mitigate the increase in runoff, and will reduce runoff quantities entering Kahala Avenue. The BMPs will also improve water quality as pollutants and sediments are retained and treated on-site instead of being discharged to Kahala Avenue and directly and/or indirectly to the ocean fronting the property. All future BMPs will have overflow systems to bypass runoff volumes and flows from larger storm events. BMPs are described in detail below:

3.2.4 RETENTION SYSTEMS AND STORMWATER QUALITY FACILITIES

Infiltrative BMPs for the subject parcels will mitigate the peak flow rates and runoff volumes leaving the properties. Additionally, although the residential use is not required to implement stormwater quality BMPs in accordance with the City and County's *Rules Relating to Storm Drainage Standards*, it is the goal to reduce the pollution associated with stormwater runoff from new residence.

The following retention and stormwater quality facilities, with brief descriptions, may be used on-site:

- **Infiltration Basin**

Infiltration basin is a shallow impoundment with no outlet, where storm drain runoff is stored and infiltrates through the basin invert and into the soil matrix. Treatment and removal of suspended pollutants/sediment occurs as water

infiltrates instead of being conveyed to the public storm drain system. Typically, these basins are used when existing soil percolation rates are high. The location of the basins would be integrated in the landscape and maintenance would be minimal.

- **Infiltration Trench or Chamber System**

Infiltration trenches consist of subsurface gravel storage areas through which stormwater is retained and infiltrated. Proprietary chamber systems utilize storage within underground pipes in lieu of fully filled gravel trenches. Treatment and removal of suspended pollutants/sediment occurs as water infiltrates instead of being conveyed to the public storm drain system. Typically, these trenches or chambers also contain a pre-treatment system. They can be more difficult to maintain as they are larger structures and are beneath grade. However, they are utilized where on-site space is at a premium because they can be located underground beneath driveways and parking areas.

- **Pervious Pavements (Paver System)**

Pervious pavers collect stormwater runoff through the compacted sand joints in the paver system. Runoff infiltrates through the joints and into a gravel layer under the pavement, where runoff can be stored and infiltrated instead of being conveyed to the public storm drain system. Pollutants and sediment are removed from the runoff as it infiltrates through the sand and gravel layers. The joints should be cleaned periodically to remove surface pollutants and sediment and to maintain the capacity of the pervious paver system. Pervious paver costs may be slightly higher than typical pavement, but in general are not prohibitive.

- **Bioretention Planter (Rain Garden) / Biofiltration Planter (Planter Box)**

These planters utilize natural treatment processes through which stormwater is conveyed to the planter, and is filtered by an organic mulch layer and sandy soil suitable for plantings. The runoff can then be stored and infiltrated in a gravel layer at the bottom for infiltration, or conveyed to a storm drain system if infiltration is not allowed. Stormwater is also taken up by the plants and evapotranspiration. These BMPs are well suited for treating both the roof downspouts and at-grade parking areas where grade allows.

- **Enhanced Swale or Biofiltration Swale (vegetated swale)**

Enhanced swales are similar to the bioretention planters in terms of design, and contain layers of organic mulch, sandy soil for planting, and a bottom gravel layer for infiltration or conveyance. However, the swale has a slope (instead of being flat like a planter). Biofiltration swales rely on surface flow of runoff along the planted swale during which pollutants are removed, in lieu of infiltration through media (mulch/sandy soil), and tend to contain simple vegetation.

- **Green Roof**

Green roofs contain a relatively thin layer of soil and plantings on top of a roof, and may be a pre-engineered system or built in structurally with the roof design. Green roofs reduce impervious areas, reducing stormwater volume and flow. Additional stormwater is removed through the plants and evapotranspiration.

However, they tend to be more maintenance intensive and require higher up-front costs in the roof and plumbing design. However, this BMP is suited for sites with large roof areas.

3.3 FLOOD HAZARD MANAGEMENT

Development within the existing 100-year flood zones as indicated in the FEMA FIRM will play an important role in the plan for lot development. Chapter 21, Section 21-9.10 of the City LUO, includes the regulations for development activity within a flood hazard district. LUO requirements including flood elevation certificates may be required by DPP during the building permit processing. We recommend that the building be placed outside of and above the regulatory base flood elevation

3.4 SEWER

The existing properties are currently being served by existing 6-inch sewer laterals connected to the City sewer system located in Kahala Avenue. At least one, if not both of the sewer laterals, may be utilized by the planned residence, based upon the expected fixture unit count and peak flow from the residence. The required sewer demand shall be provided by the mechanical engineer.

A Sewer connection application has been submitted and approved for both parcels for two residential dwellings. The sewer connection license (2014/SCA-0065) will be used during the building permit process as proof of obtaining approval to connect to the City sewer system. If required, a wastewater system facility charge will be assessed and payment will be due as part of the building permit requirements.

Sewer systems on the properties will consist of the lateral serving the residences only and will flow by gravity. Sewer cleanouts at the sewer lateral connections should be installed.

3.5 WATER (DOMESTIC AND FIRE PROTECTION)

Parcel 002 currently served by an existing BWS 1-inch water meter that is connected to the BWS water main in Kahala Avenue, and may be utilized for the residential properties. Parcel 003 was previously served by an existing BWS 1-1/2-inch water meter that was connected to the BWS water main in Kahala Avenue before it was removed. BWS may be approached to reinstall the meter for utilization by this residence. Water meters and laterals would likely remain in place, but may also need to be relocated and/or reconstructed at the property line depending on the new site layout, should any improvements conflict with the existing meter location.

Existing fire hydrants located on Kahala Avenue fronting the subject parcels will likely satisfy the fire protection requirements for the CUP JDA. However, due to the length of the existing parcels, portions of the property appear to be beyond 150-feet of Kahala Avenue and available fire access. Fire access through the private property may need to be reviewed and approved as part of the CUP JDA requirements.

If existing fire hydrants are determined to be inadequate, fire sprinkler services may need to be included as part of the building design to satisfy the fire protection requirements. It is suggested that a 6" detector check meter be installed and may need to be reviewed and approved by the BWS.

3.6 ELECTRIC, TELEPHONE, AND CABLE

The existing properties are currently served by HECO overhead power lines along Kahala Avenue and overhead telecommunication lines by various providers. Adequacy of existing electrical and telephone service was not examined in this report and would need to be verified. Electrical and communications systems at this Kahala location should be assessed by an electrical engineer to provide the design team with detailed information on systems availability and capacities.

An existing utility pole is located along the property's frontage on Kahala Avenue, on the makai side of the street, which appeared to serve the previous residences. The pole appears to be located directly at the lot line between Parcels 002 and 003, but within the public right of way (ROW). The pole will be removed or relocated during the joint development of the parcels, as the pole may be currently located within the new driveway as determined by the site layout and architect. The removal or relocation of the pole will be determined when the site layout is finalized and related impacts to both options are reviewed and accepted by the owner. Coordination with HECO and other utility pole users would be required.

Off-site improvements required to provide the additional services will be the responsibility of each service provider, respectively. Required connections to the services systems will be coordinated with the respective service providers.

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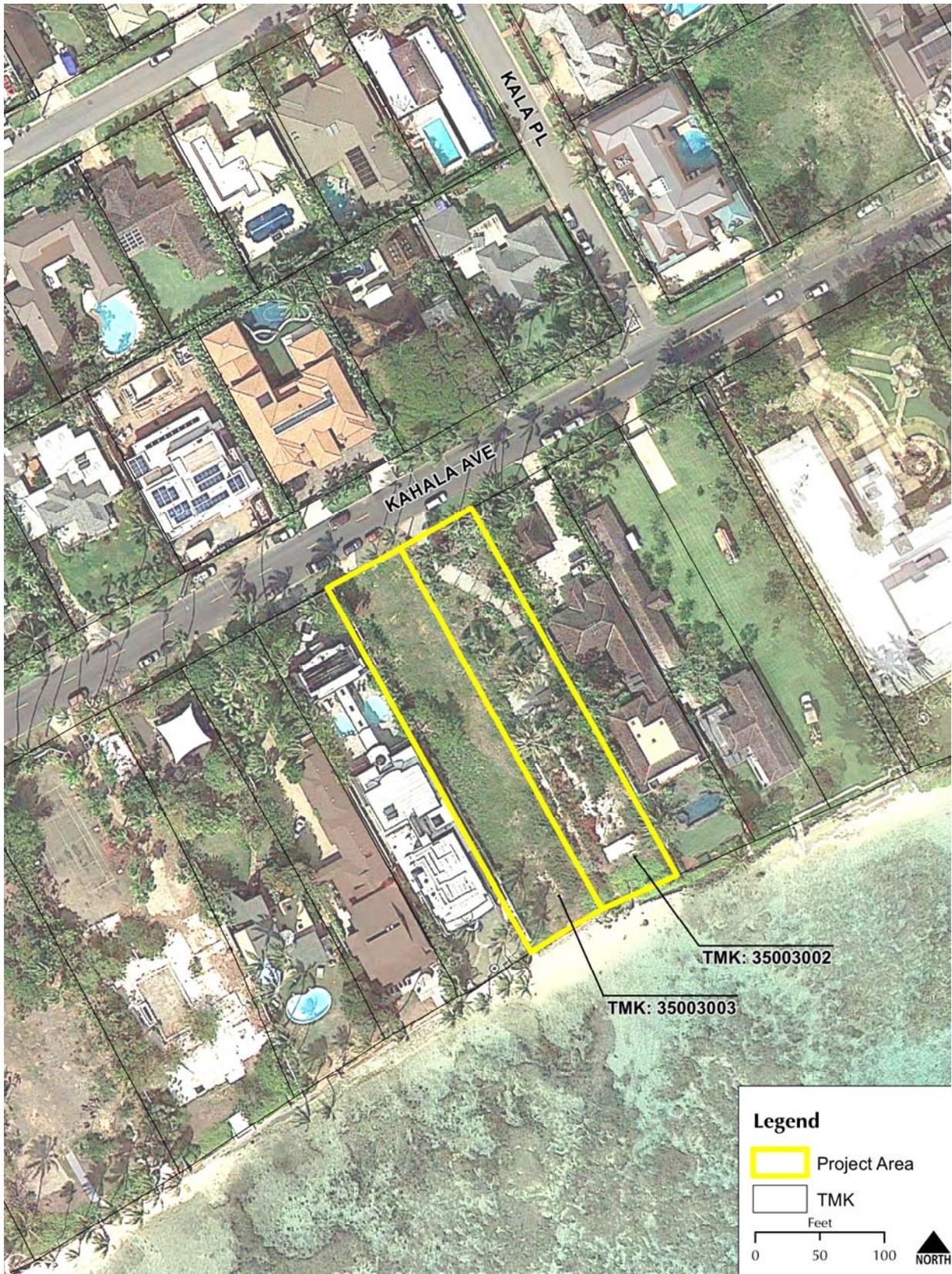


Figure 2: New Residence's TMK Map (N.T.S.)

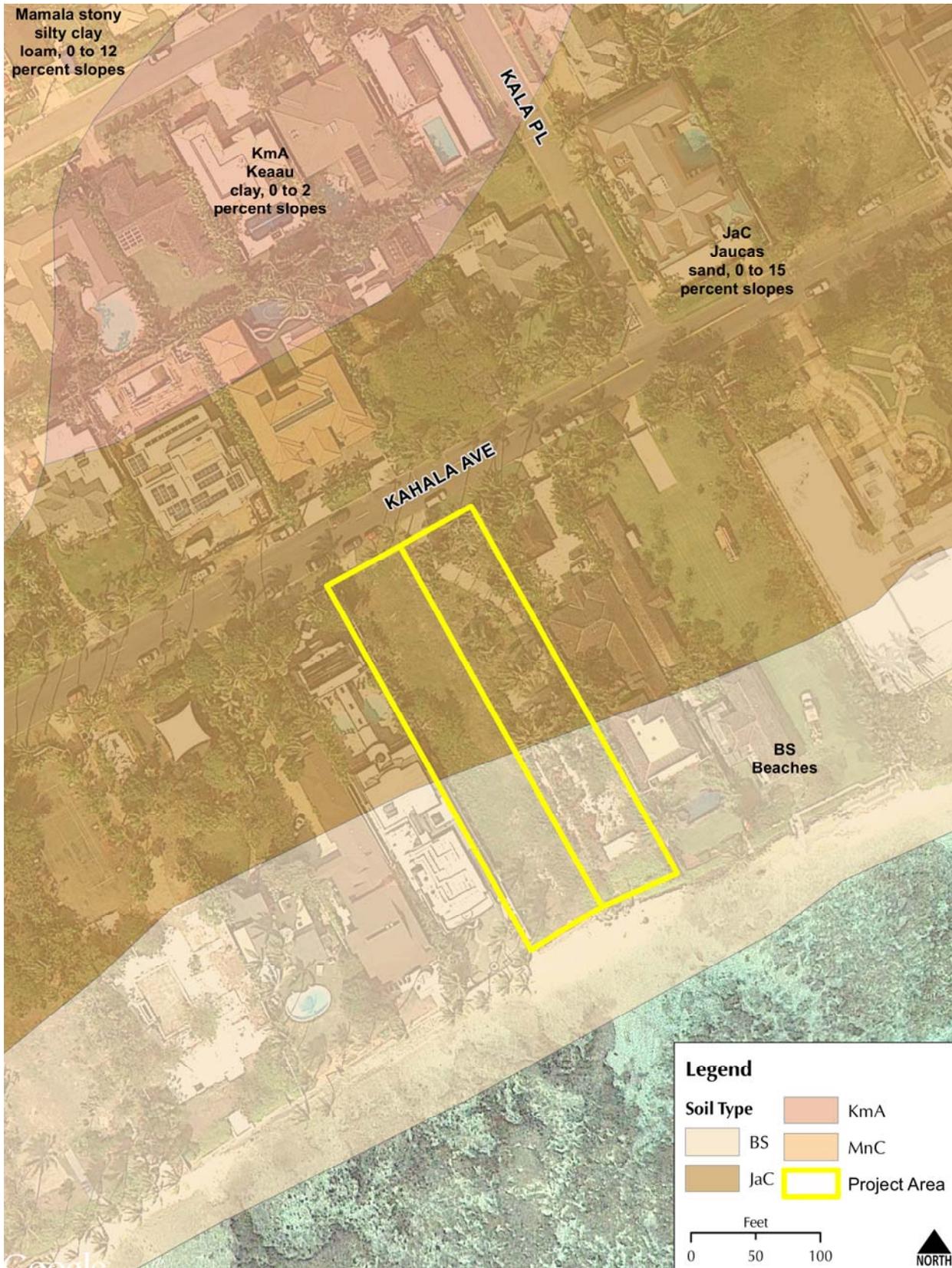


Figure 3: Soils Map (N.T.S.)

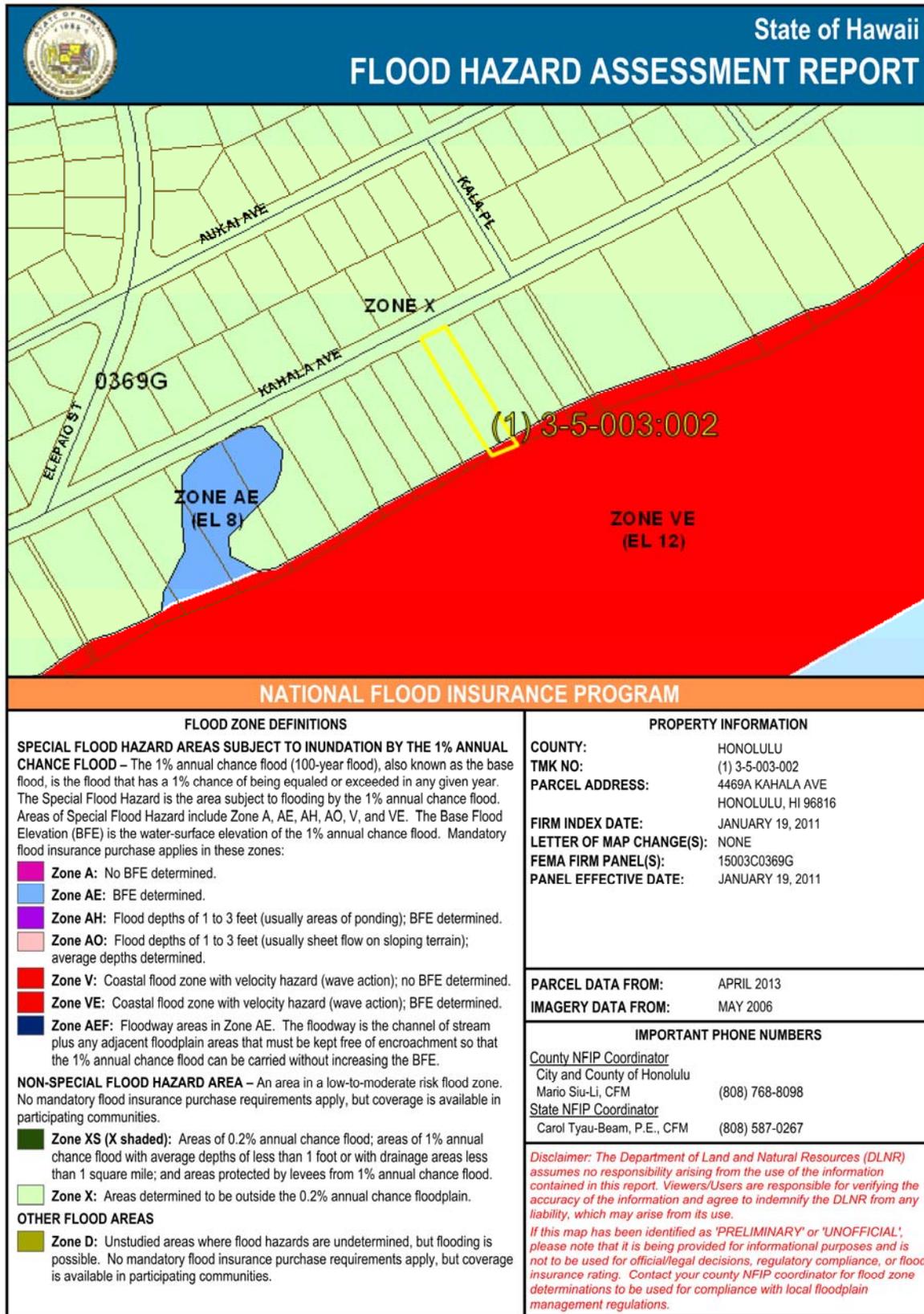


Figure 4a: Flood Zone Map (N.T.S.) – Source: <http://gis.hawaiiinfip.org/fhat/>

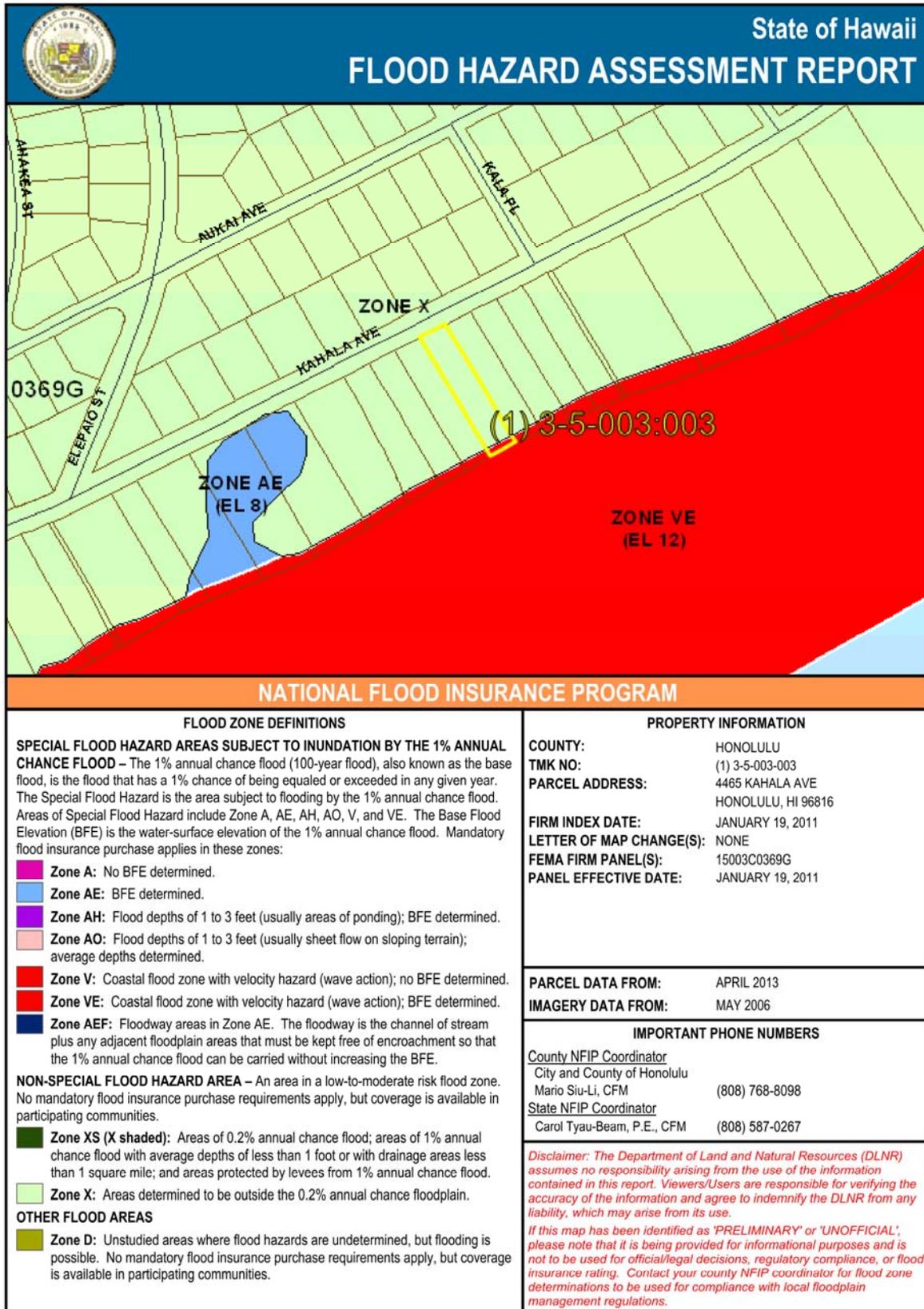


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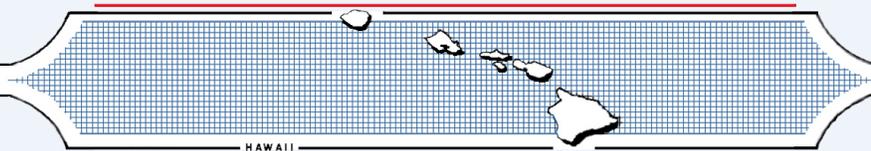
APPENDIX B
ARCHAEOLOGICAL INVENTORY SURVEY

**AN ARCHAEOLOGICAL ASSESSMENT OF
TWO LOTS IN KAHALA,
WAIKĪKĪ AHUPUA`A, KONA (HONOLULU) DISTRICT,
ISLAND OF O`AHU, HAWAI`I
[TMK (1) 3-5-003:002 and 003]**

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February 2014
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ABSTRACT

At the request of Group 70 International, Scientific Consultant Services, Inc. conducted an archaeological inventory survey (AIS) of two adjacent waterfront parcels at 4465/4469 Kahala Avenue in Waikīkī Ahupua`a, Kona District, O`ahu Island, Hawai`i (TMK (1) 3-5-003:002 and 003).

