DEPARTMENT OF PLANNING AND PERMITTING
KA ʻOIHANA HOʻOLĀLĀ A ME NĀ PALAPALA ʻAE
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAIʻI 96813
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HOPE PO'O

July 17, 2023

2023/ED-5(ST)

Ms. Mary Alice Evans, Director
State of Hawaii
Office of Planning and Sustainable Development
Environmental Review Program
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Ms. Evans:

SUBJECT:	Chapter 25, Revised Ordinances of Honolulu Draft Environmental Assessment (DEA)
Project:	56-155 Kamehameha Highway Residences
Applicants:	Linda M. Donoso and Malaekahana LLC
Agent:	Environmental Risk Analysis (Rachel Okoji)
Location:	56-155 Kamehameha Highway - Malaekahana
Tax Map Key:	5-6-001:033

With this letter, the Department of Planning and Permitting hereby transmits the DEA and the Anticipated Finding of No Significant Impact for the 56-155 Kamehameha Highway Residences Project, located at in Maleakahana, Oahu, for publication in the July 23, 2022, edition of *The Environmental Notice*.

We have uploaded an electronic copy of this letter, the publication form, and the DEA to your online submittal site.

Should you have any questions, please contact Steve Tagawa, of our Land Use Approval Branch, at (808) 768-8024 or via email at stagawa@honolulu.gov.

Very truly yours,

for Dawn Takeuchi Apuna
Director

PROJECT DESCRIPTION:

The Project involves constructing 5 new 2-story, and 2 new 1-story modular single-family dwellings, driveways, individual septic systems and leach fields, on a 1.47-acre shoreline parcel in R-5 Residential District. The site is accessed by a private road off Kamehameha Highway, which contains an existing 2-story dwelling which will remain. Another dwelling built in the 1940s, has since been removed. Ownership of the site has been divided into eight condominium property regime (CPR) units pursuant to Chapter 514B, Hawaii Revised Statutes. Because the City does not recognize CPR units [which have not been subdivided pursuant to Chapter 22, Revised Ordinances of Honolulu (ROH)], the Project must be evaluated collectively, under a single SMA application. No construction in proposed in the shoreline setback. The Project triggers the preparation of an EA under Chapter 25, ROH. Upon the acceptance of a Final EA and a Finding of No Significant Impact, the SMA Use Permit application can be accepted for processing, with decision-making by the City Council.

NON-CHAPTER 343 DOCUMENT
PUBLICATION FORM
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Project Name: 56-155 Kamehameha Highway Residences Project

Applicable Law: Chapter 25, Revised Ordinances of Honolulu (ROH), Special Management Area (SMA)

Type of Document: Draft Environmental Assessment (EA) and Anticipated Finding of No Significant Impact (AFONSI)

Island: Oahu

District: Council District 2; Ko'olau Loa Sustainable Communities Plan Area

TMK: (1) 5-6-001:033

Permits Required: SMA Use Permit; Development Permits

Applicants or Proposing Agency: Linda M. Donoso, and
Malaekahana LLC
56-155 Kamehameha Highway
Kahuku, Hawaii 96731

Approving Agency or Accepting Authority: City and County of Honolulu
Department of Planning and Permitting
Contact: Steve Tagawa
stagawa@honolulu.gov
(808) 768-8024
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Consultant: c/o Environmental Risk Analysis, LLC
905 A Makahiki Way
Honolulu, Hawaii 96826
rachelokoji@enviroriskhawaii.com
(808) 425-0968

Status: Draft EA - Public Review and Comment

Project Summary: *Construction of five new 2-story, and two 1-story modular single-family dwellings, driveways, individual septic systems w/leach fields, on a 1.47-acre shoreline parcel in R-5 Residential District. An existing 2-story dwelling will remain; access to the site is by a private road off Kamehameha Highway. Another dwelling built in the 1940s, has since been removed. Ownership of the site has been divided into eight condominium property regime (CPR) units pursuant to HRS, Chapter 514B. Because the City does not recognize CPR units (which have not been subdivided pursuant to Chapter 22, Revised Ordinances of Honolulu (ROH)), the Project must be evaluated collectively under a SMA Major application. No construction in proposed in the shoreline setback. The Project triggers the preparation of an EA*

under Chapter 25, ROH. Upon the acceptance of a Final EA and a FONSI determination by DPP, the SMA Use Permit application can be accepted. Decision-making is by the City Council.

Reasons Supporting Determination: Please refer to the analysis in the Draft EA.

DRAFT
ENVIRONMENTAL ASSESSMENT

56-155 Kamehameha Highway
Kahuku, Hawaii 96731
Tax Map Key (1) 5-6-001:033

Applicant:
Ms. Linda Donoso
Malaekahana LLC

Approving Agency:
City and County of Honolulu
Department of Planning and Permitting

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DRAFT
ENVIRONMENTAL ASSESSMENT

56-155 Kamehameha Highway
Kahuku, Hawaii 96731
Tax Map Key (1) 5-6-001:033

Prepared by:
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawaii 96826

Prepared for:
Ms. Linda Donoso
Malaekahana LLC
56-155 Kamehameha Highway
Kahuku, Hawaii 96731

Applicant:
Linda Donoso
Malaekahana LLC

Approving Agency:
City and County of Honolulu
Department of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

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Acronyms and Abbreviations

BMPs	Best Management Practices
BWS	Board of Water Supply
CDP	Census Designated Place
Census	U.S. Census Bureau
CFR	Code of Federal Regulations
Cl^-	chloride
dBA	decibels
EA	Environmental Assessment
EAL	Environmental Action Level
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Response Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
HAR	Hawaii Administrative Rules
HICRIS	Hawaii Cultural Resource Information System
HDOH	Hawaii State Department of Health
HDOT	Hawaii Department of Transportation
HEER	Hazard Evaluation and Emergency Response
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HRS	Hawaii Revised Statutes
LUCs	Land Use Commission
LUO	Land Use Ordinance
mg/l	milligrams per liter
NAAQS	National Ambient Air Quality Standards
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
PM2.5	particulate matter at 2.5 microns or less
ROH	Revised Ordinances of Honolulu
SEL	sound exposure levels
SF	square feet
SHPD	Hawaii State Historic Preservation
TMK	tax map key
UH	University of Hawaii at Manoa
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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Executive Summary

This Environmental Assessment (EA) was conducted to assess potential environmental impacts associated with the demolition of an existing single-family residence and construction of new single-family residences on property known as Tax Map Key (TMK) 5-6-001:033 in Kahuku, Hawaii on the island of Oahu. The EA was prepared to identify, document, and address potential environmental impacts associated with the Proposed Action. This EA is prepared pursuant to the Special Management Area (SMA) Ordinance, Chapter 25, Revised Ordinances of Honolulu (ROH) which requires that an EA be prepared for an SMA Use Permit in accordance with the procedural steps set forth in State Environmental Impact Statement (EIS) law, Chapter 343, Hawaii Revised Statutes (HRS).

The EA examines two alternatives, the Proposed Action, and the No Action Alternative.

- Alternative I – No Action Alternative
- Alternative II –The Proposed Action – the demolition of an existing single-family residence and construction of new single-family residences.
- Alternative III – Expanded footprints of the proposed single-family residences.

The following potentially impacted environments were evaluated in this EA:

- Topography and Geology
- Soils
- Natural Hazard
- Flora and Fauna
- Water Resources
- Climate and Air Quality
- Noise
- Solid Wastes
- Land Use Considerations and Zoning
- Archaeological and Cultural Considerations
- Circulation and Traffic
- Social Factors and Community Identity
- Economic Considerations
- Recreational and Public Facilities
- Visual and Aesthetic Resources
- Infrastructure Systems and Utilities

The Site is zone R-5 Residential District parcel and is comprised of eight condominium property regime (CPR) parcels. The parcels are owned by multiple parties, as described in Section 2.

The previous SMA permit (No. 2016/SMA-24) was approved by the Department of Planning and Permitting on April 16, 2016, and covered the construction of six new single-family dwellings. While valid, the work proposed by the SMA Minor permits will not be performed under those permits, and instead will be covered by the SMA Major permit for which this EA has been developed.

Findings

- A Finding of No Significant Impact (FONSI) is anticipated based on the environmental and societal factors considered under the Proposed Action and the No-Action Alternative.

- While potential impacts to Soil, Air Quality, Noise and Circulation and Traffic are possible during construction, implementing best management practices (BMPs) would reduce these impacts to less than significant levels.

- Beneficial impacts to Land Use Considerations and Zoning are anticipated as the structure would provide additional housing at the property and the new structures would be built in accordance with current building codes with shoreline protection and flood inundation in mind.

- Under Alternative I, the No Action Alternative, Land Use Considerations and Zoning would incur a negative impact as full use of the land will not be realized and condition of the structure at the Site would continue to degrade. Additional negative impacts are anticipated to Social Factors and Community Identity under Alternative I.

- Under Alternative III, while the land would be used to provide housing, additional negative impacts to the environment would be observed. This alternative was not carried forward for consideration due to the increased potential harm to the environment and construction costs.

SECTION 1 INTRODUCTION AND SUMMARY

1.1 Scope and Authority

This Environmental Assessment (EA) is prepared pursuant to the Special Management Area (SMA) Ordinance, Chapter 25, Revised Ordinances of Honolulu (ROH) which requires that an EA be prepared for an SMA Use Permit in accordance with the procedural steps set forth in State Environmental Impact Statement (EIS) law, Chapter 343, Hawaii Revised Statutes (HRS). The intent of the document is to ensure that systematic consideration is given to the environmental consequences of the Proposed Action. The Proposed Action is the demolition of an existing single-family residence and construction of new single-family residences on a condominium property regime (CPR) parcel. A Chapter 343, HRS EA is not required because the project is not requiring a shoreline setback variance, however and is subject to Chapter 205A, Coastal Zone Management regulations and is a Chapter 25, ROH, document.

The previous SMA permit (No. 2016/SMA-24) approved by the Department of Planning and Permitting on April 16, 2016, covered the construction of six new single-family dwellings. The previous SMA Minor permit did not require an EA document, as the proposed work was under the $500,000 threshold differentiating between a major and minor permit.

1.2 Project Information

Project Name:	56-155 Kamehameha Highway Residences 56-155 Kamehameha Highway Kahuku, Hawaii 96731 Tax Map Key 5-6-001:033
Applicant:	Ms. Linda Donoso 56-155 Kamehameha Highway Kahuku, Hawaii 96731 & Malaekahana LLC 56-155 Kamehameha Highway Kahuku, Hawaii 96731
Agent:	Environmental Risk Analysis, LLC 905A Makahiki Way Honolulu, Hawaii 96826 Contact: Russell Okoji (808) 425-0968
Approving Agency:	City and County of Honolulu Department of Planning and Permitting 650 South King Street Honolulu, Hawaii 96813

Project Location:	56-155 Kamehameha Highway (Figure 1) Kahuku, Hawaii 96731
Tax Map Key No.:	5-6-001:033 (Figure 2)
Total Affected Area:	1.47 acres
Existing Land Use:	Portions of the property are developed as residential, other portions are undeveloped.
State Land Use Classification:	Urban
State Special District:	N/A
Land Use Ordinance Zoning:	Residential (R-5)
Land Use Ordinance Special District:	Special Management Area
Flood Zone:	Flood Insurance Rate Map Zone X
Land Owner:	Linda Donoso & Malaekahana LLC

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Site Location Map** FIGURE NUMBER: **1**

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Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **TMK Map** FIGURE NUMBER: **2**

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SECTION 2 PROJECT DESCRIPTION

2.1 Project Description

This EA has been prepared to satisfy the requirements of HRS Chapter 343. The purpose of the Proposed Action is to demolish an existing single-family residence structure and construct seven single-family residences.

The proposed development site (TMK 5-6-001:033) encompasses approximately 1.47 acres of land situated in Kahuku on the north side of the Island of Oahu. Currently, this location is zoned residential. The lot is split between into eight CPR lots (Figures 3 and 4). Figure 5 presents the Proposed Action.

CPR	Unit Number	Owner	Lot Size
0001	1	Donoso, Linda M Trust	0.713
0002	2	Donoso, Linda M Trust	0.1938
0003	3	Sorace, Anthony F	0.1321
0009	4	Sananikone, Puangkom	0.1391
0010	5	Malaekahana LLC	0.1265
0011	6	Donoso, Linda M Trust	0.1467
0012	7	Malaekahana LLC	0.1449
0013	8	Malaekahana LLC	0.1449

Current structures on the property are as follows:

CPR	Unit Number	Existing Structures
0001	1	3 bedroom/3 bath single-family home (Figures 6-7)
0002	2	1 bedroom/1 bathroom single-family home
0003	3	Wood storage structure
0009	4	Wood storage structure
0010	5	Wood storage structure
0011	6	3 bedroom/2 bath single-family home
0012	7	Wood storage structure
0013	8	Wood storage structure

The owners are proposing the following projects:

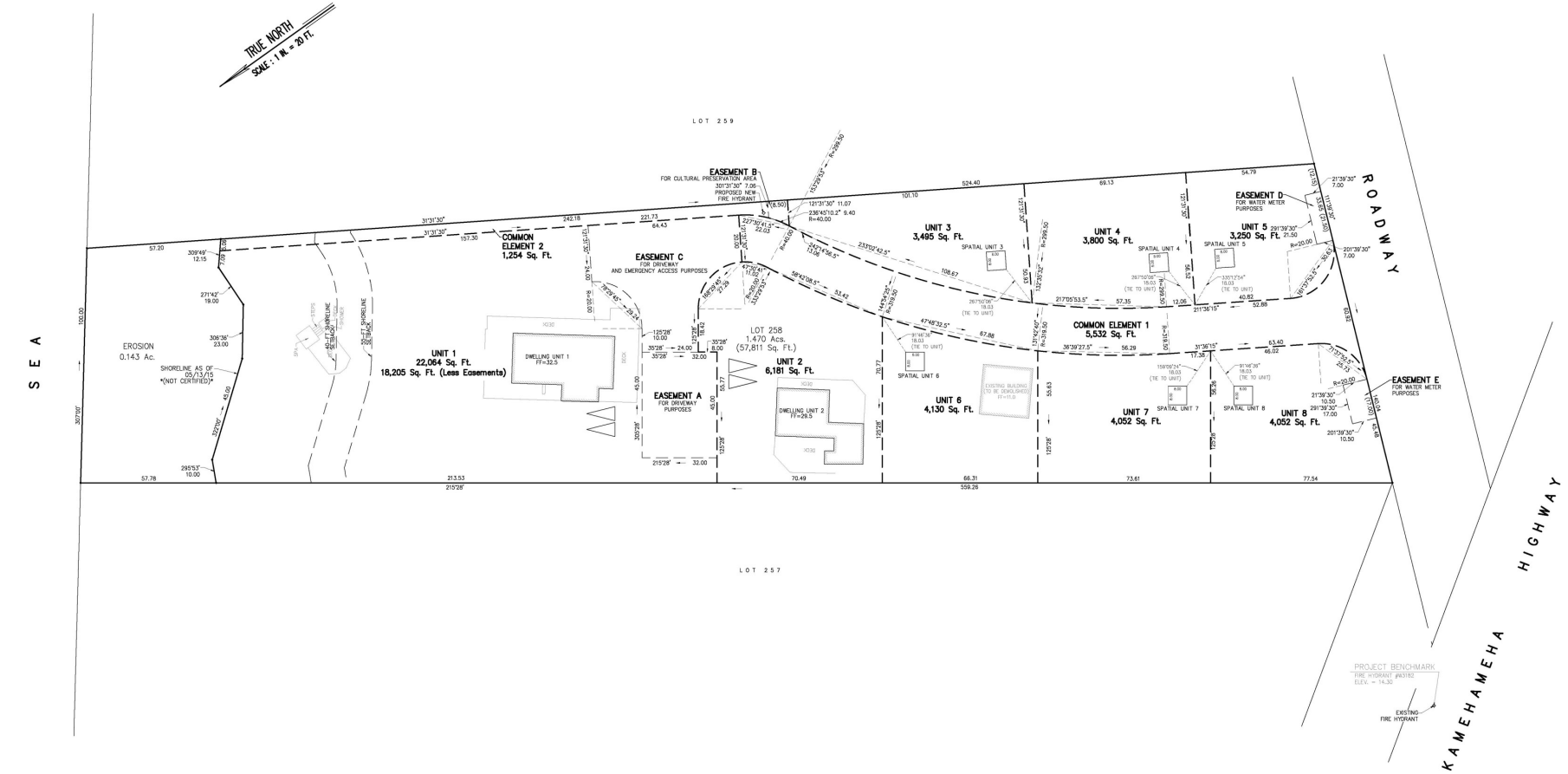
CPR	Unit Number	Proposed Work	Proposed Living Space SF	Proposed Bedrooms	Figures
0001	1	NO WORK	0	0	
0002	2	Construction of new structure	2056	3	8-12
0003	3	Construction of new structure	360	1	13, 15
0009	4	Construction of new structure	360	1	14, 15
0010	5	Construction of new structure	3224	5	16-18

0011	6	Demolition of existing structure & Construction of new structure	1748	3	19-23
0012	7	Construction of new structure	1589	3	24-26
0013	8	Construction of new structure	3224	5	27-29

The objective of this project is to better utilize the land, provide housing which has been carefully designed to withstand potential flood inundation by the 1% Annual Chance Flood and rising sea levels, and protect the shoreline.

2.2 Construction Time Frame and Estimated Project Construction Costs

The construction period is estimated to be from 2023 through 2025. The total budget for these improvement activities is estimated at greater than $3.5 million dollars. All funding for the project will be through private sources.



NOTES

1. DASHED LINES REPRESENT DIVISION OF LIMITED COMMON ELEMENT AREAS APPURTENANT TO THE UNITS AND DO NOT REPRESENT SUBDIVIDED LOTS.
2. "UNITS 3 THROUGH 8, INCLUSIVE" ARE NOT STRUCTURES BUT ARE A SPATIAL PORTION OF THE PROJECT CONSISTING OF A CUBE, SUCH MAY BE REPLACED BY A STRUCTURE IN ACCORDANCE WITH THE DECLARATION OF CONDOMINIUM PROPERTY REGIME.
3. AREAS OF EASEMENTS
   EASEMENT A FOR DRIVEWAY PURPOSES = 1,440 Sq. Ft.
   EASEMENT B FOR CULTURAL PRESERVATION AREA = 75 Sq. Ft.
   EASEMENT C FOR DRIVEWAY AND EMERGENCY ACCESS PURPOSES = 2,419 Sq. Ft.
   EASEMENT D FOR WATER METER PURPOSES = 151 Sq. Ft.
   EASEMENT E FOR WATER METER PURPOSES = 179 Sq. Ft.

JOHN R. K. AKINA
LICENSED PROFESSIONAL LAND SURVEYOR
No. 16202
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
John R.K. Akina
Exp. 04/30/18

MALAEKAHANA BAY
CONDOMINIUM PROJECT
LOT 258
LAND COURT APPLICATION 1095
AT KAHUKU, KOOLAULOA, OAHU, HAWAII
SCALE: 1 IN. = 20 FT.
APRIL 18, 2017 WALTER P. THOMPSON, INC.

Not to scale

Environmental Risk Analysis

PROJECT NAME:

56-155 Kamehameha Highway
Kahuku, Hawaii 96731
TMK 5-6-001:033

FIGURE TITLE:

Alternative II CPR Map

FIGURE NUMBER:

3

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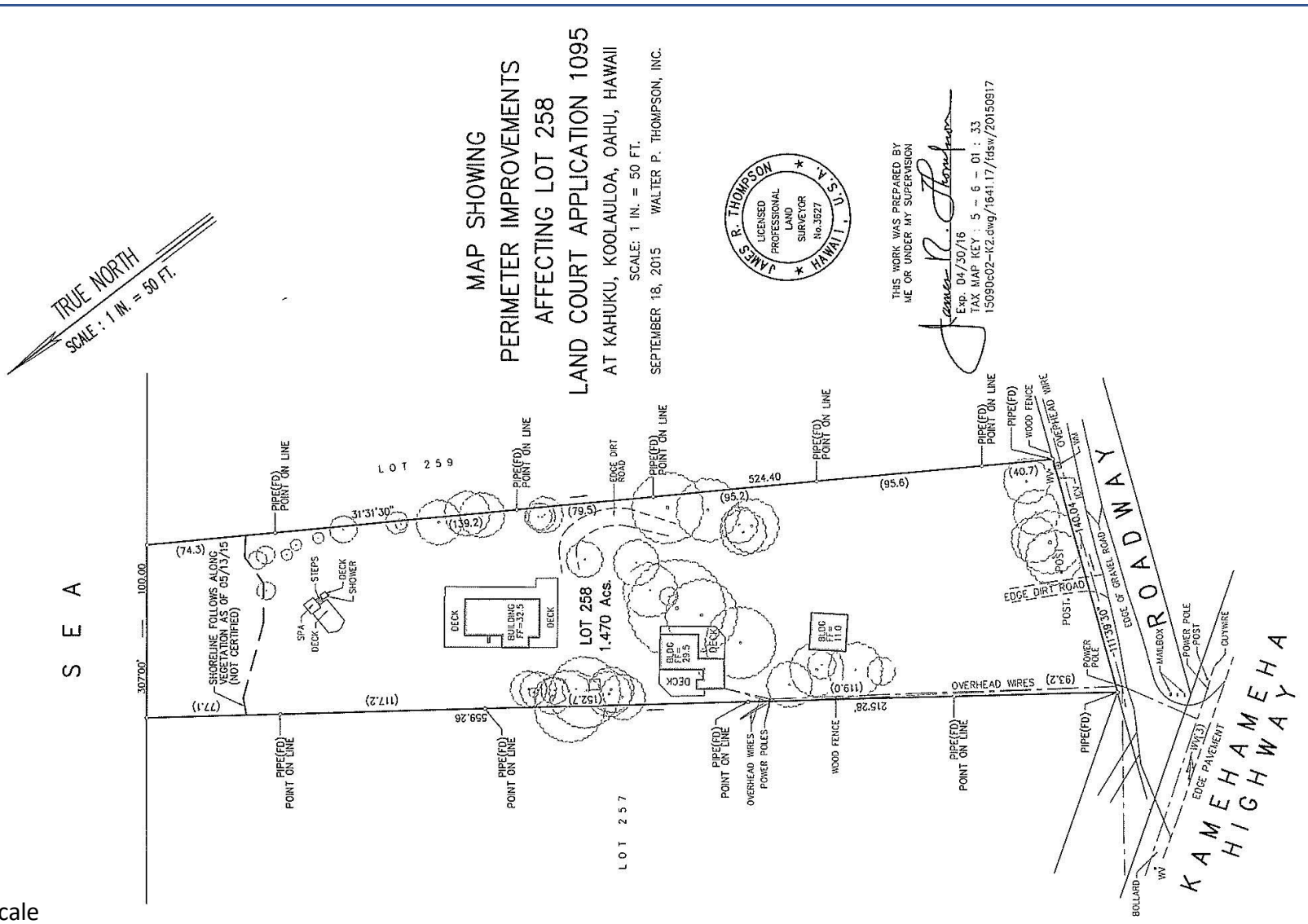

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Current Improvements and Structures Shoreline Map** FIGURE NUMBER: **4**

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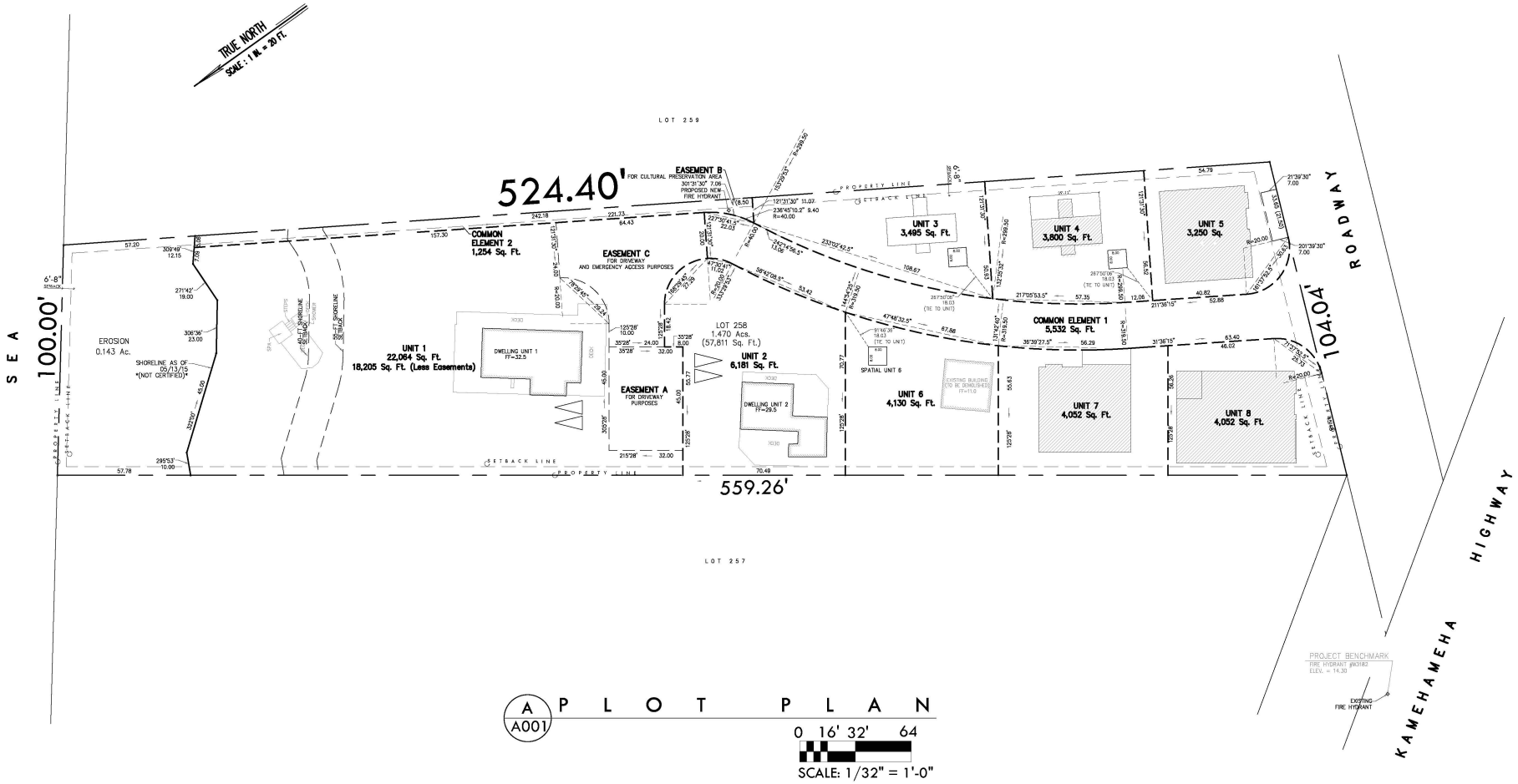

A001 PLOT PLAN

0 16' 32' 64

SCALE: 1/32" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Site Plan** FIGURE NUMBER: **5**