Based on the historic use of the project area as well as the results of previous archaeological studies in the vicinity of the project area, it was determined that potential site types in the project area might include pre-Contact or Historic habitation features related to the sites location on the shoreline, and that there was a high probability that burials might be found during excavations in the project area. While the pedestrian survey and subsurface testing revealed three modern structures associated with modern habitation, no cultural or historic sites or features were identified in the project area. A buried former A-Horizon was present in several of the test trenches but no cultural material was discovered with it. With the exception of a single ceramic insulator whose provenance could not be determined, all of the cultural material identified during the subsurface testing was confined to modern rubbish (wire, plastic bags, glass sherd and ceramic sherd) and modern construction debris (PVC pipe sections, red brick, concrete bricks, and fragments of red brick). One sub-adult faunal bone was identified in a layer of fill.

Although no cultural or historic sites were identified during the current survey and subsurface testing, Archaeological Monitoring is recommended for future ground disturbance in the project area, given the findings of previous archaeological work documented in the area (e.g., human burials and cultural deposits).

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INTRODUCTION

At the request of Group 70 International, Scientific Consultant Services, Inc. conducted an archaeological inventory survey (AIS) of two adjacent waterfront parcels at 4465/4469 Kahala Avenue in Waikīkī Ahupua`a, Kona District, O`ahu Island, Hawai`i (TMK (1) 3-5-003:002 and 003) (Figures 1 and 2).

The goals of the AIS were to conduct thorough archival and background research of the project area and vicinity, surface reconnaissance including mapping and recording of all identified sites, and limited subsurface testing. While Inventory Survey-level investigations were completed, this report is being written as an Archaeological Assessment because no sites were found in accordance with HAR §13-275-5(b)(5), which states " Results of the survey shall be reported either through an archaeological assessment, if no sites were found, or an archaeological survey report which meets the minimum standards set forth in chapter 13-276."

PROJECT AREA DESCRIPTION AND ENVIRONMENTAL SETTING

The survey area consists of two adjacent ocean-front residential parcels totaling 0.8795 acres, and identified on tax maps as TMK (1) 3–5–003:002 and 003. They are located in the traditional ahupua`a of Waikīkī. The project area is bounded by Kahala Avenue to the northwest, residences to the southwest and northeast, and the sea to the southeast. At the time of the survey structures in the project area included a paved driveway along the northeast side of parcel 002, a cement and tile deck at the southern end of parcel 002, and a wooden deck at the southern end of parcel 003, as well as modern wire fences and/or basalt-and-concrete or concrete block walls on all four sides of the project area..

Project area elevations are approximately 3 m A.M.S.L. with an annual precipitation of 20 to 30 inches along this portion of the leeward coast (Giambelluca *et al.*, 2012). Both parcels support remnants of modern landscaping vegetation, such as grass lawns, coconut and other palms, mango trees, a variety of flowering trees and shrubs, and weeds that have sprouted since the lots have been vacant. Most of these plants grow in fill topsoil that was imported to cover calcareous sands that occur naturally on both parcels. In places where topsoil was not applied, soils classified as Jaucas sand (excessively drained sands that occur as narrow strips adjacent to the ocean) have developed. The nearest drainage is Kapakahi Stream, located more than 1.5 km to the northeast of the project area.

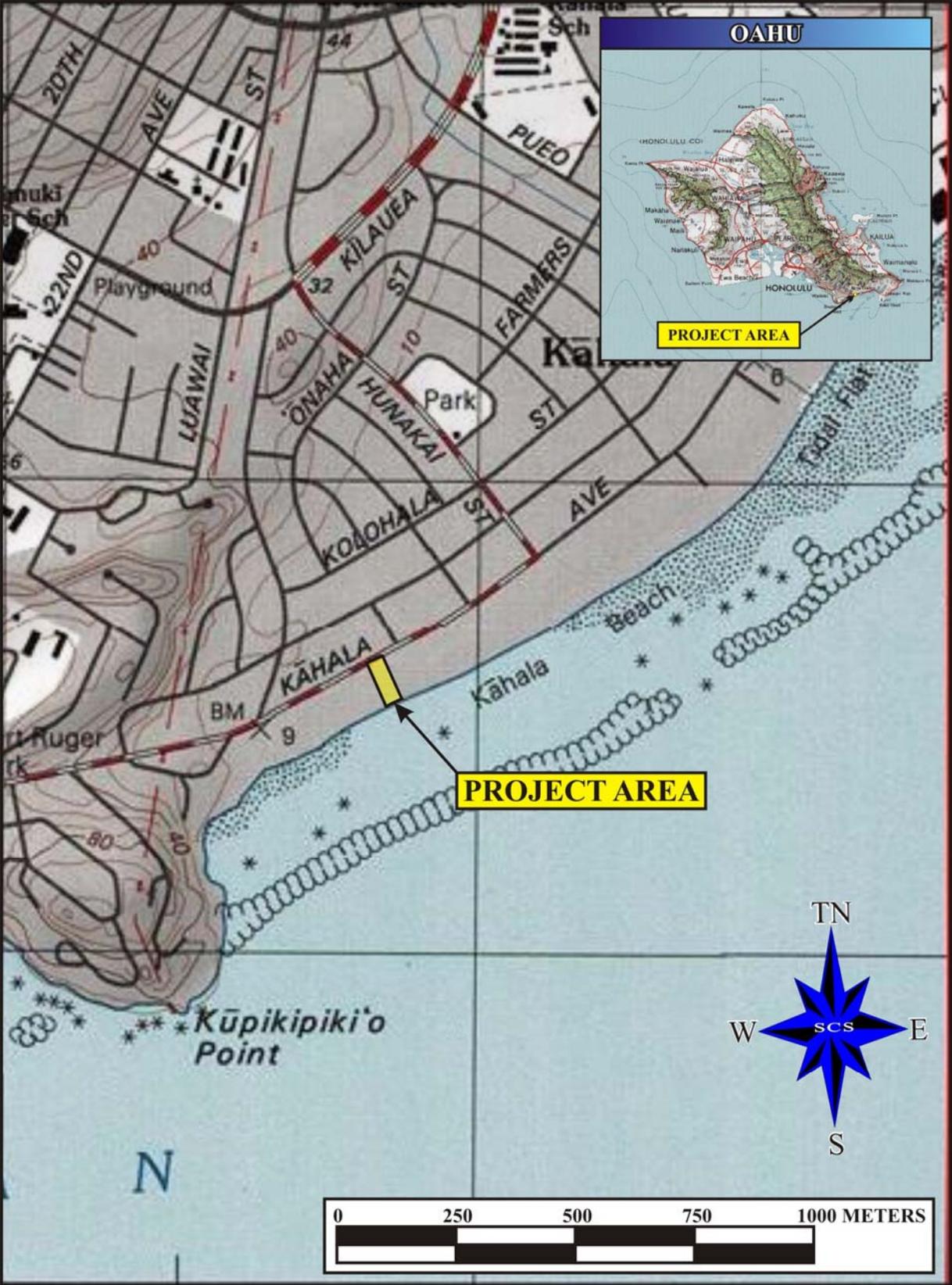


Figure 1: Portion of USGS Map (Honolulu Quadrangle) Showing Location of Project Area.

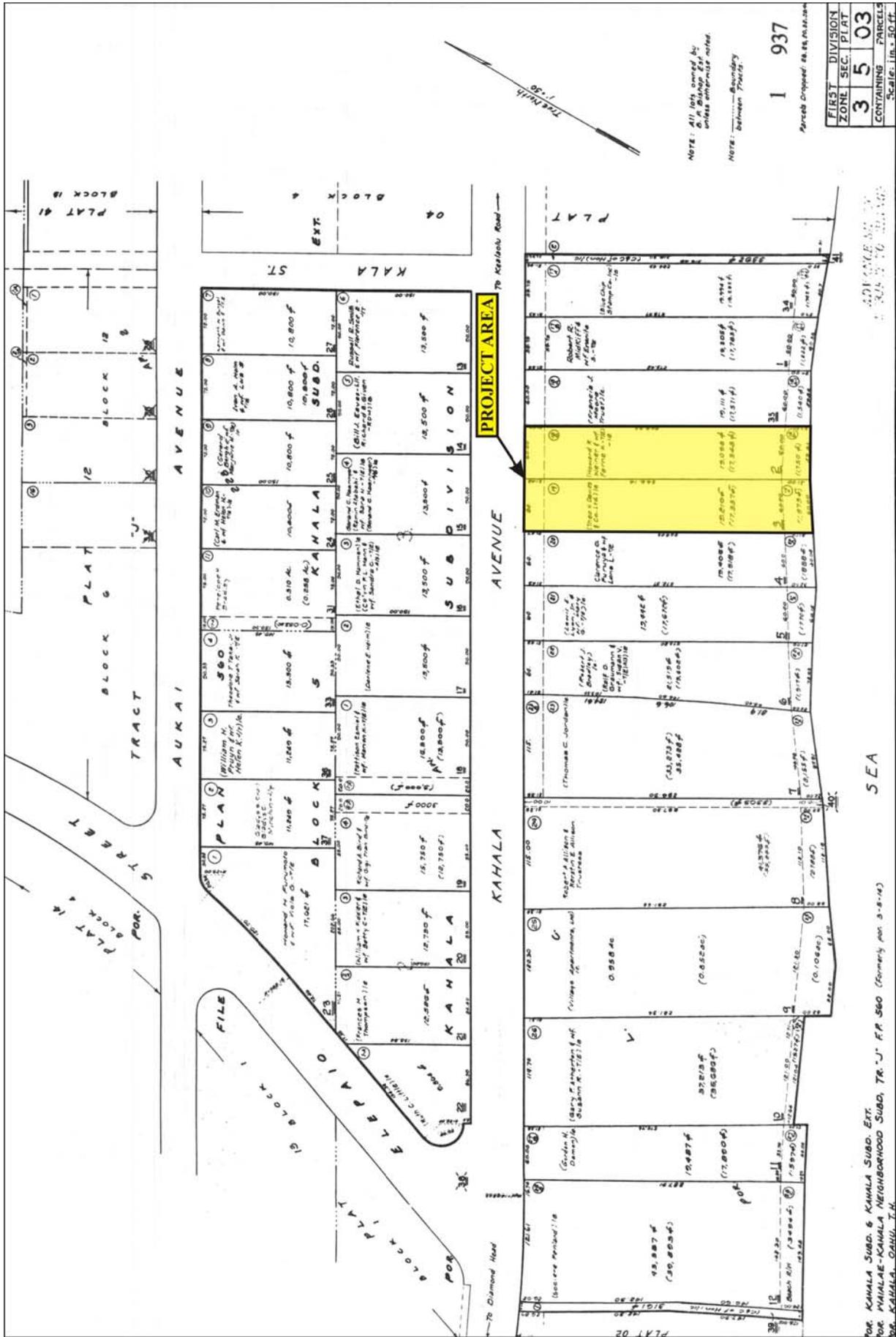


Figure 2: Tax Map Key (1) 3-5-03 Showing Location of Project Area.

CULTURAL AND HISTORIC BACKGROUND

TRADITIONAL SETTING

Recent re-evaluation of radiocarbon dates suggests O`ahu Island was first settled between A.D. 850 and 1100 by Polynesians sailing most likely from central East Polynesia (Kirch 2011:24). Archaeological settlement pattern data indicates that the initial colonization and occupation of the Hawaiian Islands first occurred on the windward shoreline areas of the main islands, with populations eventually settling into drier leeward areas at later periods (Kirch 1985). Coastal settlement was still dominant, but populations began exploiting and living in the upland (*kula*) zones. Greater population expansion to inland areas began about the A.D. Twelfth Century, but continued through the Sixteenth Century.

As the Hawaiian culture developed, land became the property of the king, or *ali`i`ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. His title of *ali`i`ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn they, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land (Kirch and Sahlins 1992 vol.1:25).

In general, several terms, such as *moku*, *ahupua`a*, *ili* or *ili`āina* were devised to describe various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*), which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were, therefore, able to harvest from both the land and the sea. As the Polynesian economy was based on agricultural production and marine exploitation, as well as animal husbandry and utilizing forest resources, this situation ideally allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *ili`āina*, or *ili*, were smaller land divisions next in importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which the *ili* were located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *ili*. The land holding of a tenant, or *hoa`āina*, residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). Oral history notes that the division of O`ahu's lands into districts (*moku*) and sub-districts was solidified by the *ali`i nui*, Mā`ili-kūkahi during the early part of the 16th century (Kamakau 1991:53-56). O`ahu contained six districts including Wai`anae, `Ewa, Waialua, Ko`olauloa, Ko`olaupoko, and Kona at the time of contact.

Large scale or intensive agricultural endeavors were implemented in association with habitation. Coastal lands were used for settlement and taro was cultivated in near-

coastal reaches and in the uplands. On the southeast coast of O‘ahu, taro cultivation was confined to valleys with streams or springs that would water the terraces. The staple crop in Wai‘alae and Wailupe valleys was sweet potatoes, which were planted in the valleys, on hillsides, and in the coastal strip (Handy 1940:155-6).

HISTORIC SETTING

Early western visitors to O‘ahu described the southeast coast as well-cultivated and well-populated. In 1789 Captain Nathaniel Portlock anchored in Maunalua Bay to take on fresh water, which was brought to the ship in calabashes. Portlock described the coastal setting:

...the bay all around has a beautiful appearance, the low land and vallies being in a high state of cultivation, and crowded with plantations of taro, sweet potatoes, sugar cane, &c., interspersed with a great number of cocoa-nut trees, which renders the prospect truly delightful. (Portlock 1789:73-4)

In 1828 Levi Chamberlain toured southeastern O‘ahu, including Wai‘alae:

...a grove of plam trees and a number of branching kou trees, among which stand the grass huts of the natives, having a cool appearancve, overshadowed by the waving tops of the cocoanuts, among which the trade winds sweep unobstructed. (Chamberlain 1956:28-9)

In 1865 Henry Willis Baxley described the region:

Further along the shore, the few hamlets of Waialae are seen nestled in a grove. And a short distance beyond, the grass huts of Wailupe cluster near the high hill of Mauna Loa, from the southern foot of which a ridge extends still further southwardly to the bold and lofty cape named Coco Head, the eastern boundary of the beautiful bay of Waialae, of which Diamond Head, already described, forms the western. (Baxley 1865:124)

The Māhele (1848-1851)

In the 1840s, a drastic change in the traditional land tenure resulted in a division of island lands and a system of private ownership based on Western law. Once Article IV of the Board of Commissioners to Quiet Land Titles was passed in December 1845, the legal process of private land ownership was begun. The land division, called the Māhele, began in 1848. The lands of the kingdom of Hawai‘i were divided among the king (crown lands), the *ali‘i* and *konohiki*, and the government. The *ili* of Wai‘alae Iki was awarded to Abner Pākī, the father of Bernice Pauahi Bishop, and the *ili* of Wai‘alae Nui was awarded to Victoria Kamamalu, granddaughter of Kamehameha.

The project area is located within the land of Kanewai, which was awarded to Kalaiheana as Land Commission Award (LCA) 228:2 during the Māhele. Kalaiheana was a kahu to Liholiho

and participated in the 1824 invasion of Kaua‘i [Kamakau 1992:220, 268]. According to John ‘I‘i’s testimony in the LCA, Kalaiheana received the lands after Kamehameha’s conquest of O‘ahu.

Kalaiheana’s land, called Kanewai, is at Waikiki. It has some leles in Manoa— Keapuapu, Holoawalu [Kaloalu in N. T.], Pakui, and the lele of Pahoa at Waikiki; and the sea of Kahala. It was the land of Keeaumoku at Waikiki, adjoining the north side of Kalaepohaku. This land became his upon the victory of Kamehameha I at the Battle of Nuuanu, also Waialua, as was the custom of granting lands to the chiefs at the time. When the peleleu [fleet of large canoes] came, the land passed from Keeaumoku to Papa and Kalaiheana, and all the leles were also conveyed. From thence came this acquisition and there was no deterrent until the year 1841. For the first time, an edge of Kahala was taken for Wai‘alae. And in the year 1846 another portion was taken for Kalaepohaku, in the month of May, or perhaps June. (Native Register vol.2, pg1, cited at Waihona Aina)

When Kalaiheana died in 1855, the ili of Kanewai was bequeathed to John ‘I‘i as the Guardian of Victoria [Kamamalu]. According to ‘I‘i, Kalaiheana had claimed “...Kanewai before the Land Commission but as I understand not in his own right but as possession of the land under Kamamalu.” Victoria Kamamalu was granted the ahupua‘a of Wai‘alae Nui as LCA 7713, as the heir to her mother, Kinau, who had inherited the lands of Ka‘ahumanu. Bernice Pauahi Bishop subsequently inherited Kamamalu’s land.

Wai‘alae Ranch

In the 1850s Captain John Ross leased 300 acres from the Kamehameha family for a ranch, where he raised cattle. In 1887 Daniel Isenberg purchased the lease to Wai‘alae Ranch from the Bishop Estate and planted vast fields of alfalfa in Wai‘alae for the development of a dairy ranch, the Wai‘alae Ranch Company, which by 1924 was the largest dairy in Honolulu. Isenberg sold the property in the 1920s (Hitch and Kuramoto 1981:36). In July 1927, the Isenberg ranch home, near the mouth of Wai‘alae Stream, became the club house for the Wai‘alae Golf Course (Honolulu Star Bulletin, August 25, 1934).

Niu Plantation

In the 1881 edition of Thomas Thrum’s *Hawaiian Almanac and Annual*, a single sugar plantation was listed in the district of Wai‘alae, the Niu Plantation. This plantation is not listed in subsequent annuals, suggesting that the plantation was short-lived. An attempt to grow pineapple in the 1920s was also short-lived.

Wai‘alae Golf Course

In 1925 the Territorial Hotel Company 250 acres from the Bishop Estate for the construction of Wai‘alae Golf Course. The course was built to cater to wealthy tourists but local residents could also use the course by paying an annual fee (Hitch and Kuramoto 1981:42). After the stock market crash of 1929 some of the local members were persuaded to manage the course as a private club. In the 1960s the golf course was redesigned to make room for the construction of the Kahala Hilton Hotel, the Kahala apartments, and the Kai Nani subdivision along the coastal side of the property.

Residential Development

In the 1920s, Wai‘alae gradually developed into a suburb of Honolulu, spreading eastward along Wai‘alae Road (now Kalaniana‘ole Highway) and mauka into Wai‘alae Iki and Ainakoa. Beginning in the 1920s, a series of improvements were made to Wai‘alae Road, as part of the development of Kalaniana‘ole Highway. Farming continued in the area into the 1930s; in 1938 more than 50 pig farms were operating in the vicinity of Farmers Road and Kahala Avenues. At the same time the beachfront along Kahala Avenue was being developed with homes (Honolulu Advertiser, December 20, 1938). In the 1940s and 1950s the Bishop Estate subdivided and leased individual residential sites across Kahala. By 1956 Wailupe Fishpond, to the east of the project area, had been filled in to provide more land for subdivision development (Clark 1977:36-7).

PREVIOUS ARCHAEOLOGICAL RESEARCH

An examination of past research within the vicinity of the project area has been utilized to assess site types that may potentially be encountered during the course of the project. The numerous archaeological sites recorded in the area consist mainly of human burials identified during construction activities, as well as cultural remains relating to both prehistoric and historic time periods.

Few archaeological surveys have been conducted in Wai‘alae Nui and Wai‘alae Iki. Most of the archaeological work in the area was initiated by the inadvertent discovery of human remains during construction activities.

In McAllister's report on his 1930s survey of the archaeological features of O‘ahu, only one site is mentioned for Wai‘alae. An informant told him that there was once a heiau called

Kaunua Kahekili in Wai`alae Iki; McAllister noted that the heiau had been almost completely destroyed.

Site 55, Kaunua Kahekili Heiau, Wai`alae Iki. Punahoa of Keahia says that Kaunua Kahekili was a very large heiau. It was located on the top of the ridge which divides Wailupe and Wai`alae, on the highest and most pronounced knoll. The site was formerly planted in pineapples, but now the heiau is overgrown with high grass and weeds and the pineapples are on the sloping ground which surrounds it. Many large rocks embedded in the earth are all that remain of the structure. (McAllister 1933:71)

Lloyd Soehren (1967) of the Bishop Museum excavated a test unit in a cave, called the Wai`alae shelter cave (State Site 50-80-14-2503), in 1967 on Kuana Street. Marine shell food remains, traditional Hawaiian artifacts, and historic artifacts were recovered, including a fish hook, an octopus lure, a coral file, copper tubing and bottle glass dating from the 1880s to 1920s (cf. Kennedy 1991).

Joseph Kennedy in 1991 conducted a surface survey of a 7.5-acre parcel occupied by facilities for the Star of the Sea Church-School complex located mauka and adjacent to Kalaniana'ole Highway. Two lava tubes and six caves were found, but they did not contain any cultural material. No other surface features were found.

Paul Cleghorn and Lisa Anderson (1992) conducted a surface survey of a 6.4-acre parcel in Kapakahi Gulch, mauka of the end of Luinakoa Street. No surface features were found.

David Chaffee and Robert Spear (1994) conducted an assessment of the surface features along a 1,100-meter-long corridor of the Wiliwilinui Trail Alignment on Wai`alae Iki Ridge. The only feature found was a World War II concrete and metal bunker, which was given the SIHP (State Inventory of Historic Places) site designation number 50-80-14-4811.

In 2001 and 2002, (Bush and Hammatt 2002) monitored the installation of a gas main (Hammatt and Bush 2001) and a water main from 'Ainakoa Avenue to West Hind Drive. The majority of the project corridor was within a zone of coral outcrop that has since been covered by eroded soil and fill layers. The main trenching line was found to be composed primarily of fill materials associated with different phases in the development of the highway. No cultural material (except modern trash) was encountered during installation of the gas main, but pockets of sand were noted. One horseshoe and one poi pounder fragment were collected during

installation of the water main. Basalt boulders found in one area were thought to possibly be part of the wall of former Wailupe Fishpond.

Jones and Hammatt (2003) monitored improvements to the water system at Black Point. Monitors were on-site during all excavations in areas thought to have Jaucas sand. The actual area that contained Jaucas sands was much smaller than predicted, but the excavations for the water system were generally shallow (less than 50 centimeters deep), and it was determined that strata of undisturbed sand were probably still undisturbed at a deeper level. No subsurface features were found.

In 2008 Cultural Surveys Hawaii an Archaeological Literature Review and Field-Check for the proposed Wai`alae Country Club Master Plan Project conducted (O`Hare et al. 2008). In addition the same group also produced a Cultural Impact Evaluation for the Country Club Master Plan as well (Spearing et al. 2008).

Archaeological Monitoring was conducted in the Wai`alae Country Club project area parcels for an electrical switchgear installation/ air conditioning replacement project (Wilson and Spear 2009). All excavations associated with this project were monitored, noting the subsurface strata consisted of a single uniform stratigraphy, the vast majority of which was previously disturbed though landscaping and building construction. No cultural deposits or significant historic properties were identified.

BURIALS

Many mid-nineteenth century visitors to the islands visited a large area of exposed bones in sand on the eastern side of Diamond Head or Black Point, in Waikīkī Ahupua`a. These tourists, including the writer Mark Twain, speculated that either these graves were the remains of warriors killed in one of Kamehameha's battles or the interment site for Hawaiians who died in one of the many epidemics that swept the islands in the years after contact with Westerners and Asians. From the early traveler's accounts, this large dune cemetery was probably in the `ili of Wai`alae Nui in the Kahala beach area. Several visitors to the cemetery noted that they rode or drove around Black Point, but had not yet reached the coconut groves of the `ili of Wai`alae Iki, within the current project area. Although it does not seem that the dense concentration of bones found in Kahala extends to the project area, it is likely that some burials were interred in the Wai`alae Iki shore, wherever the sand was deep enough for a shallow pit (Spearing et al. 2008).

During construction at a property at 4505 Kahala Avenue, human bones were found by the construction crew and the SHPD was notified. Annie Griffin (1987) visited the site and disinterred the skeleton, which consisted of a primary burial of a young-to-middle aged female placed in a semi-flexed position. A subsequent examination of the remains by Lee and Pietrusewsky (1988) of the University of Hawai'i determined that there was a second burial intrusive with the first, which consisted only of the lower limb bones of a young male adult. Both burials were assigned to State Site 50-80-14-3725.

During the excavation of a swimming pool on a property at 1013 Waiholo Street, the SHPD was informed of the discovery of human bones by the medical examiner's office (Bath and Griffin 1988). The burial was in a flexed position. A subsequent examination of the remains by Douglas and Pietrusewsky (1988) of the University of Hawai'i determined the bones were of a female, approximately 35 years old. The burial was designated State Site 50-80-14-3760.

Contractors at a construction site at 4745 Aukai Avenue reported the discovery of human bones to the SHPD in 1989 (Bath 1989). A previously disturbed partial burial was found and disinterred. A subsequent examination of the remains by Bradley and Pietrusewsky (1989a) of the University of Hawai'i determined the bones were of a single adult male, 40 to 45 years old. The burial was designated State Site 50-80-14-4126.

Human bones were identified during the excavation of a house foundation at 4585 Kahala Avenue and reported to the SHPD in 1989 (Kawachi 1989). The burial was disturbed by the construction, but the contractor's description indicated that the burial may have been in a flexed position. The skull and upper third of the body was missing. A subsequent examination of the remains by Bradley and Pietrusewsky (1989b) of the University of Hawai'i determined the bones were of a female, approximately 25 to 35 years old. The burial was designated State Site 50-80-14-4065.

In 1995, human bones found during the excavation of an elevator shaft for a house at 4433 Kahala Avenue were reported to the SHPD (Jourdane 1995). The bones (Burial 1) were determined to be likely from an ash and charcoal cultural layer 60 to 95 centimeters below the ground surface. The burial was disinterred and later reinterred. The burial and the cultural layer were designated State Site 50-80-14-5320.

In 1997, additional burial recovery work was carried out at 4433 Kahala Avenue (Erkelens and Tomonari-Tuggle 1997). Back dirt piles were screened and the loose soil was

removed from the elevator shaft. When the walls of the shaft were cleaned, the profile of a fire pit and the profile of a burial pit were noted. A second burial was found in the burial pit and additional elements of this burial were found in the back dirt piles. A backhoe excavated a 4 by 2.5-m block around Burial 2 and a third burial was uncovered. Burial 1 was identified as the skeleton of a 30-35 year old male. A shell button and two porcelain beads in the back dirt probably belong to this individual. Burial 2 was identified as the skeleton of a 20-25 year old female. Burial 3 was identified as a 3-year old child, probably the child of the female (Burial 2). A square-cut nail was found with this burial. Due to the presence of historic artifacts, the burials were determined to be of Polynesian or Asian ethnicity, buried in the nineteenth century. All three burials were disinterred and reinterred elsewhere on the property. All three burials at the site are considered part of State Site 50-80-14-5320.

In April of 1999, a local resident brought several bones that he collected from a cave to a forestry worker. The SHPD was notified and Sara Collins and Muffett Jourdane (1999) inspected the cave, which was located mauka of the end of Luinakoa Street (Aina Koa Subdivision) on Wai`alae Nui Ridge. They reported that bones were scattered over the cave floor and probably represented the bones of just one individual. No other cultural remains were found in the cave. The cave and burial were designated SIHP #50-80-14-5743.

During the excavation of a utility line at 4773 Kahala Avenue in 2003, human bones were inadvertently exposed. T. S. Dye & Colleagues were contracted to conduct further investigation of the find (Putzi and Dye 2003). The remains of five individuals, a cultural layer, and several traditional Hawaiian artifacts were recovered from the excavation and from the back dirt piles. The burials were probably of Hawaiian ancestry based on the presence of the traditional artifacts. The burials and the cultural layer were designated SIHP #50-80-14-6632.

In 2003, archaeologists from Haun and Associates (Haun and Henry 2003) conducted a surface survey of the 8-acre Wai`alae 180 Reservoir Replacement project site near the Kalani High School Athletic Field, mauka of Kalaniana'ole Highway. Two caves with human remains were found. The caves were designated State Site 50-80-14-5938 and 50-80-14-6351. The floor of each cave was bare lava. Several bones were found at State Site 50-80-14-5938, including five crania; only one skeletal element, an infant cranium, was found at Site 6351. No historic material was found at the cave, so the archaeologists determined that the remains were probably Hawaiians buried in the pre-contact or early post-contact periods.

Human skeletal remains were found at 4577 Kahala Avenue in 2006 during excavation of a sewer line. T. S. Dye & Colleagues (Dye 2005a, b; Dye 2006) were contracted to recover all bones from the trench and the back dirt piles. One in situ burial and one disturbed burial were found within a cultural layer. The remains were disinterred and reinterred on the same parcel. The burials and the cultural layer were designated State Site 50-80-14-6762.

In 2006, Pacific Consulting Surfaces (Collins and Clark 2006) conducted extensive Phase I subsurface testing at three parcels, 4415, 4423, and 4433 Kahala Avenue. Fifty-one test units were excavated, covering the majority of the project area. Human remains had been previously found at 4433 Kahala Avenue in the 1990s (Jourdan 1995; Erkelens and Tomonari-Tuggle 1997). Collins and Clark (2006) reported on two sand cultural layers, the upper layer believed to be associated with historic period habitation and the lower sand layer associated with traditional Hawaiian habitation.

The second phase of this project was carried out in 2007 (Dye and Jourdan 2007). During this phase, the 1997 re-interment site was relocated and marked on the surface. Twenty shovel tests were excavated in areas not covered by the Phase I project. Controlled block excavations were placed adjacent to shovel test pits which contained one or more of the two sand layers identified by Collins and Clark (2006). The work indicated that the possible two cultural layers were actually "a single old land surface, or paleosol, upon which a variety of historic-period artifacts had been deposited" (Dye and Jourdan 2007:32).

In March of 2007, the SHPD (Chinen 2007a) was notified that human skeletal remains had been found during construction a new house and swimming pool at 4565 Kahala Avenue. The bones were dispersed around the property's backyard. The SHPD determined that a qualified archaeological consultant would need to screen back dirt piles and conduct block excavations at the site to try to determine the original location of the burial and to test if other burials were present. CSH (Tulchin and Hammatt 2007) excavated 25 test units but the original location of the burial could not be determined. They did recover additional skeletal remains from the back dirt piles. Following the test excavations, a CSH archaeologist monitored the remainder of construction related excavations in the project area. On April 25, May 15 and July 11, 2007 additional human skeletal remains were observed (Chinen 2007b). These were determined to be from the same burial as that found in March. The SHPD assumed jurisdiction over the inadvertent discoveries and determined to relocate the remains. The burial was designated site SIHP #50-80-14-6927.

Scientific Consultant Services, Inc. conducted Archaeological Monitoring for the Wai`alae Country Club Clubhouse upgrade between February 1 to May 31, 2011 (Dagher et al. 2013). Two archaeological sites were recorded; State Site 50-80-14-7206 was a human burial, with a partially intact burial pit, and State Site 50-80-14-7207 was comprised of an in situ human burial (Feature 1) and a pit feature of indeterminate function (Feature 2). The burials were found to be in association with a former A-horizon identified as a cultural layer.

Scientific Consultant Services, Inc. conducted Archaeological Monitoring for the Wai`alae Country Club Annex Building Project between April 22 to December 30, 2013 (Pestana and Spear, in prep.). Five human burials (Burial 1 to Burial-5) and twelve subsurface features (including one animal burial, four burial pits, and seven pit features of indeterminate function) were recorded.

POTENTIAL SITE TYPES TO BE ENCOUNTERED

Based on the historic use of the project area as well as the results of previous archaeological studies in the vicinity of the project area, it is likely that potential site types in the project area might include pre-Contact or historic habitation features related to the sites location on the shoreline. Given the proximity of the ocean and the number of burials found along Kahala Avenue (13 reported burials, at 4433, 4506, 4565, 4577, 4585, and 4773 Kahala Avenue, as well as the thirty individuals recovered from the Wai`alae Golf Course), there is a high probability that burials might be found during excavations in the project area

METHODS

PEDESTRIAN SURVEY

The Field Inspection was conducted on January 13 to 14, 2013 by SCS Archaeologist Guerin Tome, B.A. under the overall guidance of Robert L. Spear, Ph.D. (Principal Investigator). Pedestrian survey was conducted across 100 percent of the property. No Pre-Contact or Historic structures were identified during the pedestrian survey.

In addition to modern wire fences and/or basalt and concrete or concrete block walls on all four sides of the project area, three structures (a wooden deck, a concrete and tile deck or lanai, and a cast concrete driveway/pedestrian walkway) were identified during the pedestrian survey. Based on the construction materials, style, and on engravings in the concrete, all three of these structures were determined to be of modern construction.

The first structure consisted of a wooden deck constructed of milled lumber, approximately 3.0 m long and 2.82m wide, located in the southern corner of the project area (Figure 3).

The second structure consisted of a concrete deck covered with tiles, approximately 9.2 m long by 4.79 m wide, located in the eastern corner of the project area. Two wide, shallow steps were located at the northwest edge of the deck. At the north corner of the deck, the concrete edge was engraved "LC/A" and "4/64" (Figure 4, Figure 5).

The third structure consisted of a driveway and pedestrian walkway, constructed of concrete paving stones, along the northeast side of the project area (Figure 6, Figure 7). Two steel-reinforced concrete block curbstones, 2.43 m long by 0.9m wide and 0.19m high, lie atop the driveway pavers to separate the driveway and parking area from the walkway extension. In the northwest corner of the northeast curbstone the concrete is engraved "Erin 4/28/04" (Figure, Figure).



Figure 3. Photograph of wooden deck in southern corner of project area, view to southeast.



Figure 4: Photograph of cement and tile deck in eastern corner of project area, viewed to northeast. Note the two wide, shallow steps on the northwest edge of the deck.



Figure 5: Photograph of the concrete edge at the northern corner of the deck, engraved "LC/A" and "4/64."



Figure 6: Photograph of driveway along northeast side of project area, viewed to Southeast.



Figure 7: Photograph of the concrete pedestrian walkway along the northeast edge of the project area, viewed to northwest.



Figure 8: Photograph of two reinforced concrete curbstones. Note the engraving on the surface of the near curbstone, next to the north arrow.



Figure 9: Photograph of engraved date, "Erin 4/28/04" on concrete curbstone.

SUBSURFACE TESTING

Limited subsurface testing was conducted during the current Archaeological Inventory Survey in order to identify human alteration, archaeological features, and associated artifacts in subsurface contexts. Ten subsurface test trenches (ST-1 through ST-10) were mechanically excavated during the current survey (Figure). All excavations produced negative results. A description of each Test Trench is presented below. The GPS locations for ST-1 through ST-10 are presented in Table 2.

Table 1: Test Trench GPS Locations

Test Trench No.	Easting	Northing
ST-1	0625818	2351543
ST-2	0625803	2351548
ST-3	0625801	2351546
ST-4	0625791	2351560
ST-5	0625789	2351558
ST-6	0625781	2351568
ST-7	0625788	2351581
ST-8	0625786	2351588
ST-9	0625773	2351588
ST-10	0625771	2351603

TEST TRENCH 1 (ST-1)

Test Trench-1 (ST-1) 10.2 m long by 0.8 m wide and 1.5 m deep) was placed just north of and parallel to the northwest edge of the concrete and tile deck in the southeast corner of the project area. (see Figure 10). ST-1 contained three culturally sterile stratigraphic layers which are described below (Figure 11, Figure 12).

Layer I

Layer I (0-30 cmbs) consisted of loose mottled brownish yellow (10YR 6/6, dry) silty sand, very pale brown (10YR 7/4, dry) sand, and very pale brown (10YR 7/3, dry) sand with grass and tree roots. As the lower boundary was solid, Layer I was interpreted as local fill. Layer I was culturally sterile.

Layer II

Layer II (30-60 cmbs) consisted of loose, pale brown (10YR 6/3, dry) loamy sand with grass and tree roots. Layer II was interpreted as a natural stratum. As the layer's lower boundary was diffuse, Layer II was interpreted as a natural stratum. Layer II was culturally sterile.

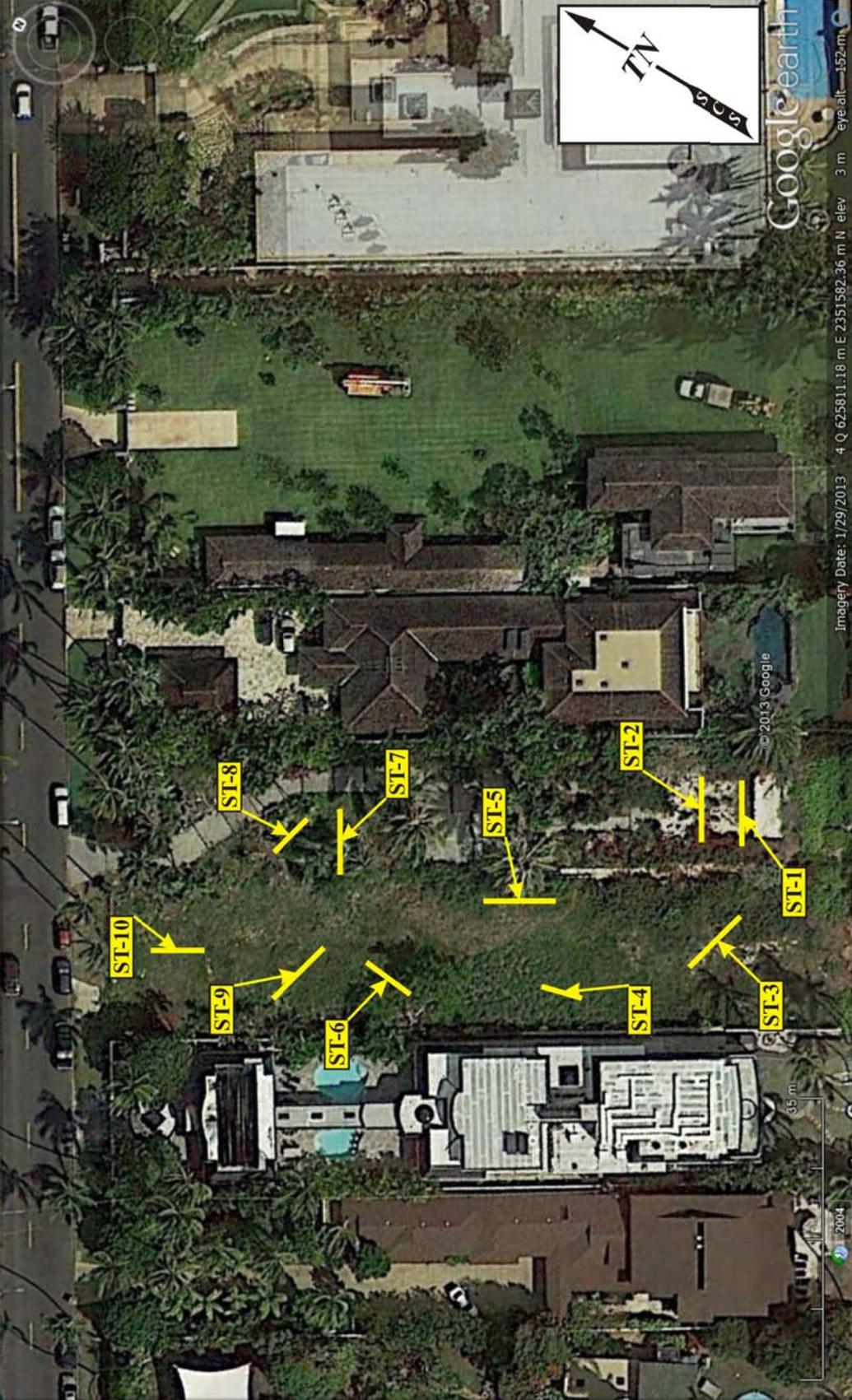


Figure 10: Aerial photograph (source: Google Earth) showing the location of test trenches ST-1 through ST-10.

Layer III

Layer III (60-150 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer III was interpreted as a natural stratum. Layer III was culturally sterile. Excavation of ST-1 was terminated at 150 cmbs because the sidewall collapsed.

TEST TRENCH 2 (ST-2)

Test Trench-2 (ST-2) 10.3 m long by 0.8 m wide and 1.2 m deep) was placed northwest of and parallel to ST-1, at the southeast end of the pedestrian walkway along the northeast edge of the project area (see Figure 10). ST-2 contained two stratigraphic layers which are described below (Figure 11, Figure 13).

Layer I

Layer I (0-10 cmbs) consisted of loose light yellowish brown (10YR 6/4, dry) silty sand with grass and tree roots. As the lower boundary was solid, Layer I was interpreted as local fill. A ceramic insulator (2 cm in diameter and 5.2 cm long) and a single sub-adult faunal (most likely dog) bone were indentified in the spoils pile from Layer I . The insulator was collected for dating and laboratory analysis.

Layer II

Layer II (10-120 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer II was interpreted as a natural stratum. Layer II was culturally sterile. Excavation of ST-2 was terminated at 120 cmbs because the sidewall collapsed.

TEST TRENCH 3 (ST-3)

Test Trench-3 (ST-3) 10.1 m long by 0.8 m wide and 1.35 m deep) was placed southwest of ST-1, oriented East-West (see Figure 10). ST-3 contained five stratigraphic layers which are described below (Figure 14, Figure 15).

Layer I

Layer I (0-10 cmbs) consisted of semi-loose brown (7.5YR 4/4, dry) silty sand with grass roots. As the lower boundary was solid, Layer I was interpreted as local fill. Multiple red bricks and concrete bricks were observed in this layer but none showed diagnostic features so no bricks were collected.

Layer II

Layer II (10-25 cmbs) consisted of loose brown (7.5YR 5/4, dry) silty sand with grass roots. Layer II was interpreted as local fill. One concrete brick was observed in this layer but not collected.

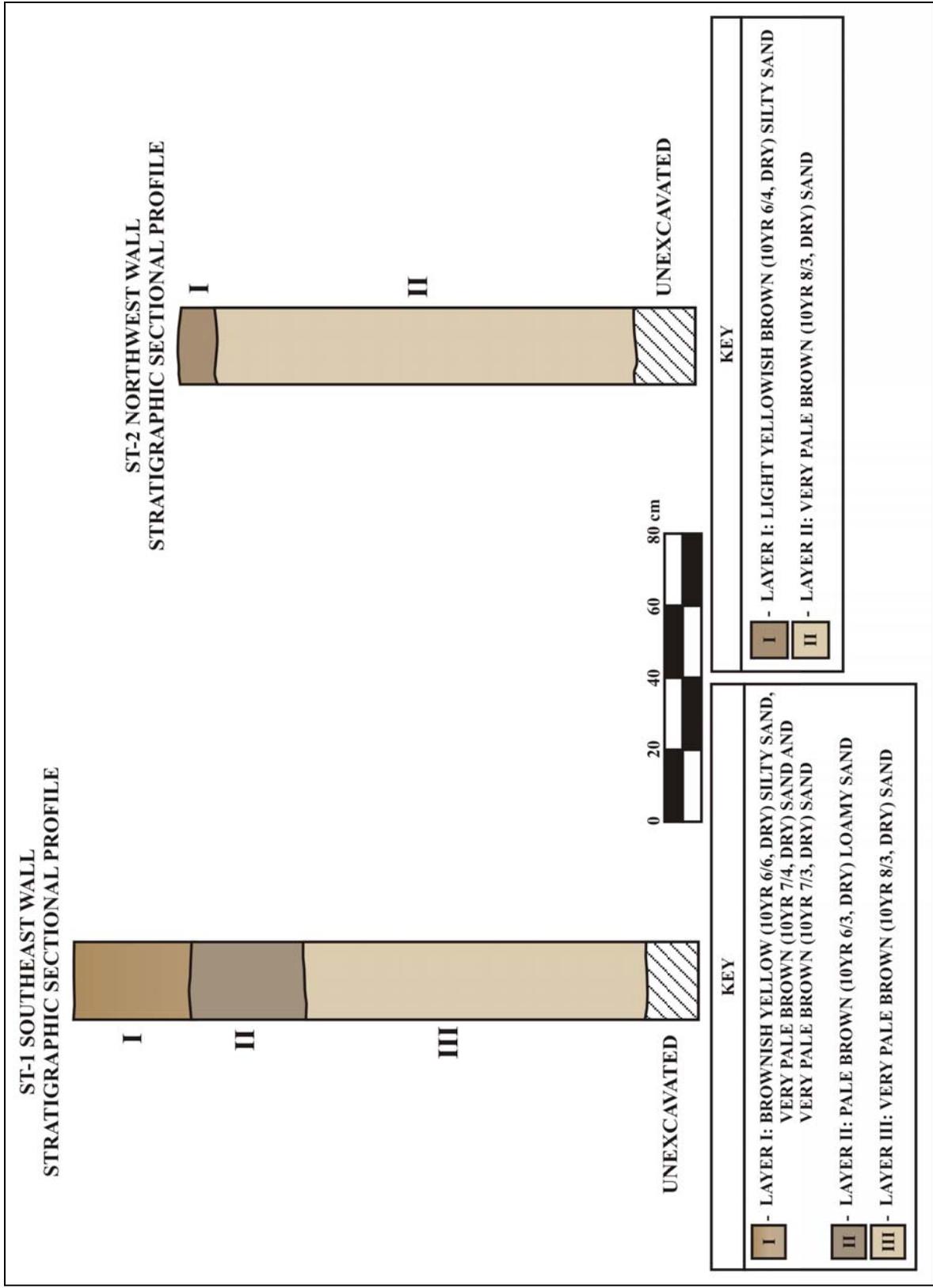


Figure 11: Stratigraphic profiles for Test Trenches ST-1 and ST-2.



Figure 12: Photograph of Southeast sidewall of ST-1 showing the stratigraphic profile.



Figure 13: Photograph of the Northwest sidewall of ST-2 showing the stratigraphic profile.