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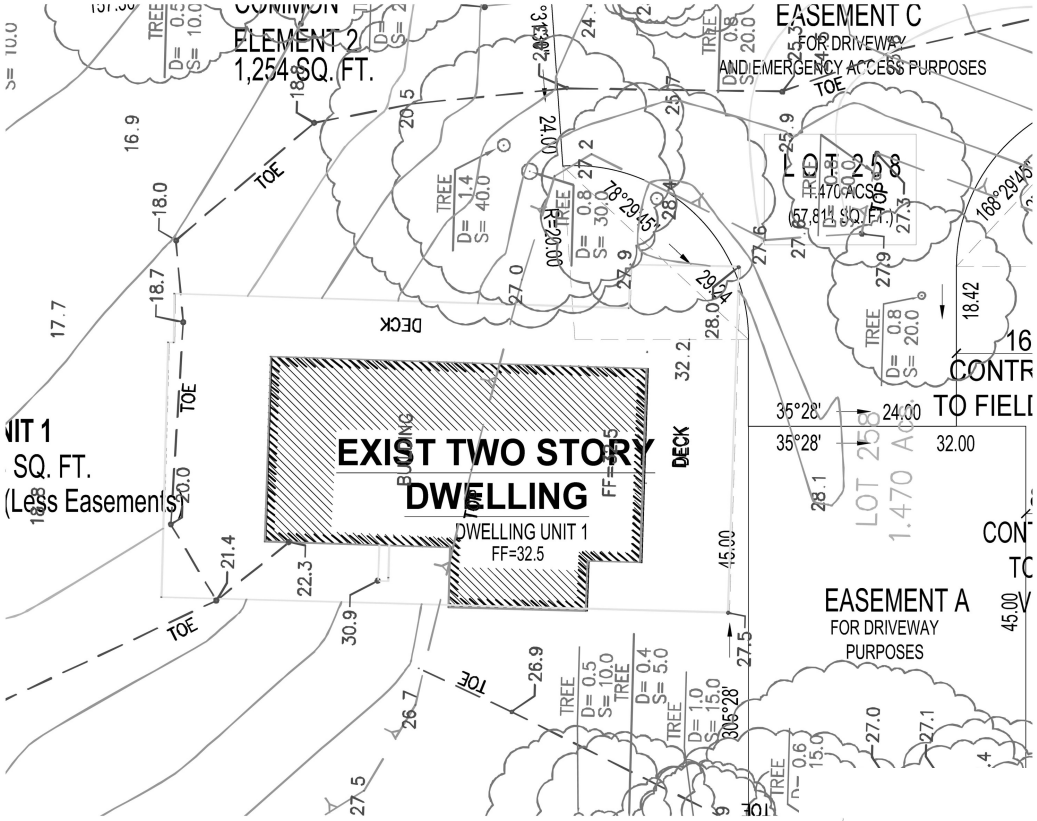
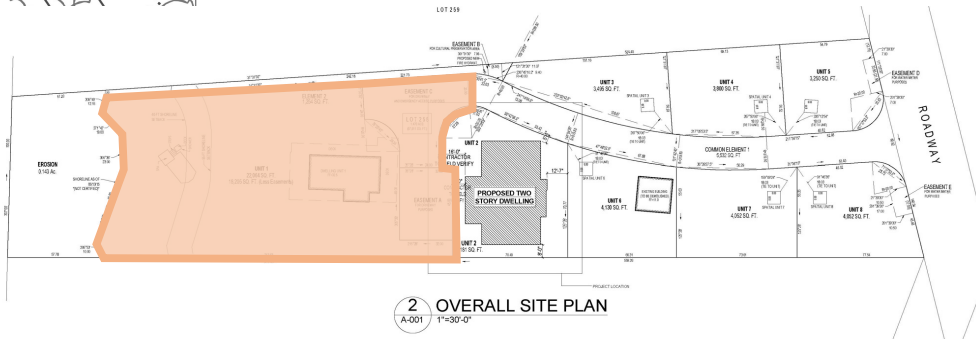


1 A001 ENLARGED SITE PLAN 1/8"=1'-0"



2 A-001 OVERALL SITE PLAN 1"=30'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Lot 1** FIGURE NUMBER: **6**

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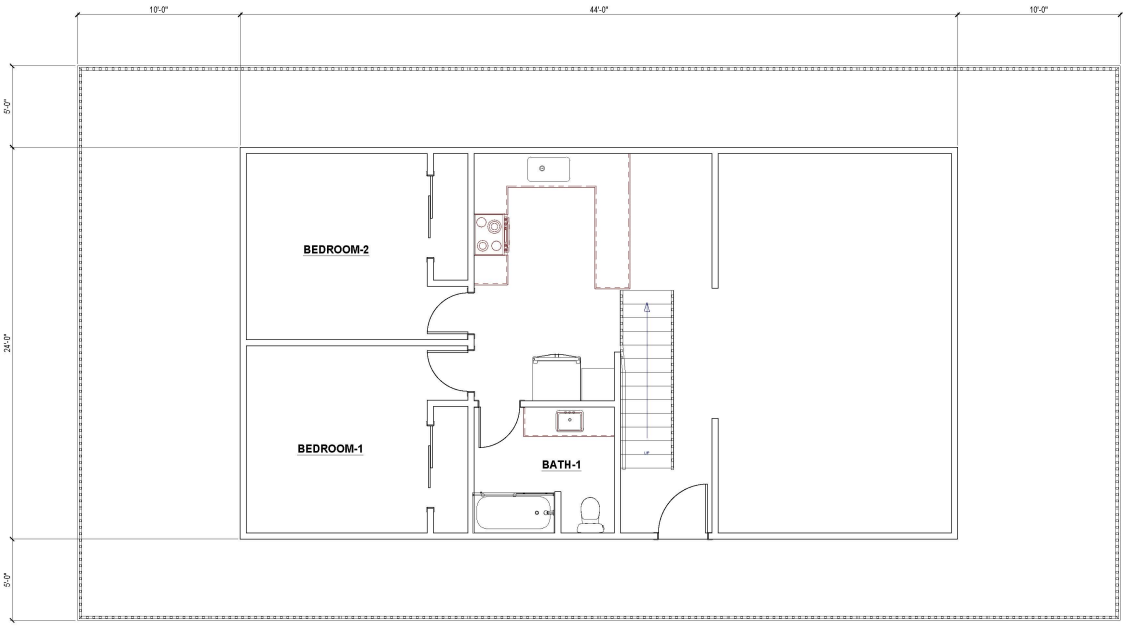
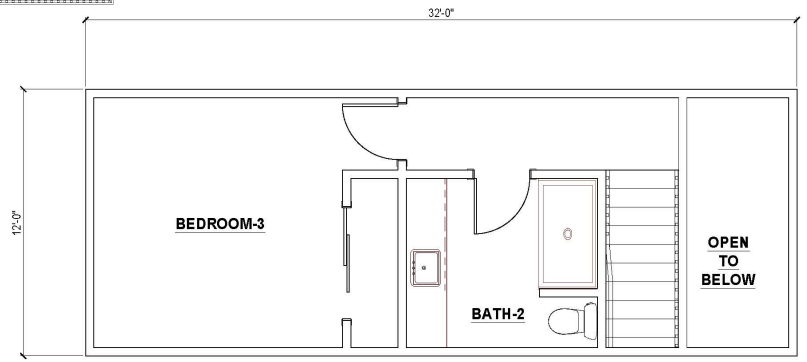


1 A-001 LOWER FLOOR PLAN 1/4"=1'-0"



2 A-001 UPPER FLOOR PLAN 1/4"=1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Lot 1** FIGURE NUMBER: **7**

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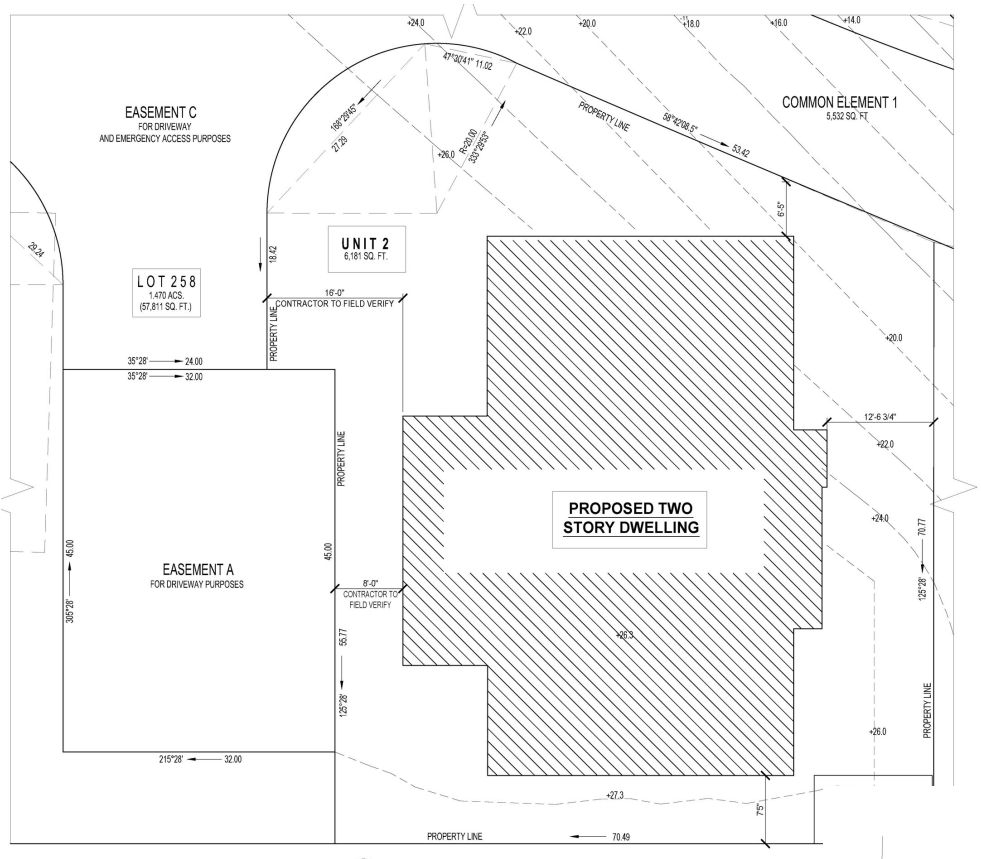
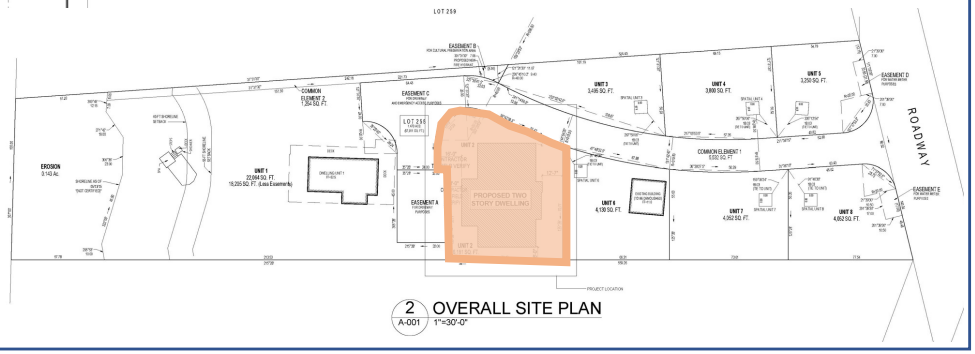


1 A-001 ENLARGED SITE PLAN
1/8"=1'-0"



2 A-001 OVERALL SITE PLAN
1"=30'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 2** FIGURE NUMBER: **8**

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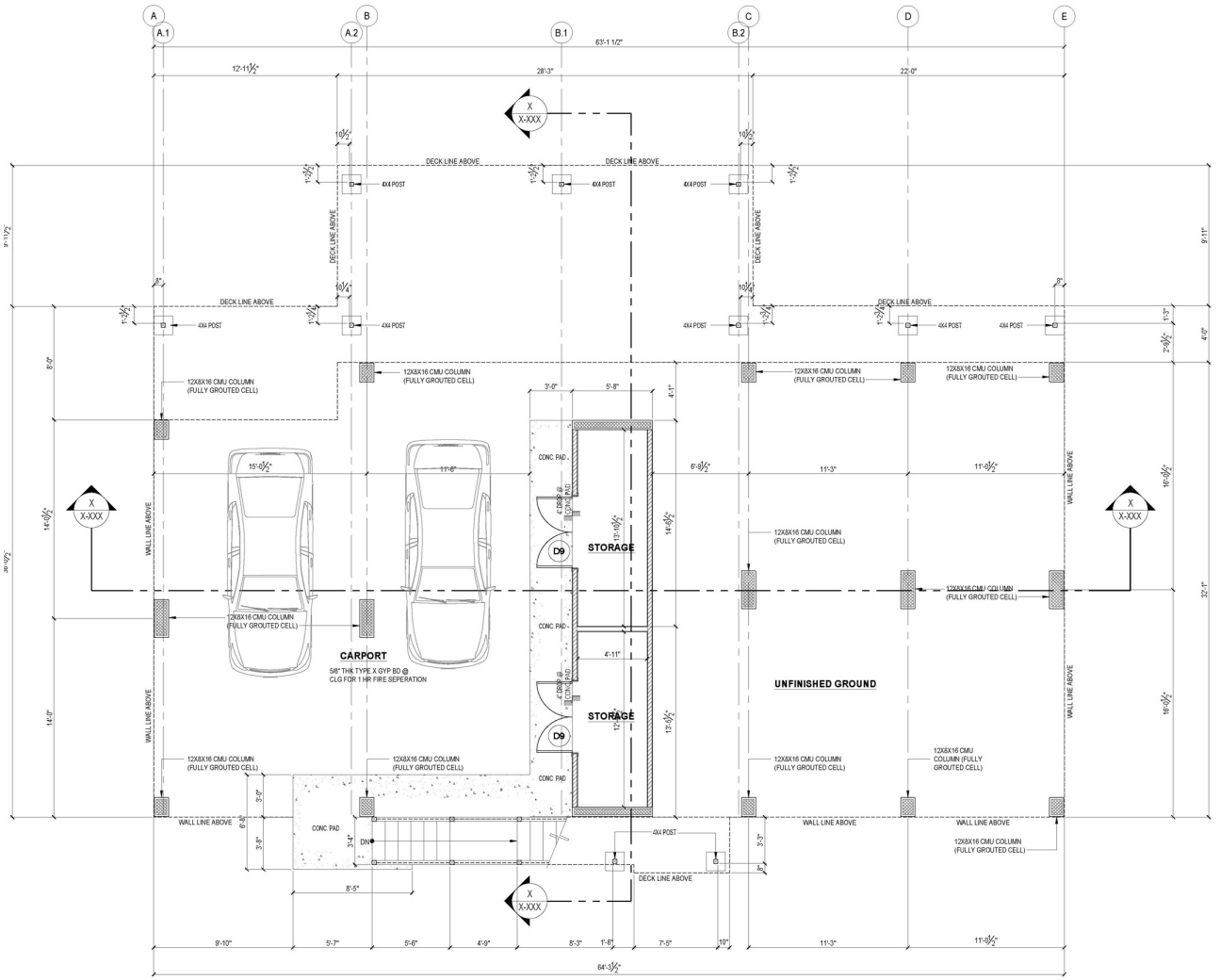

Not to scale

1 A-003 LOWER FLOOR PLAN 1/4"=1'-0"

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 2** FIGURE NUMBER: **9**

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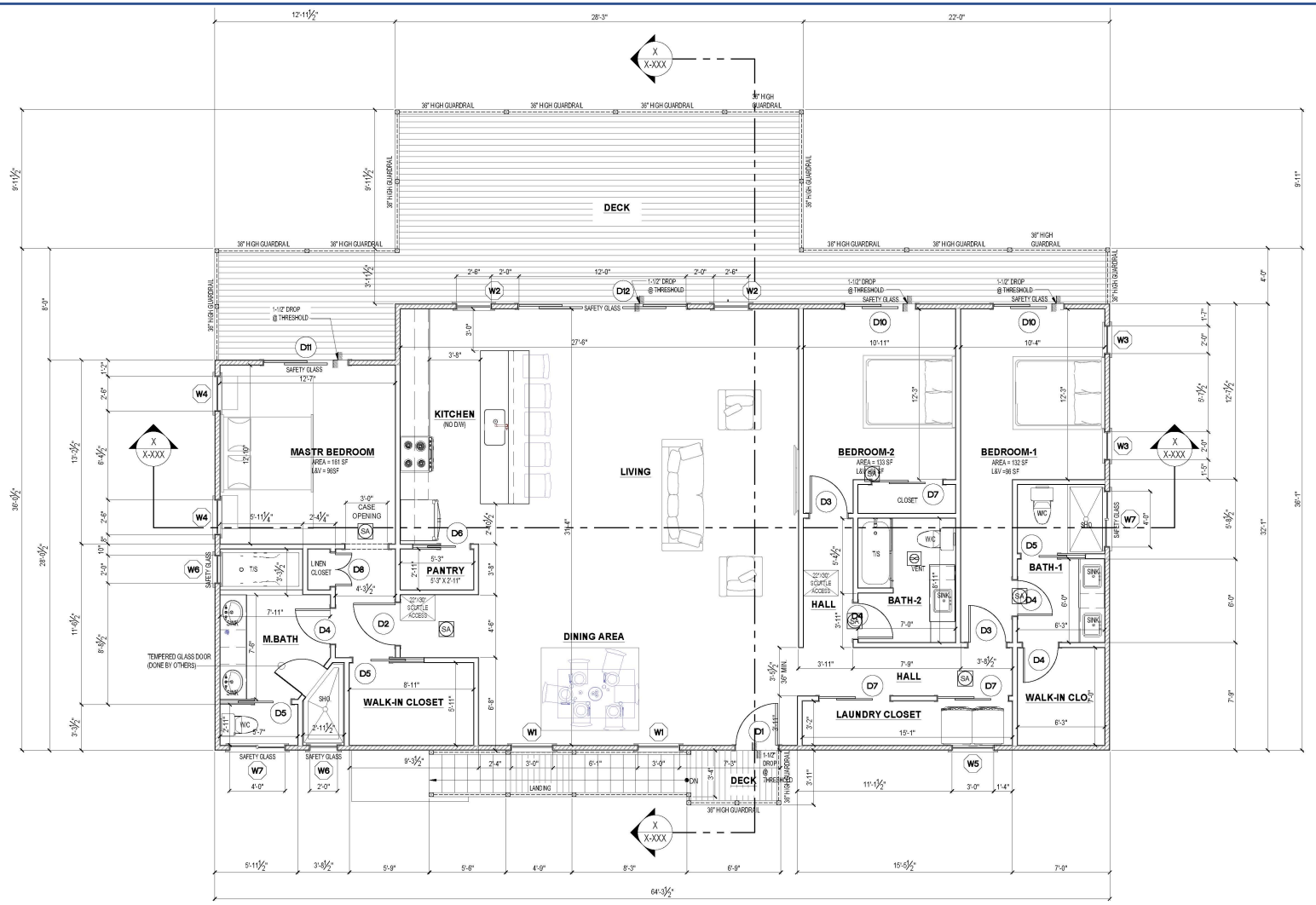

1 A-003 UPPER FLOOR PLAN
1/4"=1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 2** FIGURE NUMBER: **10**

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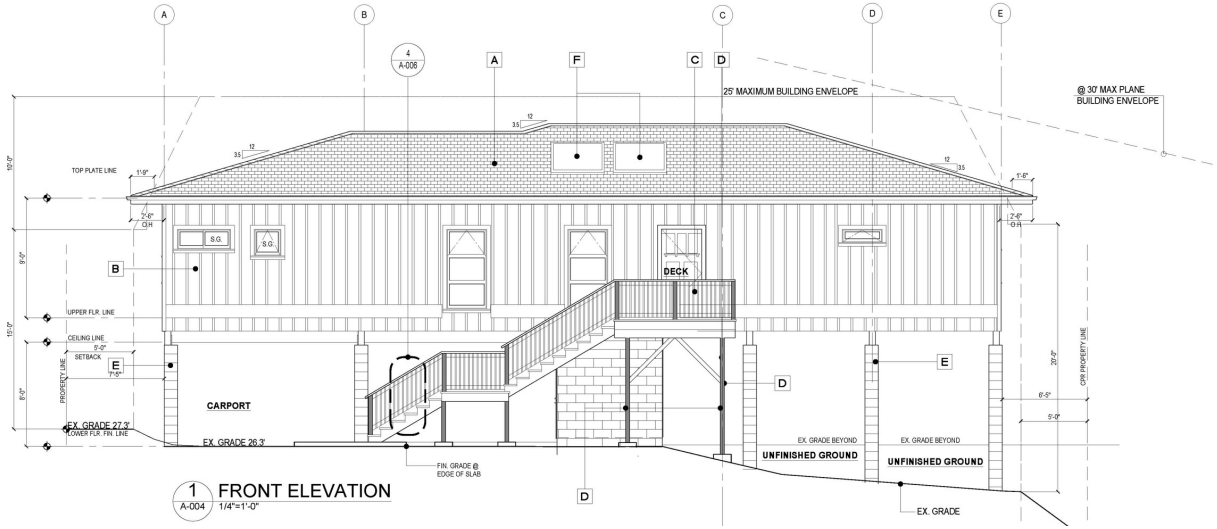
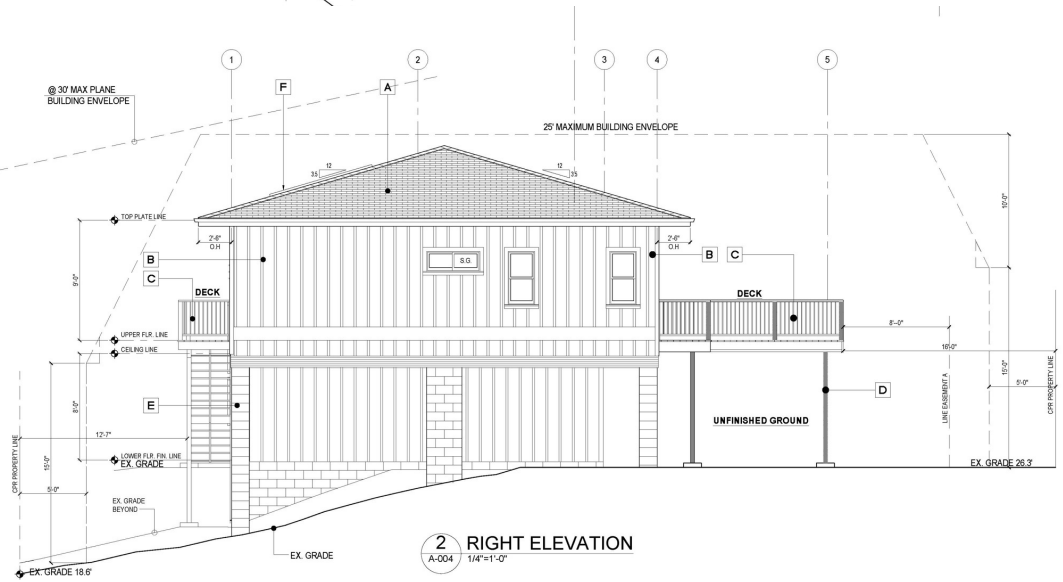


1 A-004 FRONT ELEVATION 1/4"=1'-0"



2 A-004 RIGHT ELEVATION 1/4"=1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 2** FIGURE NUMBER: **11**

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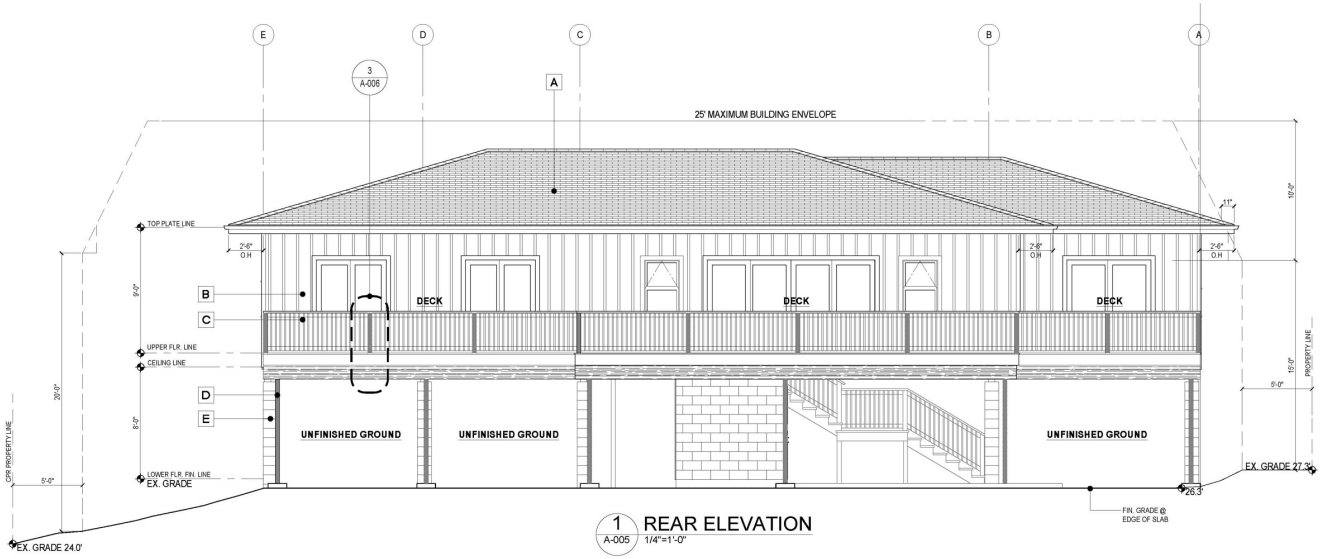
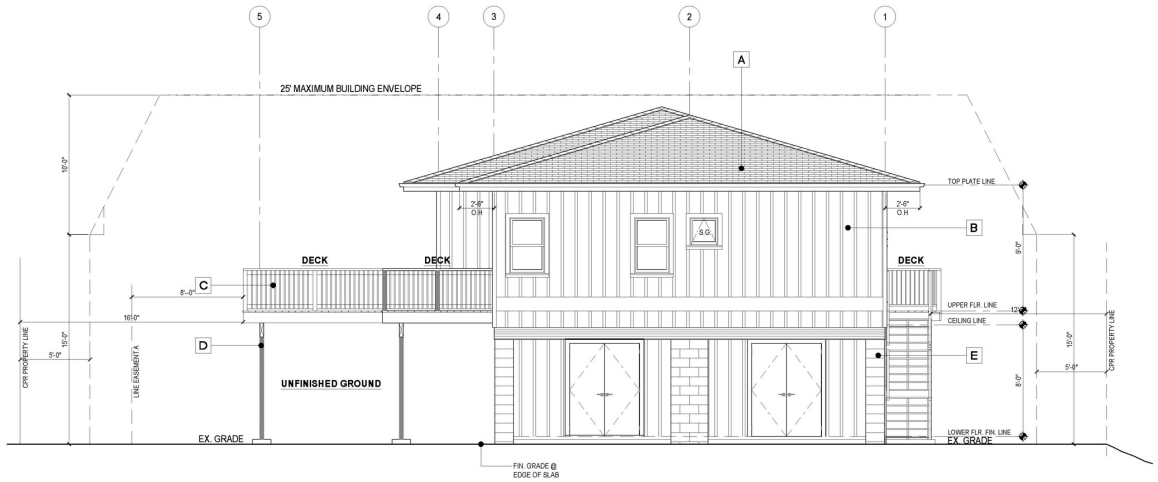


1 A-005 REAR ELEVATION 1/4"=1'-0"



2 A-004 LEFT ELEVATION 1/4"=1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE:	**Alternative II Lot 2**
		FIGURE NUMBER:	**12**