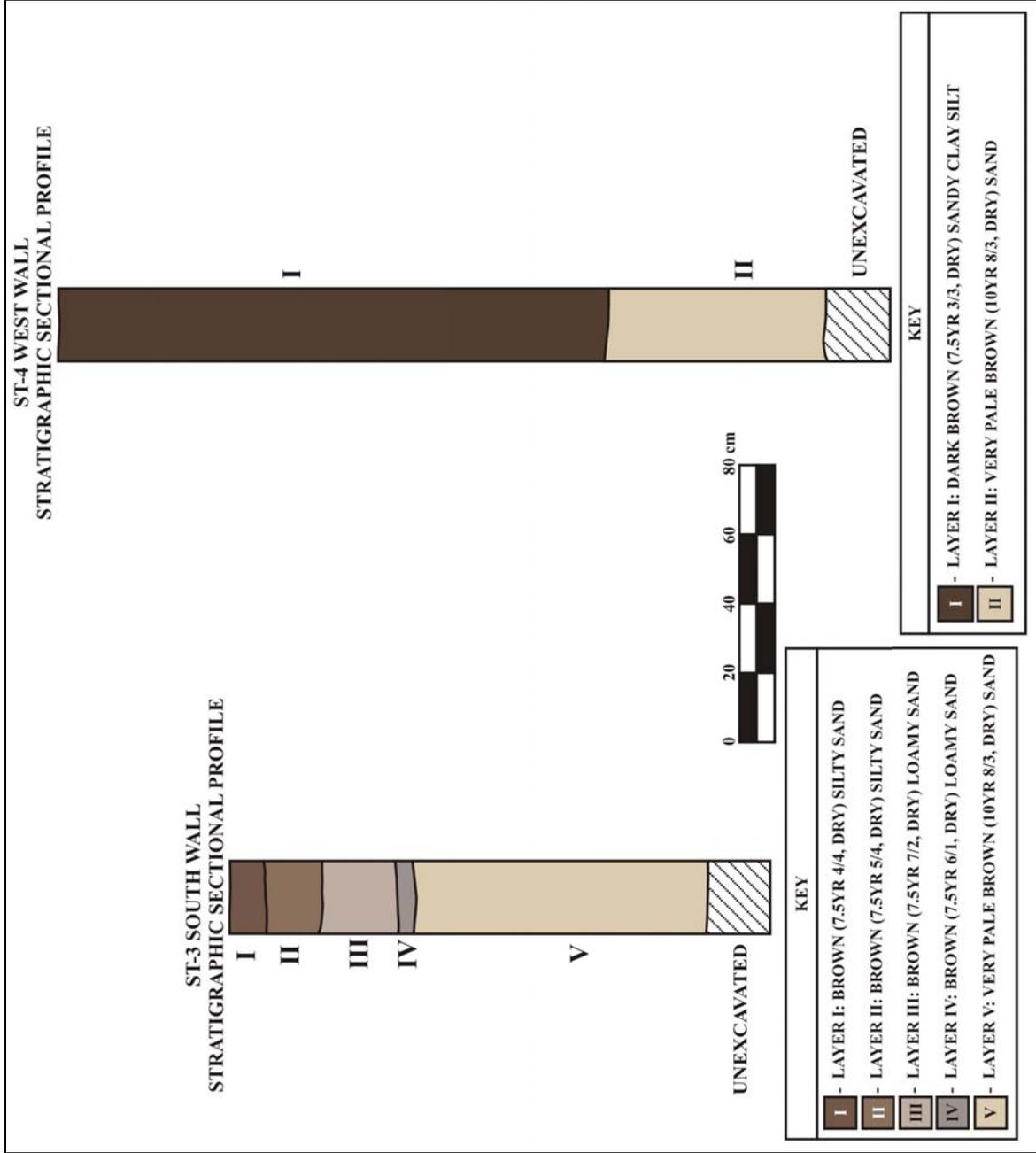


Figure 14: Stratigraphic profiles for Test Trenches ST-3 and ST-4.



Figure 15: Photograph of the South sidewall of ST-3 showing the stratigraphic profile.

Layer III

Layer III (25-46 cmbs) consisted of loose, pinkish gray (7.5YR 7/2, dry) loamy sand with tree roots. As the layer's lower boundary was diffuse, Layer III was interpreted as a natural stratum with a diminishing organic content. Layer III was culturally sterile.

Layer IV

Layer IV (46-50 cmbs) consisted of loose gray (7.5YR 6/1, dry) loamy sand with tree roots. Layer IV contained more organic content than Layer III which explained its darker color. No cultural material was observed in Layer IV. Due to the heavier loam content (in comparison to Layer III) Layer IV was interpreted as the initial, natural former A-Horizon in ST-3.

Layer V

Layer II (50-135 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer II was interpreted as a natural stratum. Layer II was culturally sterile. Excavation of ST-3 was terminated at 135 cmbs because the sidewall collapsed.

TEST TRENCH 4 (ST-4)

Test Trench-4 (ST-4) 6.1 m long by 0.8 m wide and 2.1 m deep) was placed northwest of ST-3, oriented Southeast-Northwest, near the southwest edge of the project area (see Figure 10). ST-4 contained two stratigraphic layers which are described below (Figure 14, Figure 16).

Layer I

Layer I (0-150 cmbs) consisted of compact dark brown (10YR 6/4, dry) silty sandy clayey silt with grass roots and limestone chunks. Cultural material observed in this layer included black plastic shreds (such as garbage bag material), white plastic (grocery bags), sections of white PVC pipe, ferrous metal wire, red brick fragments, a bottle glass sherd, and a whiteware ceramic sherd. As the lower boundary was solid, Layer I was interpreted as imported fill. The glass and ceramic sherds were collected for laboratory analysis.

Layer II

Layer II (150-210 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer II was interpreted as a natural stratum. Layer II was culturally sterile. Excavation of ST-4 was terminated at 120 cmbs because the sidewall collapsed.



Figure 16: Photograph of the West sidewall of ST-4 showing the stratigraphic profile.

TEST TRENCH 5 (ST-5)

Test Trench-5 (ST-5) 9.1 m long by 0.8 m wide and 2.0 m deep) was placed north of ST-4 in the center of the project area, oriented Southeast-Northwest (see Figure 10). ST-5 contained four stratigraphic layers which are described below (Figure 17, Figure 18).

Layer I

Layer I (0-10 cmbs) consisted of semi-loose, dark brown (10YR 3/3, dry) sandy clayey silt with grass and tree roots. As the lower boundary was solid, Layer I was interpreted as imported fill. Red brick fragments were observed in this layer but not collected.

Layer II

Layer II (10-60 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. As the layer's lower boundary was diffuse, Layer II was interpreted as a natural stratum. Layer II was culturally sterile.

Layer III

Layer III (60-80 cmbs) consisted of loose, brown (10YR 5/3, dry) loamy sand with tree roots. No cultural material was observed in Layer III. Based on the layer's loamy content and diffuse lower boundary, Layer III was interpreted as a natural former A-Horizon.

Layer IV

Layer IV (80-200 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer IV was interpreted as a natural stratum. Layer IV was culturally sterile. Excavation of ST-5 was terminated at 200 cmbs because the sidewall collapsed.

TEST TRENCH 6 (ST-6)

Test Trench-6 (ST-6) 6.3 m long by 0.8 m wide and 1.8 m deep) was placed northwest of ST-4, oriented North-South (see Figure 10). ST-6 contained five stratigraphic layers which are described below (Figure 17, Figure 19).

Layer I

Layer I (0-10 cmbs) consisted of compact, dark reddish brown (5YR 3/3, moist) sandy clayey silt with grass roots. As the lower boundary was solid, Layer I was interpreted as imported fill. Layer I was culturally sterile.

Layer II

Layer II (10-30 cmbs) consisted of compact, dark brown (10YR 3/3, moist) sandy clayey silt sand with few grass roots. As the lower boundary was solid, Layer II was interpreted as imported fill. Layer II was culturally sterile.

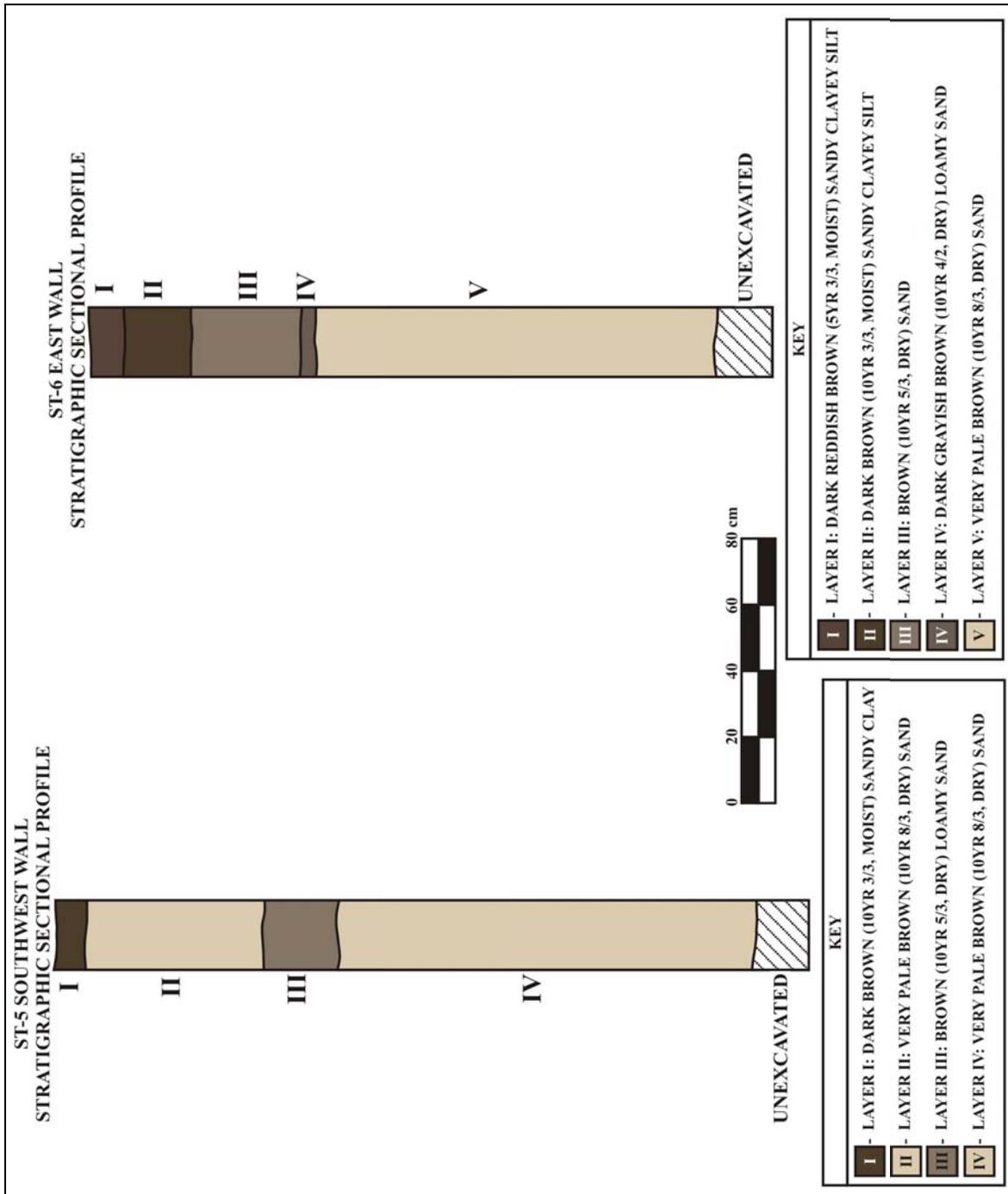


Figure 17: Stratigraphic profiles for Test Trenches ST-5 and ST-6.



Figure 18: Photograph of the Southwest sidewall of ST-5 showing the stratigraphic profile.



Figure 19: Photograph of the East sidewall of ST-6 showing the stratigraphic profile.

Layer III

Layer III (30-60 cmbs) consisted of loose, brown (10YR 5/3, dry) sand with few tree roots. As the layer's lower boundary was wavy but solid, Layer III was interpreted as local fill. Layer III was culturally sterile.

Layer IV

Layer IV (60-70 cmbs) consisted of loose, dark grayish brown (10YR 4/2, dry) loamy sand with few tree roots. As the layer's lower boundary was diffuse, Layer IV was interpreted as a natural stratum and a former A-Horizon. No cultural material was observed in Layer IV.

Layer V

Layer V (70-180 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer V was interpreted as a natural stratum. Layer V was culturally sterile. Excavation of ST-3 was terminated at 180 cmbs because the sidewall collapsed.

TEST TRENCH 7 (ST-7)

Test Trench-7 (ST-7) 6.8 m long by 0.8 m wide and 1.6 m deep) was placed northwest of ST-2, oriented Southwest-Northeast, near the driveway that ran along the northeast edge of the project area (see Figure 10). ST-7 contained two stratigraphic layers which are described below (Figure 20, Figure 21).

Layer I

Layer I (0-20 cmbs) consisted of compact, dark brown (10YR 3/3, moist) sandy clayey silt with few grass roots. As the lower boundary was solid, Layer I was interpreted as imported fill. Layer I was culturally sterile.

Layer II

Layer II (20-160 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer II was interpreted as a natural stratum. Layer II was culturally sterile. Excavation of ST-7 was terminated at 160 cmbs because the sidewall collapsed.

TEST TRENCH 8 (ST-8)

Test Trench-8 (ST-8) 6.2 m long by 0.8 m wide and 1.9 m deep) was placed northwest of ST-7, oriented East-West, near the driveway that ran along the northeast edge of the project area (see Figure 10). ST-8 contained two stratigraphic layers which are described below (Figure 20, Figure 22).

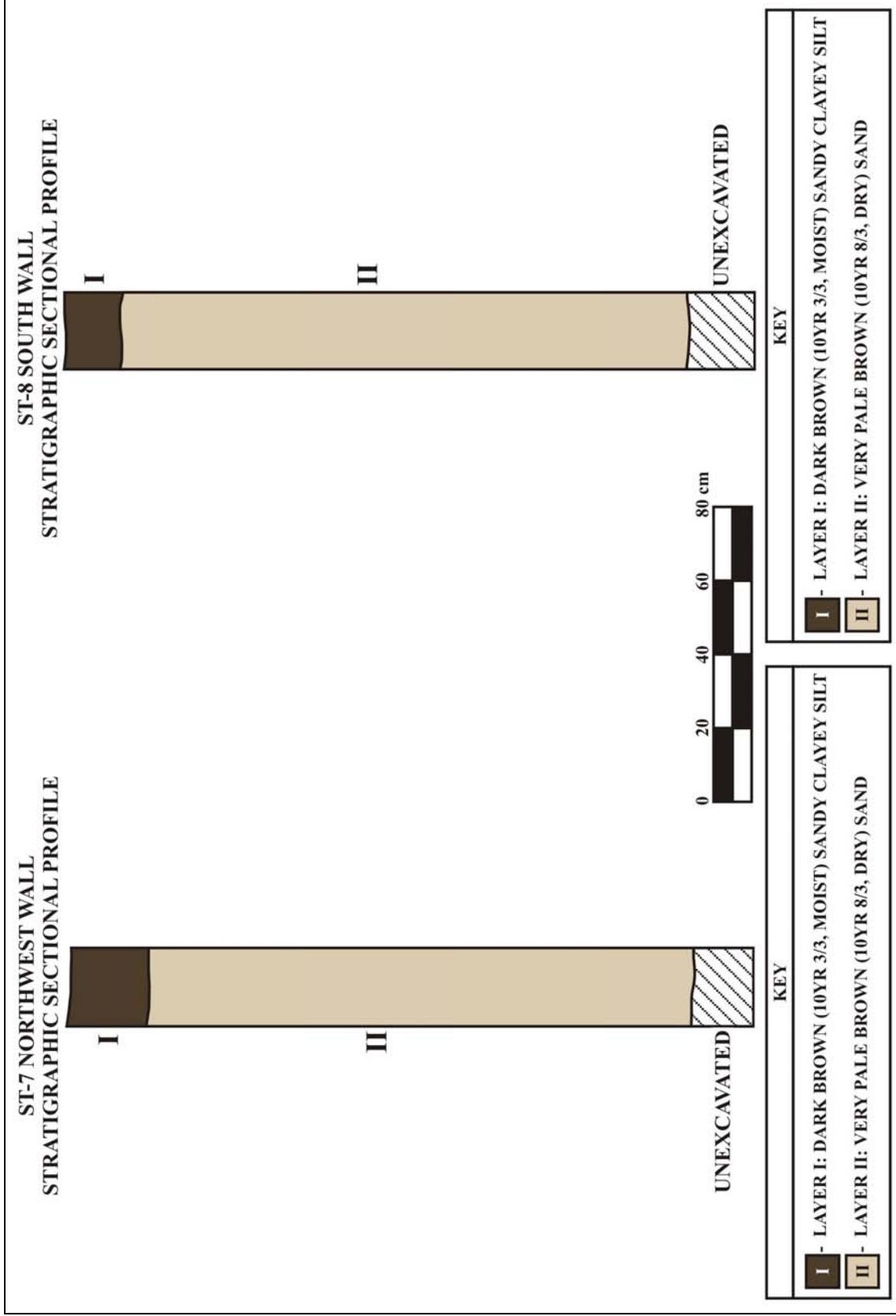


Figure 20: Stratigraphic profiles for Test Trenches ST-7 and ST-8.



Figure 21: Photograph of the Southeast sidewall of ST-7 showing the stratigraphic profile.



Figure 22: Photograph of the Southwest sidewall of ST-8 showing the stratigraphic profile.

Layer I

Layer I (0-15 cmbs) consisted of compact, dark brown (10YR 3/3, moist) sandy clayey silt with few grass roots. As the lower boundary was solid, Layer I was interpreted as imported fill. A concrete brick was observed in the layer but not collected.

Layer II

Layer II (15-190 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer II was interpreted as a natural stratum. Layer II was culturally sterile. Excavation of ST-7 was terminated at 190 cmbs because the sidewall collapsed.

TEST TRENCH 9 (ST-9)

Test Trench-9 (ST-9) 5.3 m long by 0.8 m wide and 2.0 m deep) was placed northwest of ST-6, oriented East-West, near the southwest edge of the project area (see Figure 10). ST-9 contained two stratigraphic layers which are described below (Figure, Figure).

Layer I

Layer I (0-30 cmbs) consisted of compact, dark brown (10YR 3/3, moist) sandy clayey silt with few grass roots. As the lower boundary was solid, Layer I was interpreted as imported fill. A concrete brick was observed in the layer but not collected.

Layer II

Layer II (30-200 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer II was interpreted as a natural stratum. Layer II was culturally sterile. Excavation of ST-7 was terminated at 160 cmbs because the sidewall collapsed.

TEST TRENCH 10 (ST-10)

Test Trench-10 (ST-10) 5.3 m long by 0.8 m wide and 1.9 m deep) was placed northwest of ST-9, oriented Northwest-Southeast, near the northwest corner of the project area (see Figure 10). ST-10 contained three stratigraphic layers which are described below (Figure, Figure).

Layer I

Layer I (0-25 cmbs) consisted of semi-compact, dark brown (7.5YR 3/3, dry) sandy clayey silt mottled with very pale brown (10YR 8/4, dry) sand. Grass and tree roots were present. As the lower boundary was solid, Layer I was interpreted as imported fill. Concrete bricks were observed in the layer but not collected.

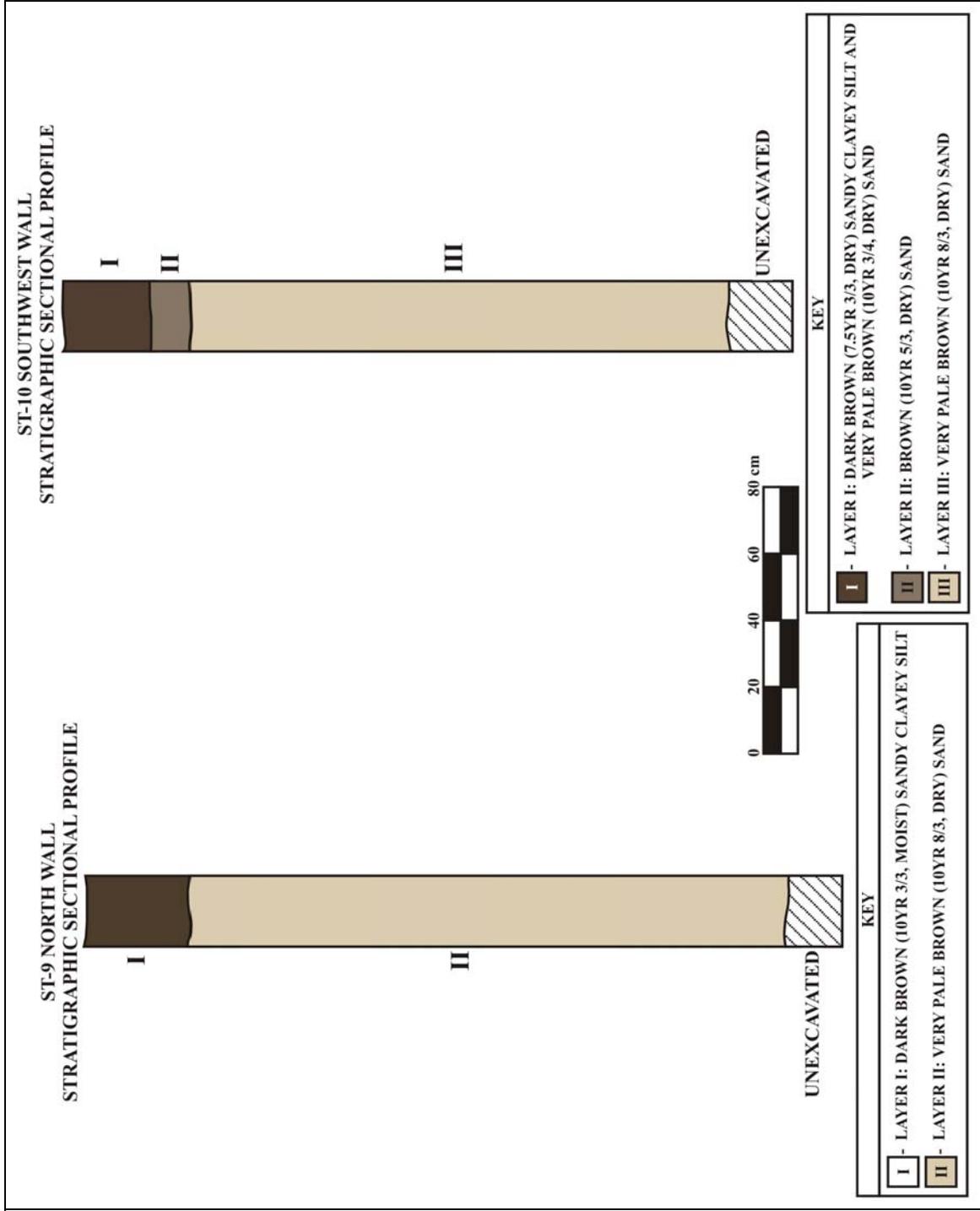


Figure 23: Stratigraphic profiles for Test Trenches ST-9 and ST-10.



Figure 24: Photograph of the North sidewall of ST-9 showing the stratigraphic profile.



Figure 25: Photograph of the Northeast sidewall of ST-10 showing the stratigraphic profile.

Layer II

Layer II (25-35 cmbs) consisted of loose brown (10YR 5/3, dry) sand with tree roots. As the layer's lower boundary was diffuse, Layer II was interpreted as a former A-Horizon. Layer II was culturally sterile.

Layer III

Layer III (35-190 cmbs) consisted of loose, very pale brown (10YR 8/3, dry) sand. Layer III was interpreted as a natural stratum. Layer III was culturally sterile. Excavation of ST-7 was terminated at 190 cmbs because the sidewall collapsed.

ARTIFACT ANALYSIS

Three artifacts were collected for analysis; after cleaning in the laboratory the ceramic and glass sherds did not contain any diagnostic features. Analysis of the ceramic insulator (Figure) indicated that it was a porcelain "knob and tube" insulator commonly used from the 1880s until the 1940s. Based on its location (in a layer of fill sediment) it could not be determined whether the insulator was associated with a previous structure in the project area or if it had been introduced with the fill sediment.



Figure 26: Ceramic "knob and tube" insulator found in Layer I of ST-2.

CONCLUSION

Based on the historic use of the project area as well as the results of previous archaeological studies in the vicinity of the project area, it was determined that potential site types in the project area might include pre-Contact or Historic habitation features related to the sites location on the shoreline, and that there was a high probability that burials might be found during excavations in the project area

While the pedestrian survey and subsurface testing revealed three modern structures associated with modern habitation, no cultural or historic sites or features were identified in the project area. A buried former A-Horizon was present in several of the test trenches but no cultural material was discovered with it. With the exception of a single ceramic insulator whose provenance could not be determined, all of the cultural material identified during the subsurface testing was confined to modern rubbish (wire, plastic bags, glass sherd and ceramic sherd) and modern construction debris (PVC pipe sections, red brick, concrete bricks, and fragments of red brick). One sub-adult faunal bone was identified in a layer of fill.

RECOMMENDATIONS

Although no cultural or historic sites were identified during the current survey and subsurface testing, Archaeological Monitoring is recommended for future ground disturbance in the project area, given the findings of previous archaeological work documented in the area (*e.g.*, human burials and cultural deposits).

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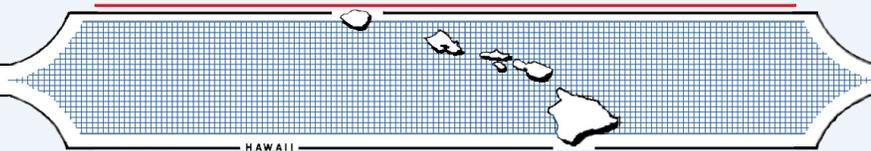
APPENDIX C
CULTURAL IMPACT ASSESSMENT

**A CULTURAL IMPACT ASSESSMENT FOR
TWO LOTS IN KAHALA
WAIKĪKĪ AHUPUA`A, KONA (HONOLULU) DISTRICT,
ISLAND OF O`AHU, HAWAII
[TMK (1) 3-5-003:002 and 003]**

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INTRODUCTION

At the request of Group 70, International, Scientific Consultant Services, Inc. (SCS), has prepared a Cultural Impact Assessment (CIA) for the proposed Hawai`i Project, located on two adjacent waterfront parcels at 4465/4469 Kahala Avenue in Waikīkī Ahupua`a, Kona District, O`ahu Island, Hawai`i [TMK (1) 3-5-003:002 and 003] (Figures 1 through 3).

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of Native Hawaiians. Article XII, Section 7 (2000) requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua`a* tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778.” In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to Native Hawaiian *ahupua`a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, “native Hawaiian rights...may extend beyond the *ahupua`a* in which a Native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawai`i (2000) with House Bill (HB) 2895, relating to Environmental Impact Statements, proposes that:

...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii’s culture, and traditional and customary rights... [H.B. NO. 2895].

Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs and practices, and resources of Native Hawaiians as well as other ethnic groups. Act 50 also requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 (2001) environmental review process.



Figure 1: USGS Quadrangle (Honolulu 1998) Map Showing Project Area Location.



Figure 3: Google Earth Image (2014) Showing Project Area Location.

It also re-defined the definition of “significant effect” to include “the sum of effects on the quality of the environment including actions impacting a natural resource, limit the range of beneficial uses of the environment, that are contrary to the State’s environmental policies . . . or adversely affect the economic welfare, social welfare or cultural practices of the community and State” (H.B. 2895, Act 50, 2000). Cultural resources can include a broad range of often overlapping categories, including places, behaviors, values, beliefs, objects, records, stories, etc. (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires that an assessment of cultural practices and the possible impacts of a proposed action be included in Environmental Assessments and Environmental Impact Statements, and to be taken into consideration during the planning process. As defined by the Hawaii State Office of Environmental Quality Control (OEQC), the concept of geographical expansion is recognized by using, as an example, “the broad geographical area, e.g. district or *ahupua`a*” (OEQC 2012:12). It was decided that the process should identify ‘anthropological’ cultural practices, rather than ‘social’ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

Therefore, the purpose of a Cultural Impact Assessment is to identify the possibility of on-going cultural activities and resources within a project area, or its vicinity, and then assessing the potential for impacts on these cultural resources. The CIA is not intended to be a document of in depth archival-historical land research, or a record of oral family histories, unless these records contain information about specific cultural resources that might be impacted by a proposed project.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 2012:12):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

The meaning of “traditional” was explained in *National Register Bulletin*:

Traditional” in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations’, usually orally or through practice. The traditional cultural significance of a historic property then is significance derived from the role the property plays in a community’s historically rooted beliefs, customs, and practices. . . . [Parker and King 1990:1]

METHODOLOGY

This Cultural Impact Assessment was prepared as much as possible in accordance with the suggested methodology and content protocol in the Guidelines for Assessing Cultural Impacts (OEQC 2012:11-13). In outlining the “Cultural Impact Assessment Methodology”, the OEQC (2012:11) states that:

“...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories...”

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. An example of the letters of inquiry is presented in Appendix A, copies of the posted legal notice and Affidavit are presented in Appendix B, responses to the inquiries are presented in Appendix C, and the information release forms are presented in Appendix D. This Cultural Impact Assessment was prepared in accordance with the suggested methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 2012:13), whenever possible. The assessment concerning cultural impacts may include, but not be limited to:

- A. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.
- B. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.
- C. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

- D. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.
- E. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.
- F. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.
- G. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area affected directly or indirectly by the proposed project.
- H. An explanation of confidential information that has been withheld from public disclosure in the assessment.
- I. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.
- J. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.
- K. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

If on-going cultural activities and/or resources are identified within the project area, assessments of the potential effects on the cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps, land records, such as Land Commission

Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws, and guidelines, when knowledgeable individuals are able to identify cultural practices in, or in close proximity to, the project area. If they have knowledge of traditional stories, practices and beliefs associated with a project area or if they know of historical properties within the project area, they are sought out for additional consultation and interviews. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information concerning particular cultural resources. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs (OHA), historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. It should be stressed again that this process does not include formal or in-depth ethnographic interviews or oral histories as described in the OEQC's *Guidelines for Assessing Cultural Impacts* (2012). The assessments are intended to identify potential impacts to on-going cultural practices, or resources, within a project area or in its close vicinity.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the interview available for this study. When telephone interviews occur, a summary of the information is usually sent for correction and approval, or dictated by the informant and then incorporated into the document. If no cultural resource information is forthcoming and no knowledgeable informants are suggested for further inquiry, interviews are not conducted.

ENVIRONMENTAL SETTING

PROJECT AREA DESCRIPTION AND ENVIRONMENTAL SETTING

The area of interest consists of two adjacent ocean-front residential parcels totaling 0.8795 acres, and identified on tax maps as TMK (1) 3-5-003:002 and 003. The subject properties are located in the traditional *ahupua`a* of Waikīkī, bounded by Kahala Avenue to the northwest, residences to the southwest and northeast, and the sea to the southeast. At the time of the survey structures in the project area included a paved driveway along the

northeast side of parcel 002, a cement and tile deck at the southern end of parcel 002, and a wooden deck at the southern end of parcel 003, as well as modern wire fences and/or basalt-and-concrete or concrete block walls on all four sides of the project area.

Project area elevations are approximately 3 meters above mean sea level (amsl) with an annual precipitation of 20 to 30 inches along this portion of the leeward coast (Giambelluca *et al.*, 2012). Both parcels support remnants of modern landscaping vegetation, such as grass lawns, coconut and other palms, mango trees, a variety of flowering trees and shrubs, and weeds that have sprouted since the lots have been vacant. Most of these plants grow in fill topsoil that was imported to cover calcareous sands that occur naturally on both parcels. According to Foote *et al.* (1972: 48-49, Sheet Map 63), in places where topsoil was not applied, soils classified as Jaucas Sand (JaC), have developed. Jaucas sands consist of excessively drained sands that typically occur as narrow strips adjacent to the ocean. The nearest drainage is Kapakahi Stream, located more than 1.5 km to the northeast of the project area.

TRADITIONAL SETTING

Recent re-evaluation of radiocarbon dates suggests O`ahu Island was first settled between A.D. 850 and 1100 by Polynesians sailing most likely from central East Polynesia (Kirch 2011:24). Archaeological settlement pattern data indicates that the initial colonization and occupation of the Hawaiian Islands first occurred on the windward shoreline areas of the main islands, with populations eventually settling into drier leeward areas at later periods (Kirch 1985). Coastal settlement was still dominant, but populations began exploiting and living in the upland (*kula*) zones. Greater population expansion to inland areas began about the A.D. Twelfth Century, but continued through the 16th Century.

As the Hawaiian culture developed, land became the property of the king, or *ali`i`ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. His title of *ali`i`ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn they, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land (Kirch and Sahlins 1992 vol.1:25).

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili`āina* were devised to describe various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*), which customarily continued inland from the ocean and upland into the mountains. Extended

household groups living within the *ahupua`a* were, therefore, able to harvest from both the land and the sea. As the Polynesian economy was based on agricultural production and marine exploitation, as well as animal husbandry and utilizing forest resources, this situation ideally allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili `āina*, or *`ili*, were smaller land divisions next in importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which the *ili* were located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant, or *hoa`āina*, residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). Oral history notes that the division of O`ahu's lands into districts (*moku*) and sub-districts was solidified by the *ali`i nui*, Mā`ili-kūkahi during the early part of the 16th century (Kamakau 1991:53-56). O`ahu contained six districts including Wai`anae, `Ewa, Waialua, Ko`olauloa, Ko`olaupoko, and Kona at the time of contact.

Large scale or intensive agricultural endeavors were implemented in association with habitation. Coastal lands were used for settlement and taro was cultivated in near-coastal reaches and in the uplands. On the southeast coast of O`ahu, taro cultivation was confined to valleys with streams or springs that would water the terraces. The staple crop in Wai`alae and Wailupe valleys was sweet potatoes, which were planted in the valleys, on hillsides, and in the coastal strip (Handy 1940:155-6).

HISTORIC SETTING

Early western visitors to O`ahu described the southeast coast as well-cultivated and well-populated. In 1789 Captain Nathaniel Portlock anchored in Maunalua Bay to take on fresh water, which was brought to the ship in calabashes. Portlock described the coastal setting:

...the bay all around has a beautiful appearance, the low land and vallies being in a high state of cultivation, and crowded with plantations of taro, sweet potatoes, sugar cane, &c., interspersed with a great number of cocoa-nut trees, which renders the prospect truly delightful. (Portlock 1789:73-4)

In 1828 Levi Chamberlain toured southeastern O`ahu, including Wai`alae:
...a grove of palm trees and a number of branching kou trees, among which stand the grass huts of the natives, having a cool appearance, overshadowed by the waving tops of the cocoanuts, among which the trade winds sweep unobstructed (Chamberlain 1956:28-9)

In 1865 Henry Willis Baxley described the region:

Further along the shore, the few hamlets of Waialae are seen nestled in a grove. And a short distance beyond, the grass huts of Wailupe cluster near the high hill of Mauna Loa, from the southern foot of which a ridge extends still further southwardly to the bold and lofty cape named Coco Head, the eastern boundary of the beautiful bay of Waialae, of which Diamond Head, already described, forms the western boundary (Baxley 1865:124).

According to Pukui *et al.* (1989; 220), Handy and Handy (1972: 483), and Handy (1940 in Sterling and Summers 1978:275), Wai`alae Ahupua`a takes its name from a spring which is located above Kalaniana`ole Highway. This stone-lined spring is said to feed a stream which provided water to agricultural terraces in the area. A glimpse of the traditional lifestyle of Wai`alae Nui is provided by J.K. Mokumaia (in Sterling and Summers 1978:276) who states:

Many people lived along the shores and they worked at farming and fishing. Plants grew. There were taro patches, tobacco, sweet potatoes, bananas, and sugar cane. There were many konohikis in former days. Paki was Waialae-nui's konohiki of fishing... There were ever so many people on the shores when these chiefs came to spend a while with the common people.

There was the spring that Kamalu use to bathe in....

There were two springs, one is on the summit of Waialae-nui... These appear to be good sites, there is much water, but its beauty of the time of the konohiki is gone. Now the kapu is freed and the kapu places are trodden underfoot.

The Māhele (1848-1851)

In the 1840s, a drastic change in the traditional land tenure resulted in a division of island lands and a system of private ownership based on Western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall 1938, Vol. I:145; Daws 1977:111; Kelly 1983:45; Kame`eleihiwa 1992:169-70, 176; Kelly 1998:4). The Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, `okipu`u (forest clearing on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa

1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

Once Article IV of the Board of Commissioners to Quiet Land Titles was passed in December 1845, the legal process of private land ownership was begun. The land division, called the Māhele, began in 1848. The lands of the kingdom of Hawai'i were divided among the king (crown lands), the *ali'i* and *konohiki*, and the government. The *ili* of Wai'ālae Iki was awarded to Abner Pākī, the father of Bernice Pauahi Bishop, and the *ili* of Wai'ālae Nui was awarded to Victoria Kamamalu, granddaughter of Kamehameha.

The project area is located within the land of Kānewai, which was awarded to Kalaiheana as Land Commission Award (LCA) 228:2, during the Māhele. Kalaiheana was a *kahu* (guardian) to Liholiho and participated in the 1824 invasion of Kaua'i (Kamakau 1991:220, 268). According to the testimony of John Papa ʻĪī in the Native Register, Kalaiheana received the lands after Kamehameha's conquest of O'ahu:

Kalaiheana's land, called Kanewai, is at Waikiki. It has some leles in Manoa—Keapuapu, Holoawalu [Kaloalu in N. T.], Pakui, and the lele of Pahoia at Waikiki; and the sea of Kahala. It was the land of Keeaumoku at Waikiki, adjoining the north side of Kalaepohaku. This land became his upon the victory of Kamehameha I at the Battle of Nuuanu, also Waialua, as was the custom of granting lands to the chiefs at the time. When the peleleu [fleet of large canoes] came, the land passed from Keeaumoku to Papa and Kalaiheana, and all the leles were also conveyed. From thence came this acquisition and there was no deterrent until the year 1841. For the first time, an edge of Kahala was taken for Wai'ālae. And in the year 1846 another portion was taken for Kalaepohaku, in the month of May, or perhaps June. (Native Register vol.2, pg1, cited in Waihona ʻAina 2014)

When Kalaiheana died in 1855, the *ili* of Kānewai was bequeathed to John ʻĪī as the guardian (*kahu*) of Victoria (Kamamalu). According to ʻĪī, Kalaiheana had claimed Kānewai before the Land Commission, "... but, not in his own right but as possession of the land under Kamamalu." Victoria Kamamalu was granted the *ahupua'a* of Wai'ālae Nui as LCA 7713, as the heir to her mother, Kinau, who had inherited the lands of Ka'ahumanu. Bernice Pauahi Bishop subsequently inherited Kamamalu's land.

Waialae Ranch

In the 1850s Captain John Ross leased 300 acres from the Kamehameha family for a ranch, where he raised cattle. In 1887, Daniel Isenberg purchased the lease to Wai`alae Ranch from the Bishop Estate. Isenberg subsequently planted extensive fields of alfalfa in Wai`alae for the development of a dairy ranch, the Waialae Ranch Company. By 1924, the Waialae Ranch Company was the largest dairy in Honolulu. Isenberg sold the property in the 1920s (Hitch and Kuramoto 1981:36). In July 1927, the Isenberg ranch home, near the mouth of Wai`alae Stream, became the club house for the Wai`alae Golf Course (Honolulu Star Bulletin, August 25, 1934).

Niu Plantation

In the 1881 edition of Thomas Thrum's (1881) *Hawaiian Almanac and Annual*, a single sugar plantation was listed in the district of Wai`alae, the Niu Plantation. This plantation is not listed in subsequent annuals, suggesting that the plantation was short-lived. An attempt to grow pineapple in the 1920s was also short-lived.

Waialae Golf Course

In 1925 the Territorial Hotel Company bought 250 acres from the Bishop Estate for the construction of Wai`alae Golf Course. The course was built to cater to wealthy tourists but local residents could also use the course by paying an annual fee (Hitch and Kuramoto 1981:42). After the stock market crash of 1929 some of the local members were persuaded to manage the course as a private club. In the 1960s the golf course was redesigned to make room for the construction of the Kahala Hilton Hotel, the Kahala apartments, and the Kai Nani subdivision along the coastal side of the property.

Residential Development

In the 1920s, Wai`alae gradually developed into a suburb of Honolulu, spreading eastward along Wai`alae Road (now Kalaniana`ole Highway) and *mauka* into Wai`alae Iki and `Ainakoia. Beginning in the 1920s, a series of improvements were made to Waialae Road, as part of the development of Kalaniana`ole Highway. Farming continued in the area into the 1930s; in 1938 more than 50 pig farms were operating in the vicinity of Farmers Road and Kahala Avenues. At the same time the beachfront along Kahala Avenue was being developed with homes (Honolulu Advertiser, December 20, 1938). In the 1940s and 1950s the Bishop Estate subdivided and leased individual residential sites across Kahala. By 1956 Wailupe Fishpond, to the east of the project area, had been filled in to provide more land for subdivision development (Clark 1977:36-7).

PREVIOUS ARCHAEOLOGICAL RESEARCH

The numerous archaeological sites recorded in the area consist mainly of human burials identified during construction activities, as well as cultural remains relating to both prehistoric and historic time periods.

Few archaeological surveys have been conducted in Wai`alae Nui and Wai`alae Iki. Most of the archaeological work in the area was initiated by the inadvertent discovery of human remains during construction activities.

In the early 1930s, John G. McAllister conducted an archaeological survey of the island of O`ahu, under the auspices of the Bernice Pauai Bishop Museum. During the survey, Punahoa, an informant, told McAllister (1933) Kaunua Kahekili Heiau (McAllister's Site 55). Although the *heiau* had been destroyed by the time of McAllister's survey, Punahoa described the *heiau* as a large structure which had been "...located on top of the ridge which divides Wailupe and Waialae, on the highest and most pronounced knoll. The site was formerly planted in pineapples, but now the heiau is overgrown with high grass and weeds and the pineapples are on the ground sloping around it. Many large rocks embedded in the earth are all that remains of the structure" (McAllister 1933: 71).

In 1967, the Bishop Museum excavated a test unit the Wai`alae shelter cave (State Site 50-80-14-2503), on Kuana Street. Marine shell food remains, traditional Hawaiian artifacts, and historic artifacts were recovered, including a fish hook, an octopus lure, a coral file, copper tubing and bottle glass dating from the 1880s to 1920s (Lloyd Soehren 1967 in Kennedy 1991).

Joseph Kennedy (1991) conducted a surface survey of a 7.5-acre parcel occupied by facilities for the Star of the Sea Church-School complex located mauka and adjacent to Kalaniana`ole Highway. Two lava tubes and six caves were found, but they did not contain any cultural material. No other surface features were found.

Paul Cleghorn Consulting, conducted a surface survey of a 6.4-acre parcel in Kapakahi Gulch, mauka of the end of Luinakoa Street (Cleghorn and Anderson 1992). No surface features were found.

Scientific Consultant Services, Inc., conducted an assessment of the surface features along a 1,100-meter-long corridor of the Wiliwilinui Trail Alignment on Wai`alae Iki Ridge

(Chaffee and Spear 1994). During the survey, a World War II concrete and metal bunker (State Site 50-80-14-4811) was identified.

In 2001 and 2002, Cultural Surveys Hawai`i, Inc. conducted archaeological monitoring during the installation of a gas main and a water main from `Ainakoa Avenue to West Hind Drive (Bush and Hammatt 2002). The majority of the project corridor was within a zone of coral outcrop that has since been covered by eroded soil and fill layers. The main trenching line was found to be composed primarily of fill materials associated with different phases in the development of the highway. No cultural material (except modern trash) was encountered during installation of the gas main, but pockets of sand were noted. One horseshoe and one *poi* pounder fragment were collected during installation of the water main. Basalt boulders found in one area were thought to possibly be part of the wall of former Wailupe Fishpond.

Subsequently, Cultural Survey's Hawai`i, Inc. conducted archaeological monitoring during improvements to the water system at Black Point (Jones and Hammatt (2003). Monitors were on-site during all excavations in areas thought to have Jaucas sand. The actual area that contained Jaucas sands was much smaller than predicted, but the excavations for the water system were generally shallow (less than 50 centimeters deep), and it was determined that strata of undisturbed sand were probably still undisturbed at a deeper level. No subsurface features were found.

Cultural Surveys Hawai`i Inc. conducted an archaeological literature review and field inspection for the proposed Wai`alae Country Club Master Plan Project conducted (O`Hare *et al.* 2008). In addition the same group also produced a Cultural Impact Evaluation for the Country Club Master Plan as well (Spearing *et al.* 2008).

Scientific Consultant Services, Inc. conducted archaeological monitoring of the Waialae Country Club during the installation of electrical switchgear installation and replacement of air conditioning facilities (Wilson and Spear 2009). The excavations associated with this undertaking revealed subsurface strata consisting of a single uniform stratigraphy, the vast majority of which was previously disturbed though landscaping and building construction. No cultural deposits or significant historic properties were identified.

In 2013, Scientific Consultant Services, Inc. conducted an archaeological inventory survey of the subject properties (Hazlett and Spear 2014, in prep.). During the survey, no historic properties were identified.

BURIALS

Many mid-nineteenth century visitors to the islands visited a large area of exposed bones in sand on the eastern side of Diamond Head or Black Point, in Waikīkī Ahupua`a. These tourists, including the writer Mark Twain, speculated that either these graves were the remains of warriors killed in one of Kamehameha's battles or the interment site for Hawaiians who died in one of the many epidemics that swept the islands in the years after contact with Westerners and Asians. From the early traveler's accounts, this large dune cemetery was probably in the `ili of Wai`alae Nui in the Kahala beach area. Several visitors to the cemetery noted that they rode or drove around Black Point, but had not yet reached the coconut groves of the `ili of Wai`alae Iki, within the current project area. Although it does not seem that the dense concentration of bones found in Kahala extends to the project area, it is likely that some burials were interred in the Wai`alae Iki shore, wherever the sand was deep enough for a shallow pit (Spearing et al. 2008).

During construction at a property at 4505 Kahala Avenue, human skeletal remains were inadvertently identified by a construction crew and reported to the State Historic Preservation Division (SHPD). The SHPD archaeologists disinterred the skeletal remains, which was determined to consist of the primary interment of a young-to-middle aged female which had been interred in a semi-flexed position (Griffin 1987). A subsequent examination of the remains by the University of Hawai`i, Mānoa, determined that there was a second burial intrusive with the first, which consisted only of the lower limb bones of a young male adult (Lee and Pietruszewsky 1988). The burial site was subsequently designated State Site 50-80-14-3725

During the excavation of a swimming pool on a property at 1013 Waiholo Street, human skeletal remains were inadvertently discovered. The SHPD archaeologists disinterred the remains and determined the remains represented a single individual in a flexed position (Bath and Griffin 1988). A subsequent examination of the remains by the University of Hawai`i determined the bones were of a female, approximately 35 years old (Douglas and Pietruszewsky 1988). The burial site was subsequently designated State Site 50-80-14-3760.

In 1989, contractors at a construction site located at 4745 Aukai Avenue reported the inadvertent discovery of human skeletal remains to the SHPD. The State Historic Preservation Division archaeologist determined the partial remains represented a single individual which had been previously disturbed (Bath 1989). A subsequent examination of the remains by the University of Hawai`i, Mānoa, determined the bones were of a single adult male, 40 to 45 years

old (Bradley and Pietrusewsky 1989a). The burial was subsequently designated State Site 50-80-14-4126.