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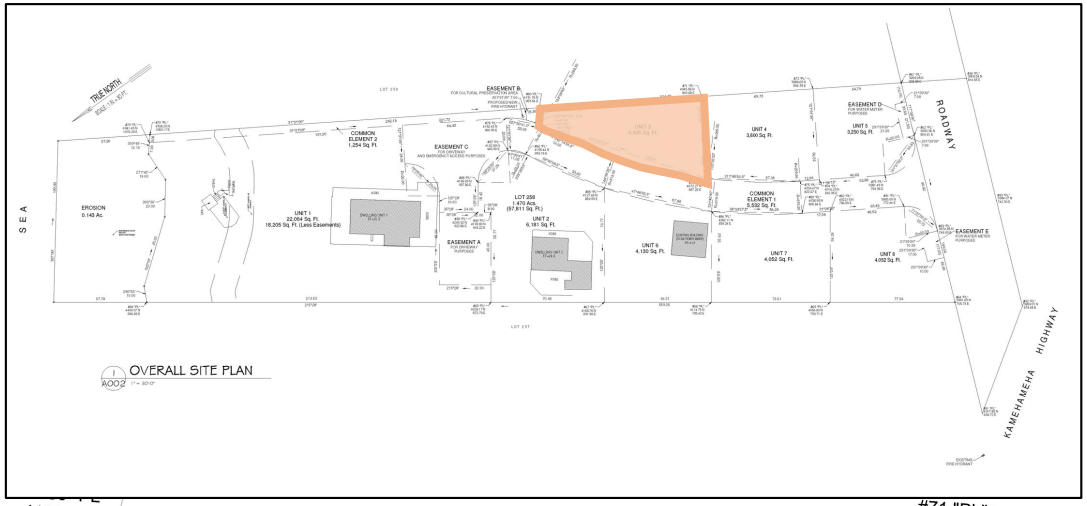

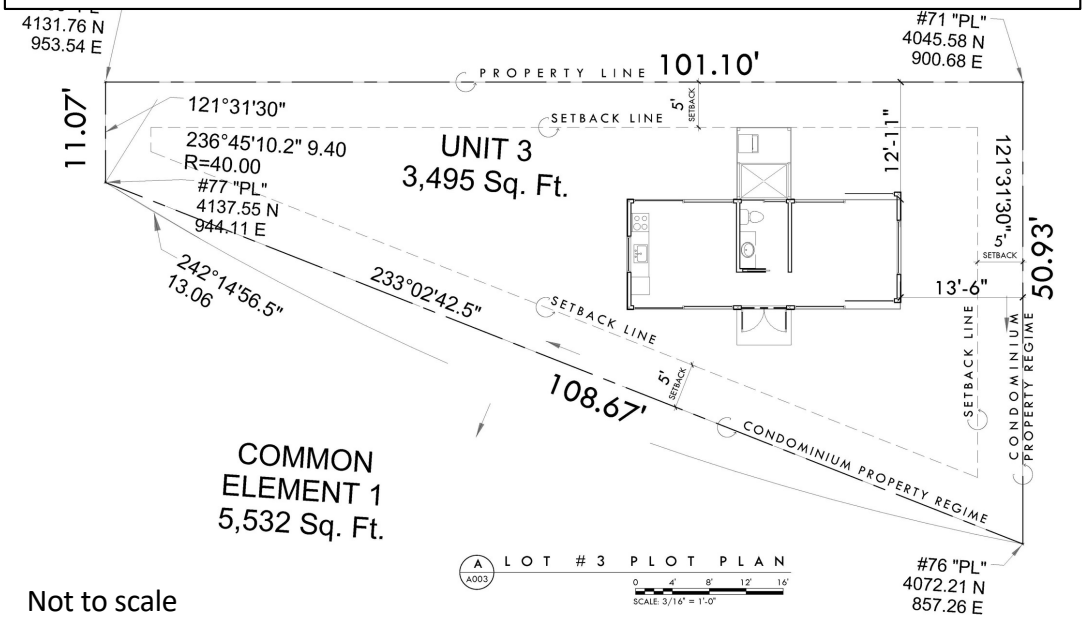

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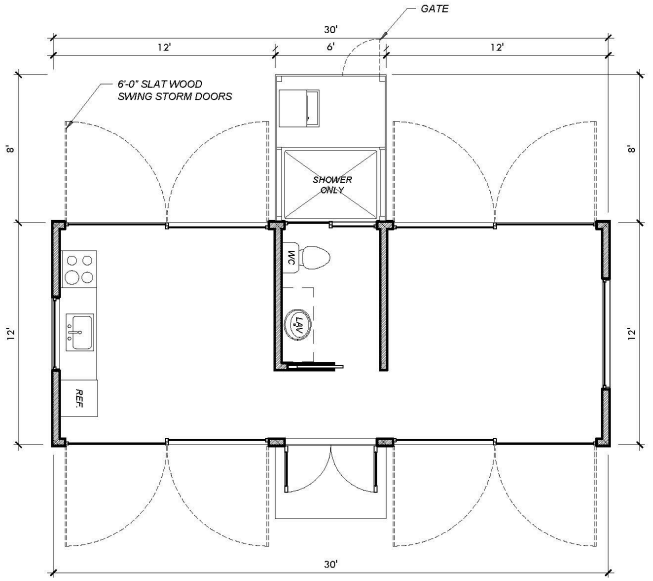

B
A003
PROPOSED
GROUND FLOOR PLAN
0 4' 8' 12' 16'
SCALE: 3/16" = 1'-0"

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 3** FIGURE NUMBER: **13**

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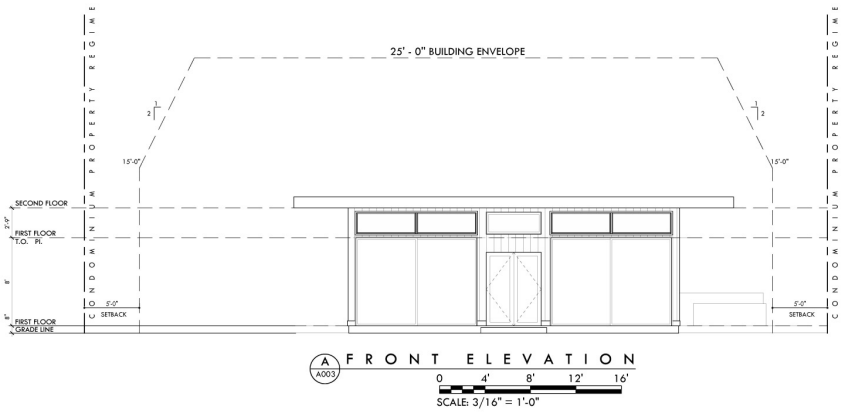
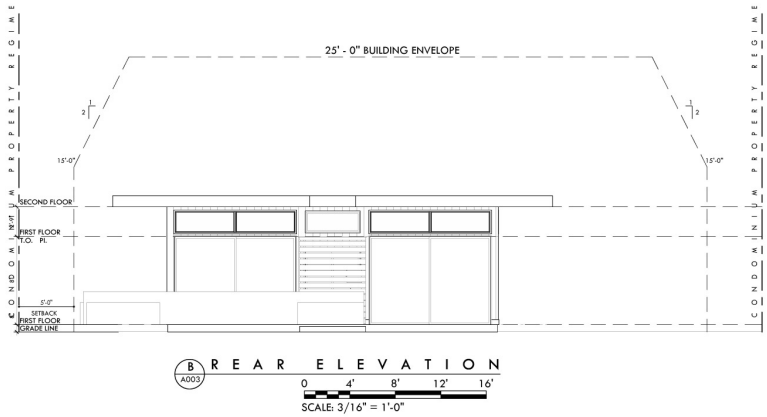


A A003 FRONT ELEVATION

0 4' 8' 12' 16'

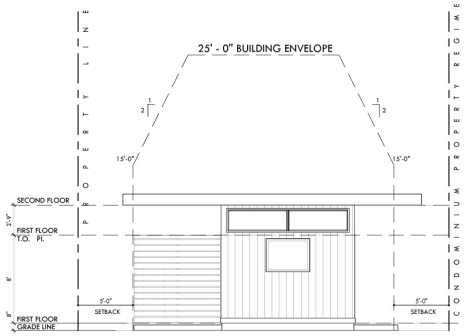
SCALE: 3/16" = 1'-0"



B A003 REAR ELEVATION

0 4' 8' 12' 16'

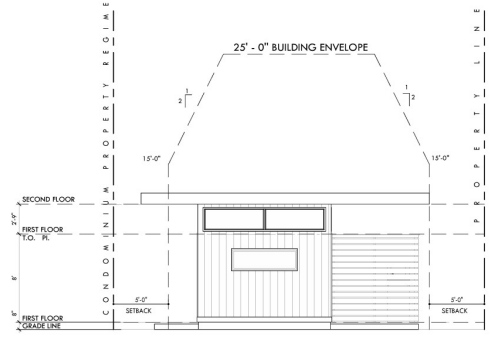
SCALE: 3/16" = 1'-0"



C A004 LEFT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



D A004 RIGHT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE:	**Alternative II** **Lot 3**
		FIGURE NUMBER:	**14**

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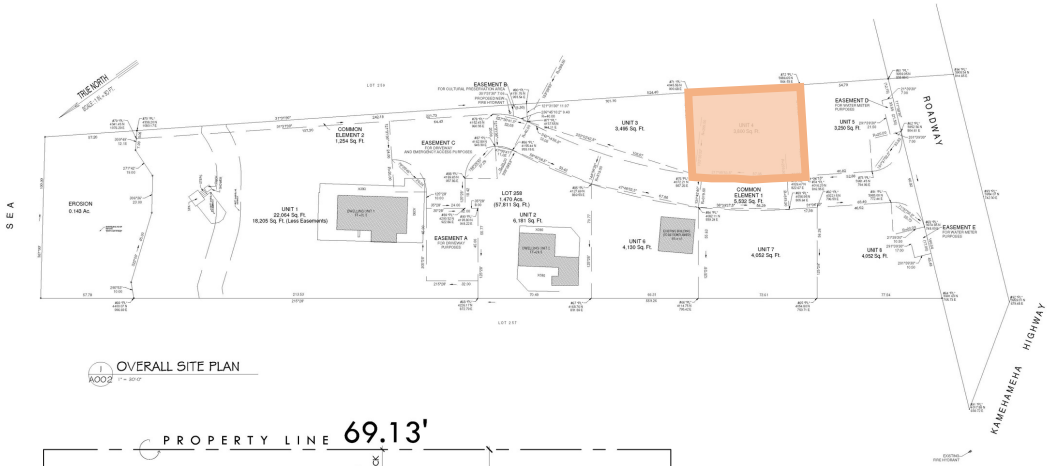
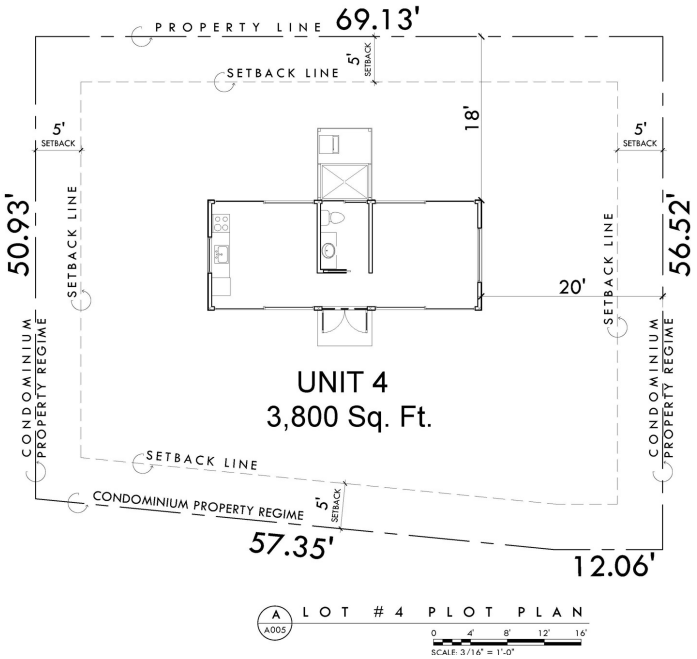


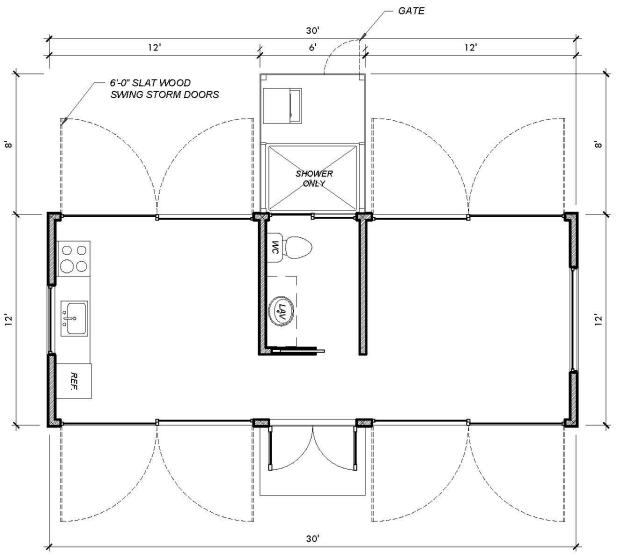
1 A002 OVERALL SITE PLAN



A A005 LOT # 4 PLOT PLAN

SCALE: 3/16" = 1'-0"

Not to scale



B A005 PROPOSED GROUND FLOOR PLAN

SCALE: 3/16" = 1'-0"

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 4** FIGURE NUMBER: **15**

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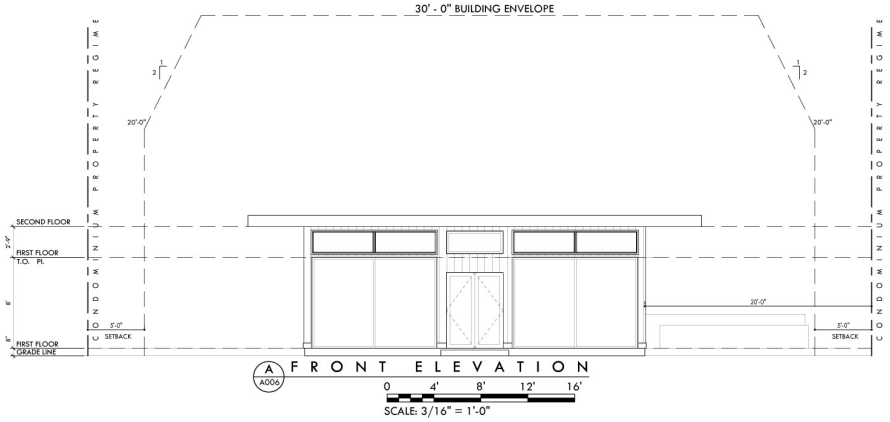

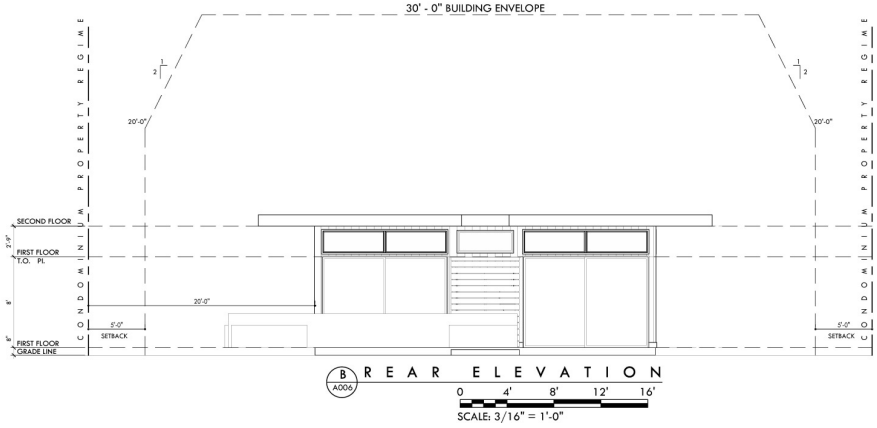

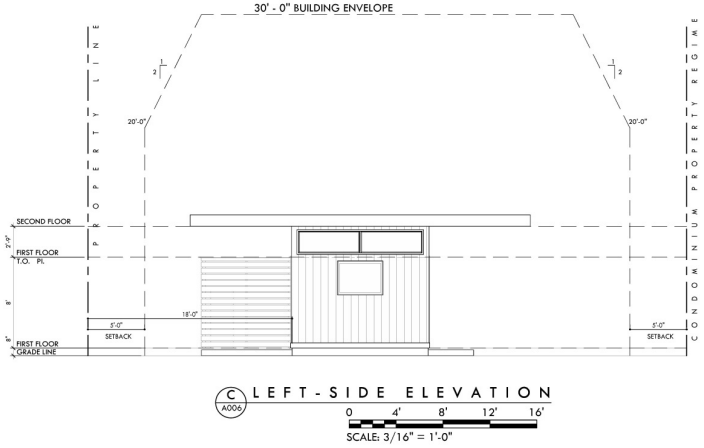

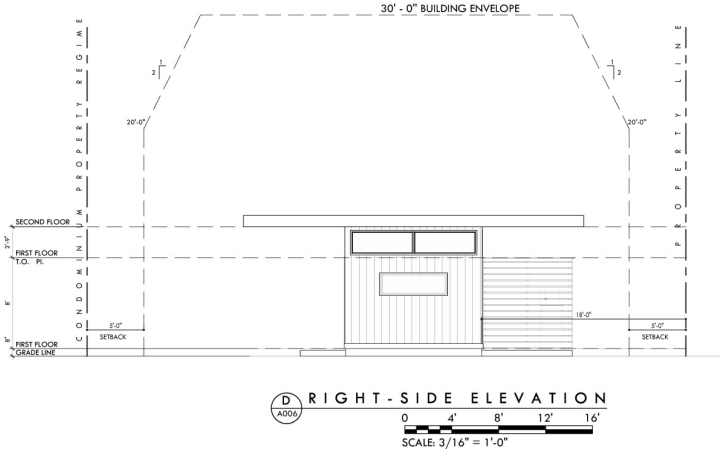

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 4** FIGURE NUMBER: **16**

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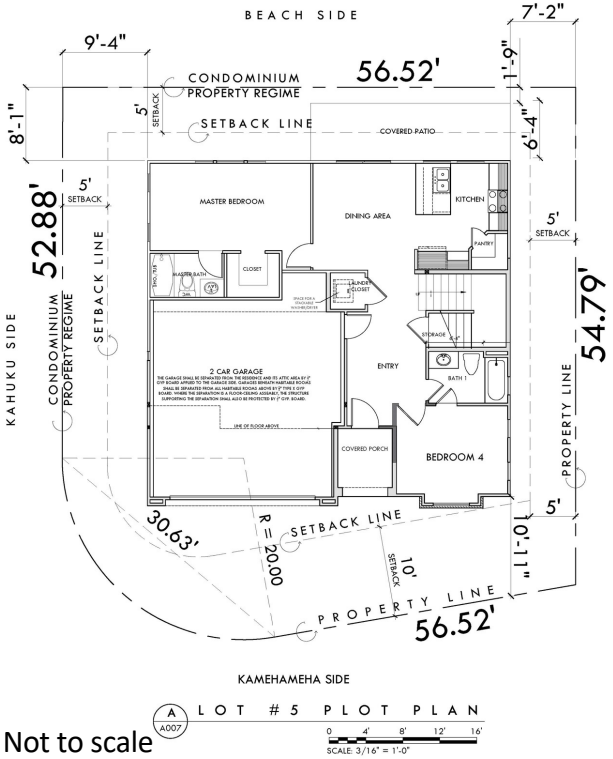
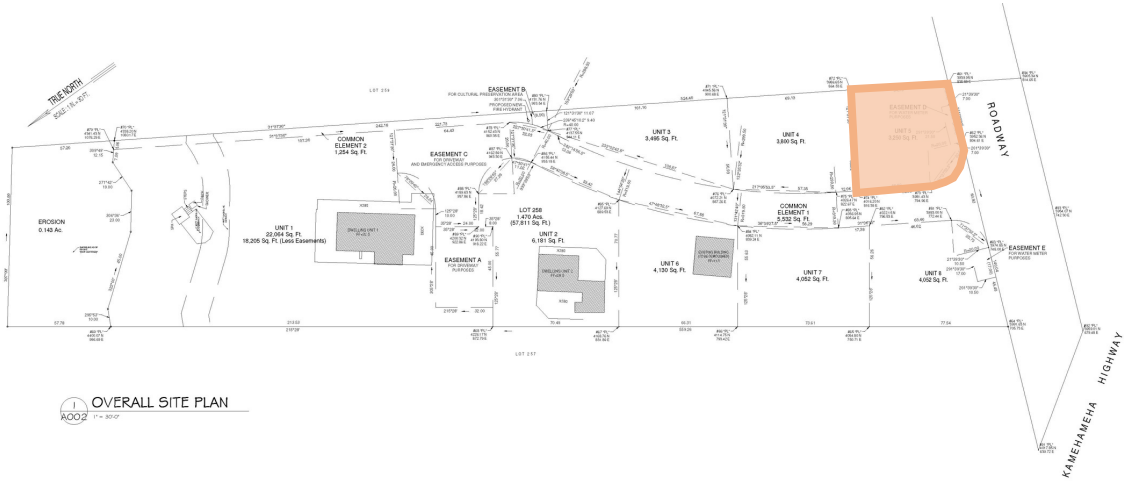


A A007 LOT #5 PLOT PLAN

SCALE: 3/16" = 1'-0"

Not to scale



1 A002 OVERALL SITE PLAN

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 5** FIGURE NUMBER: **17**

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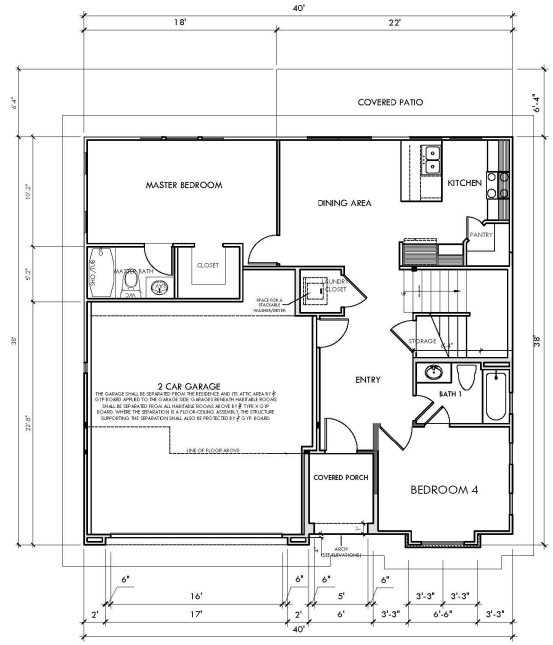
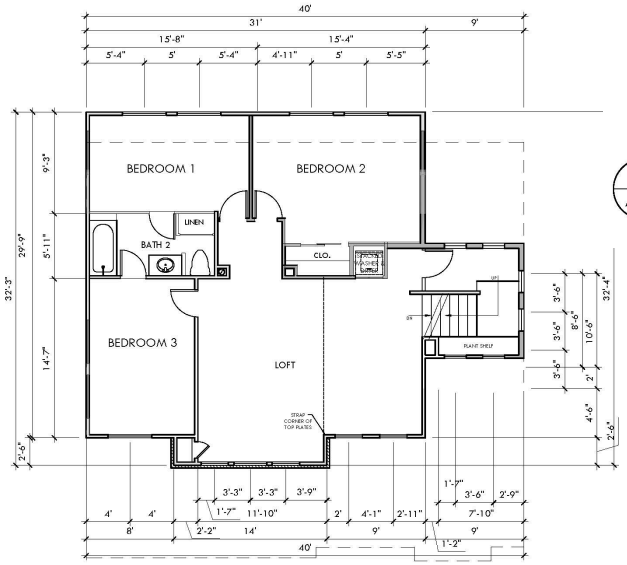


B A007 P R O P O S E D G R O U N D F L O O R P L A N

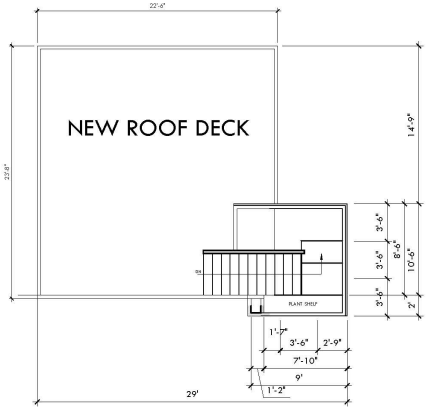
0 4' 8' 12' 16'



C A007 P R O P O S E D S E C O N D F L O O R P L A N

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



D A007 P R O P O S E D R O O F D E C K P L A N

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 5** FIGURE NUMBER: **18**

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A A008 FRONT ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

B A008 REAR ELEVATION

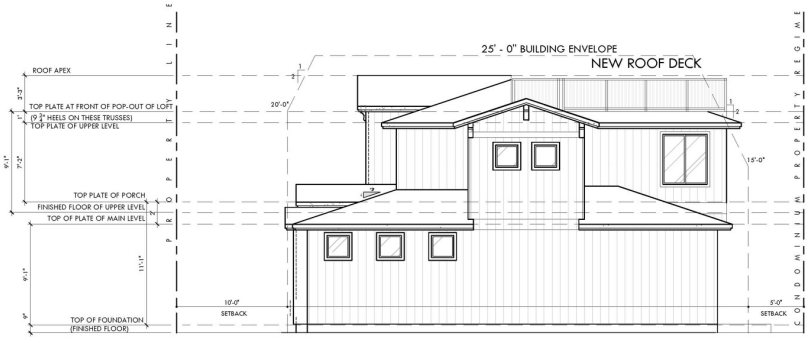
0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

C A008 LEFT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



D A008 RIGHT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 5** FIGURE NUMBER: **19**

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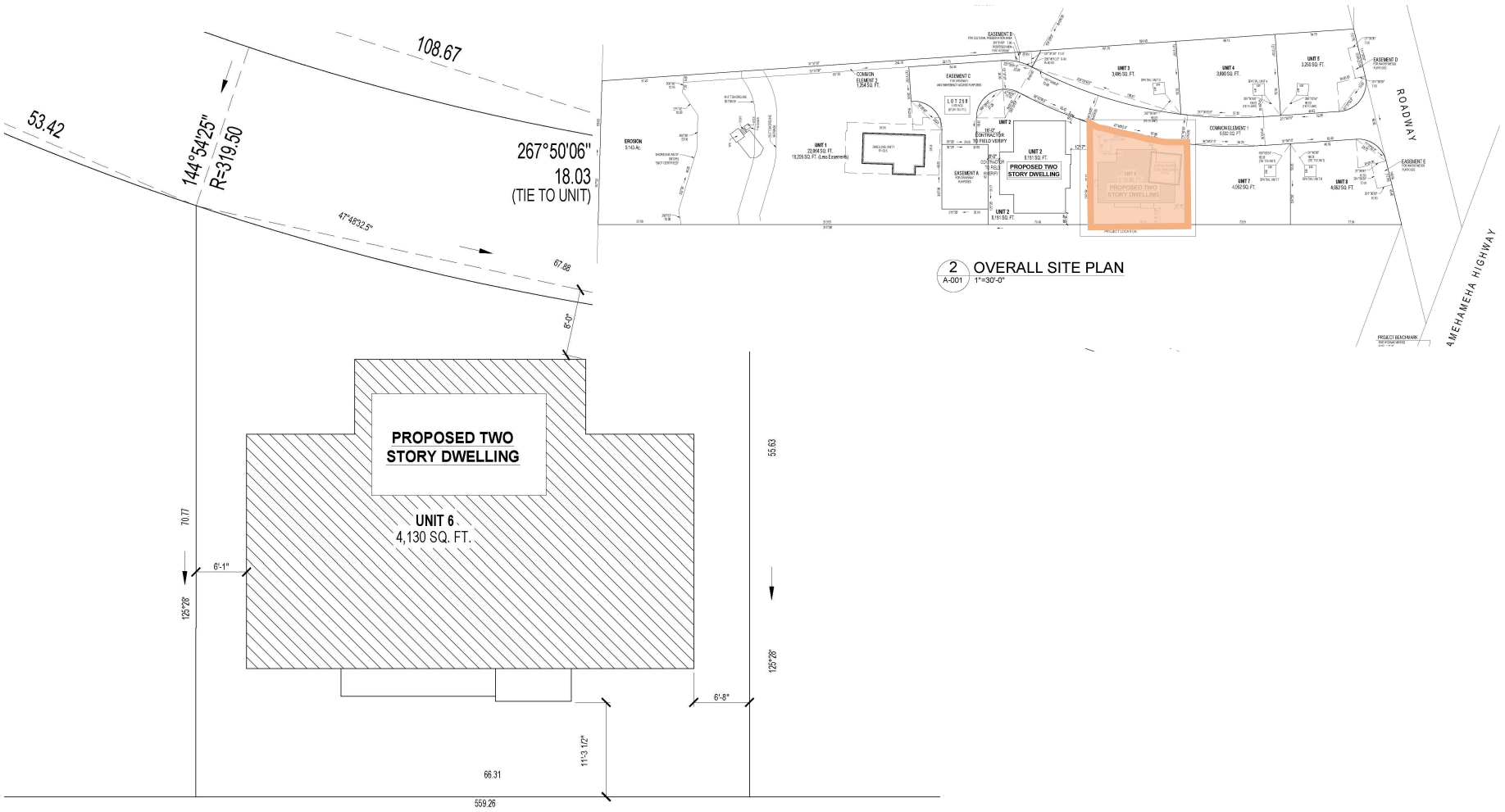