In 1989, Human skeletal remains inadvertently identified during the construction excavations for a house foundation at 4585 Kahala Avenue were reported to the SHPD (Kawachi 1989). The burial was disturbed by the construction, but the contractor's description indicated that the burial may have been in a flexed position. The skull and upper third of the body was missing. A subsequent examination of the remains by the University of Hawai'i, Mānoa, determined the bones were of a female, approximately 25 to 35 years old (Bradley and Pietrusewsky 1989b). The burial was subsequently designated State Site 50-80-14-4065.

In 1995, human skeletal remains were inadvertently encountered during the excavation of an elevator shaft for a house at 4433 Kahala Avenue. The burial (later designated as Burial 1) was determined to be likely associated with an ash and charcoal cultural layer 60 to 95 centimeters below the ground surface (Jourdane 1995). The burial was disinterred and later reinterred. The burial and the cultural layer were designated State Site 50-80-14-5320.

In 1997, additional burial recovery work was carried out at 4433 Kahala Avenue (Erkelens and Tomonari-Tuggle 1997). Back dirt piles were screened and the loose soil was removed from the elevator shaft. When the walls of the shaft were cleaned, the profile of a fire pit and the profile of a burial pit were noted. A second burial was found in the burial pit and additional elements of this burial were found in the back dirt piles. A backhoe excavated a 4 by 2.5-m block around Burial 2 and a third burial was uncovered. Burial 1 was identified as the skeleton of a 30-35 year old male. A shell button and two porcelain beads in the back dirt probably belong to this individual. Burial 2 was identified as the skeleton of a 20-25 year old female. Burial 3 was identified as a 3-year old child, probably the child of the female (Burial 2). A square-cut nail was found with this burial. Due to the presence of historic artifacts, the burials were determined to be of Polynesian or Asian ethnicity, buried in the nineteenth century. All three burials were disinterred and reinterred elsewhere on the property. All three burials at the site are considered part of State Site 50-80-14-5320.

In April of 1999, a local resident collected human skeletal remains from a cave to a located *mauka* of the end of Luinakoa Street (Aina Koa Subdivision) on Wai`alae Nui Ridge. The State Historic Preservation Division archaeologists were notified and determined that the human skeletal elements were distributed across the cave floor and were likely to represent one

individual (Collins and Jourdane 1999). No other cultural remains were found in the cave. The cave and burial were designated State Site 50-80-14-5743.

During the excavation of a utility line at 4773 Kahala Avenue in 2003, human skeletal remains were inadvertently encountered. T. S. Dye & Colleagues were contracted to conduct further investigation of the find (Putzi and Dye 2003). The remains of five individuals, a cultural layer, and several traditional Hawaiian artifacts were recovered from the excavation and from the back dirt piles. The burials were probably of Hawaiian ancestry based on the presence of the traditional artifacts. The burials and the cultural layer were designated State Site 50-80-14-6632.

In 2003, Haun and Associates Inc. conducted a surface survey of the 8-acre Waialae 180 Reservoir Replacement project site located near the Kalani High School Athletic Field, *mauka* of Kalaniana'ole Highway (Haun and Henry 2003). During the survey, two caves containing human skeletal remains were identified (State Site 50-80-14-5938 and 50-80-14-6351). The human skeletal elements identified and designated as State Site 50-80-14-5938, included five crania, suggesting 5 individuals were represented. A single human infant cranium, was encountered at Site 6351. As no evidence of historic cultural materials were present, the burials were interpreted to be Native Hawaiian associated with the late pre- or early post-Contact Period.

Human skeletal remains were inadvertently identified at 4577 Kahala Avenue in 2006 during excavation of a sewer line. The remains were interpreted to represent a single *in situ* burial and a single previously disturbed burial encountered within a cultural layer (Dye 2005a, b; Dye 2006). The burials and the cultural layer were designated State Site 50-80-14-6762.

In 2006, Pacific Consulting Services conducted extensive Phase I subsurface testing at three parcels located at 4415, 4423, and 4433 Kahala Avenue (Collins and Clark 2006). Fifty-one test units were excavated, covering the majority of the project area. Human skeletal remains had been previously encountered at 4433 Kahala Avenue in the 1990s (Jourdane 1995; Erkelens and Tomonari-Tuggle 1997). Collins and Clark (2006) reported on two sand cultural layers, the upper layer believed to be associated with historic period habitation and the lower sand layer associated with traditional Hawaiian habitation.

The second phase of this project was carried out in 2007 (Dye and Jourdane 2007). During this phase, the 1997 re-interment site was relocated and marked on the surface. Twenty shovel tests were excavated in areas not covered by the Phase I project. Controlled block excavations were placed adjacent to shovel test pits which contained one or more of the two sand

layers identified by Collins and Clark (2006). The work indicated that the possible two cultural layers were actually "a single old land surface, or paleosol, upon which a variety of historic-period artifacts had been deposited" (Dye and Jourdan 2007:32).

In March of 2007, the SHPD (Chinen 2007a) was notified that human skeletal remains had been found during construction a new house and swimming pool at 4565 Kahala Avenue. The bones were dispersed around the property's backyard. The SHPD determined that a qualified archaeological consultant would need to screen back dirt piles and conduct block excavations at the site to try to determine the original location of the burial and to test if other burials were present. CSH (Tulchin and Hammatt 2007) excavated 25 test units but the original location of the burial could not be determined. They did recover additional skeletal remains from the back dirt piles. Following the test excavations, a CSH archaeologist monitored the remainder of construction related excavations in the project area. On April 25, May 15 and July 11, 2007 additional human skeletal remains were observed (Chinen 2007b). These were determined to be from the same burial as that found in March. The SHPD assumed jurisdiction over the inadvertent discoveries and determined to relocate the remains. The burial was designated site SIHP #50-80-14-6927.

Scientific Consultant Services, Inc. conducted Archaeological Monitoring for the Wai`alae Country Club Clubhouse upgrade between February 1 to May 31, 2011 (Dagher *et al.* 2013). Two archaeological sites were recorded; State Site 50-80-14-7206, a human burial, with a partially intact burial pit, and State Site 50-80-14-7207, comprised of a single *in situ* human burial (Feature 1) and a pit feature of indeterminate function (Feature 2). The burials were found to be in association with a former A-horizon identified as a cultural layer.

Scientific Consultant Services, Inc. conducted Archaeological Monitoring for the Wai`alae Country Club Annex Building Project between April 22 to December 30, 2013 (Pestana and Spear, in prep.). The archaeological monitoring led to the identification of two sites : State Sites 50-80-14-7206 and 50-80-14-7207. State Site 50-80-14-7206 (Burial 1), located on TMK: (1) 3-5-023:038, consisted of a partial set of human skeletal remains encountered in the excavation for the Waialae Country Club Clubhouse's footing expansion excavation. State Site 50-80-14-7207, located on TMK: (1) 3-5-023:003, consisted of two subsurface features represented by a human burial (Subsurface Feature 1, Burial 1) and a pit (Subsurface Feature 2) of indeterminate function.

CONSULTATION

Consultation was sought from the Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian, State Historic Preservation Division; Ms. Hinaleimoana K.K. Wong-Kalu, Chair, O`ahu Island Burial Council; Manu Boyd, President; Hawaiian Civic Club; and Victoria Holt-Takamine, Kumu Hula.

In addition, a Cultural Impact Assessment Notice was published on January 8, 9 and 12, 2014, in *The Honolulu Star-Advertiser*, and in the February 2014 issue of the OHA newspaper, *Ka Wai Ola* (Lisa E. Asato, personal; communication) (see Appendix B). These notices requested information of cultural resources or activities in the area of the proposed project, stated the Tax Map Key (TMK) number, and where to respond with pertinent information. Based on the responses, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

CULTURAL IMPACT ASSESSMENT INQUIRY RESPONSES

Analysis of the potential effect of the project on cultural resources, practices or beliefs, the potential to isolate cultural resources, maintain practices or beliefs in their original setting, and the potential of the project to introduce elements that may alter the setting in which cultural practices take place is a requirement of the OEQC (2012:13). As stated earlier, this includes the cultural resources of the different groups comprising the multi-ethnic community of Hawai`i.

SUMMARY

The “level of effort undertaken” to identify potential effect by a project to cultural resources, places or beliefs (OEQC 2012) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a “good faith effort”. However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the current undertaking, letters of inquiry were sent to individuals and organizations that may have knowledge or information pertaining to the collection of cultural resources and/or practices currently, or previously conducted in close proximity to the two adjacent waterfront parcels at 4465/4469 Kahala Avenue in Waikīkī Ahupua`a, Kona District, O`ahu Island, Hawai`i [TMK (1) 3-5-003:002 and 003].

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as Samuel Kamakau, Martha Beckwith, Jon J. Chinen, Lilikalā Kame`eleihiwa, R. S. Kuykendall, Marion Kelly, E. S. C. Handy and E.G. Handy, Elspeth P. Sterling, and Mary Kawena Puku`i and Samuel H. Elbert and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina Database (2014).

CULTURAL ASSESSMENT AND RECOMMENDATIONS

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is also a suggested guideline of the OEQC (2012). Based on historical research, and no additional suggestion for contacts, analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (2012). As indicated by the lack of responses received from the community, the project area has not been, and is not currently, used for traditional cultural purposes.

Based on the above research and the lack of comments received from the community, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to traditional cultural practices including, gathering, access, cultivation, the use of traditional plants, *oli* (chanting) and *ha`a* (dancing), canoe building, making traditional tools (i.e., *poi* pounders, *poi* boxes), and surfing will be not impacted by the proposed "Hawai`i Project" to be located on two adjacent waterfront parcels at 4465/4469 Kahala Avenue in Waikīkī Ahupua`a, Kona District, O`ahu Island, Hawai`i [TMK (1) 3-5-003:002 and 003].

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APPENDIX A: LETTERS OF INQUIRY

Mr. William Ho`ohuli
94-1067 Leomana Place
Waipahu, Hawai`i 96797

January 3, 2014

Dear Mr. Ho`ohuli:

In compliance with the State of Hawai`i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land within Waialae `Ili, Waikīkī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003] (Figures 1 and 2).

Scientific Consultant Services is in the process of conducting an Archaeological Inventory of the TMK: (1) 3-5-003: 002 and 003, in their entirety (c. 0.90 acres) in order to determine the presence of archaeological historic properties.

According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs... The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the proposed undertaking. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed undertaking. The results of the cultural impact assessment are dependent on the response and contributions made by individuals, such as yourself.

Enclosed are maps showing the proposed project area. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Cc: Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian, State Historic Preservation Division; Ms. Hinaleimoana K.K. Wong-Kalu, Chair, O`ahu Island Burial Council; Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula

Manu Boyd, President
Hawaiian Civic Club
P.O. Box 1513
Honolulu, Hawai`i 96806

January 3, 2014

Dear: President Boyd:

In compliance with the State of Hawai`i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land

within the `ili of Waialae Iki, Waikīkī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003] (Figures 1 and 2).

Scientific Consultant Services is in the process of conducting an Archaeological Inventory of the TMK: (1) 3-5-003: 002 and 003, in their entirety (c. 0.90 acres) in order to determine the presence of archaeological historic properties.

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We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the proposed undertaking. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed undertaking. The results of the cultural impact assessment are dependent on the response and contributions made by organizations, such as the Hawaiian Civic Club.

Enclosed are maps showing the proposed project area. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Cc: Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member; Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian; Ms. Hinalaimoana K.K. Wong-Kalu, Chair, O`ahu Island Burial Council

Dr. Kamana`opono M. Crabbe, Chief Executive Officer
Office of Hawaiian Affairs
737 Iwilei Road, Suite 200
Honolulu, Hawai`i 96817

January 3, 2014

Dear Dr. Crabbe:

In compliance with the State of Hawai`i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land within the `ili of Waialae Iki, Waikīkī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003] (Figures 1 and 2).

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We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the proposed undertaking. We are also asking for any information pertaining to

traditional cultural activities or traditional rights which may be impacted by the proposed undertaking. The results of the cultural impact assessment are dependent on the response and contributions made by organizations, such as the Office of Hawaiian Affairs.

Enclosed are maps showing the proposed project area. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Cc: Vincent H. Rodrigues, Cultural Historian, State Historic Preservation Division; Ms. Hinaleimoana K.K. Wong-Kalu, Chair, O`ahu Island Burial Council; Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member

Ms. Hinaleimoana K.K. Wong-Kalu, Chair
O`ahu Island Burial Council
C/O Kawika Farm
State Historic Preservation Division
Burial Sites Program
601 Kamokila Blvd., Room 555
Kapolei, Hawai`i 96707

January 3, 2014

Dear: Chairperson Hinaleimoana K.K. Wong-Kalu

In compliance with the State of Hawai'i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai'i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai'i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land within the `ili of Waialae Iki, Waikīkī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003] (Figures 1 and 2).

Scientific Consultant Services is in the process of conducting an Archaeological Inventory of the TMK: (1) 3-5-003: 002 and 003, in their entirety (c. 0.90 acres) in order to determine the presence of archaeological historic properties.

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We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the proposed undertaking. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed undertaking. The results of the cultural impact assessment are dependent on the response and contributions made by organizations, such as the O`ahu Island Burial Council.

Enclosed are maps showing the proposed project area. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Cc: Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member; Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian

Dear:

In compliance with the State of Hawai`i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land within the `ili of Waialae Iki, Waikīkī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003] (Figures 1 and 2).

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Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Vincent H. Rodrigues, Cultural Historian
State Historic Preservation Division
Department of Land and Natural Resources Maui Office Annex
130 Mahalani Street
Wailuku, Hawai'i 96791

January 3, 2014

Dear Mr. Rodrigues:

In compliance with the State of Hawai'i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai'i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai'i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment

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Scientific Consultant Services is in the process of conducting an Archaeological Inventory of the TMK: (1) 3-5-003: 002 and 003, in their entirety (c. 0.90 acres) in order to determine the presence of archaeological historic properties.

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Enclosed are maps showing the proposed project area. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Cc: Ms. Hinalaimoana K.K. Wong-Kalu, Chair, O`ahu Island Burial Council; Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member; Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs

Mrs. Victoria Holt-Takamine
victoria@hawaii.edu

January 3, 2014

Dear Mrs. Takamine:

In compliance with the State of Hawai'i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law and in accordance with the State of Hawai'i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai'i on November 19, 1997, Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land within the *ili* of Waialae Iki, Waikīkī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003] (Figures 1 and 2).

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Sincerely yours,

Cathleen Dagher
Senior Archaeologist
Enclosures (2)

Cc: William Ho`ohuli, community member; Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian, State Historic Preservation Division; Ms. Hinaleimoana K.K. Wong-Kalu, Chair, O`ahu Island Burial Council; Manu Boyd, President; Hawaiian Civic Club

APPENDIX B: LEGAL NOTICE

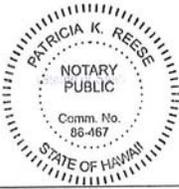
AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
SCS Proj 1513 Hawaii Project CIA

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}
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}

STATE OF HAWAII)
) SS.
City and County of Honolulu }

Doc. Date: JAN 13 2014	# Pages: 1
Notary Name: Patricia K. Reese	First Judicial Circuit
Doc. Description: Affidavit of Publication	
<i>Patricia K. Reese</i> Notary Signature	JAN 13 2014 Date



Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources and traditional, previously or on-going, cultural activities in the vicinity of the proposed "Hawaii Project", located on approximately 0.90 acres of land within the ʻili of Waialae Iki, Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu Island [TMK: (1) 3-5-003-002 and 003]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182.
(S4590573 1/8, 1/9, 1/12/14)

Rose Rosales being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser and MidWeek, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

Honolulu Star-Advertiser 3 times on:
01/08, 01/09, 01/12/2014

Midweek Wed. 0 times on:

_____ times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

PR
Rose Rosales

Subscribed to and sworn before me this 13th day

of January A.D. 2014
Patricia K. Reese
Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii

My commission expires: Oct 07 2014



Ad # 0000590573

LN: _____

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources and traditional, previously or on-going, cultural activities in the vicinity of the proposed "Hawaii Project", located on approximately 0.90 acres of land within the ʻili of Waialae Iki, Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu Island [TMK: (1) 3-5-003:002 and 003]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182.

APPENDIX C: FOLLOW-UP LETTERS

Mr. William Ho`ohuli
94-1067 Leomana Place
Waipahu, Hawai`i 96797

February 6, 2014

Dear Mr. Ho`ohuli:

This is our follow-up letter to our January 3, 2014 letter, which was in compliance with the statutory requirements of the State of Hawai`i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

Scientific Consultant Services, Inc. (SCS) is in the process of preparing a Cultural Impact Assessment (CIA) pertaining to a proposed "Hawaii Project", located on approximately 0.90 acres of land within the `ili of Waialae Iki, Waikikī Ahupua`a, Honolulu (Kona) District, O`ahu Island [TMK: (1) 3-5-003:002 and 003]. Scientific Consultant Services has conducted an Archaeological Inventory of the subject properties, in their entirety (c. 0.90 acres), which yielded negative findings (Hazlett and Spear 2014, in prep.).

According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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We are asking you for any information that you or other individuals have which might contribute to the knowledge of traditional cultural activities that were, or are currently, conducted in the vicinity of the proposed undertaking. We are also asking for any information pertaining to traditional cultural activities or traditional rights which may be impacted by the proposed undertaking. The results of the cultural impact assessment are dependent on the response and contributions made by individuals, such as yourself.

Enclosed are maps showing the proposed project area. Please contact me at the Scientific Consultant Services, Honolulu, office at (808) 597-1182 or via e-mail (cathy@scshawaii.com) with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Cathleen Dagher
Senior Archaeologist

Cc: Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian, State Historic Preservation Division; Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula

Manu Boyd, President
Hawaiian Civic Club
P.O. Box 1513
Honolulu, Hawai`i 96806

February 6, 2014

Dear President Boyd:

This is our follow-up letter to our January 3, 2014 letter, which was in compliance with the statutory requirements of the State of Hawai`i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

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Sincerely yours,

Cathleen Dagher
Senior Archaeologist

Cc: Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member; Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs; Vincent H. Rodrigues, Cultural Historian

Dr. Kamana`opono M. Crabbe, Chief Executive Officer
Office of Hawaiian Affairs
737 Iwilei Road, Suite 200
Honolulu, Hawai`i 96817

February 6, 2014

Dear Dr. Crabbe:

This is our follow-up letter to our January 3, 2014 letter, which was in compliance with the statutory requirements of the State of Hawai`i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai`i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai`i, on November 19, 1997.

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Sincerely yours,

Cathleen Dagher
Senior Archaeologist

Cc: Vincent H. Rodrigues, Cultural Historian, State Historic Preservation Division; Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member

Dear:

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Sincerely yours,

Cathleen Dagher
Senior Archaeologist

Cc:

Vincent H. Rodrigues, Cultural Historian
State Historic Preservation Division
Department of Land and Natural Resources Maui Office Annex
130 Mahalani Street
Wailuku, Hawai'i 96791

February 6, 2014

Dear Mr. Rodrigues:

This is our follow-up letter to our January 3, 2014 letter, which was in compliance with the statutory requirements of the State of Hawai'i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law, and in accordance with the State of Hawai'i Department of Health's Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai'i, on November 19, 1997.

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Cathleen Dagher
Senior Archaeologist

Cc: Manu Boyd, President; Hawaiian Civic Club; Victoria Holt-Takamine, Kumu Hula; William Ho`ohuli, community member; Dr. Kamana`opono M. Crabbe, Chief Executive Officer, State of Hawai`i Office of Hawaiian Affairs

Mrs. Victoria Holt-Takamine
victoria@hawaii.edu

February 6, 2014

Dear Mrs. Takamine:

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APPENDIX D
COASTAL ASSESSMENT STUDY

..... 11 91 - 698 1 @M&\$%1

**Coastal Assessment for 4465 and 4469 Kahala Avenue
Revision 2**

Honolulu, Hawaii

July 2014



Prepared for:

Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Prepared by:

Sea Engineering, Inc.
Makai Research Pier
41-305 Kalaniana'ole Hwy
Waimanalo, HI 96795



Job No. 25405



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1. INTRODUCTION

This coastal engineering assessment has been prepared as part of a project to replace the existing, non-permitted shoreline structures at Parcels 4465 and 4469 Kahala Avenue, on the south shore of Oahu. The project site is located east of Diamond Head between Elepaio St. and Kala Pl. The regional location of the project is shown in Figure 1-1. Figures 1-2 and 1-3 are aerial photographs of the site.

The project site is approximately one mile east of Diamond Head Beach Park, and approximately 1,600 feet east of the Black Point. The lots are located on Kahala Beach, a 2-mile reach bordered by Black Point on the west and Wailupe Peninsula on the east. While much of Kahala Beach has a narrow sand beach, the western portion, including the project site, has only isolated sandy areas, and is mostly characterized by bare reef and rocks fronting the properties. All of the properties in the region are fronted by seawalls. Figure 1-4 is a photograph of the project shoreline. Property 4465 has a vertical seawall 6 feet high consisting of grouted tile blocks on top of a stepped CRM base. Property 4469 to the east has a rock revetment. Neither structure is permitted. The project plans involve removal of the non-permitted structures and replacement with properly engineered revetment shore protection located behind the certified shoreline.

In support of SMA permit for the property and revetment re-construction, Sea Engineering was contracted to complete a coastal assessment of the project shoreline. This coastal assessment addresses Office of Environmental Quality Control (OEQC) guidelines for assessing shoreline alteration projects, including: a detailed description of the existing shoreline and coastal processes; historical shoreline erosion rates; site maps; oceanographic setting; coastal hazards; description of improvements; and review of alternatives.



Figure 1-1 Project location on the island of Oahu

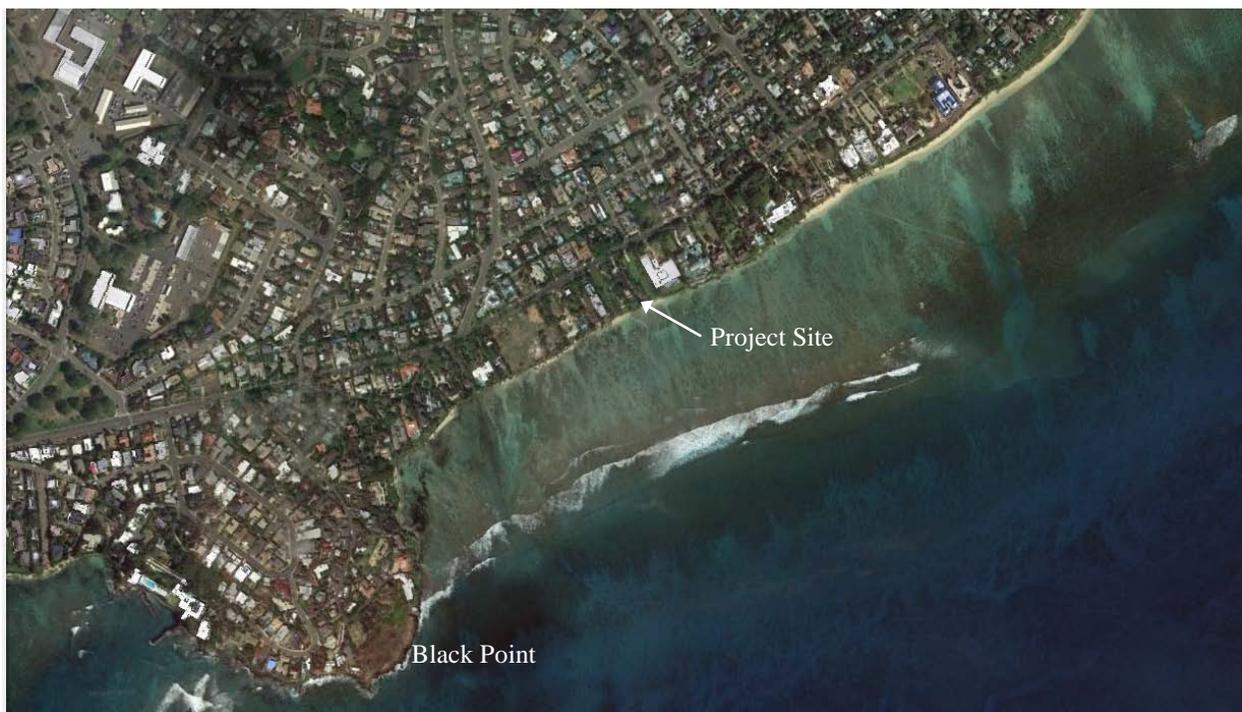
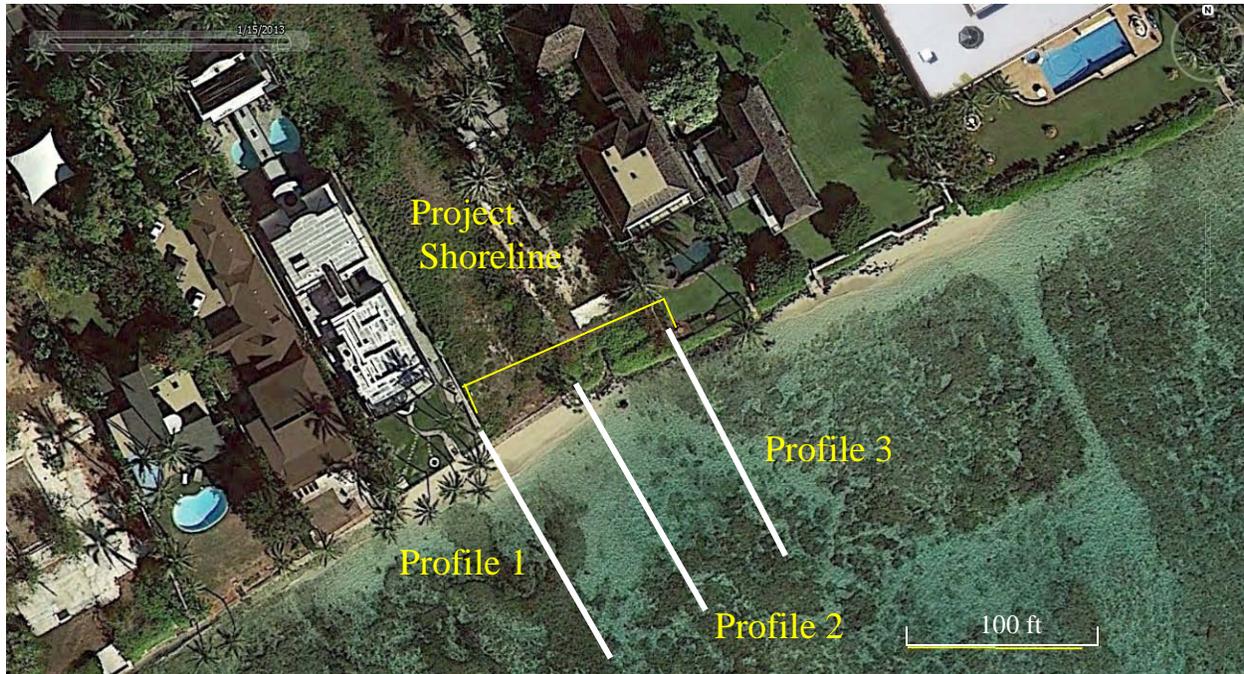


Figure 1-2 Aerial photograph of the project site (Google Earth)



**Figure 1-3 Aerial photograph of project site (2) showing the project reach and profile location
(from Google Earth)**



**Figure 1-4 Existing walls and narrow sand patch fronting 4465 and 4469 Kahala Ave. properties
(photograph taken near lower low tide)**

2. PROJECT SITE DESCRIPTION

2.1 Shoreline Description

Appendix A presents the topographic survey map of the project site. The lots, at addresses 4465 and 4469 Kahala Avenue (TMK 3-5-003:003&002), are each 270 feet deep, with a shoreline frontage of 60 feet. The land elevation ranges from 8 to 10 feet. The seaward margin of the western lot is a vertical seawall, rising from the sand patch to an elevation of approximately 8 feet. The wall consists of a CRM base with a stepped face, supporting a vertical face of grouted tile blocks (Figure 2-1). The eastern lot is fronted by a rock revetment 10 to 15 feet wide and rising to an elevation of 6 feet (Figure 2-2). A narrow sand patch is present in front of the walls during lower tide levels; during higher tides, wave uprush reaches the base of the walls and there is little dry beach (Figure 2-1 to Figure 2-3).

The adjoining property to east is protected by a revetment (Figure 2-4) and the adjoining property to the west is protected by a vertical seawall (Figure 2-5). A sandy beach is not present in front of either of these properties. To the west, vertical seawalls line the shoreline the entire distance to Black Point, over 1200 feet, and there are few sand patches. Similarly, to the east, the shoreline is hardened by protective seawalls for at distance of 1100 feet, and a there is no sand beach. Beyond this, a narrow sand beach extends to the Kahala Resort and Hotel.

The project shoreline is characterized by a wide fringing limestone reef flat over 850 feet in width (Figure 1-2). The reef flat widens to approximately 1,500 feet at the eastern end of Kahala Beach. Water depths on the reef flat range from 1 foot near the shoreline to 2 to 3 feet along the seaward margin. The fringing reef flat provides substantial protection to the shoreline from storm waves. During typical conditions, little wave energy reaches the shoreline, and there are no notable currents. Very little sand has accumulated along the shore in this area, existing as small pockets that are mostly covered during higher tide levels. There is little evidence of active sand transport along the shoreline. Aerial photographs indicate that there is little sand present on the reef flat or further offshore. In general, there appears to be very little sand available in the region for beach building processes. Basalt boulders and cobbles exist intermittently in this area – they are probably derived from the lava flow that forms the headland at Black Point.



Figure 2-1 Seawall along western lot



Figure 2-2 Rock revetment fronting eastern lot



Figure 2-3 Narrow sand patch at project site (photograph taken near lower low tide). Wet sand from wave swash is evident up to the base of the wall



Figure 2-4 Revetment protecting adjoining property to the east



Figure 2-5 Vertical seawall protection property to the west

2.2 Shoreline Profiles

Three shoreline profiles were taken at the project site, at either end and at the middle of the property shoreline, extending approximately 175 to 200 feet offshore of the coastal structures. The locations of the profiles are shown in Figure 1-3. The profiles are shown in Figure 2-6. The profiles show the CRM/tile seawall rises to an elevation of 8 feet at the western end of the property and 6 feet for a short segment adjoining the revetment. The revetment rises to an elevation of 5 to 6 feet; the revetment crest is obscured by thick naupaka. Thin sand extends only 20 feet seaward of the structures at Profiles 1 and 3, and approximately 100 feet seaward of Profile 2. The sand is typically a few inches or less in thickness. The limestone reef flat has a typical relief less than 1.0 foot. The reef flat elevation generally ranges from about -2.0 to -3.0 feet msl at 50 feet offshore, and grades to a more consistent -2.0 feet msl by 200 feet offshore.

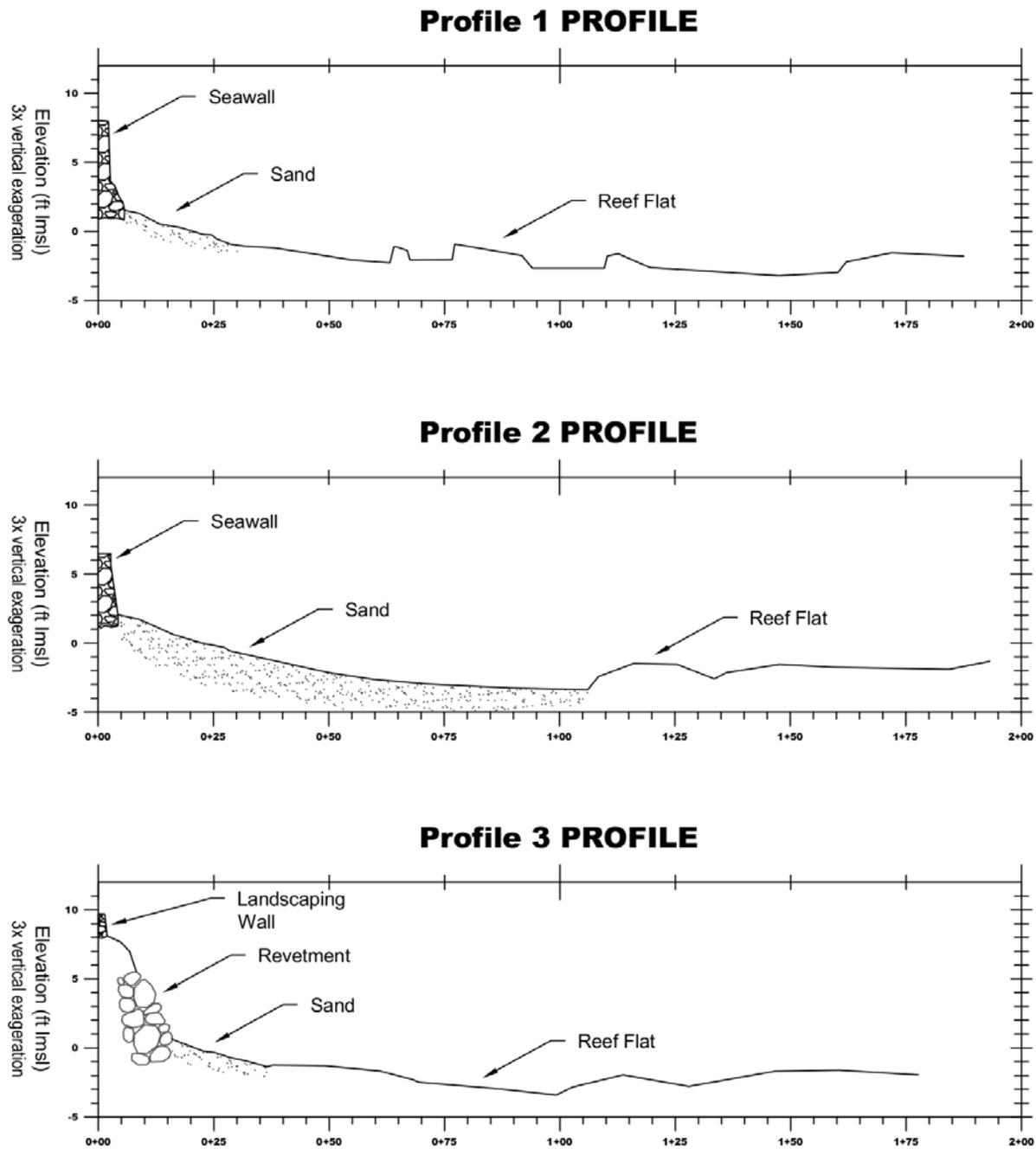


Figure 2-6 Shoreline profiles

2.3 Shoreline History

The erosion history of Kahala has been analyzed with aerial photographs by the U.H. Coastal Geology Group (2010). The U.H. Coastal Geology Group compared the low water mark digitized from 8 aerial photographs between 1949 and 2005, and a National Ocean Survey topographic survey chart (T-sheet) from 1925. In the project vicinity, only photographs from 1967, 1971, 1975, 1996 and 2005 were available and adequate quality for use in the analysis.

Aerial images from 1967, 1975, 1996, and 2005 are shown in Figure 2-7, Figure 2-8, Figure 2-9, and Figure 2-10, respectively. Though a narrow beach was visibly present in 1967 and 1975, it was narrowed to a small sand patch by 1996, and the U.H. Coastal Geology Group identified it as an area with no beach. The 1996 shoreline, located at the face of the shoreline structures, is the last point used for calculating erosion rates at the site.

The results of this study for the project vicinity are presented in Figure 2-11. Historical shoreline positions from each photograph and the T-sheet were measured every 66 ft (20 m) along the shoreline, as denoted by the yellow transect lines in Figure 2-11. The shoreline positions were used to calculate annual shoreline change rates.

The project site corresponds to Transects 320, 321, and 322. The study indicates that the project shoreline was eroding at a rate of approximately 1 ft/yr prior to loss of the beach. The erosion rate was calculated using shoreline positions from the first T-sheet until the 1996 shoreline, which was identified as a shoreline with no beach. Seawalls at the project site were presumed to have been built prior to the late 1980s.

The subject property shoreline is located in the middle of a nearly 0.5 mile long stretch of coastline that has been identified as having no beach by the U.H. Coastal Geology Group. This entire length of coastline is protected from continued erosion of the fast land by shoreline structures.



Figure 2-7 1967 Aerial image, used by the UH Coastal Geology Group



Figure 2-8 1975 Aerial image, used by the UH Coastal Geology Group



Figure 2-9 1996 Aerial image, used by the UH Coastal Geology Group



Figure 2-10 2005 Aerial image, used by the UH Coastal Geology Group

The modern shoreline, during high tide conditions, does not have dry sand between the shoreline structures at the subject property and the waterline. A photograph (Figure 2-12) taken on April 2, 2014, shows typical conditions with water elevations near mean higher high water. The U.H. Coastal Geology Group determination that no beach has been present since at least 1996, and observations of the current shoreline condition demonstrate that sand has not been accumulating along the shoreline. Rather, sand has been largely absent from the shoreline at the subject property, and for more than 1,000 feet to either side.



Figure 2-11 Historical shoreline change analysis (UH Coastal Geology Group). Yellow lines indicate transect locations spaced 66 ft apart. Red bar graph indicates annual erosion rate calculated for each transect location. White lines through bar graph represent 1ft/yr erosion rate increments.



Figure 2-12 Ground photograph of the shoreline with water levels near mean higher high water, dated April 02, 2014

2.4 Biology

The following description of the flora and fauna on the fringing reef flat off Kahala Beach is from Aecos (1979):

The inner reef flat off Kahala Beach is dominated by algae, which cover around 40% of hard bottom areas. Seventeen species are noted, with *Acanthophora spicifera*, *Dictyota acutiloba*, *Dictyota Liagora* (sp.), and *Lyngbya majuscula* most abundant. *Halimeda discoidea*, *Liagora* (sp.), *Hypnea cervicornis*, and *Laurencia* (sp.) are common. Two of the more popular edible seaweeds, *Gracilaria burspastoris* and *G. coronipifolia*, occur in low abundance. Corals contribute less than one percent bottom cover, although coral cover increases and algal cover decreases seaward across the reef. *Pocillopora damicornis* is the most commonly encountered species. Only eight species of fishes are recorded on the shallow reef platform. *Stethojulis balteata* and *Acanthurus triostegus* are the most often encountered species. Large fishes, especially surgeonfishes, are abundant along the reef face. Seaward of the reef margin, coral cover reaches 30%, with *Porites lobata* the dominant form present.

2.5 Coastal Use

Despite the inhospitable substrate, the reef flat fronting Kahala Beach is used by wading fishermen, seaweed collectors, and spearfishermen. There are surfing breaks at the edge of the reef flat in the general vicinity (at Black Point and Hunakai Road), but not directly off the project site. The area in front of the project site is not typically used for sunbathing or swimming as there the little sand in either the inter-tidal or sub-tidal zones, and the water is shallow.

3. OCEANOGRAPHIC SETTING

3.1 General Description

Kahala Beach is located on the south shore of the island of Oahu. It is primarily a residential area, with one beach front hotel, the Kahala Resort and Hotel, located approximately one mile east of the project site. The region is a relatively flat coastal plain, elevated approximately 6 to 8 feet above mean sea level (MSL) at the shoreline. Kahala Beach is separated from the beaches in the vicinity of Diamond Head by the rocky peninsula of Black Point. Also known by the Hawaiian name *Lae o Kupikipiki o*, Black Point is a headland formed by a relatively young basaltic lava flow.

3.2 Oceanographic Conditions

3.2.1 Wind

The prevailing winds are the northeast tradewinds, which wrap around the east side of the island and blow side-onshore in the project area. The tradewinds are typically present 80 percent of the time during the summer season from April to November, with wind speeds of 10 to 20 mph. During the winter months there is a general weakening of the tradewind system and the occurrence of southerly and westerly winds (Kona winds) due to both frontal systems passing through the islands and local low-pressure systems.

3.2.2 Waves

The general Hawaiian wave climate can be described by four primary wave types: 1) tradewind waves generated by the prevailing northeast winds; 2) North Pacific swell produced by mid-latitude low pressure systems; 3) southern swell generated by mid-latitude storms of the southern hemisphere; 4) Kona storm waves generated by local low pressure storm systems. In addition, the islands are affected by waves generated by nearby tropical storms and hurricanes.

Tradewind waves occur throughout the year, but the other wave types have seasonal distributions. North Pacific swell and Kona storm waves typically occur from October through March during the northern hemisphere winter. Conversely, southern swell typically occurs from April through September during the southern hemisphere winter. Hurricanes and tropical storms are also summer and fall phenomena. The project coastline faces south-southeast and is directly exposed to southern swell and Kona storm waves. The site is obliquely exposed to tradewind waves that wrap around the island from the east, and completely sheltered by the island from most north Pacific swell.

Tradewind waves result from the strong and steady tradewinds blowing from the northeast quadrant over long fetches of open ocean. Typical deepwater tradewind waves have periods of 5 to 10 seconds and heights of 3 to 10 feet.

Southern swell is generated by storms in the southern hemisphere and is most prevalent during the summer months. These waves are typically long and low, with periods of 12 to 20 seconds and deepwater wave heights of 2 to 6 feet. Southern swell is fairly common, occurring nearly 25 percent of the time during a typical year. They approach the Kahala area directly, and represent the greatest source of wave energy reaching the project site.

Kona storm waves occur at random intervals during the winter months, and approach from the sector south through west. The site can therefore be directly exposed to this wave type. Some winter seasons have several Kona storms; others have none. Wave heights are dependent upon the storm intensity, but deepwater heights can exceed 15 feet.

The infrequent offshore passage of hurricanes can generate large waves that affect the west coast of Hawaii. Many recorded tropical storms and hurricanes have approached the Hawaiian islands during the past 35 years. Most of these storms passed well to the south of the islands, but there have been notable exceptions. Hurricane Nina (1957) passed within 200 miles of the islands, Dot (1959) passed over Kauai, Iwa (1982) passed within 30 miles of Kauai, and Iniki (1992) passed directly over Kauai. These hurricanes generated waves that affected the entire island chain. For example, although the largest waves from Hurricane Iwa directly impacted Kauai, the estimated deepwater wave height off the west coast of Hawaii was 14 feet. In the event that a large hurricane passes near the coast, model hurricane scenarios predict deepwater wave heights over 30 feet.

3.2.3 Nearshore Wave Heights

As deepwater waves propagate toward shore, they begin to encounter and be transformed by the ocean bottom. The process of *wave shoaling* generally steepens the wave and increases the wave height. The phenomenon of *wave refraction* will cause wave crests to bend and may locally increase or decrease the wave heights. *Wave breaking* occurs when the wave profile shape becomes too steep to be maintained. This typically occurs when the ratio of wave height to water depth is about 0.8, and is a mechanism for dissipating the wave energy.

The wide and shallow fringing reef flat that fronts Kahala Beach forces larger waves to break far offshore. The waves that reach the shoreline are limited by the water depth, so that larger waves will reach the shoreline during high water level conditions.

3.2.4 Tides

The tides in Hawaii are semi-diurnal with pronounced diurnal inequalities; i.e. two tidal cycles per day with unequal water level ranges. The following tide levels have been established for the Honolulu area by the National Ocean Service:

Tide Level	Feet (MSL)
Highest Water (2/14/1967)	2.4
Mean Higher High Water	0.9
Mean Sea Level	0.0 (Reference Datum)
Mean Lower Low Water	-0.8
Lowest Water (4/30/1911)	-2.2

4. COASTAL HAZARDS

4.1 Hurricanes

Tropical cyclones originate over warm ocean waters, and they are considered hurricane strength when they generate sustained wind speeds over 64 knots (74mph). Hurricanes form near the equator, and in the central North Pacific usually move toward the west or northwest. During the primary hurricane season of July through September, Hurricanes generally form off the west coast of Mexico and move westward across the Central Pacific. These storms typically pass south of the Hawaiian Islands, and sometimes have a northward curvature near the islands. Late season hurricanes follow a somewhat different track, forming south of Hawaii and moving north toward the islands. Two hurricanes have actually passed through the Hawaiian islands in the past 25 years: Hurricanes Iwa in 1982, and Iniki in 1992, both passing near or over the island of Kauai. These storms caused high surf and wave damage on the south and west shores of all the islands.

The *Windward Oahu Hurricane Vulnerability Study* (Sea Engineering, 1990) indicates that a theoretical model hurricane approaching from the south to southwest could result in deepwater waves 34 feet high with periods of 13 seconds.

4.2 Still Water Level Rise

Storms and large waves produce storm surge and wave setup that results in elevated water levels at the shoreline. During prevailing, annual conditions this water level rise can be on the order of a foot above the tide level. However, during extreme events, the still water level rise can be significantly greater. During Hurricane Iniki, water level in Honolulu Harbor rose approximately 1.5 feet above normal levels. An extreme wave condition can raise the water level on the order of 2.5 feet or more.

4.3 Tsunami

The south shore of Oahu area was inundated by the tsunamis of 1946, 1952, 1957, and 1960 with flood heights of 5, 3, 4, and 6 feet, respectively (Loomis, 1976). These measurements were off the Aina Haina area, about 3 miles east of the project site.

4.4 Flood Insurance Rating

The National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA) produces maps identifying flood hazards and risks. Figure 4-1 shows the flood hazard map for the project properties. The map indicates that the properties are rated as Flood Zone X. Zone X is an area determined to be outside of the 0.2% annual chance floodplain. The map indicates that the reef flat offshore is rates as Zone VE (elevation 12). This designates an area along the coast subject to the 1% flood event and velocity wave action. The flood elevation is 12 feet.