2 A-001 OVERALL SITE PLAN 1"=30'-0"

1 A-001 ENLARGED SITE PLAN 1/8"=1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 6** FIGURE NUMBER: **20**

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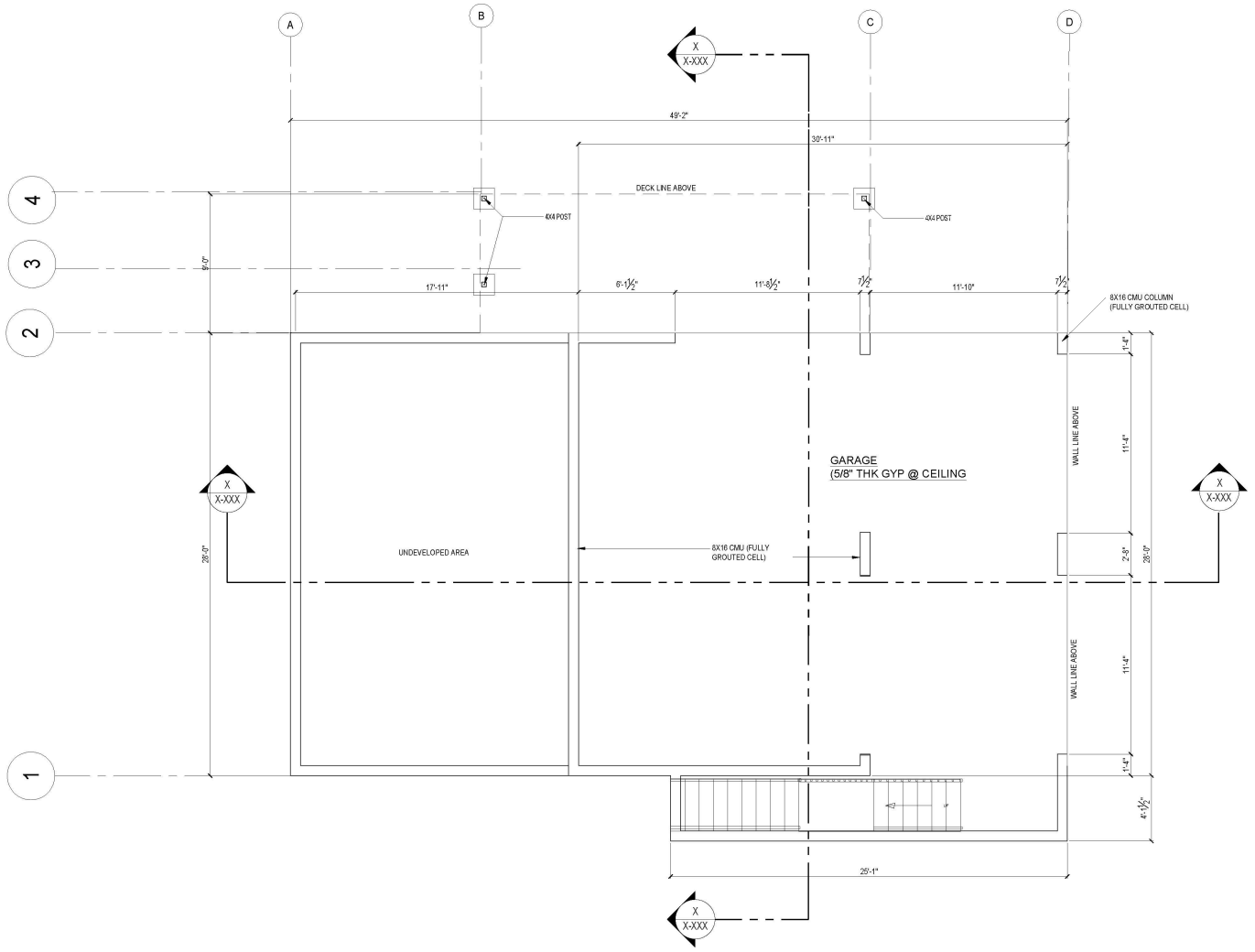

Not to scale

1 A-003 LOWER FLOOR PLAN
1/4"=1'-0"

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 6** FIGURE NUMBER: **21**

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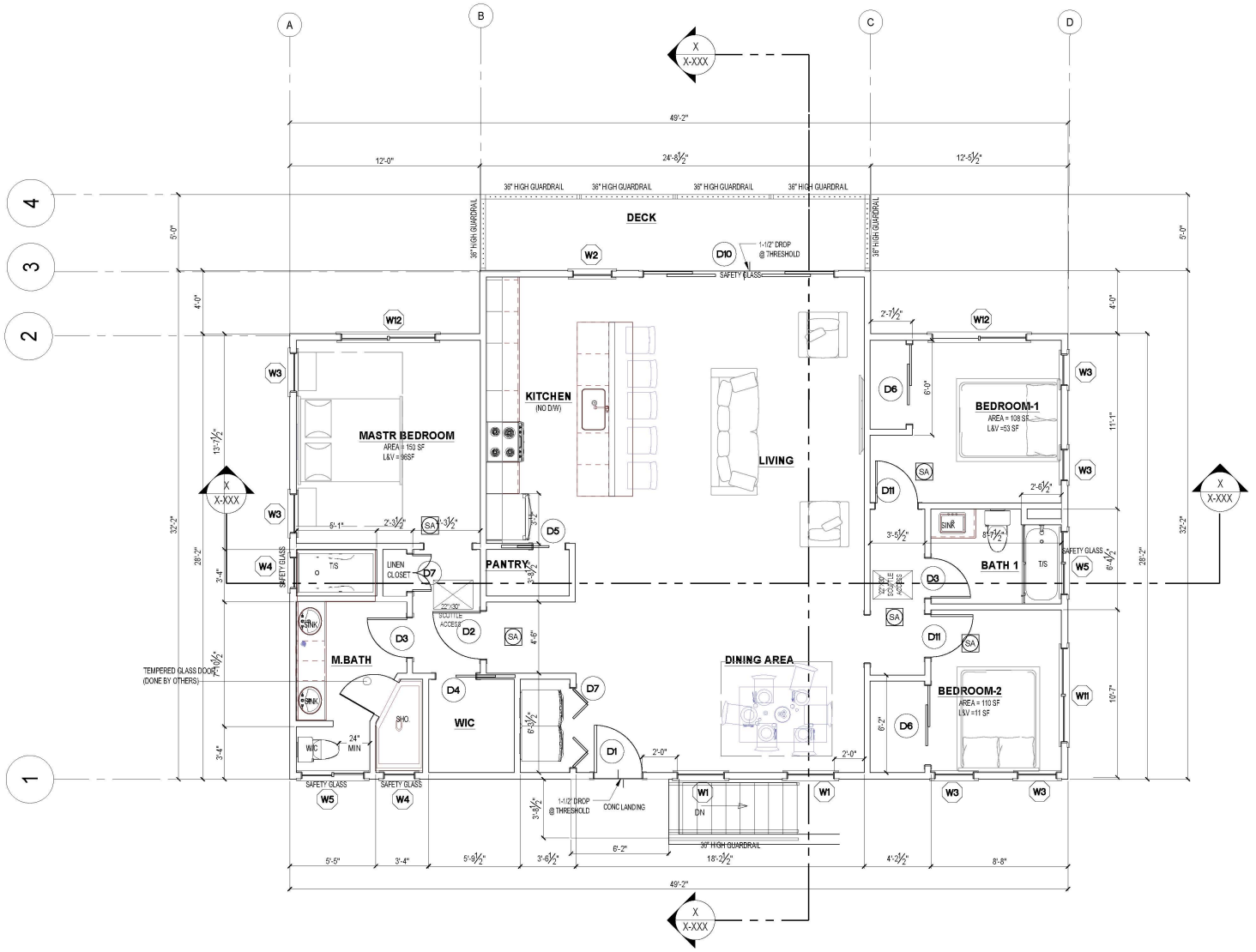

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 6** FIGURE NUMBER: **22**

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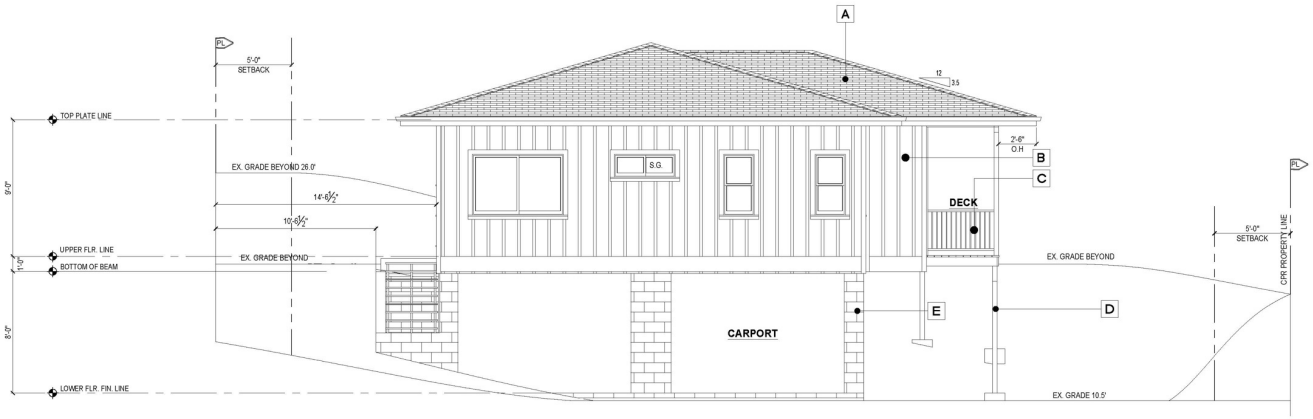
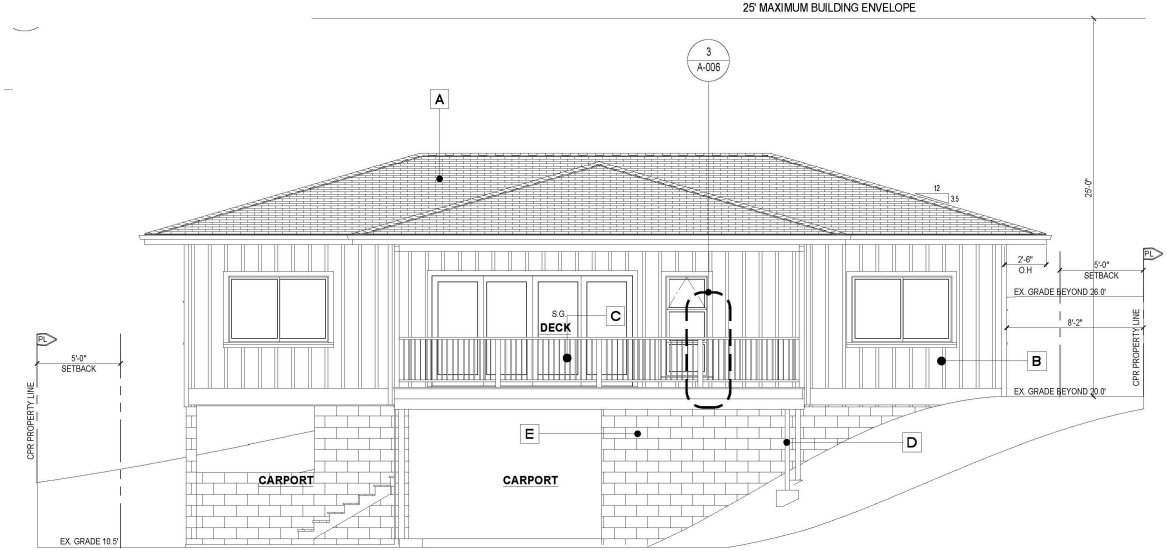


1 A-004 FRONT ELEVATION 1/4"=1'-0"



2 A-004 RIGHT ELEVATION 1/4"=1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 6** FIGURE NUMBER: **23**

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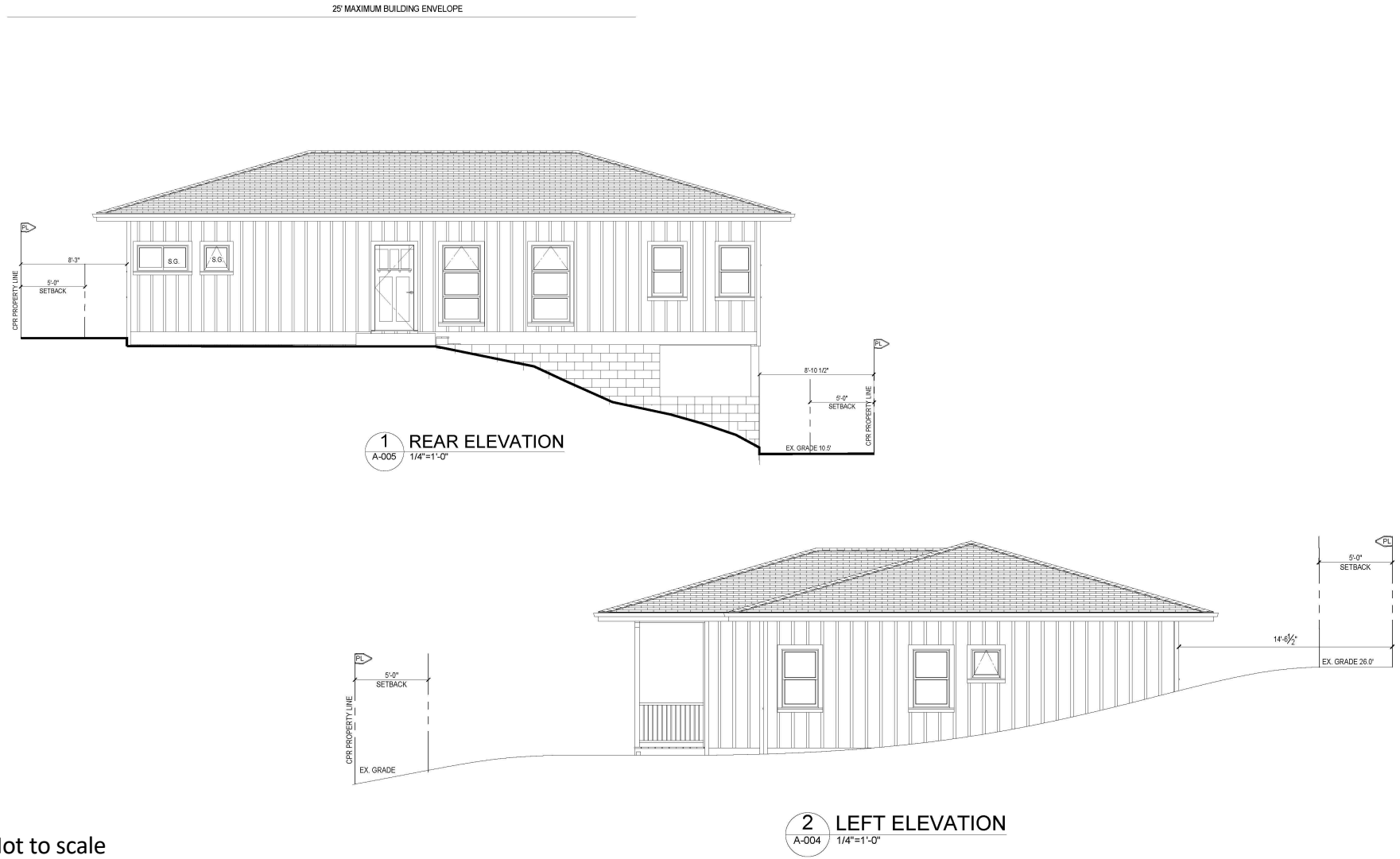

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 6** FIGURE NUMBER: **24**

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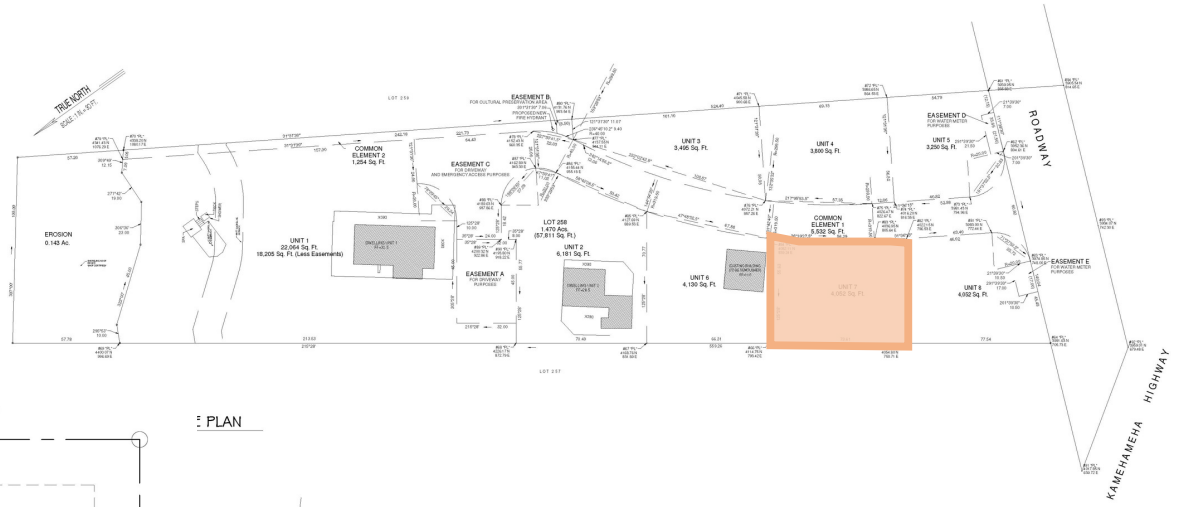
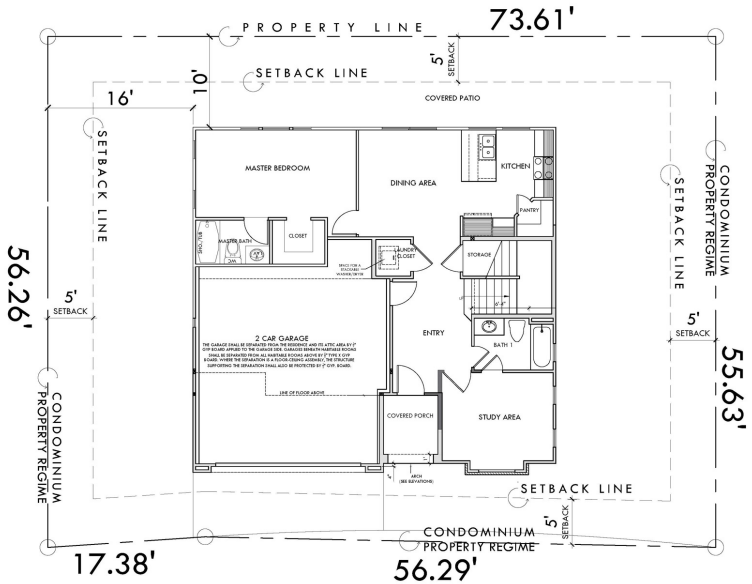


: PLAN



Not to scale

A009 LOT #7 PLOT PLAN

SCALE: 3/16" = 1'-0"

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 7** FIGURE NUMBER: **25**

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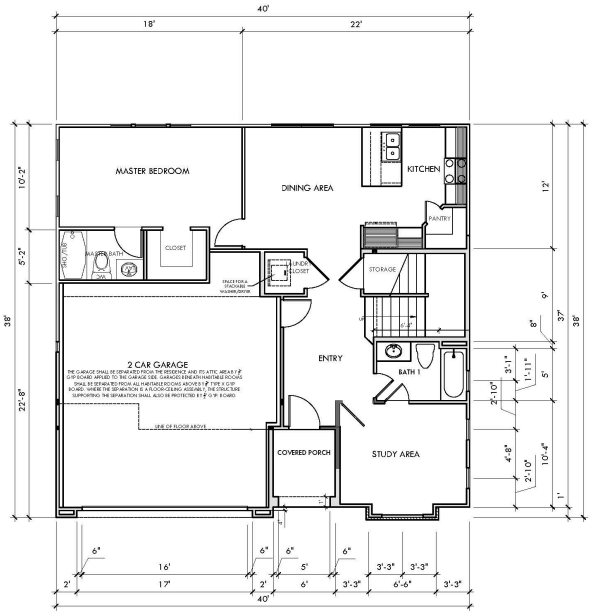
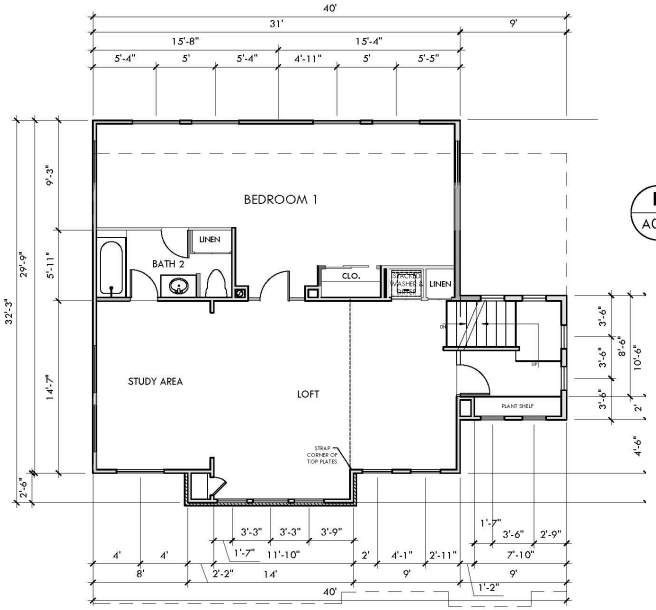


B A009 PROPOSED GROUND FLOOR PLAN

0 4' 8' 12' 16'

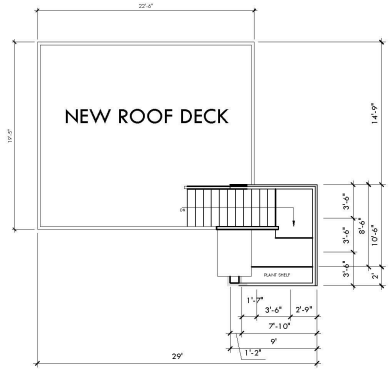
SCALE: 3/16" = 1'-0"



C A009 PROPOSED SECOND FLOOR PLAN

0 4' 8' 12' 1

SCALE: 3/16" = 1'-0"



D A009 PROPOSED ROOF DECK PLAN

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 7** FIGURE NUMBER: **26**

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A A010 FRONT ELEVATION

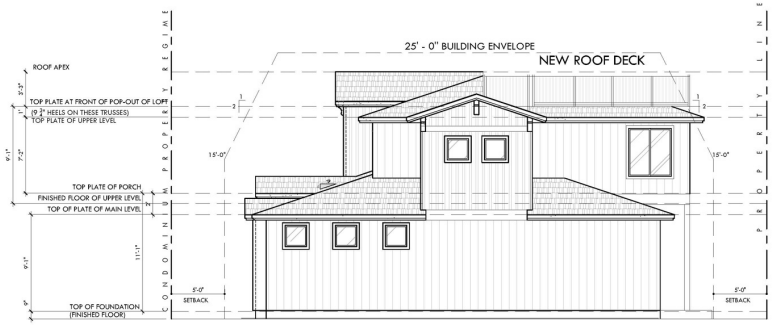
0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

B A010 LEFT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



C A010 RIGHT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

D A010 REAR ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 7** FIGURE NUMBER: **27**

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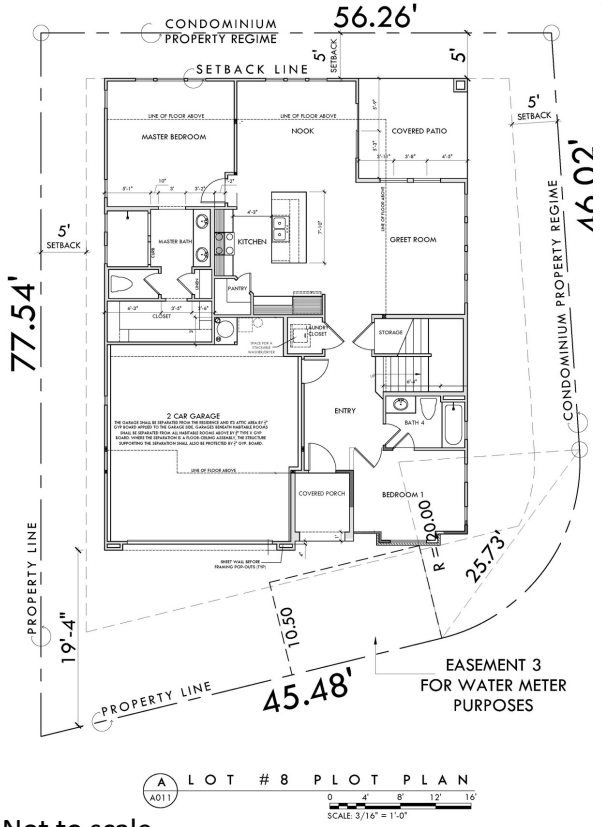
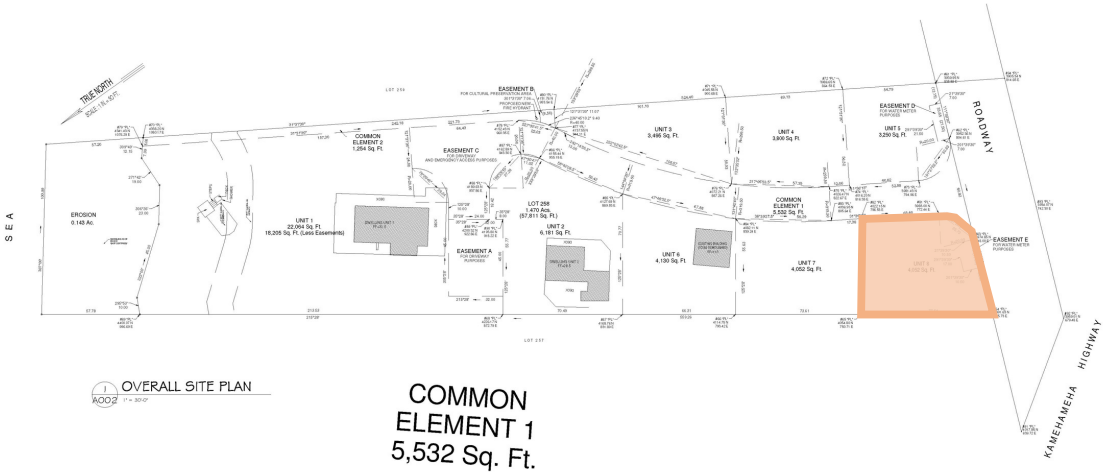


A LOT #8 PLOT PLAN
A011
SCALE: 3/16" = 1'-0"

Not to scale



1 OVERALL SITE PLAN
A002 1" = 30'-0"

COMMON
ELEMENT 1
5,532 Sq. Ft.

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 8** FIGURE NUMBER: **28**

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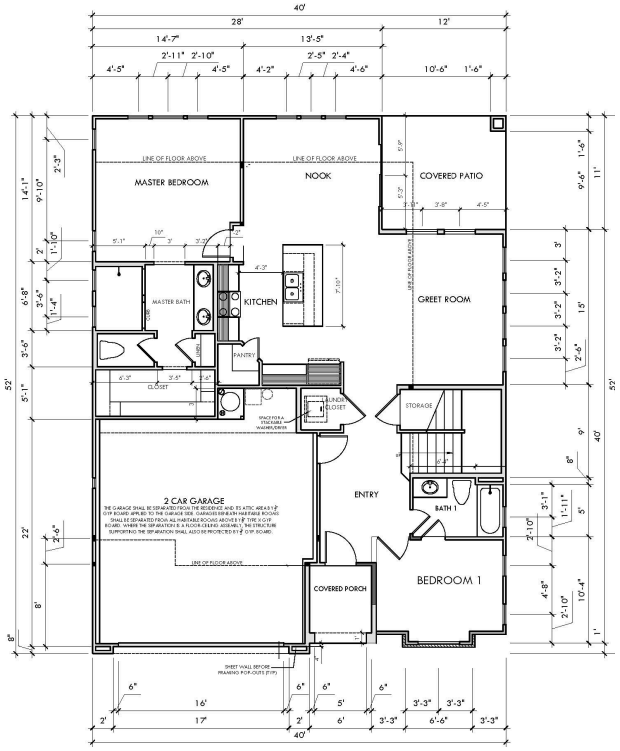
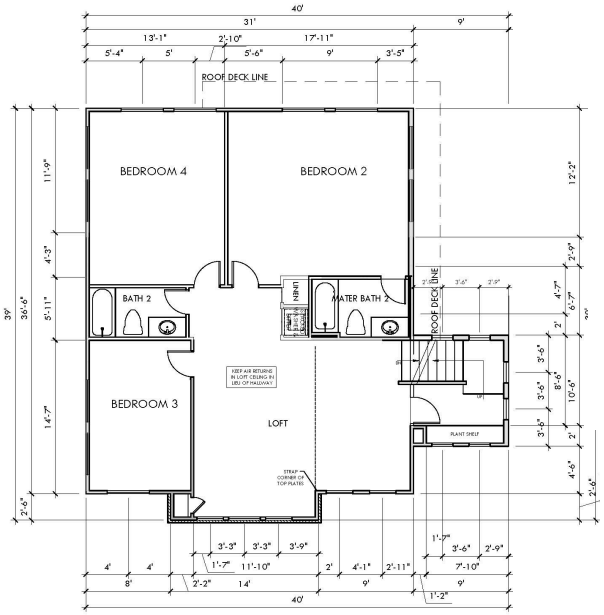


B A011 P R O P O S E D G R O U N D F L O O R P L A N

0 4' 8' 12' 16'

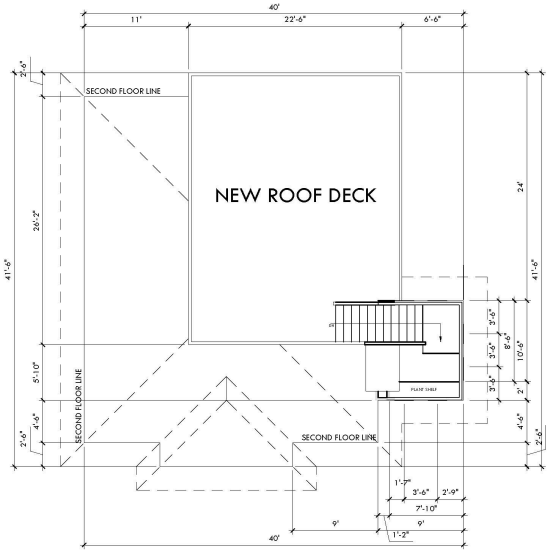
SCALE: 3/16" = 1'-0"



C A011 P R O P O S E D S E C O N D F L O O R P L A N

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



D A011 P R O P O S E D R O O F D E C K P L A N

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 8** FIGURE NUMBER: **29**

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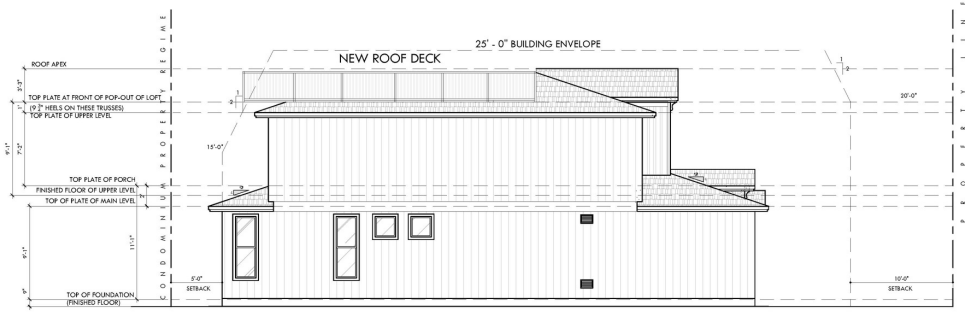
A A012 FRONT ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



B A012 LEFT-SIDE ELEVATION

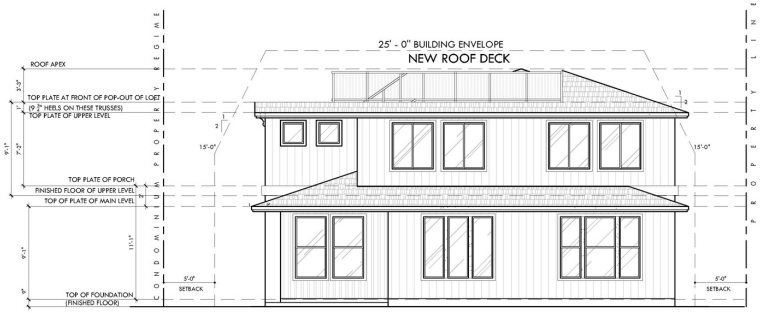
0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

C A012 RIGHT-SIDE ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"



D A012 REAR ELEVATION

0 4' 8' 12' 16'

SCALE: 3/16" = 1'-0"

Not to scale

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Alternative II Lot 8** FIGURE NUMBER: **30**

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SECTION 3 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section details the alternatives that were analyzed in the EA. Under HAR, Title 11, Department of Health, Chapter 200 Environmental Impact Statement Rules, Section 11-200.1-17(f), all alternatives considered for the proposed project should be evaluated. These alternatives may possibly enhance environmental quality or avoid, reduce, or minimize some or all of the adverse environmental effects, costs, and risks.

3.1 Alternative I: No Action Alternative

Under the No Action alternative, the Site would be kept as is with no changes or alterations.

3.2 Alternative II: The Proposed Action

The Proposed Action is the demolition of an existing single-family residence and the construction of single-family homes (Figures 5 through 19).

3.3 Alternative III: Additional Build

Alternative III consists of elements of Alternative II, with the demolition of an existing single-family residence and construction of single-family homes. This alternative includes more conventional-sized dwellings on Lots 3 and 4, instead of the 312-square-foot modular dwellings approved by 2016/SMA-24.

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SECTION 4 AFFECTED ENVIRONMENT

This section discusses the current status of the potentially affected environments should the Proposed Action be implemented. Affected environments include important natural and cultural sources and systems. Environmental consequences are provided in Section 5.

4.1 Physical Environment

4.1.1 Topography and Geology

According to the United States Geological Survey (USGS), Honolulu, Hawaii, 7.5-minute topographic quadrangle map, the subject property elevation is approximately 4 feet above mean sea level (Figure 30). The Site is currently developed with a two-story single-family dwelling, partially asphalted driveway, and vegetation interspersed throughout the parcel. The site is relatively flat, sloping upwards towards the existing structure from the roadway. The parcel to the west of the property is slightly elevated, and the parcel to the east is slightly lower. None of the vegetation on the Site and surrounding property appeared to be distressed.

4.1.2 Soils

The United States Department of Agriculture (USDA) Soil Conservation Service classifies the soil within the Site as primarily Jaucas sand (JaC) 9 to 15 percent slopes MLRA 163 and Beaches (BS). Jaucas sand is classified as excessively drained with low runoff, not prime for farmland, with slopes ranging from 1 to 5 percent (USDA, 2022). Beaches is classified as excessively drained with very low runoff, not prime for farmland, with slopes ranging from 0 to 15 percent (Appendix A).

4.1.3 Natural Hazard

The Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM Map No. 15003C0045H, effective November 5, 2014) portrays the Site within Flood Zone X (Figure 31). Flood Zone X is defined as determined to be outside the 0.2% Annual Chance Flood Hazard Plain. The property is considered not a coastal high hazard area (Flood Zone VE and V).as defined in Chapter 21A, Revised Ordinances of Honolulu (ROH).

The Site is located in a tsunami evacuation zone. The City and County of Honolulu, Evacuation Zone Map is presented in Figure 32. The National Hurricane Storm Surge Maps indicate portions of the coastal area along the Project site may be subject to flooding inundation of less than three feet above ground level during a Category 1 hurricane event.

The construction area is not anticipated to be impacted by waves, storm surges, high tide, or shoreline erosion. According to the Hawaii Sea Level Rise Viewer, mapping of the project site shows no portions of the Site susceptible to sea level rise at 0.5 feet through 2.0 feet (www.hawaiisealevelriseviewer.com), Figures 33-36. However, the Site is susceptible to sea level rise at 3.2 feet.

4.1.4 Flora and Fauna

The site has been developed and landscaped. A Biological Assessment was performed in 2021 (Appendix B). The findings of the assessment are presented below.

Vegetation

The subject property is characterized by sand substrate with both native and introduced plant species present. The main portions of the property are dominated by landscaped hedges and introduced grass and herbaceous species. The coastline harbors the majority of the native plant species found on a sandy dune at the makai (seaward) end of the property. Plants such as tree heliotrope (*Heliotropium foertherianum*), ‘aki’aki (*Sporobolus virginus*) grass, (*Sporobolus virginus*), and naupaka (*Scaevola taccada*) are the dominant species in this zone.

The majority of the plants growing in the mauka (southwestern) half of the property are non-native. They include, ironwood (*Casuarina equisetifolia*), sea grape (*Coccoloba uvifera*), coconut (*Cocos nucifera*), naupaka, Guinea grass (*Megathyrsus maximum*), swollen fingergrass (*Chloris barbata*), New Zealand spinach (*Tetragonia tetragonioides*), turkeyberry (S*olanum torvum*) , Chinese violet (*Asystasia gangetica*), spiny amaranth (*Amaranthus spinosus*), slender amaranth (*A. viridis*), *Ipomoea obscura*, and pohuehue (*Ipomoea pes---caprae*). The naupaka and pohuehue are both indigenous species in Hawai`i.

Birds

The only birds recorded on the site were common resident alien species. The habitat and location of the site does not support vegetation or altitude suitable for native listed forest birds. There is no water features on the site, ergo there is no habitat for any of the listed waterbird species that are still extant on the Island of Oahu. Native seabird species may overfly the site on a seasonal basis, though there is no habitat on the site for any listed seabirds to nest in. No signs of burrows of Wedge---tailed Shearwaters or `ua`u kani (*Ardenna pacifica*) were located along the sand dunes. One or more species of indigenous migratory shorebirds may use resources on the site o n a seasonal basis, though none were seen.

Marine Biota

Green sea turtles or honu (*Chelonia mydas*) most likely utilize the sandy beach fronting the subject property for basking. Green Sea Turtle nesting mostly occurs in the Northwestern Hawaiian Islands. It is possible that the Hawaiian Monk Seal (*Monachus schauinslandi*) may occur in the area at times.

A data inquiry for records of listed threatened or endangered species for the parcel was sent to the United States Fish and Wildlife Service. The US Fish and Wildlife Service (USFWS, 2022) revealed there are seven (7) federally listed species in the vicinity of the project area:

Mammals

- the Hawaiian hoary bat (*Lasiurus cinereus semotus*)

USGS Topographic Map
Kahuku 2017

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Topographic Map** FIGURE NUMBER: **31**

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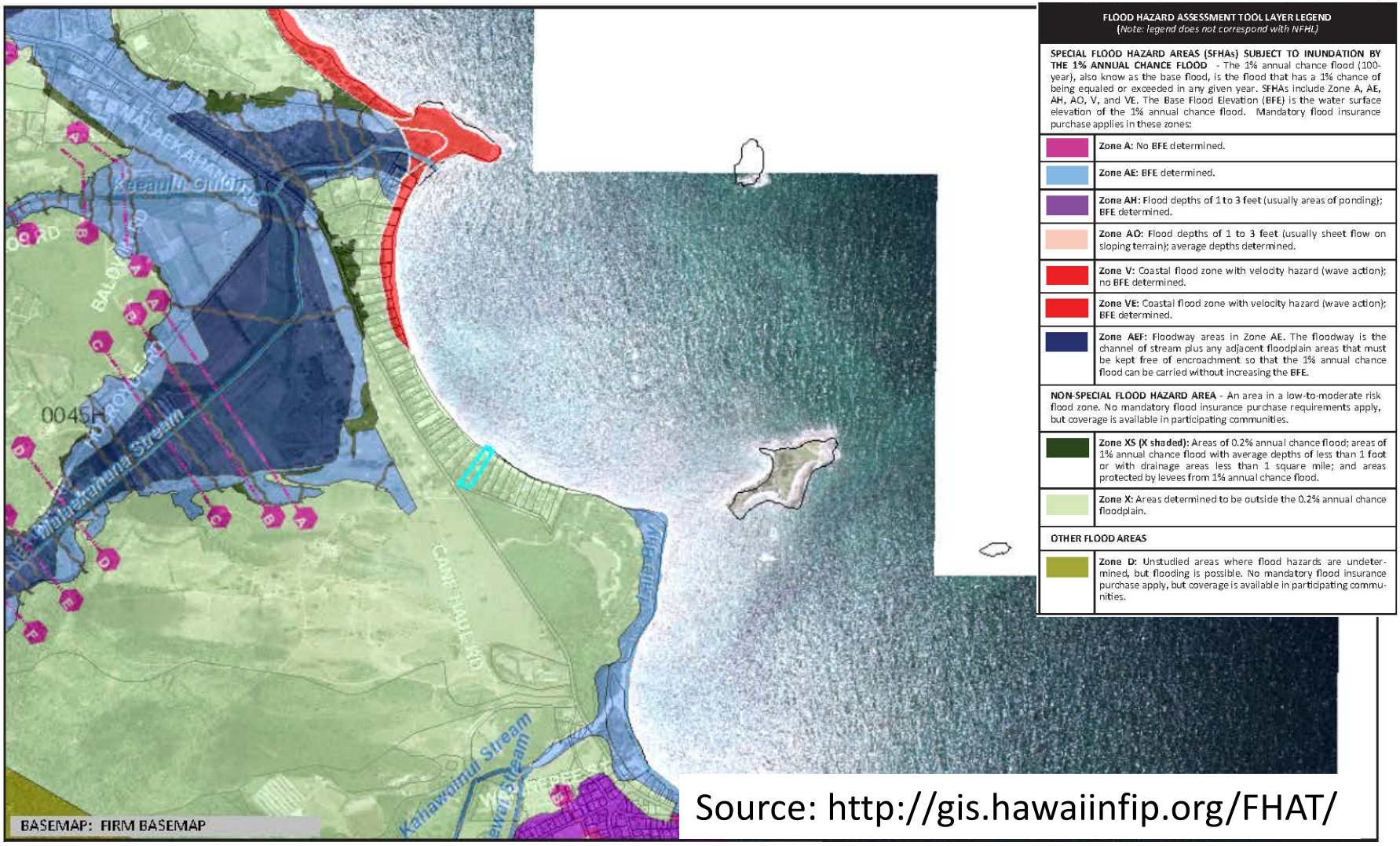

Source: http://gis.hawaiinfip.org/FHAT/

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Flood Map** FIGURE NUMBER: **32**

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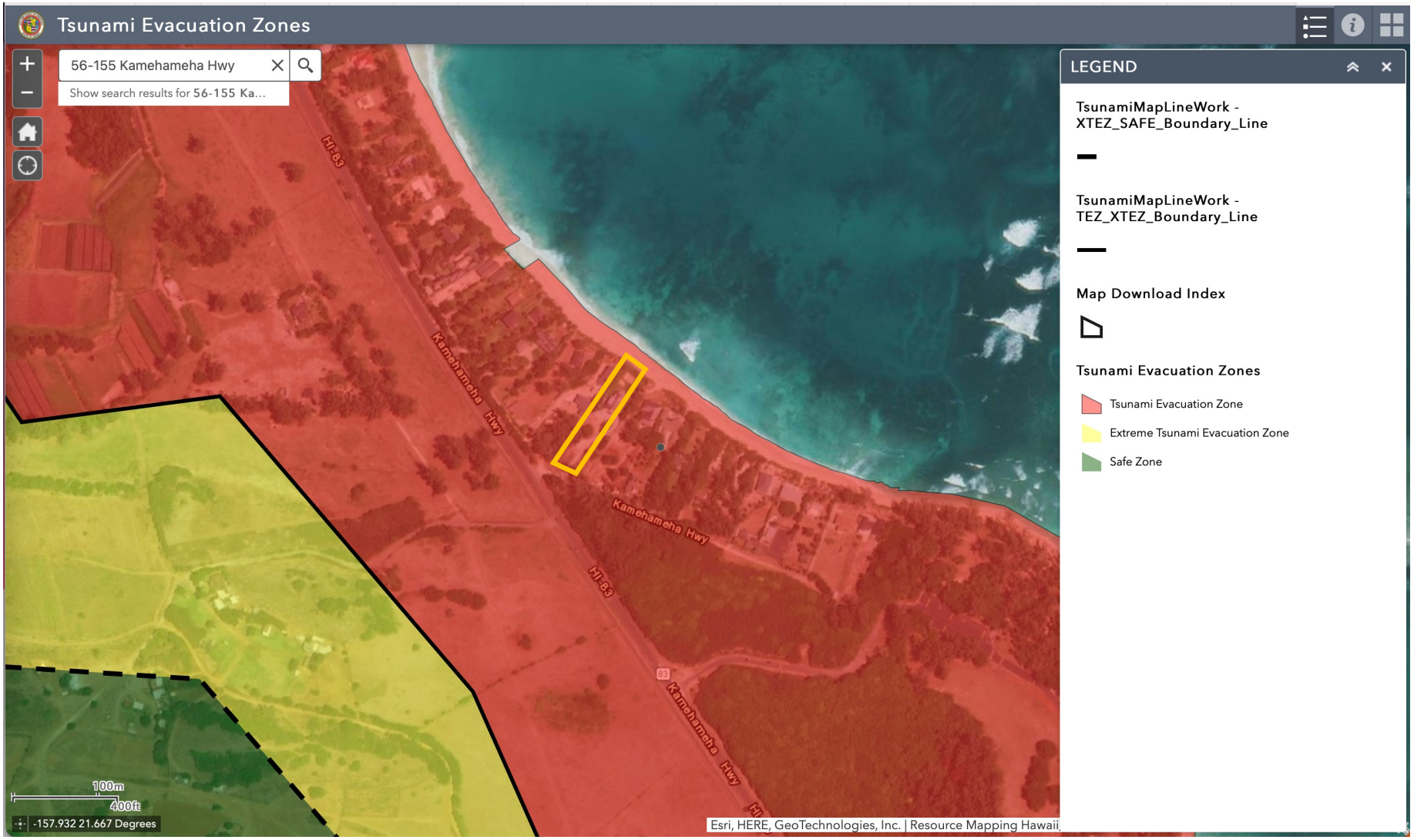

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway** **Kahuku, Hawaii 96731** **TMK 5-6-001:033**	FIGURE TITLE: **Tsunami Inundation Zone Map** FIGURE NUMBER: **33**

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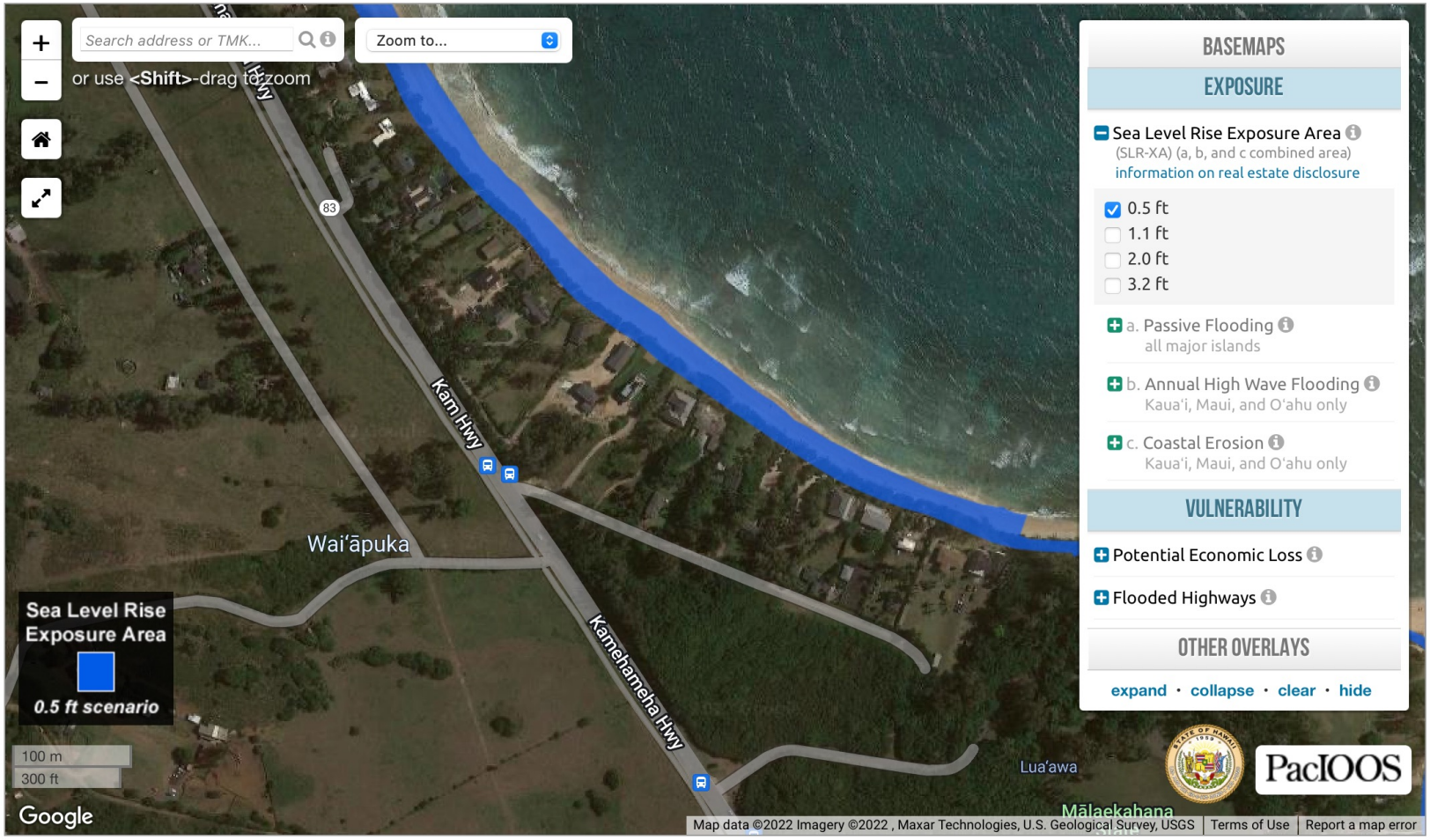
Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer

An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report

view full-screen map



Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Sea Level Rise Mapper 0.5 Foot** EXHIBIT NUMBER: **34**

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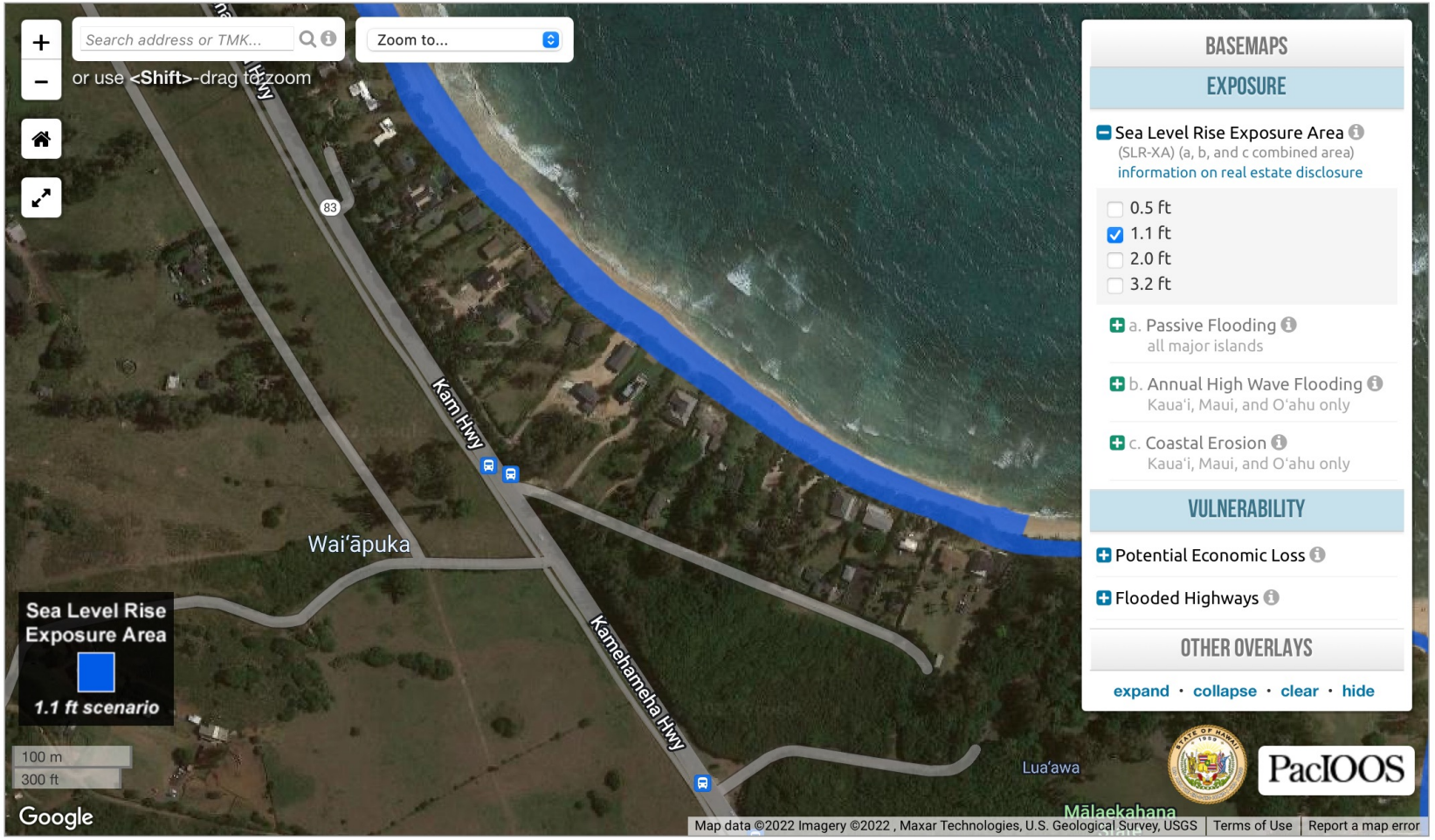
Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer

An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report

view full-screen map



Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Sea Level Rise Mapper 1.1 Feet** EXHIBIT NUMBER: **35**