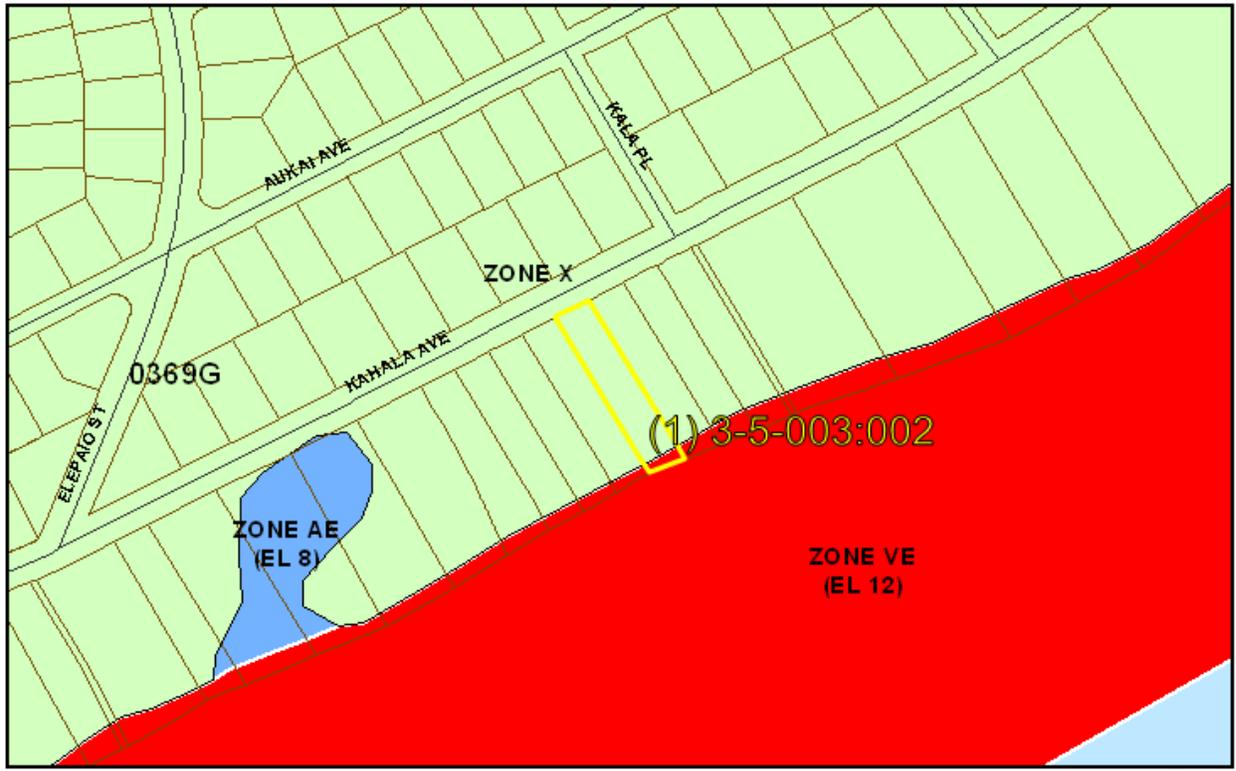


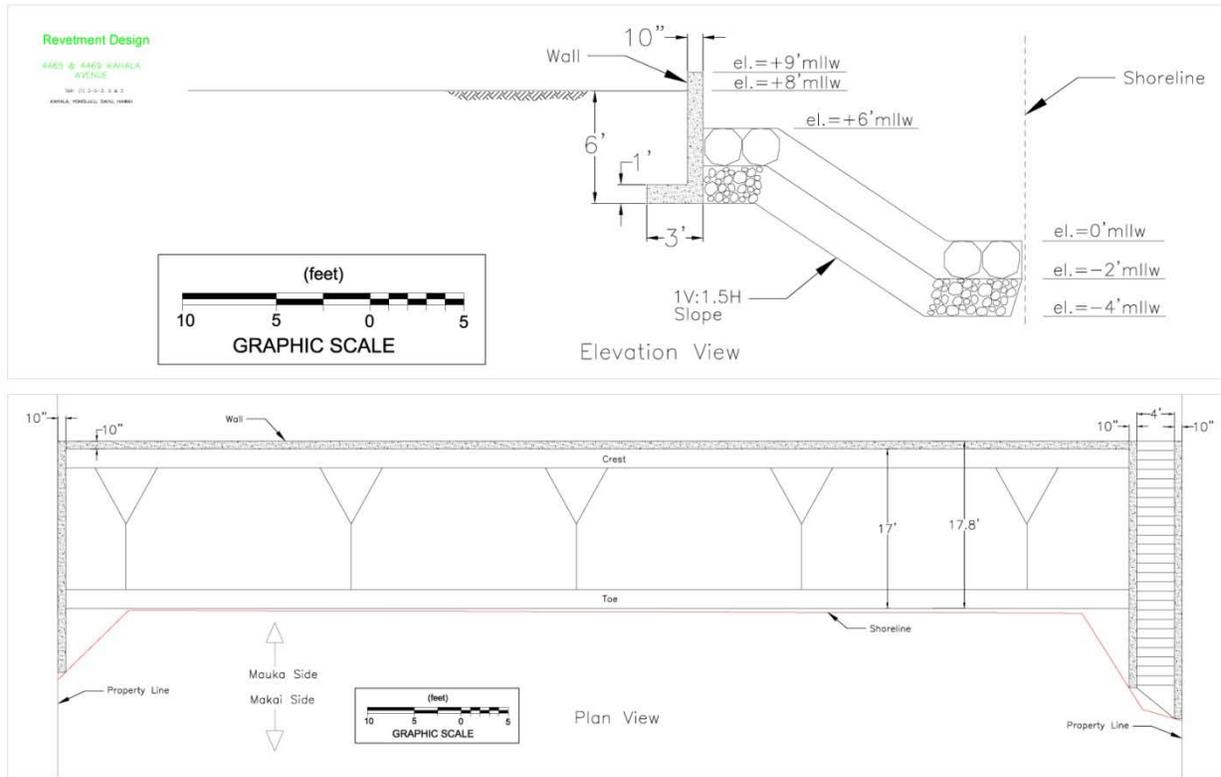
Figure 4-1 Flood hazard designation for the project site

5. PROJECT PLAN

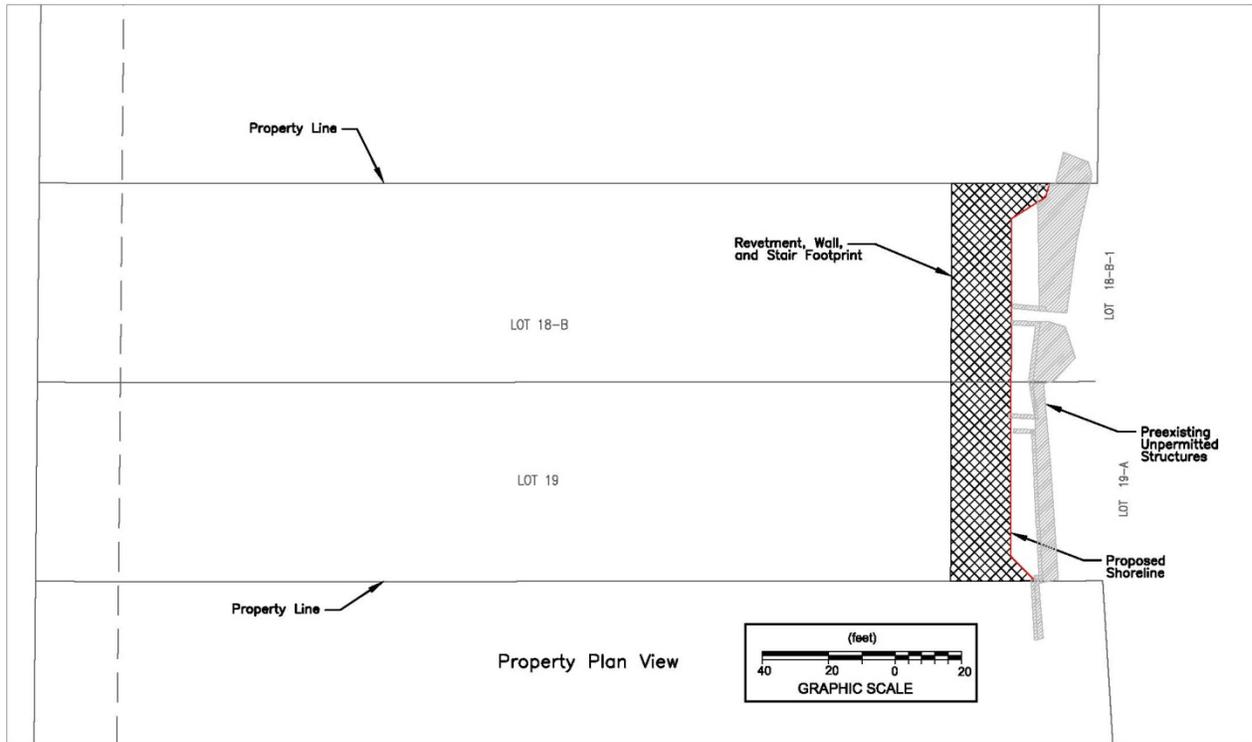
The project plan is to remove the non-permitted revetment and seawall located along the project shoreline, and replace these structures with a properly engineered revetment located behind the certified shoreline. A revetment is a sloping, un-cemented structure built of wave resistant material. The most common method of revetment construction is to place an armor layer of stone, sized according to the design wave height, over an underlayer and filter fabric designed to distribute the weight of the armor layer and to prevent loss of fine shoreline material through voids in the revetment. Properly designed and constructed rock revetments are durable, flexible, and highly resistant to wave damage. One major advantage of revetments is that the rough porous rock surface and relatively flat slope of the structure will tend to absorb wave energy, reduce wave reflection, and help to promote accretion of sand on a sandy beach when sufficient sand volume is available in the littoral environment.

Figure 5-1 presents plan and cross-section drawings of the revetment design, while Figure 5-2 presents a site plan showing the revetment foot print. The revetment will be located entirely behind the proposed certified shoreline location, which is approximately 10-20 feet inland of the location of the pre-existing non-permitted seawall and revetment. The revetment crest and face consist of a single layer of armor stone overlying an underlayer and filter fabric. The revetment crest elevation will be + 6.0 ft MLLW which is slightly below existing grade of +8 ft MLLW. The revetment crest will support a retaining wall rising to an elevation of +9 ft. The revetment crest is two stones wide, or approximately 4 ft. The revetment face has a slope of 1H:1.5V, which is the steepest face recommended by the USACE's Shore Protection Manual. The armor stone should be placed in a keyed-and-fitted configuration to increase stability. The revetment toe is two stones wide (approximately 4 feet) and will be trenched into the hard, limestone substrate. The horizontal footprint of the revetment is 17 feet. The rough face and porosity of the revetment and toe stones should help dissipate wave energy, reduce wave reflection, and potentially assist in the accretion of sand at the structure toe.

Termination at the ends of the revetment should be constructed such that the structure ties into the vertical seawall at the west side of the property, and the revetment on the east side. Proper end termination is important in order to prevent flanking, which occurs when an unprotected section lies next to the revetment, and is eroded to the point where supporting sediments behind revetment are exposed. The termination will consist of a vertical wall extending inland approximately 25 feet from the seaward face of the neighboring structures to the east and west to the proposed retaining wall location at the revetment crest (Figure 5-1). Stairway access to the shore will be built into the termination wall at the east end of the property (Figure 5-1).



5-1 Proposed revetment plan and section drawing



5-2 Site plan showing proposed revetment foot print

6. ALTERNATIVES CONSIDERED

Alternatives to the proposed revetment shore protection include no action, beach nourishment, structure removal, a vertical seawall, geotextile sand-filled bags, or the preferred alternative of a revetment. All alternatives, except the geotextile sand-filled bags, would be located inland of the certified shoreline. The geotextile sand-filled bags would be placed seaward of the existing structures and the certified shoreline location.

6.1 No-Action

The no-action alternative involves leaving the existing non-permitted structures in place. Permits for any development plans for the property would be contingent on acquisition of a Certified Shoreline from the State. A Certified Shoreline, however, cannot be obtained until the unpermitted status of the structures is resolved. This alternative would therefore require that the properties remain undeveloped, or that after-the-fact permits be obtained for the structures. Obtaining an after-the-fact-permit is an uncertain and complex process that would entail the following:

- Initiating a violation procedure with the State to start an official process for dealing with the legal status of the structures, either through After-The-Fact permits or removal;
- Coordination with the State on a certified shoreline location;
- Portions of the existing structures would likely be determined to be encroaching on State land due to shoreline location, and thus might require an easement for the encroachment; and
- Certification of the design of the existing structures by a registered profession engineer.

Successful completion of this process is highly uncertain. It is entirely possible that the existing structures are not certifiable by a professional engineer, or that an After-The-Fact permit will not be granted in the Conservation District, or that the encroachment is not resolvable, eventually requiring removal and replacement of the structures.

No-Action is therefore not a practical solution for this project.

6.2 Beach Nourishment

There is a general lack of sand both at the shoreline and offshore at the project site. With sand available, it is possible that beaches would form naturally in the area. However, sand placed locally at the project site would become part of the larger regional system of nearshore sediment. It is unlikely that sand placed at the subject properties would stay in front of the site unless placement was accompanied by construction of groin structures to minimize sand movement. Beach nourishment in this area is conceivable only on a grand scale as part of a larger regional effort.

In addition to the necessary scale of a successful beach restoration project, finding an appropriate source of beach sand has become a significant problem for projects in the Hawaiian Islands. Offshore sand mining has become a successful alternative to terrestrial sand mining, however, high costs and equipment requirements for the operation only make it feasible for larger beach nourishment operations.

Beach nourishment is therefore not a practical engineering solution for the size and location of this project.

6.3 Structure Removal

This alternative would consist of removing the non-permitted structures, and allowing the shoreline to erode and reach an equilibrium position. Previous long-term erosion rates for the subject property were 1 ft per year, and are not expected to change after the shoreline has equilibrated.

A major problem with this alternative is that it would leave the adjoining seawall to the west, and revetment to the east, exposed to flank erosion and probable failure. The property owners would be liable for this damage. Another problem is that removal of the walls will result in release of dirt and fill material into nearshore waters as the bank erodes. The primary benefit of this alternative is that a small beach might develop within this shoreline reach. The assumption is that there is sufficient sand available to develop a beach in this location. At this time, however, there is only enough sediment for a small, wet sand patch fronting one of the structures.

With the combination of short-term erosion related to equilibration of the coastline after structure removal, continuation of the long-term erosion trend of 1 ft per year, and the prevalence of hard shoreline structures for over 1000 feet on either side, there is no net engineering or coastal benefit to removal of the structures, and there is significant risk to the neighboring properties.

6.4 Seawall

A seawall is a vertical or sloping concrete, cement-rubble-masonry (CRM), or cement-masonry-unit (CMU) wall used to protect the land from wave damage and erosion. A seawall, if properly designed and constructed, is a proven, long lasting, and relatively low maintenance shore protection method. Seawalls also have the advantage of having a relatively small “footprint” on the shore.

The impervious and vertical face of a seawall results in very little wave energy dissipation however. Hence, wave energy is deflected both upward and downward, and also a large amount of wave energy is reflected seaward. Reflected wave energy can inhibit accretion of sand in front of the wall, and thus seawalls are not a suitable alternative if maintaining a beach is desired. The downward energy component can cause scour at the base of the wall, and thus the foundation of a seawall is critical for its stability, particularly on a sandy and eroding shoreline. Ideally, a seawall should be constructed on solid, non-erodible substrate. Seawalls are not flexible structures, and their structural integrity is dependent upon the stability of their foundations.

Figure 6-1 presents cross-section drawings showing a seawall design for the site. The wall design is a CRM gravity seawall founded on solid non-erodable limestone substrate located at the approximate water line. The seawall would rise to an elevation of approximately +9.0 feet MSL, and vertical wing walls would be required to tie into the existing vertical seawall to the west, and the revetment to the east.

Although a seawall would save the property owner approximately 15 feet of useable land, it is not the preferred alternative at this site because of the possible wave reflection and sand scour that may result.

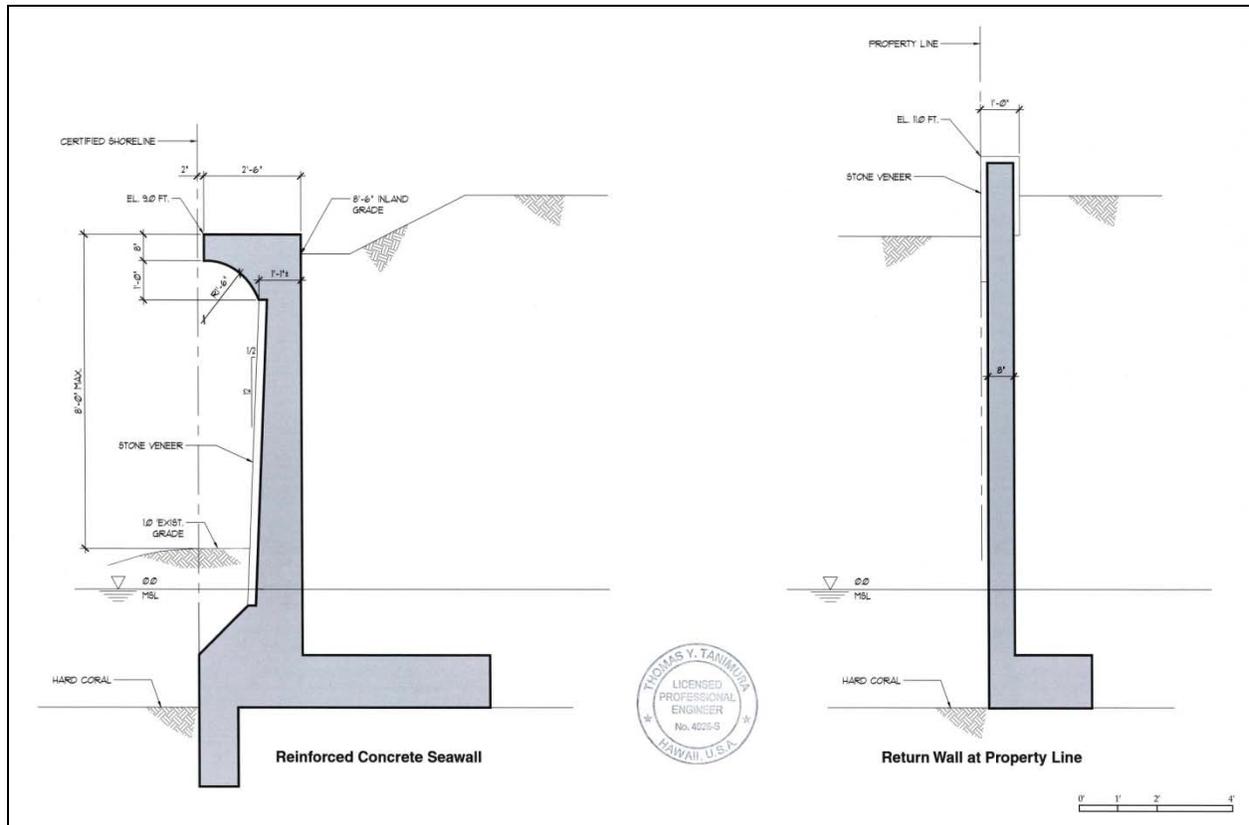


Figure 6-1 Seawall Section Drawings

6.5 Sand Bags

In recent years, the state and counties have granted permission for property owners to place large geotextile sandbags on the beach fronting their property as emergency measures to prevent erosion. While they are expedient, there are several reasons why they are not appropriate as a long-term solution at the project site:

- They are aesthetically un-pleasing.
- They become slippery with algae growth under repeated inundation and are therefore hazardous.
- They are difficult to fill and place, especially in the quantity needed at this site.
- They require beach quality sand as fill material, which is difficult to find in sufficient quantities to construct a sand bag structure.
- Like a revetment, they need to be stacked on a slope, and would therefore require a broad footprint.
- They deteriorate and fail with time and are susceptible to vandalism, meaning that at best they are a temporary solution.

Placing bags in front of the existing wall would require encroachment on State land. Geotextile sand bag deployment at the project site, fronting the existing structures, is not the best engineering solution for the subject property.



6.6 Preferred Alternative – Revetment

As described above, a revetment is a sloping, un-cemented structure built of wave resistant material. The most common method of revetment construction is to place an armor layer of stone, sized according to the design wave height, over an underlayer and filter fabric designed to distribute the weight of the armor layer and to prevent loss of fine shoreline material through voids in the revetment. Properly designed and constructed rock revetments are durable, flexible, and highly resistant to wave damage. One major advantage of revetments is that the rough porous rock surface and relatively flat slope of the structure will tend to absorb wave energy, reduce wave reflection, and help to promote accretion of sand on a sandy beach when sufficient sand volume is available in the littoral environment. Revetments are therefore typically preferred over seawalls in areas where maintenance or future restoration of a sand beach is important. Thus, although a shoreline revetment will occupy 15 more feet of property than a seawall, it is the preferred alternative for this site because it will be more conducive to any future, regional restoration of the historic sand beach that existed in front of the property.

7. PROJECT IMPACTS

The project shoreline is located in the middle of a 2500-foot long segment of shoreline extending east of Black Point. This section of coastline is entirely hardened by vertical seawalls, and the occasional interspersed revetment. There is no sand beach along this stretch of shoreline, only occasional small patches of sand that are mostly covered during higher tide levels. A wide, shallow fringing reef flat significantly limits wave energy reaching the shoreline, and there was no evidence of active sand transport. Removal of the existing non-permitted seawall and revetment and replacement with an engineered revetment located approximately 10 to 20 feet further inland, is therefore not expected to alter existing conditions at the site or have negative impacts on the environment.

Impacts are further addressed in terms of the following significance criteria as presented in *A Guidebook for the Hawaii State Environmental Review Process*, prepared by the State Office of Environmental Quality Control, 1997.

- (1) *“Irrevocable commitment to loss or destruction of any natural or cultural resource.”* There are no significant flora or fauna which would be lost due to removal of the non-permitted structures and construction of a new revetment. No threatened or endangered species would be impacted by the project. No known cultural resources are located on the property.
- (2) *“Curtails the range of beneficial uses of the environment.”* There will be no impact on public access to the shoreline. There will be no significant change in lateral access along the shore. There will be no impact to fishing on the reef flat seaward of the project site.
- (3) *“Conflicts with the state’s long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS.”* State waters will not be impacted by the project in any way.
- (4) *“Substantially affects the economic or social welfare of the community or state.”* The project would have no adverse social or economic impact to the state. The revetment will have some positive economic impact to the applicant by preventing erosion and loss of land.
- (5) *“Substantially affects public health.”* The project has no adverse public health impacts.
- (6) *“Involves substantial secondary impacts.”* The project will have no impact on public services or facilities.
- (7) *“Involves a substantial degradation of environmental quality.”* The project will have no significant adverse environmental impacts nor will it degrade environmental quality. It will not degrade water quality, nor impact marine flora and fauna. The proposed revetment is visually consistent with the existing protected shore on both sides of the project site.
- (8) *“Has cumulative impacts.”* The revetment would be a stand-alone project, with no cumulative impacts or commitment for larger actions.



- (9) *“Substantially affects a rare, threatened, or endangered species or its habitat.”* The affected environment will be unchanged by the project.
- (10) *“Detrimentially affects air or water quality or ambient noise levels.”* No debris, petroleum products, or other construction-related substances or materials will be allowed to flow, fall, leach or otherwise enter the coastal waters. All construction material will be free of contaminants or pollutants. Best Management Practices will be adhered to during construction to minimize environmental pollution and damage. There will be some additional noise above ambient during construction resulting from equipment operation (trucks, back hoe, concrete operations).
- (11) *“Affects or is likely to suffer damage by being in an environmentally sensitive area such as a flood plain, tsunami zone, beach or erosion prone area, or coastal waters.”* The revetment may be subject to prevailing wave conditions at the shoreline, particularly during summer season high surf or Kona storms. The revetment will provide erosion and storm wave protection. It will not alter erosion or coastal processes because it is in the middle of 2500 feet of shoreline hardened by vertical seawalls and the occasional revetment. If a shoreline protection structure is not maintained at the subject property, then both the subject property and the abutting properties may be affected by erosion.
- (12) *“Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.”* Project site scenery will remain unchanged.
- (13) *“Requires substantial energy consumption.”* No significant energy would be expended by construction of the revetment, nor would it entail any long-term commitment to energy use.



8. REFERENCES

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