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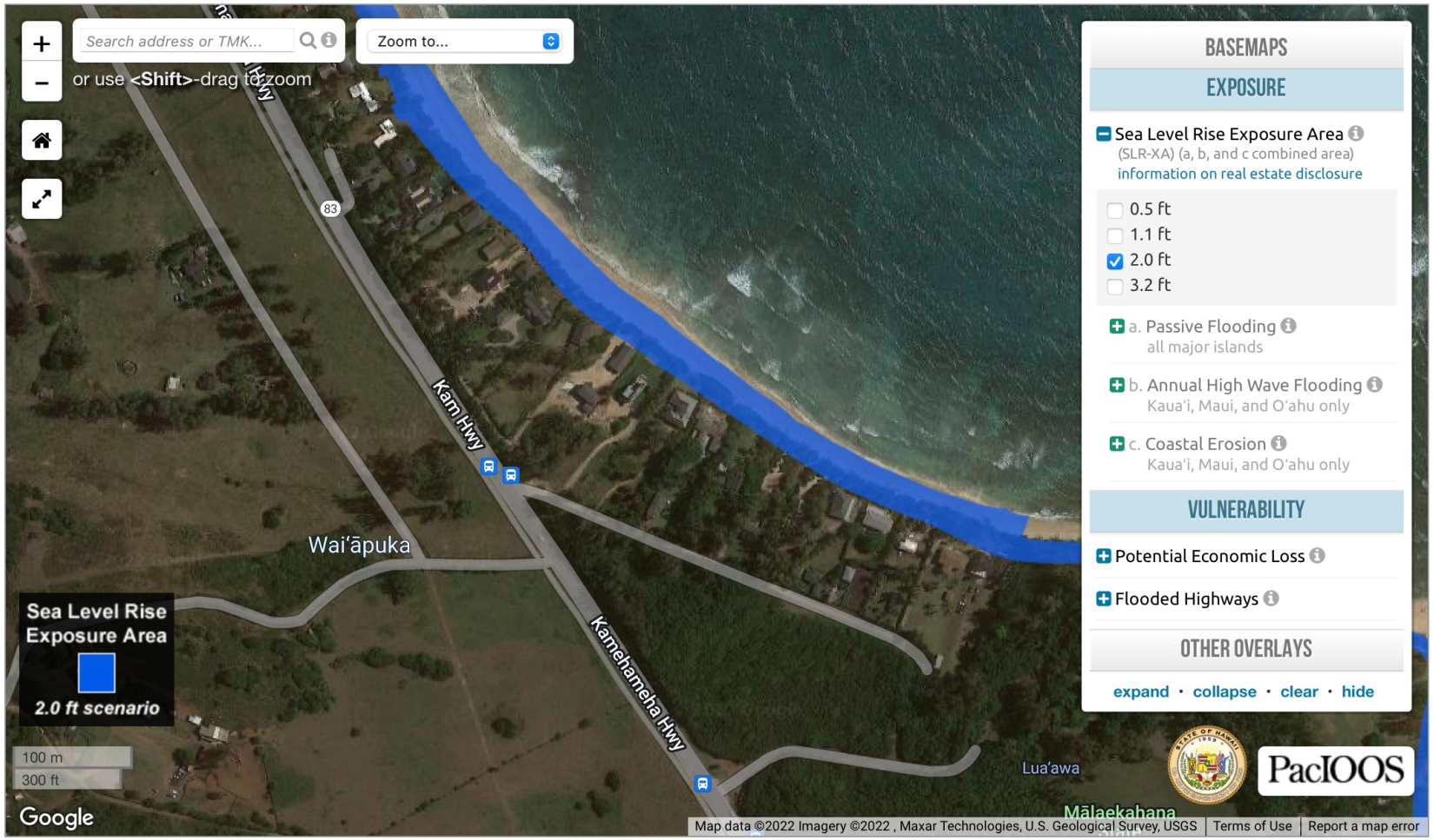
Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer

An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report

view full-screen map



Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Sea Level Rise Mapper 2.0 Feet** EXHIBIT NUMBER: **36**

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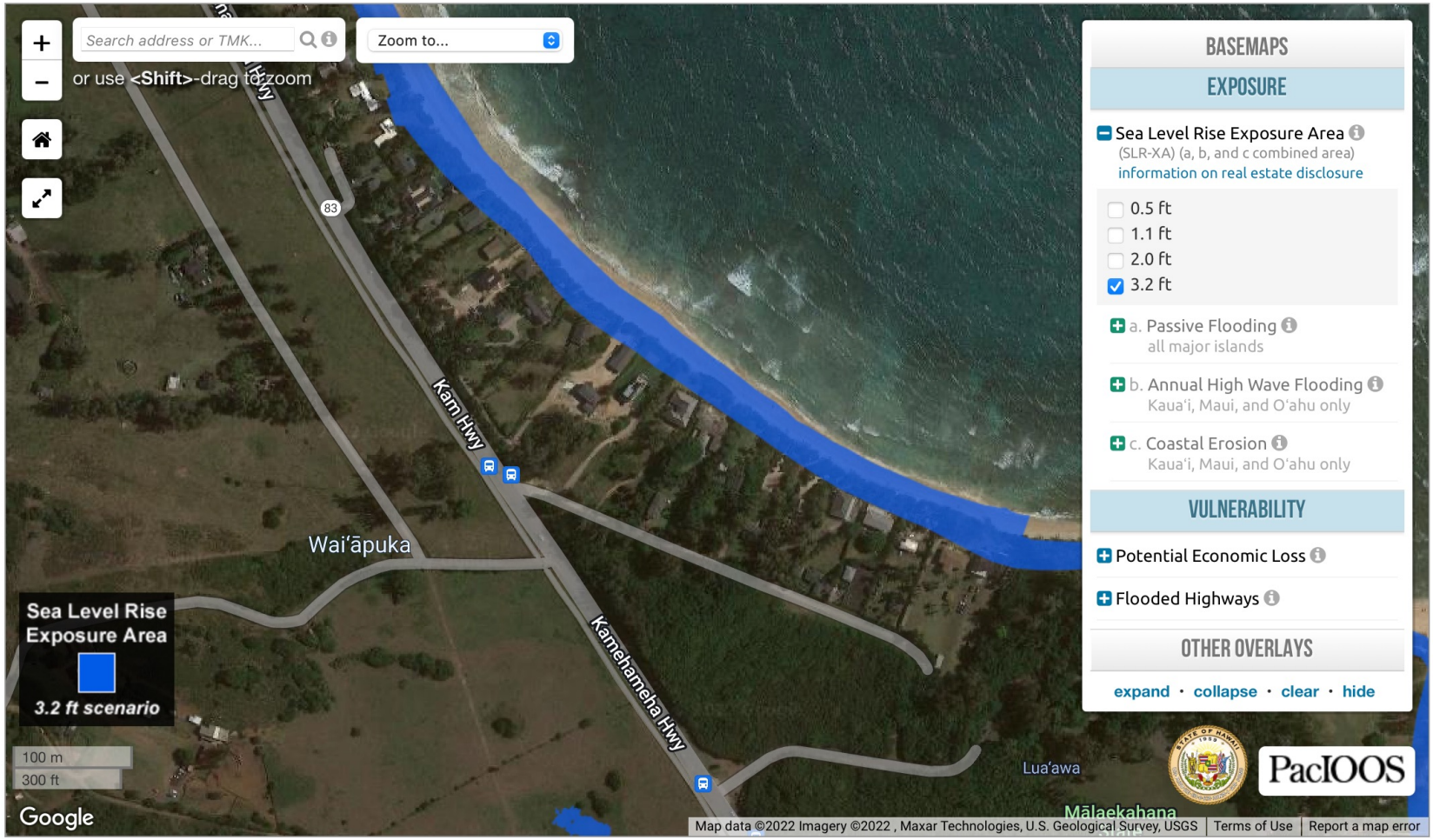
Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer

An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report

view full-screen map



Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Sea Level Rise Mapper 3.2 Feet** EXHIBIT NUMBER: **37**

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Birds

- the Hawaiian petrel (*Pterodroma sandwichensis*)
- the Newell's shearwater (*Puffinus auricularis newelli*)
- the band-rumped storm-petrel Hawai'i DPS (*Oceanodroma castro*)
- the wedge-tailed shearwater (*Ardenna pacificus*)

Reptiles

- Green sea turtle (*Chelonia mydas*)
- Hawksbill sea turtle (*Eretmochelys imbricata*)

The State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife also stated that the State endangered White Tern (*Gygis alba*) or Manu o Kū is known to nest in the proposed project vicinity.

No designated critical habitats were identified within or near the project boundaries. Mitigation and avoidance measures have been recommended by US Fish and Wildlife Service and the Division of Forestry and Wildlife which are presented in Section 5.

A survey of the area performed in 2021 by LeGrande Biological Surveys Inc., did not observe threatened or endangered plant or animal species. The survey noted the naupaka along the dune area should be preserved to the extent possible. Additionally, care should be taken to protect marine mammals by staying at least 50 feet away from green sea turtles or Hawaiian monk seals if observed. A distance of 150 feet should be maintained if a mother seal and pup are found. Feral cats should be discouraged from living in the area as they pose a risk to birds, marine animals, and humans. Ironwood trees on the southwester portion of the property could provide a habitat for the Hawaiian hoary bat. Any potential disturbances should be avoided.

4.1.5 Wetlands

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory, Wetlands Mapper (USFWS, 2022) identified the Pacific Ocean to the north of the property as an Estuarine and Marine Wetland (M2USP and M2USN) close to the shoreline, and an Estuarine and Marine Deepwater (M1RF1L) further offshore. The Wetlands Mapper figure is presented as Figure 37.

4.1.6 Water Resources

Groundwater

The Site overlies the Koolauloa aquifer system of the Windward aquifer sector. The aquifer system is comprised of an upper and lower aquifer. The upper aquifer is described as a basal (freshwater in contact with seawater), unconfined (where water table is upper surface of saturated aquifer), sedimentary (nonvolcanic lithology) aquifer. It is classified as a currently used, ecologically important water source, with low salinity (250 - 1,000 milligrams per liter [mg/l] chloride [Cl-]. It is considered irreplaceable and highly vulnerable to contamination (Mink and Lau, 1990).

The lower aquifer is described as a basal (freshwater in contact with seawater), confined (aquifer bounded by impermeable or poorly permeable formations, and top of saturated aquifer is below groundwater surface), flank (horizontally extensive lavas) aquifer. It is classified as a currently used water source, with low salinity (250 - 1,000 milligrams per liter [mg/l] chloride [Cl-]. It is considered irreplaceable and low vulnerability to contamination (Mink and Lau, 1990).

The Site is down-gradient of the Underground Injection Control (UIC) line (Figure 38) as such; the underlying aquifer is not considered a drinking water source and permit limitations governing the use of these waters are less stringent than for drinking water aquifers. Studies have shown anticipated sea level rise could affect the boundary between saltwater and freshwater causing freshwater to be lifted. The result is a rise in the groundwater table. Low elevation coastal planes and shallow groundwater tables are prevalent in Hawaii. The rise in the groundwater level could affect drinking water by turning wells that were previously freshwater into brackish or saline. Groundwater at the Site is in contact with seawater. The aquifer supporting the Site could experience impacts from sea level rise.

Surface Water

USFWS National Wetlands Inventory, Wetlands Mapper (USFWS, 2022) identified the Pacific Ocean to the south of the property. No other surface water bodies were identified within the vicinity of the Site.

4.1.7 Climate and Air Quality

The climate in Laie is characterized with temperatures averaging from the low 70s to the mid 80s. There is moderate humidity and easterly trade winds. The average annual rainfall is approximately 50 inches per year.

Air quality in the vicinity is most affected by proximity to ocean. The Hawaii State Department of Health (HDOH) maintains air monitoring locations throughout the state. In 2017 the State of Hawaii was in attainment of all NAAQS (HDOH Annual Summary 2017 Air Quality Data). There are no air monitoring stations located in the vicinity of the Site. Air monitoring stations are located in areas of commercial, industrial, and transportation activities where the greatest impacts to air quality may be observed.

4.1.8 Noise

Noise impacts from construction-related activities are regulated under the HAR, HDOH, Title 11, Chapter 46, Community Noise Control. The project area is a residential zone, and as such falls into District Class A under the HDOH regulations, with a maximum day (7:00 a.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.) sound level threshold of 55 decibels (dBA). District Class A also covers areas zoned as military and federal preservation land, conservation, open space, and public space. Table 1 lists sound exposure levels (SELs) associated with typical equipment, in varying operating modes.

U.S. Fish and Wildlife Service
National Wetlands Inventory

56-155 Kamehameha Highway

Environmental Risk Analysis

PROJECT NAME:

56-155 Kamehameha Highway
Kahuku, Hawaii 96731
TMK 5-6-001:033

FIGURE TITLE:

Wetlands Map

FIGURE NUMBER:

38

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Underground Injection Control Lines (UIC) - Underground Injection Control (UIC) Line

Underground Injection Control Lines (UIC)

Hawaii State Department of Health, Safe Drinking Water Branch; Hawaii Statewide GIS Program | Resource Mapping Hawaii

Environmental Risk Analysis	PROJECT NAME: **56-155 Kamehameha Highway Kahuku, Hawaii 96731 TMK 5-6-001:033**	FIGURE TITLE: **Underground Injection Control Map** FIGURE NUMBER: **39**

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Table 1: Typical Equipment Sound Levels

Equipment	Sound Level (in dBA) Under Indicated Operational Mode		
	Idle Power	Full Power	Moving Under Load
Dozer	63	74	81
Dump Truck	70	71	74
Excavator	62	66	72
Forklift	63	69	91
Front-end Loader	60	62	68
Grader	63	68	78
Sweeper	64	76	85
Tractor-Trailer	67	78	77

Noise in the area can be attributed to the adjacent Kamehameha Highway.

4.1.9 Solid Waste

Waste collection is provided by the City and County of Honolulu, Department of Environmental Services. Current refuse collection is on a Tuesday/Friday collection schedule. Laie Convenience Center, located at 56-020 Kamehameha Hwy is noted as the drop-off convenience center and refuse collection yard. Bulky item pick up is available for scheduling by appointment. Solid municipal waste on the island of Oahu is incinerated at the H-POWER waste-to-energy facility located in Campbell Industrial Park. According to the City and County of Honolulu, Department of Environmental Services website, Opala.org, Oahu recycling rates are above the national average and Honolulu ranks among the top cities in the country in landfill diversion. The H-POWER facility reduces the volume of waste entering the landfill by 70%. The remaining ash is deposited at the Waimanalo Gulch Sanitary Landfill. Construction and demolition wastes are handled separately and are disposed of at PVT Landfill.

4.1.10 Hazardous Waste

A query of Hawaii Department of Health, Hazard Evaluation and Emergency Response (HEER) Office, iHEER database was performed to obtain information about state environmental release listings. No sites were identified in the vicinity of the subject Site.

4.2 Social Environment

4.2.1 Land Use Considerations and Zoning

The City and County of Honolulu Site Land Use Ordinance Zoning Designation is Residential (R-5). The Site is not located in a Special District. The Site is located in a Special Management Area, as it sits on the shoreline.

4.2.2 Archaeological Considerations

There are no archaeological resources noted in the Hawaii Cultural Resource Information System (HICRIS) site for the subject property. A spatial search of the property resulted in the following Sites:

- Kawainui Stream-Laiwai Bridge, Resource Number 2019RE08909 is located 0.6 miles to the south of the property and situated on Kamehameha Highway. The bridge is listed as a Resource with no significance.
- DRR Na Pua Makani, Project Number 2021PR00335 is located 0.7 miles to the north of the property and is situated mauka of Kamehameha Highway. It is listed as a Project Review.

No associated surveys or other information is provided.

An Archaeological Assessment was performed in 2021 (Appendix C - Rechtman, 2021) for portions of the Site. The assessment did not observe any archeologically significant findings. However, archaeological monitoring was recommended for the project due to the potential for cultural deposits and burials to be present and impacted. Additionally, SHPD determined there was insufficient information to determine no adverse effects would come about from the project. previous archaeological findings show human burials, an imu and at least two firepits were identified at 56-155 Kamehameha Highway. SHPD requested that an archaeological monitoring plan (AMP) meeting the requirements of HAR §13-279-4 be submitted to SHPD for review and acceptance prior to project initiation.

ERA also reviewed an environmental assessment conducted in the vicinity of the Site to determine if previous surveys have identified archaeological resources in the vicinity of the Site. The assessments reviewed included an Archaeological Assessment and Chapter Review conducted for the Malaekahana State Recreation Area, Kahuku Section Park Improvements project. The 2016 EA noted:

"Lands in Mālaekahana Valley may have been utilized to support a large Hawaiian settlement that is known to have existed in the Kahuku to Lā'ie area; however, limited information exists about the land use and settlement patterns of the established Hawaiian population prior to the first encounters with European voyagers in 1778. The land division process that began with the Organic Acts of 1845 and 1846 ultimately resulted in Land Commission Awards to residents and individuals who could substantiate use of the lands they were claiming. Commercial ranching activities that resulted in large scale landform alterations began in the mid- 19th century and persisted for several decades. By the 1880s, the lands in Kahuku were primarily utilized to support the sugar industry. "

Archeological investigation carried out for the project identified post molds, pit features, and in situ human burial. A burial treatment plan was prepared to address the in situ human burial.

4.2.3 Cultural Considerations

There are no cultural resources noted in the HICRIS site for the subject property.

An Archaeological Assessment was performed for specific parcels of the project (Rechtman 2021). An area of 0.57-acres of the total 1.47-acre property was assessed. While the survey yielded negative results, the Jaucus sands in the area are known to contain significant subsurface cultural items and human remains/burials. And as previous findings show human burials, an imu, and at least two fire pits on the property, SHPD has requested an Archeological Monitoring Plan be prepared for review and acceptance prior to permit issuance. The Archaeological Assessment was accepted by SHPD.

As discussed in Section 4.2.2, an environmental assessment was reviewed for a site in the vicinity of the subject property. Cultural Impact Assessment and Chapter 343 Review conducted for the Malaekahana State Recreation Area, Kahuku Section Park Improvements project. This assessment evaluated historical use of the surrounding area for cultural practices including agriculture, fishing, trails, and other cultural practices. These are summarized below.

"Archival and documentary research suggests that the early Polynesian inhabitants settled areas within the project vicinity that had favorable fishing and agricultural opportunities. Productive areas may have been intensely cultivated to sustain the subsistence economy of a permanent settlement during the pre-Contact period. Evidence of traditional Hawaiian life has been obscured by large scale landform changes in the project area from several decades of commercial ranching activities that began in the mid-19th century and later 19th century commercial sugarcane operations that continued through the early 1970s."

There was no evidence that the project area and immediately surrounding land were used for traditional, customary, or cultural practices.

4.2.4 Circulation and Traffic

The Site is only accessible from state highway Kamehameha Highway (State Route 83). The immediate area surrounding the Site consists of other single-family homes, Malaekahana State Recreation Area, and Gunstock Ranch, therefore, traffic is light to moderate.

Access to the property is via a single lane roadway off of the state highway, Kamehameha Highway near mile marker 17. The roadway is a comprised of crushed coral, sand, dirt and grass and extends approximately 1,000 feet from the state highway and dead ends at a private property. The roadway is lined with vegetation with turn offs into the various parcels. There are 12 parcels located along the roadway. All are developed with at least one structure present.

State highway speed limit is 45 miles per hour. The road way is an asphalted, two-way, single lane highway. There are turn offs for various properties and bus stops. Malaekahana Bike Path runs adjacent to the state highway on the mountain side of the road. Visibility along the stretch of Kamehameha Highway (State Route 83) is open for approximately a half mile.

The nearest bus stop is located on Kamehameha Highway approximately 165 feet to the northwest of the Site.

4.2.5 Social Factors and Community Identity

The Site is located less than a mile from a golf course, small shops, grocery stores, a farmers' market, a coffee shop, and restaurants. There are also schools and parks within a mile of the property.

According to the U.S. Census Bureau the population in Kahuku Census Designated Place (CDP) was approximately 2,852 (Census, 2020). There are approximately 547 households with an average of 4.42 people per household (Census, 2020).

4.2.6 Economic Considerations

According to the U.S. Census Bureau (Census, 2020) the median household income in Kahuku CDP is $82,083 in 2020 dollars, compared to the $85,857 median household income for all of Honolulu County and $87,722 for Hawaii.

4.2.7 Recreational and Public Facilities

Recreational activities in the area mainly consist of outdoor activities such as boating, swimming, surfing, scuba diving, snorkeling, dolphin, and whale watching, hiking, and camping, golfing, and fishing.

A number of recreational areas and facilities are located throughout the island of Oahu, consisting of beach parks, golf courses, district and neighborhood parks, and community centers. The site opens up to the Moku‘auia Beach and Pacific Ocean. Malaekahana State Recreation Area and Malaekahana Beach Campground (1/4 mile south) are in close proximity to the Site located along the coast on the Pacific Ocean. Kahuku Golf Course (approximately 1 mile north), Kahuku District Park (1.5 miles north west), Hukilau Beach Park (3/4 mile south) are also located in close proximity to the Site.

4.2.8 Visual and Aesthetic Resources

Kahuku does afford beautiful views. The DPP 1987 Coast View Study designated this portion of Kamehameha Highway as a “Coastal Roadway with Intermittent Coastal View”. Additionally, Makahoa Point (3/4 mile north) and Kalanai Point (less than a half mile south) contained significant stationary views along the coastline. The subject property is shielded by dense vegetation along Kamehameha Highway, and thus does not block any viewing plane from the state highway.

4.2.9 Infrastructure Systems and Utilities

Drinking water and wastewater utility services is supplied by the Board of Water Supply (BWS). Drinking water supply is from the Kahuku Wells facility via a 12-inch transmission main. According to the BWS Master Plan (2016):

> "The Kahuku model system consist of one pressure zone with one reservoir and one well station. It is the smallest models system with an existing ADD (average day demand) of 0.38 mgd (million gallons per day) and is hydraulically separate from other BWS systems. Demands are expected to remain the same in the future.
>
> Existing system demands have been met under current operations. However, according to the Standards, 0.08 MG (million gallons) of additional storage and 1.7 mgd of additional pumping capacity are needed. However, due to the historical MDD (maximum day demand) factor being greater than 1.5, recommended improvements are actually greater than those suggested by Standards; 1.8 mgd of additional pumping and 0.12 MG of additional storage is needed."

Sewer services will consist of septic systems. The Laie Wastewater Facilities is located 1.25 miles south of the property. There are no current plans to tie into the wastewater system. Electricity service is supplied by Hawaiian Electric Company, via overhead electrical lines that branch off of state highway Kamehameha Highway and follows along the access roadway. Gas service is supplied by Hawaii Gas. Telephone, cable, and internet can be provided by Spectrum or Hawaiian Telcom, as well as satellite service providers.

The Honolulu Fire Department (HFD) has 44 engine companies throughout the island of Oahu. The closest fire station is the Fire Station 13 Kahuku. It is located at 56-460 Kamehameha Highway, a little over a mile from the Site. The next nearest station is Fire Station 15 Hauula, located at 54-064 Kamehameha Highway, approximately 3.7 miles from the Site.

The Honolulu Police Department (HPD) is headquartered in Honolulu. The Site is located in District 4 which encompasses Kaneohe/Kailua/Kahuku areas and spans from Waimanalo to Kahuku. Kahuku Substation is located at 56-470 Kamehameha Highway, approximately 1.3 miles from the Site.

The closest medical facility is Kahuku Medical Center, located at 56-117 Pualalea Street, approximately 2 miles from the project site. Kahuku Medical Center provides primary care, emergency, diagnostic, dental, and therapeutic health services. Other urgent care and medical clinics are located in the general proximity to the Site including Kaiser Permanente Kahuku Clinic, located at 56-565 Kamehameha Highway, approximately 2 miles from the Site and Koolauloa Health Center, located at 56-119 Pualalea Street, approximately 2 miles from the project site.

In regard to schools which service the Site, the Site is located within the Department of Education's Windward Oahu District, Kahuku Complex Area. Hauula Elementary, Kaaawa Elementary, Kahuku Elementary, Laie Elementary, Sunset Beach Elementary, Kahuku Intermediate, and Kahuku High School service the area, with Laie Elementary assigned to the project Site. Kahuku High and Intermediate School would service the Site. Laie Elementary School reported 649 students in its 2020-2021 academic year roster. Kahuku High and Intermediate School reported 1,399 students in its 2020-2021 academic year roster. In addition, there are five (5) pre-schools in the Kahuku area. Koolauloa Early Headstart, Kamehameha Schools Kahuku Preschool, Rainbow School, Laie Head Start, and Honolulu Community Pre-School are located in the vicinity from the Site. These schools offer education for ages 2 through 5 years old.

Brigham Young University is located a little over a mile and a half from the Site. Windward Community College is located approximately 23.5 miles from the Site. Both campuses offers on-site and distance learning classes and programs. Other colleges and universities are located Oahu.

SECTION 5 ENVIRONMENTAL CONSEQUENCES AND PROPOSED MITIGATION MEASURES

Potential impacts of Alternative I: No Action and Alternative II: Proposed Action are described in this section of the report. Impacts are evaluated on whether they constitute a "significant effect" on a particular environmental setting. Impacts are described as having No Impact, Significant Adverse Impact or Beneficial Impact depending on the outcome to the environment. The terms impact and effect are used synonymously in this EA. Impacts may apply to the full range of natural, aesthetic, historic, cultural, and economic resources. The following subsections define key terms used throughout Section 5.

Significance Criteria

A "significant effect" is defined by HRS Chapter 343 as "the sum of 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, or adversely affect the economic welfare, social welfare, or cultural practices of the community and State."

Beneficial Versus Adverse

Impacts from the Proposed Action may also have beneficial or adverse effects to the environment. Beneficial impacts are those that have favorable outcomes and add value to the environment. Adverse impacts are those that produce detrimental effects and cause harm to the environment.

Cumulative Impacts

Cumulative impacts are two or more individual effects which, when considered together, compound or increase the overall impact. Cumulative impacts can arise from the individual effects of a single action or from the combined effects of past, present, or future actions. Thus, cumulative impacts can result from individually minor but collectively significant actions taken over a period of time. The cumulative impacts of implementing the Proposed Action along with past and reasonably foreseeable future projects proposed were assessed based upon available information. Cumulative impacts are discussed in Section 5.3.

Mitigative Measures

Mitigative measures are defined as measures taken to avoid, reduce and compensate for adverse impacts to a resource. Mitigative measures are identified and discussed for each alternative, where relevant. In this EA, mitigative measures are provided to reduce adverse impacts when levels of impact are more than minor and to ensure levels of impact are not significant. Only those mitigative measures that are practicable have been identified.

5.1 Physical Environment

5.1.1 Topography and Geology

Alternative I

No significant adverse impacts to the topography or geology are expected to result from Alternative I. The Site would remain the same as there would be no construction.

Alternative II

No significant adverse impacts to the topography or geology are expected to result from Alternative II. As the Site is previously disturbed, no significant changes to the topography are necessary for construction. Some grading would be performed (Figure 39). Construction and operational activities would follow existing topography. No construction within or modification to the existing shoreline is anticipated. The proposed structures will be constructed on the portion of the property away from the existing shoreline and outside the 60-foot shoreline setback.

Alternative III

No significant adverse impacts to the topography or geology are expected to result from Alternative III. However, the work performed at the Site will be on a larger scale than Alternative II. As the Site is previously disturbed, no significant changes to the topography are necessary for construction. Construction and operational activities would follow existing topography. No construction within or modification to the existing shoreline is anticipated. The proposed structures will be constructed on the portion of the property away from the existing shoreline and outside the 60-foot shoreline setback.

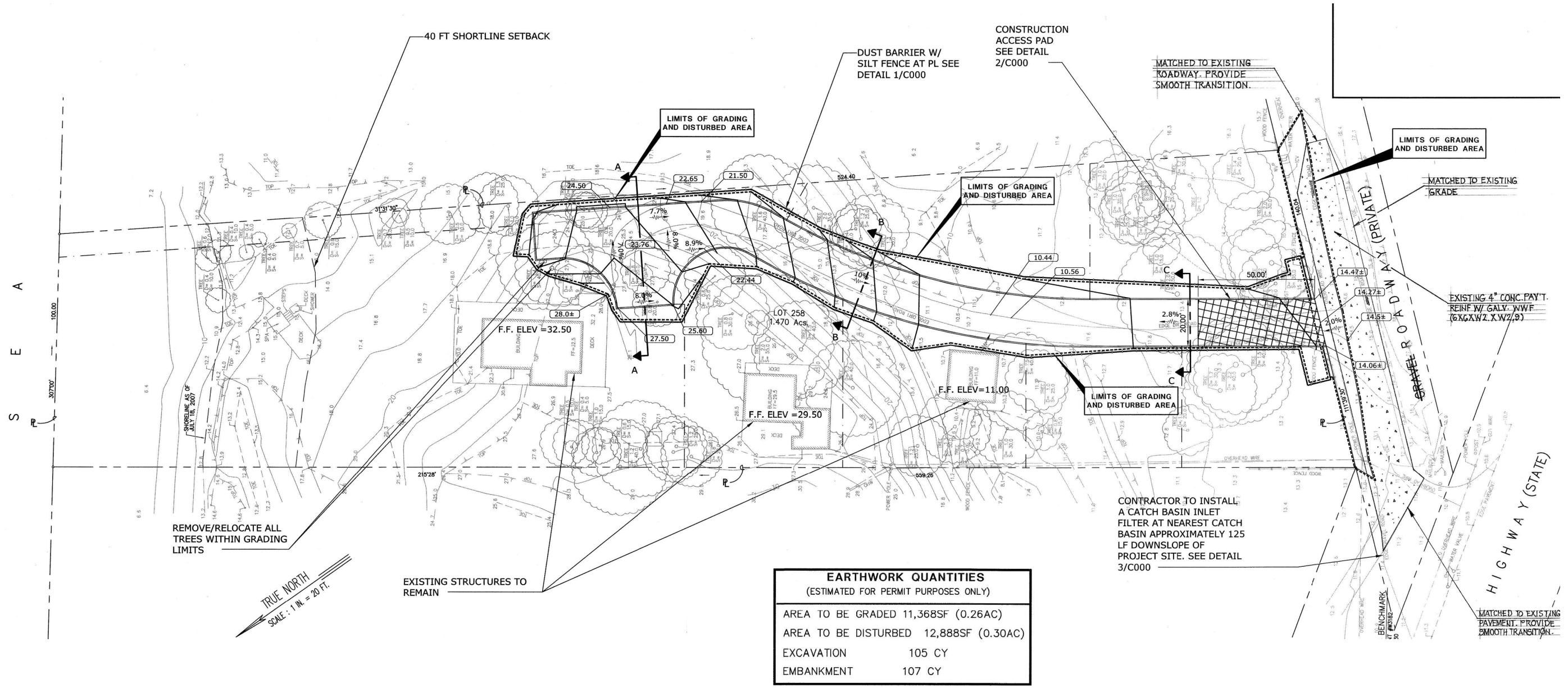
5.1.2 Soils

Alternative I

No significant adverse impacts are anticipated for Alternative I. Site conditions would remain the same.

Alternative II

Alternative II could have a potential significant adverse impact to soils as a result of construction activities (i.e., clearing, grubbing, excavation, and trenching) that disturb the earth and soils. Footings will be required as a part of construction. Exposed soils are susceptible to erosion during periods of heavy rain or wind; however, the Site location is generally arid for most of the year. Short-term adverse impacts would be minimized to less than significant or avoided by implementing temporary erosion control measures during construction activities. Best management practices (BMPs) with erosion and sediment control measures, including silt fences, berms, and other erosion control devices, shall be prepared and implemented to confine the proposed excavation and construction activities, and prevent potential soil, construction debris and



EARTHWORK QUANTITIES
(ESTIMATED FOR PERMIT PURPOSES ONLY)

AREA TO BE GRADED	11,368SF (0.26AC)
AREA TO BE DISTURBED	12,888SF (0.30AC)
EXCAVATION	105 CY
EMBANKMENT	107 CY

Environmental Risk Analysis

PROJECT NAME:

56-155 Kamehameha Highway
Kahuku, Hawaii 96731
TMK 5-6-001:033

FIGURE TITLE:

Grading Plan

FIGURE NUMBER:

40

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polluted runoff from adversely impacting the coastal ecosystem, and the shoreline below. Below is a summary of earthwork estimates.

Parcel	Excavation	Fill
1	NONE	NONE
2	1750	700
3	720	288
4	720	288
5	6448	2579
6	1750	700
7	3178	1272
8	6448	2579

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale.

5.1.3 Natural Hazard

Alternative I

No significant adverse impacts to natural hazard vulnerability would result from Alternative I as the Site will not change.

Alternative II

No significant adverse impacts to natural hazard vulnerability would result from Alternative II. The project area is classified within Flood Zone X. No adverse impacts are anticipated in relation to the structure and the established flood elevation. The Site is located in a Tsunami Evacuation Zone. No portion of the proposed structures lies within the areas identified to be impacted by sea level rise of 0.5 feet to 3.2 feet. Construction design has taken in to account the Flood Zone/tsunami/sea level rise concerns and has included design elements to prevent adverse impacts to the project, such as placement of the structure as far from the shoreline as possible.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale. No significant adverse impacts to natural hazard vulnerability are anticipated.

5.1.4 Flora and Fauna

Alternative I

No significant adverse impacts to flora/fauna are anticipated due to Alternative I as the site would remain undeveloped.

Alternative II

No significant adverse impacts to flora and fauna are anticipated due to Alternative II. No threatened or endangered species were observed in the biological assessment or are known to exist in the project area. An inquiry with the USFWS (USFWS, 2022) revealed there are six federally listed species in the vicinity of the project area. Impacts may occur to the federally listed species in absence of mitigation measures to reduce adverse impacts to less than significant. The USFWS recommendations to avoid or minimize project impacts to listed species are provided below:

Hawaiian hoary bat (Lasiurus cinereus semotus)

The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat, the USFWS recommend that projects incorporate the following applicable measures into the project description:

- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing.

Hawaiian Seabirds

The following mitigation measures are applicable to:

- the band-rumped storm-petrel Hawai‘i DPS (*Oceanodroma castro*)
- the Hawaiian petrel (*Pterodroma sandwichensis*)
- the Newell’s shearwater (*Puffinus auricularis newelli*)

Newell’s shearwaters are found in the highest densities on Kaua‘i with lower densities on all of the other islands, except Lāna‘i. Hawaiian Petrel populations are greatest on Maui, Lāna‘i, and Kaua‘i with lower densities on Hawai‘i and Molokai. Band-rumped storm-petrels are found in low densities throughout the islands. All islands may experience overflight at night.

For all projects, Hawaiian seabirds may traverse the project area at night during the breeding, nesting, and fledging seasons (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable.

To avoid and minimize potential project impacts to Hawaiian seabirds, the USFWS recommend that projects incorporate the following applicable measures into the project description:

- Fully shield all outdoor lights so the bulb can only be seen from below bulb height and only use when necessary.
- Install automatic motion sensor switches and timer controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird fledging period, September 15 through December 15.

Wedge-tailed shearwater (Ardenna pacificus)

Unlike other Hawaiian seabird species, wedge-tailed shearwaters nest in littoral vegetation along coastlines. Nesting adults, eggs, and chicks are particularly susceptible to impacts from human disturbance and predators.

To avoid and minimize potential project impacts to wedge-tailed shearwaters, the USFWS recommend that projects incorporate the following applicable measures into the project description:

- Conduct surveys throughout the project area during the species' breeding season (March through November) to determine the presence and location of nesting areas.
- If wedge-tailed shearwaters nest within a proposed project area and construction would cause ground disturbance, time project construction to occur outside of the breeding season (March through November).
- If outdoor lighting is used, use light shields that are completely opaque, appropriately sized, and positioned so that the bulb is only visible from below and the light from the shielded source cannot be seen from the beach.

Install automatic motion sensor switches and timer controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.

The State of Hawaii, Office of Planning & Sustainable Development (OPSD) concurs that the exterior lighting and lamp posts associated with the proposed residence project shall be cut-off luminaries to provide the necessary shielding to mitigate potential light pollution in the coastal areas, and lessen possible seabird strikes. No artificial light, except as provided in HRS§§ 205A-30.5(b) and 205A-71(b), shall be directed to travel across property boundaries toward the shoreline and ocean.

The State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife also stated that the State endangered White Tern (*Gygis alba*) or Manu o Kū is known to nest in the proposed project vicinity. If tree trimming or removal is planned, Division of Forestry and Wildlife recommends surveying for the presence of White Terns prior to any action that could disturb the trees. White Tern pairs lay their single egg in a branch fork with no nest. The eggs and chicks can be easily dislodged by construction equipment that nudges the trees. If a nest is discovered, Division of Forestry and Wildlife staff will be contacted for assistance.

The Division of Forestry and Wildlife also stated that the project should minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive fungal pathogens (e.g., Rapid ʻŌhiʻa Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coconut Rhinoceros Beetles), or invasive plant parts that could harm our native species and ecosystems. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water, and sprayed with 70% alcohol solution to prevent the spread of Rapid ʻŌhiʻa Death and other harmful fungal pathogens. The Division of Forestry and Wildlife recommends using native plant species for landscaping that are appropriate for the area (i.e., climate conditions are suitable for the plants to thrive, historically occurred there, etc.)

Alternative III

Impacts from Alternative III would be similar to those of Alternative II. No significant impacts to flora and fauna are anticipated with BMPs employed.

5.1.5 Wetlands

Alternative I

No significant adverse impacts to wetlands are anticipated due to Alternative I as the Site would remain undeveloped.

Alternative II

No significant adverse impacts are anticipated under Alternative II. Alternative II, the Proposed Action, would not result in loss or destruction of existing wetland resources with the use of appropriate Best Management Practices (BMPs). In addition, all proposed work will be performed away from the ocean frontage.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II.

5.1.6 Water Resources

Alternative I

No significant adverse impacts to groundwater or surface water would result under Alternative I, the no action alternative. Site conditions would remain the same.

Alternative II

No significant adverse impacts are anticipated to groundwater resources assuming implementation of Alternative II, the Proposed Action. Hazardous substances that could adversely affect groundwater are not likely to be introduced or released into the soil given the proposed use of the

Site as residential. No significant impact to surface water near the Site is anticipated because of construction or operations associated with Alternative II as there are no streams or surface water bodies at the Site. Work will be performed away from the ocean frontage.

Potable water use and wastewater generated by the proposed project would not impact current services as the project would seek to incorporate low flow fixtures. Septic systems would be installed that would have capacity to handle single family residences. The addition of 6 additional single-family homes, based on an average water use of 9,000 gallons per month per single family residence (BWS rate sheet 2018), would roughly equal 54,000 gallons per month. Pre-consultation inquiry was sent to BWS, with no response received.

The Site is not located on a sole source aquifer. No significant impact to surface water near the Site is anticipated as a result of construction or operations associated with Alternative II with the use of BMPs. There are no designated wild and scenic rivers in the State of Hawaii.

A National Pollutant Discharge Elimination System (NPDES) permit, if required, would be obtained for discharges of wastewater, to include stormwater runoff, prior to construction or operations. Any discharges would comply with the NPDES permit and State Water Quality Standards (HAR Chapter 11-55, and HAR Chapter 11-54 respectively).

Alternative III

Impacts from Alternative III would be similar to those of Alternative II. The property would remain a single-family residence.

5.1.7 Climate and Air Quality

Alternative I

Alternative I would not have a significant adverse impact to air quality as the existing conditions would remain unchanged.

Alternative II

Under Alternative II, potentially significant adverse impacts to air quality from earth moving and excavation activities during construction activities (i.e., fugitive dust emissions) are anticipated. Temporary increases in traffic during the construction phase of Alternative II are also anticipated to increase emissions from combustion as well as increase fugitive dust. Adequate dust control measures, in compliance with Section 11-60.1-33, "Fugitive Dust", of HAR will be implemented during all phases of construction. Use of BMPs (i.e., watering of roads and trenches during project activities, use of a dust screen which surrounds the project area) would reduce any impacts to less than significant. Other reasonable measures to control airborne, visible fugitive dust which will be considered include, but are not limited to, the following:

- Planning the different phases of construction, focusing on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site

vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
- Providing an adequate water source at the site prior to start-up of construction activities;
- Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
- Minimizing airborne, visible fugitive dust from shoulders and access roads;
- Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- Controlling airborne, visible fugitive dust from debris being hauled away from the project site.

Once project construction is complete, impacts to air quality would not be significant.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale.

5.1.8 Noise

Alternative I

No significant adverse impacts to noise are expected to occur under Alternative I. Site conditions would remain unchanged.

Alternative II

Under Alternative II, potentially significant adverse impacts to noise environment from heavy equipment use during construction activities are anticipated. The potential significant adverse impacts will be reduced to less than significant by abiding by the HDOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations and CFR 24 CFR Subpart B - Noise Abatement and Control for the duration of the project. Construction activities at the Site may increase noise levels, however these activities will be limited to daylight hours. If noise levels exceed allowable levels, then a noise permit will be obtained.

Once the project is completed, no significant increases in noise are anticipated. Noise levels would not be anticipated to significantly increase as the proposed action is residential. No industrial processes or activities that would contribute to a significant adverse impact to the noise environment are planned under Alternative II.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, but for potentially longer duration.

5.1.9 Solid Waste

Alternative I

No significant adverse impacts to solid waste are expected to occur under Alternative I. Site conditions would remain unchanged.

Alternative II

Construction activities at the Site will increase solid waste and construction wastes. Waste generated by site preparation will primarily consist of renovation of one structure, vegetation, rocks, and debris from clearing, grubbing, and grading. These wastes will be minimized by proper planning of building materials and recycling efforts. A solid waste management plan will be coordinated with the City and County's Solid Waste Division for the disposal of onsite and construction-related waste material.

Once the project is completed, solid waste generation is not anticipated to significantly increase over the current conditions. H-POWER will have adequate capacity to accommodate increased waste generated from the additional residences. This increase in waste generation would not contribute to a significant adverse impact under Alternative II. In addition, the proposed project will support programs that encourage waste reduction, recycling, and other green/environmentally friendly practice.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II.

5.1.10 Hazardous Waste

Alternative I

No significant adverse impacts to are expected to occur under Alternative I. Site conditions would remain unchanged.

Alternative II

Construction activities at the Site has the potential to temporarily increase use of potentially hazardous wastes. Use of chemicals at the Site would increase during construction such as fueling for heavy equipment and construction materials (e.g., paints, stains). These wastes can be minimized by pre-construction proper planning. Existing potentially hazardous wastes would be removed during construction activities. Demolition waste (from the existing structure on Lot 6) would be characterized for hazardous characteristics (lead, asbestos, etc.) and properly removed and disposed to prevent release to the environment.

Once the project is completed, household hazardous waste (e.g., batteries, paints, cleaners, etc.) generation will not be increased over the current conditions. As there would be no additional waste

generation from current conditions, Alternative II would not contribute to a significant adverse impact to the hazardous waste environment.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale.

5.2 Social Environment

5.2.1 Land Use Considerations and Zoning

Alternative I

No significant adverse impacts to are expected to occur under Alternative I. Site conditions would remain unchanged.

Alternative II

Alternative II would have a beneficial impact on land use and zoning. The proposed action would modernize and increase the lifespan of the property for residential use.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II.

5.2.2 Archaeological Considerations

Alternative I

No significant adverse impacts are associated with the No Action Alternative as no change to the current infrastructure would occur.

Alternative II

Alternative II would involve ground disturbing activities that may adversely impact historical and archaeological resources. However, these impacts are considered unlikely as the Site is previously disturbed and developed. The area surrounding the Site has no history of archeological resources according to a query of SHPD HICRIS. SHPD consultation will be performed prior to ground disturbance activities.

The Hawaii Cultural Resource Information System (HICRIS) site for the subject property resulted in the following Sites:

- Kawainui Stream-Laiwai Bridge, Resource Number 2019RE08909 is located 0.6 miles to the south of the property and situated on Kamehameha Highway. The bridge is listed as a Resource with no significance.

- DRR Na Pua Makani, Project Number 2021PR00335 is located 0.7 miles to the north of the property and is situated mauka of Kamehameha Highway. It is listed as a Project Review.

No associated surveys or other information is provided.

An Archaeological Assessment was performed for specific parcels of the project (Rechtman 2021). An area of 0.57-acres of the total 1.47-acre property was assessed. While the survey yielded negative results, the Jaucus sands in the area are known to contain significant subsurface cultural items and human remains/burials. And as previous findings show human burials, an imu, and at least two fire pits on the property, SHPD has requested an Archeological Monitoring Plan be prepared for review and acceptance prior to permit issuance. The Archaeological Assessment was accepted by SHPD.

ERA also reviewed an environmental assessment conducted in the vicinity of the Site to determine if previous surveys have identified archaeological resources in the vicinity of the Site. The assessments reviewed included an Archaeological Assessment and Chapter Review conducted for the Malaekahana State Recreation Area, Kahuku Section Park Improvements project. The 2016 EA noted:

"Lands in Mālaekahana Valley may have been utilized to support a large Hawaiian settlement that is known to have existed in the Kahuku to Lā'ie area; however, limited information exists about the land use and settlement patterns of the established Hawaiian population prior to the first encounters with European voyagers in 1778. The land division process that began with the Organic Acts of 1845 and 1846 ultimately resulted in Land Commission Awards to residents and individuals who could substantiate use of the lands they were claiming. Commercial ranching activities that resulted in large scale landform alterations began in the mid- 19th century and persisted for several decades. By the 1880s, the lands in Kahuku were primarily utilized to support the sugar industry. "

Archeological investigation carried out for the project identified post molds, pit features, and in situ human burial. A burial treatment plan was prepared to address the in situ human burial.

If human osteological remains or a potential archaeological site are uncovered during construction activities, mitigation measures will be implemented. Specifically, site work will cease and SHPD would be contacted in compliance with Chapter 6E of the HRS. These mitigation measures will ensure no loss or destruction of historic and archaeological resources, avoid adverse impacts to potential sites, and ensure compliance with State laws and regulations. Implementation of mitigation measures would reduce any potential impacts associated with Alternative II to less than significant.

<u>Alternative III</u>

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale.

5.2.3 Cultural Considerations

Alternative I

No significant adverse impacts are associated with the No Action Alternative as no change to the current infrastructure would occur.

Alternative II

There are no cultural resources noted in the HICRIS site for the subject property.

As discussed in Section 4.2.2, an environmental assessment was reviewed for a site in the vicinity of the subject property. Cultural Impact Assessment and Chapter 343 Review conducted for the Malaekahana State Recreation Area, Kahuku Section Park Improvements project. This assessment evaluated historical use of the surrounding area for cultural practices including agriculture, fishing, trails, and other cultural practices. These are summarized below.

"Archival and documentary research suggests that the early Polynesian inhabitants settled areas within the project vicinity that had favorable fishing and agricultural opportunities. Productive areas may have been intensely cultivated to sustain the subsistence economy of a permanent settlement during the pre-Contact period. Evidence of traditional Hawaiian life has been obscured by large scale landform changes in the project area from several decades of commercial ranching activities that began in the mid-19th century and later 19th century commercial sugarcane operations that continued through the early 1970s."

There was no evidence that the project area and immediately surrounding land were used for traditional, customary, or cultural practices.

It is also currently projected that permitting requirements will necessitate holding public meetings where the applicant will be able to gather feedback from the public for any potential known cultural practices associated with the property and vicinity of the Site. Implementation of mitigation measures would reduce any potential impacts associated with Alternative II to less than significant.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale.

5.2.4 Circulation and Traffic

Alternative I

No significant adverse impacts are anticipated under Alternative I. Site conditions would remain the same.

Alternative II

No significant adverse impacts are anticipated under Alternative II. During construction activities, access and traffic are anticipated to increase compared to normal Site operations. If access and traffic are impacted as a result of renovation activities, minimizing impact on traffic and access to less than significant levels can be accomplished by the following:

1) Mobilizing and de-mobilizing construction vehicles and equipment during non-peak traffic hours.
2) Use of temporary traffic control devices, such as signage, barricades, and cones, in accordance with City and County traffic standards; and
3) If necessary, utilize off-duty police to manage traffic.

After construction, there would be increased in traffic from the addition of residences, however no significant adverse impact to traffic in the area is anticipated. Assuming an additional 2 cars per household, there would be 12 additional automobiles on the roadway. Minimal increase in traffic would be anticipated due to the operation of the new structures at the property. Signage can be posted should traffic hazards appear.

The State of Hawaii Department of Transportation (HDOT) was requested to provide pre-consultation comments relating to the proposed project. No response was received from HDOT.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale if additional cars are added due to increased construction size.

5.2.5 Social Factors and Community Identity

Alternative I

Alternative I would have no impact to the social and community identity. Site conditions would remain unchanged.

Alternative II

Construction of new residential structures are expected to have a beneficial impact on the social and community identity of the area. The proposed project will provide construction employment for the local community. The proposed project would also rehabilitate aging housing and increase the lifespan of the intended use of the Site for residential purposes.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II.

5.2.6 Economic Considerations

Alternative I

No significant adverse impacts are anticipated under Alternative I. Site conditions would remain unchanged.

Alternative II

No adverse impacts to the economy in the vicinity of the Site are anticipated as a result under Alternative II. The proposed project will result in short-term economic benefits for the construction industry and may help support small businesses in the area.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II.

5.2.7 Recreational and Public Facilities

Alternative I

No significant impacts are anticipated under Alternative I. Site conditions would remain unchanged.

Alternative II

Alternative II is expected to have no significant adverse impact on the recreational and public facilities on the island. There are many beach parks, hiking trails, and other recreational facilities in the area. Minimal, if any, population increase would not have a significant impact to the recreational and public facilities.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale, as the larger units may house larger families.

5.2.8 Visual and Aesthetic Resources

Alternative I

There would be no significant adverse impact on the visual resources and aesthetics in or around the project area anticipated with Alternative I as this alternative shall not bring about any changes in the existing conditions.

Alternative II

No significant adverse impacts to visual resources are expected under Alternative II. Construction of the new residential structures will not significantly impact the view of adjacent houses. The Proposed development at the Site is not identified as a scenic vista or view plane nor will it affect identified scenic vistas or view planes. The proposed action will not affect scenic corridors and coastal scenic and open space resources.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II.

5.2.9 Infrastructure Systems and Utilities

Alternative I

No significant adverse impacts are anticipated under Alternative I. Site conditions would remain unchanged.

Alternative II

Alternative II is expected to have some impact on the infrastructure and utilities in and around the project area. Water, electricity, and gas services are expected to be supplied by the same service providers used within the area.

Wastewater discharge into the wastewater system is estimated at 80% of water demand by BWS, due to other water uses that do not require disposal such as irrigation. Estimated single family water demand of 9,000 gallons per month would equate to a discharge of 7,200 gallons per month. The maximum capacity for a dwelling of 4 or less bedrooms is 1,000 gallons per day. The maximum capacity of a dwelling of a 5 bedroom is 1,250 gallons per day. Hawaii Department of Health regulations notes there shall be 10,000 square feet of land for each individual wastewater system and each system shall not serve more than five bedrooms. Planning between the parcels for wastewater system placement and usage would follow Hawaii Administrative Rules, Chapter 62 Title 11, Wastewater systems. All reviews and approvals would be obtained prior to construction of wastewater systems.

HFD and HPD were requested to provide pre-consultation comments relating to the demolition of the existing structure and construction of the new structures at the Site.

HFD has previously approved a fire department hydrant equivalency provided the following conditions are met: 1) proposed dwellings shall be equipped with full coverage automatic fire sprinkler systems in accordance with National Fire Protection Association (NFPA) 13D, 2) shall meet fire department access road requirements (NFPA 1, 2012 ed), 3) fire extinguishers must meet NFPA 10, 2010 ed., and 4) civil drawings will be submitted for fire department approval to ensure that all fire codes are met prior to construction.

In addition, HFD provided additional HFPA sections with which the project must comply. They include provisions regarding:

- Access Roads: NFPA 1; 2018 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1, as amended and Section 18.2.3.2.1

- Water Supply: NFPA 1; 2018 Edition, Sections 18.3 mad 18.4

No impacts to educational facilities are anticipated.

Alternative III

Impacts from Alternative III would be similar to those of Alternative II, however on a larger scale, as the larger construction size may lend to larger families residing at the properties.

5.3 Cumulative Impact

Cumulative effects are not anticipated as a result of implementing Alternatives I or II. The actions themselves do not involve a commitment to larger actions. The alternatives will likely not result in substantial secondary impacts, such as population changes or effects on public facilities. Alternative I will effect no change to the project area. Alternative II involves the demolition of the existing structure and construction of a single-family residences. Population changes or effects on public facilities would be minimal. The change in population and demand for public facilities would be readily met by existing infrastructure.

The project area is built to capacity; there are not open spaces for potential future developments.

SECTION 6 RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

The purpose of Section 6 is to identify plans and policies that may be applicable to this project and summarize the relationship of the plans and policies to project actions. Additionally, the intent is to revisit these plans and policies to qualify any significant effects from actions proposed in this EA.

6.1 State and County Land Use Plans and Policies

6.1.1 State Land Use

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission (LUC), establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as Urban, Rural, Agricultural, and Conservation. The parcel proposed for development is located in an Urban district.

6.1.2 City and County Zoning

Land Use Ordinance

The City and County of Honolulu, Department of Planning and Permitting, indicates the Site Land Use Ordinance Zoning Designation is Residential (R-5). Land Use Ordinance (LUO), Chapter 21, ROH lists Dwellings, detached, one-family as a permitted use in a R-5 Zoning District. Table 2 contains R-5 zoning requirements and project details.

Flood Hazard Areas Ordinance

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44 CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). 44 CFR, Chapter 1, Subchapter B, Part 60 reflects the minimum standards as set forth by the NFIP.

The City and County of Honolulu has created the Flood Hazard Areas Ordinance to regulate construction in areas of flood hazard and/or tsunami inundation. These regulations are necessary for partification in the federal flood insurance program, which provides federal financial assistance. The proposed project is designated as Zone X and does not require special provisions.

Sec. 21A-1.6 General development standards.
Structures within the special flood hazard areas shall conform to the following:

- (a) Be designed and adequately anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including effects from buoyancy caused by the base flood.
- (b) Constructed of flood-resistant materials.
- (c) Constructed by methods and practices that minimize flood damage.

- (d) Constructed with electrical, heating, ventilation, plumbing, air conditioning, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (e) Provided with adequate drainage to minimize damage in accordance with the storm drainage standards of the department.
- (f) For new or replacement potable water system and facilities, be designed to minimize or eliminate infiltration of flood waters into the systems.
- (g) For new or replacement sanitary sewer system and waste disposal system, be designed, located, and constructed so as to minimize impairment to them or contamination from them during and subsequent to flooding by the base flood.

The Site is not located in a Special District, but is located in a Special Management Area, due to the parcel's proximity to the shoreline.

6.1.3 Coastal Zone Management, Chapter 205A

Chapter 205A, HRS, also known as the Coastal Zone Management Program, is a long-range comprehensive plan that serves as a guide for the future long-range development of the State to protect recreational, historic, scenic, and open space resources, coastal ecosystems, economic uses, coastal hazards, beach and coastal dunes, marine and coastal resources as well as manage development and stimulate public participation. The proposed project is in accordance with the following objectives and policies of the Coastal Zone Management Program:

Objectives

- Recreational Resources: The proposed project will not prevent access to coastal recreational opportunities to the public, as appropriate;
- Historic resources: The proposed project will seek to protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture, as appropriate.
- Scenic and open space resources: The proposed project will seek to protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources, as appropriate.
- Coastal ecosystems: The proposed project will seek to protect valuable coastal ecosystems, including reefs, beaches, and coastal dunes, from disruption and minimize adverse impacts on all coastal ecosystems, as appropriate.
- Economic uses: The proposed project will seek to incorporate public or private facilities and improvements important to the State's economy in suitable locations, as appropriate.
- Coastal hazards: The proposed project will seek to reduce hazard to life and property from coastal hazards, through project design, as appropriate.
- Managing development: The proposed project will seek to facilitate development review process, communication, and public participation in the management of coastal resources and hazards, as appropriate.
- Public participation: The proposed project will seek to stimulate public awareness, education, and participation in coastal management, as appropriate.

Table 2: R-5 ZONING

	Lot								R-5 Zoning Guidelines
	1	2	3	4	5	6	7	8	
minimum lot area for a one-family dwelling, detached and other uses	EXISTING NO WORK PROPOSED	8443	5757	6062	5512	6392	6314	6314	5000 ft
minimum lot width and depth		70.49 x 70.77	101.1 x 50.93	68.13 x 50.93	54.79 x 56.52	55.63 x 66.31	73.61 x 55.63	77.54 x 56.26	50 ft
front yard		12'6.75"	10'	23'	12'	11' 3.5"	16'	10'	5 ft
side and rear yard		6.5'/7.5'/8'	14'/5'/24'	15'/14'/24'	13'/18'/7'	6'1"/6'8"/8'	27'/8'/9'	16'/10'/26'	5 ft
maximum density ratio (guidelines)		5910.1	4029.9	4243.4	3858.4	4474.4	4419.8	4419.8	floor area of 0.7
maximum density ratio (actual)		2056	360	360	3224	1748	1589	3224	
maximum building area (guidelines)		4221.5	2878.5	3031	2756	3196	3157	3157	50% of lot
maximum building area (actual)		2994	360	360	1932	1748	1940	1980	
maximum height		24'	11'4.5"	11'4.5"	17'8"	24'	21'	23'	25-30 ft
off-street parking (guidelines)		3	1	1	4	2	2	4	1 per 1000 sf of living space
off-street parking (actual)		3	1	1	4	2	2	4	
bathrooms - Lot size 8000 sf +		3	1	1	3	2	3	4	7.5
impervious area (guidelines)		6332.25	4317.75	4546.5	4134	4794	4735.5	4735.5	</= 75% of total zoning lot area
impervious area (actual)		<1000	360	360	1932	<500	1940	1980	

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- Beach protection: The proposed project will seek to protect beaches and coastal dunes for (i) public use and recreation; (ii) The benefit of coastal ecosystems; and (iii) use as natural buffers against coastal hazards, and coordinate and fund beach management and protection, as appropriate.
- Marine and coastal resources: The proposed project will promote the protection, use, and development of marine and coastal resources to assure their sustainability, as appropriate.

Policies

- Recreational resources; The proposed project will seek, as appropriate:
    - (A) Improve coordination and funding of coastal recreational planning and management; and
    - (B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
        - (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
        - (ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;
        - (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
        - (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
        - (v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;
        - (vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;
        - (vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and
        - (viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.
- Historic resources; The proposed project will:
    - (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.
- Scenic and open space resources; The proposed project will:

    - (A) Identify valued scenic resources in the coastal zone management area;
    - (B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
    - (C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
    - (D) Encourage those developments that are not coastal dependent to locate in inland areas.
- Coastal ecosystems; The proposed project will:
    - (A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
    - (B) Improve the technical basis for natural resource management;
    - (C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
    - (D) 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
    - (E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.
- Economic uses; The proposed project will seek, as appropriate:
    - (A) Concentrate coastal dependent development in appropriate areas;
    - (B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as 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 developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
        - (i) Use of presently designated locations is not feasible;
        - (ii) Adverse environmental effects are minimized; and
        - (iii) The development is important to the State's economy.
- Coastal hazards; The proposed project will seek, as appropriate:
    - (A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
    - (B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;
    - (C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
    - (D) Prevent coastal flooding from inland projects.
- Managing development; The proposed project will seek, as appropriate:
    - (A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

    - (B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and
    - (C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.
- Public participation;
    - (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.
- Beach protection; The proposed project will:
    - (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.
- Marine resources; The proposed project:
    - (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 States 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.

Senate Bill 2060: Relating to Coastal Zone Management was revised in 2020 to include residential and commercial development for parcels that are impacted by waves, storm surges, high tide, or shorelines erosion, which had not been included previously.

On September 15, 2020, the Coastal Zone Management law was amended to eliminate the single-family dwelling exemption in the SMA for all shoreline parcels, regardless of whether dwelling floor area is less than 7,500 square feet. Consequently, the proposed project is considered a

"development" and has a valuation in excess of $500,000, a Major SMA Use Permit needs to be obtained from the City Council. This EA has been prepared in support of the Major SMA Use Permit.

6.1.4 Shoreline Setback Ordinance, Chapter 23

The Shoreline Setback Ordinance was designed 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 floods. The Shoreline Setback Ordinance works in conjunction with Coastal Zone Management, Chapter 205A.

A Shoreline Certification was performed in 2021. The proposed structures will not be building within the 40-foot shoreline setback. BMPs would prevent any runoff or other construction debris from migrating off-site. This project is not seeking a variance from the shoreline setback.

6.1.5 Oahu General Plan

The City and County of Honolulu General Plan (1992, amended in 2021) "sets forth the long-range objectives and policies for the general welfare and, together with the regional development plans, provides a direction and framework to guide the programs and activities of the City and County of Honolulu." The General Plan evaluated the population, economic activity, natural environment, housing, transportation and utilities, energy, physical development and urban design, public safety, health and education, culture and recreation, and government operations and fiscal management. The General Plan was followed by the Development Plans and Sustainable Community Plans which addressed 8 areas of Oahu: Primary Urban Center, Central Oahu, Ewa, Waianae, North Shore, Ko'olau Loa, Ko'olau Poko, and East Honolulu. The proposed project falls within the Ko'olau Loa Policy area and is estimated to be 1% of the 2040 Oahu Population.

6.1.6 Koʻolau Loa Sustainable Communities Plan

The proposed project is in accordance with the Koʻolau Loa Sustainable Communities Plan, adopted in 2020, The vision for Ko'olau Loa seeks to preserve the region's rural character and its natural, cultural, scenic, and agricultural resources.

The policies and guidelines related to Residential Communities propose to maintain sufficient inventory of land within the Community Growth Boundary to accommodate existing and future housing needs of residents within the Koʻolau Loa area. It allows for limited expansion of residential areas in Kahuku and Lāʻie to meet existing pent-up demand and anticipated future housing needs related to the expansion of employment opportunities in the region. The existing inventory of residential land for the communities of Kaʻaʻawa, Hauʻula and Punaluʻu will be maintained, and future residential needs in these communities will be met through infill residential development on appropriately zoned vacant lots within existing neighborhoods. No new housing areas are designated in these areas. The importance of respecting and preserving the natural setting of the Koʻolau Loa region is stressed by requiring development in residential areas to be sensitive to physical constraints and to have minimal impact on the area's rural character. Finally, rural

design considerations for zoning and subdivisions approvals are supported, as is affordable housing that meets the need for the region's pent-up demand and overcrowding.

6.1.6.1 Policies

EXISTING AND NEW RESIDENTIAL COMMUNITIES

The following policies are applicable to existing and new residential communities:

Respect and help to preserve the natural setting of the Koʻolau Loa region by requiring development in residential areas to be sensitive to physical constraints and have minimal impact on the area's rural character.

Maintain sufficient inventory of land within the Community Growth Boundary to accommodate existing and future housing needs of residents within the Koʻolau Loa area by supporting limited expansion of residential areas in Kahuku and Lāʻie to meet existing pent-up demand and provide land for affordable work force housing.

Increase housing affordability to Koʻolau Loa residents.

- Maintain the existing inventory of residential land for the communities of Kaʻaʻawa, Hauʻula and Punaluʻu. Future residential needs in these communities will be met through infill residential development on appropriately zoned vacant lots within existing neighborhoods. No new housing areas are designated in these areas.
- Adopt zoning, subdivision and related project design regulations which foster a rural character in new residential developments and improvements to existing residential areas.
- Encourage and support the development of affordable housing in the region in order to address existing pent-up demand for housing and overcrowded housing conditions.

Rural Residential

- Use rural development standards to determine appropriate scale and character, limit building heights and lot coverages, reduce current requirements for the paving width of residential streets and infrastructure systems, and encourage appropriate architectural design and ample native, natural landscaping forms.
- Housing development generally should not be sited on areas where the slope exceeds 20 percent. Where this does occur, housing should be developed to avoid adverse visual impacts, potential slope stability problems and increased runoff. Soils engineering and view studies may be necessary to determine the appropriate density and site design for such locations.
- Building scale, roof form, and the quality of materials for infill and new development, as well as future modifications to existing homes, should be generally compatible with the predominant form and character of existing homes on adjacent properties and with the neighborhood as a whole. Building heights generally should not exceed two stories, but may vary according to required flood elevation, protection of natural features, slope, and roof form. Modification of zoning standards for residential development, such as

provisions for building scale or spacing, roadway widths, or sidewalks, and/or changes in existing zoning district categories, may be necessary to promote rural character.

- Sites on level terrain with fewer development constraints may have overall site densities approaching the higher end of the range for Rural Residential use. To achieve higher density while providing an attractive living environment, optional design or rural development standards for clusters and planned unit developments should be promoted in lieu of conventional subdivision provisions.
- Avoid monotonous rows of garages and driveways along neighborhood street frontages by employing features such as varied building setbacks and shared driveways.
- Use plantation architectural features such as pitched roofs with varied forms, exterior colors and finishes, building orientation, floor plans and architectural details to provide visual interest and individual identity and accentuate the rural setting.
- Support affordable housing initiatives in areas designated for new housing development.

6.2 Necessary Permits and Approvals

The following approvals may be required for the implementation of the project. All approvals will be obtained in accordance with approving agency guidelines.

6.2.1 State of Hawaii

(a) Chapter 343, HRS, environmental review
(b) Department of Health
  - Chapter 46, HAR – noise permit, as required.
  - Chapter 11-23, HAR – Underground Injection Control permit for the use of drainage injection wells to handle discharges of storm water runoff.
  - Chapter 11-55, HAR – National Pollutant Discharge Elimination System (NPDES) permit for construction stormwater discharges.

(c) Chapter 6E, HRS, State Historic Preservation Division, as required.
(d) Shoreline Certification Survey

6.2.2 City and County of Honolulu

(a) Special Management Area – Major Permit.
(b) Building Permits for infrastructure improvements.
(c) Grading Permits for earthwork activities associated with infrastructure improvements.
(d) Park Dedication Ordinance

SECTION 7 FINDINGS AND REASONS SUPPORTING AGENCY DETERMINATION

In accordance with the provisions set forth in Chapter 343, HRS, this EA has preliminarily determined that the project will not have significant adverse impacts on the environment. As such, a Finding of No Significant Impact (FONSI) has been determined for the Proposed Action. Anticipated impacts will be temporary and will not adversely impact the environmental quality of the area.

Title 11-200.1-13, EIS Rules, establishes "Significance Criteria" to determine whether an EIS is required pursuant to the EIS rules. A review of the "Significance Criteria" used as a basis for the above determination is presented below. An action is determined to have a significant impact on the environment if it meets any one of the thirteen (13) criteria.

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

Alternative II would not cause loss or destruction of any natural or cultural resources. The Site has been previously disturbed and constructed upon. Surrounding areas are also developed with residential properties.

(2) Curtails the range of beneficial uses of the environment;

Alternative II will not curtail the range of beneficial uses of the environment. In fact, the implementation of the Proposed Action would increase beneficial uses of the Site by providing updated housing, increasing the usable lifespan of the Site.

(3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

Alternative II will be in conformance with the Chapter 344, HRS, State Environmental Policy, to enhance the quality of life. The Proposed Action will provide updated housing and improved Site conditions for the protection of the surrounding environment. This is in compliance with the residential zoning status.

(4) Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;

Alternative II would have beneficial effects to the economic and social welfare of the community and State. The construction phase of the proposed alternatives would create jobs, and the families who occupy the development will generate income for local businesses. There would be no change in Site activities as it will remain residential. Any potential impacts following implementation of the project would be similar to those prior to the proposed project.

(5) Substantially affects public health;

Alternative II will not have significant effects on public health. The Proposed Action would provide safe and sanitary housing within a suitable living environment, which would ensure a better standard of living.

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

Alternative II will likely not result in substantial secondary impacts, such as population changes or effects on public facilities. The Proposed Action involves the demolition of an existing single-family residence and the construction of single-family residences. Population changes or effects on public facilities would be minimal. The change in population and demand for public facilities would be readily met by existing infrastructure.

(7) Involves a substantial degradation of environmental quality;

Alternative II is not likely to result in a substantial degradation of environmental quality. Assessment of impacts associated with the Proposed Action have been minimal.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

Cumulative effects are not anticipated as a result of implementing Alternative II. The Proposed Action does not involve a commitment to larger actions. Much of the land near the Site is previously developed. There are other residential lots that are anticipated to have new construction or renovation work completed. It is not anticipated that there will be cumulative effects that will have an impact to the environment.

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

Alternative II is not anticipated to have substantial effects on rare, threatened, or endangered species, or any critical habitat. USFWS identified six federally listed species in the vicinity of the project area. Mitigation measures will be employed as to avoid or minimize any impacts to rare, threatened, or endangered species during and post-construction. There is little potential for encountering such resources as there are no rare, threatened, or endangered species or critical habitats at the Site.

(10) Detrimentally affects air or water quality or ambient noise levels;

No significant impacts on the area's long-term air or ambient noise environments are anticipated to result from Alternative II. During the construction phase of the proposed project, these parameters will be monitored. Any exceedances in local, state, or federal rules or regulations will be mitigated to minimize their effects to the area. Water quality impacts are not anticipated and do not require mitigation measures.

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

The Site is located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters. BMPs would keep construction runoff/debris from migrating off-site.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies; or,

Alternative II will not affect the visual aesthetics of the areas identified in the county or state plans and studies. Coastal view planes will not be impacted by the proposed action.

(13) Requires substantial energy consumption.

Alternative II would not require substantial energy consumption. The change in population and demand for energy would be minimal and readily met by existing infrastructure. In addition, energy efficient appliances will be incorporated into the project design.

In summary, the proposed project will provide new single-family residences in Kahuku. Based on the foregoing analysis, the proposed action is not anticipated to result in any significant adverse impacts. Accordingly, the proposed action is anticipated to be a Finding of No Significant Impact (FONSI).

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SECTION 8 AGENCIES AND ORGANIZATIONS CONSULTED

The following agencies and organizations were contacted during the pre-consultation period. Pre-consultation and comment letters have been reproduced and included in Appendix D.

Federal Agencies

Department of Agriculture, Natural Resources Conservation Service

Department of the Army, US Army Corps of Engineers

Department of Commerce, National Marine Fisheries Service

Department of Homeland Security, US Coast Guard

Department of the Interior, Fish and Wildlife Service*

Department of the Interior, Geological Survey - PIWS

Department of the Interior, National Parks Service

Department of the Navy, Pacific Division

Environmental Protection Agency, Region IX Pacific Islands

Department of Transportation, Federal Aviation Administration

Department of Transportation, Federal Highways Administration

Department of Transportation, Federal Transit Administration

State Agencies

Department of Accounting and General Services (DAGS)*

Department of Agriculture

Department of Business Economic Development & Tourism (DBEDT)

DBEDT, State Office of Planning

DBEDT, Strategic Industries Division

Department of Defense, Emergency Management/Civil Defense

Department of Hawaiian Home Lands

DOH, Clean Air Branch

DOH, Environmental Health Administration

DOH, Solid and Hazardous Waste Branch*

DOH, Wastewater Branch

Department of Education

Department of Land & Natural Resources

DLNR SHPD*

Department of Transportation

Office of Hawaiian Affairs

Office of Planning and Sustainable Development

University of Hawaii, Environmental Center

University of Hawaii, Marine Program

University of Hawaii, Capital Improvement

University of Hawaii, Water Resources Research Center

County Agencies

Board of Water Supply

City and County of Honolulu Fire Department*

City and County of Honolulu Police Department

City and County of Honolulu Department of Design and Construction

City and County of Honolulu Department of Environmental Services

City and County of Honolulu Department of Facility Maintenance

City and County of Honolulu Department of Community Services*

City and County of Honolulu Department of Parks and Recreation*

City and County of Honolulu Department of Planning and Permitting*

City and County of Honolulu Department of Transportation Services

*Indicates a comment letter was received prior to completion of the Draft EA document.

SECTION 9 REFERENCES

City and County of Honolulu, 2020. Koʻolau Loa Sustainable Communities Plan. https://www.honolulu.gov/rep/site/dpp/pd/pd_docs/Koolau_Loa_SCP_2020.pdf

City and County of Honolulu, 2021. General Plan. https://www.honolulu.gov/rep/site/dpp/pd/pd_docs/RES21-023_CD1_-_11-18-21_ZP.pdf

City and County of Honolulu. Maps of Oahu., Tsunami Evacuation Zones. Accessed June 2022. https://cchnl.maps.arcgis.com/apps/webappviewer/index.html?id=39a9e07068a14d01a85b437adcf50beb

City and County of Honolulu, Board of Water Supply, 2018. Proposed Residential Customer Water Rates. https://www.boardofwatersupply.com/bws/media/files/hbws-proposed-residential-customer-water-rates-2018-04-19.pdf

City and County of Honolulu, Department of Environmental Services, 2022. Waste collection. https://opala.hnl.info/refuse_collection/#?lat=21.662600986502405&long=-157.93338696376114

Mink, J. F., and S. L. Lau, 1990, Aquifer Identification and Classification for Oahu. Groundwater Protection Strategy for Hawaiʻi. Water Resources Research Center, University of Hawaiʻi at Manoa, Technical Report No. 179.

National Oceanic and Atmospheric Administration. Tsunami Aware website. https://tsunami.coast.noaa.gov/#/. Accessed June 2022.

Rechtman, Robert B. Ph.D., 2021. Archaeological Assessment for a Portion of TMK: (1)5-6-001:033.

State of Hawaii Department of Health, 2020. State of Hawaii Annual Summary 2017 Air Quality Data Report. Accessed June 2022. https://health.hawaii.gov/cab/files/2020/05/aqbook_2017.pdf

State of Hawaii Department of Health, 2002. Hawaii Administrative Rules, Title 11, Department of Health, Chapter 62, Wastewater Systems. https://health.hawaii.gov/opppd/files/2015/06/11-62-Wastewater-Systems.pdf

State of Hawaii. State Historic Preservation District. Hawaii Cultural Resource Information System. Accessed June 2022. https://shpd.hawaii.gov/hicris/

United States Census Bureau. Accessed June 2022. https://www.census.gov/search-results.html?searchType=web&cssp=SERP&q=Kahuku%20CDP,%20Hawaii

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Accessed October 2022. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

United States Department of Homeland Security, Federal Emergency Management Agency. Flood Map Service. Accessed June 2022. https://msc.fema.gov/portal/search?#searchresultsanchor

United States Environmental Protection Agency, Pacific Southwest, Region 9, Ground Water. Accessed June 2022. https://archive.epa.gov/region9/water/archive/web/html/ssa.html

United States Fish and Wildlife Service (USFWS), National Wetlands Inventory. Accessed June 2022. https://www.fws.gov/wetlands/Data/Mapper.html

United States Fish & Wildlife Service, Pacific Islands Fish and Wildlife Office, 2022. Avoidance and Minimization Measures. Accessed June 2022. https://www.fws.gov/Pacificislands/promo.cfm?id=177175840

United States Geological Survey (USGS). Accessed June 2022. https://apps.nationalmap.gov/downloader/#/

USGS, Topographic Map. Accessed October 2022. https://ngmdb.usgs.gov/ht-bin/tv_browse.pl?id=777eb9aff1d131c7438251603b46eb33

University of Hawaii (UH). Hawaii Groundwater & Geothermal Resources Center. Accessed June 2022. https://www.higp.hawaii.edu/hggrc/wells/wells.php

University of Hawaii, Maps, Aerial Photographs, and GIS (MAGIS). Accessed June 2022. https://uhmagis.maps.arcgis.com/apps/webappviewer/index.html?id=f6672e31727d49468a37b7bb3ab77d77

APPENDIX A

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Map Scale: 1:971 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Oahu, Hawaii
Survey Area Data: Version 16, Sep 15, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BS	Beaches	0.2	16.3%
JaC	Jaucas sand, 0 to 15 percent slopes, MLRA 163	1.3	83.7%
Totals for Area of Interest		**1.5**	**100.0%**

Island of Oahu, Hawaii

JaC—Jaucas sand, 0 to 15 percent slopes, MLRA 163

Map Unit Setting

National map unit symbol: 2w02z
Elevation: 0 to 1,140 feet
Mean annual precipitation: 13 to 77 inches
Mean annual air temperature: 73 to 77 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Jaucas and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jaucas

Setting

Landform: Beaches
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Sand sized coral and sea shells sandy marine deposits derived from sedimentary rock

Typical profile

AC - 0 to 13 inches: sand
C1 - 13 to 22 inches: sand
C2 - 22 to 60 inches: sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 99 percent
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 7s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A

Hydric soil rating: No

Data Source Information

Soil Survey Area: Island of Oahu, Hawaii
Survey Area Data: Version 16, Sep 15, 2021

Island of Oahu, Hawaii

BS—Beaches

Map Unit Setting

National map unit symbol: hqd1
Elevation: 0 to 10 feet
Mean annual precipitation: 10 to 75 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Beaches: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beaches

Setting

Landform: Beaches
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex

Typical profile

H1 - 0 to 6 inches: coarse sand
H2 - 6 to 60 inches: coarse sand

Properties and qualities

Slope: 1 to 5 percent
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Calcium carbonate, maximum content: 99 percent
Maximum salinity: Strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w

Hydric soil rating: No

Data Source Information

Soil Survey Area: Island of Oahu, Hawaii
Survey Area Data: Version 16, Sep 15, 2021

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APPENDIX B

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Biological Assessment of 56-155 Kamehameha Highway for Special Management Area Permit

Prepared by: Maya LeGrande, LeGrande Biological Surveys Inc.

Field survey date: August 10, 2021

The survey area includes TMK 5-6-001:033 located in Kahuku on the North Shore of O'ahu. The 1.468 acres includes a rectangular lot with Kamehameha Highway to the southwest and coastal strand to the northeast. The lot is bounded to the east and west by other house lots.

Prior to conducting fieldwork, the biologist reviewed existing scientific literature and topographic maps and images of the general area. The site visit included noting all plant and animal species observed during the survey and noting if any signs of wetlands occurred within the subject property (i.e. ponding, surface soil patterns, obligate or facultative plant species). No wetlands are mapped by the USFWS National Wetland Inventory (2021) and non-hydric soils include Jaucus sand (JaC) and Beaches (BS) (NRCS 2021).

Vegetation

The subject property is characterized by sand substrate with both native and introduced plant species present. The main portions of the property are dominated by landscaped hedges and introduced grass and herbaceous species. The coastline harbors the majority of the native plant species found on a sandy dune at the makai (seaward) end of the property. Plants such as tree heliotrope (*Heliotropium foertherianum*), 'aki'aki (*Sporobolus virginus*) grass, (*Sporobolus virginus*), and naupaka (*Scaevola taccada*) are the dominant species in this zone.

The majority of the plants growing in the mauka (southwestern) half of the property are non-native. They include, ironwood (*Casuarina equisetifolia*), sea grape (*Coccoloba uvifera*), coconut (*Cocos nucifera*), naupaka, Guinea grass (*Megathyrsus maximum*), swollen fingergrass (*Chloris barbata*), New Zealand spinach (*Tetragonia tetragonioides*), turkeyberry (*Solanum torvum*), Chinese violet (*Asystasia gangetica*), spiny amaranth (*Amaranthus spinosus*), slender amaranth (*A. viridis*), *Ipomoea obscura*, and pohuehue (*Ipomoea pes-caprae*). The naupaka and pohuehue are both indigenous species in Hawai`i.

Birds

The only birds recorded on the site were common resident alien species. The habitat and location of the site does not support vegetation or altitude suitable for native listed forest birds. There is no water features on the site, ergo there is no habitat for any of the listed waterbird species that are still extant on the Island of O'ahu. Native seabird species may overfly the site on a seasonal basis, though there is no habitat on the site for any listed seabirds to nest in. No signs of burrows of Wedge-tailed Shearwaters or `ua`u kani (*Ardenna pacifica*) were located along the sand dunes. One or more species of indigenous migratory shorebirds may use resources on the site on a seasonal basis, though none were seen.

Marine Biota

Green sea turtles or honu (*Chelonia mydas*) most likely utilize the sandy beach fronting the subject property for basking. Green Sea Turtle nesting mostly occurs in the Northwestern Hawaiian Islands. It is possible that the Hawaiian Monk Seal (*Monachus schauinslandi*) may occur in the area at times. If either species are reported hauled out on the beach adjacent to the property, the owners should contact the USFWS/DOFAW and follow any protocols that they deem fit in the situation.

Discussion

The results of the fieldwork represent a one-time snapshot of the plants and animals inhabiting the survey area. However, when considered together with the results of historical surveys, we can compile a reasonably accurate description of the environment and vegetation of the project area. Native plant habitat within the proposed project area has been highly modified by human activities, such as housing and road construction, illegal dumping, and the intentional and accidental introduction of alien species.

The currently proposed building project at the mauka or highway end of the property has the potential to disturb non-native vegetation. The area proposed for new construction is dominated by non-native plants. Although the Makai half of the property is already developed, continued care should be taken to preserve the vegetation along the dune area with the extant naupaka plants as much as possible.

The coastline provides habitat for marine animals as well and care should be taken by keeping at least 50 feet away when green sea turtles or Hawaiian monk seals are hauled out on the beach. If there is a mother seal and pup, it is recommended to stay at least 150 feet away from the pair. Several feral cats were observed on the property. Feral cats pose a risk to birds, marine animals, and human health. They are top predators of nesting seabirds and can spread the parasite *Toxoplasma gondii* that can effect the health of Hawaiian monk seals as well as humans. It is recommended that humane traps be used to capture cats and have them sterilized so that their numbers do not increase.

The taller ironwood trees located at the mauka or southwestern portion of the property could provide habitat for the native endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *ʻōpeʻapeʻa* as it is known locally, on a seasonal basis. The principal potential impact that the project could pose to bats is during any clearing and grubbing phase of the construction. The trimming or removal of foliage and/or trees in the area may temporarily displace individual bats, which may use the vegetation as a roosting location. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of the vegetation is likely to be minimal. During the pupping season, females carrying their pups may be less able to rapidly vacate a roost site while vegetation is cleared. Additionally, adult female bats sometimes leave their pups in the roost tree while they themselves forage, and very small pups may be unable to flee a tree that is being felled. Potential adverse effects from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 meters (15-feet), between June 1 and September 15, the pupping season.

No Threatened or Endangered plant or animal species were observed on land during the one-day survey. No Critical Habitat was located for the subject property using the US Fish & Wildlife Service's map of Threatened and Endangered Species with Critical Habitat designation.

Literature Cited

Natural Resource Conservation Service (NRCS). 2021. Accessed August 10, 2021. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

USFWS. 2021. National Wetland Inventory, Wetland Mapper. https://www.fws.gov/wetlands/Data/Mapper.html Accessed August 6, 2021.

Figure 1. Coastal strand dominated by naupaka and beach heliotrope.

Figure 2. Mauka end of property by Kamehameha Highway with ironwood trees at western property boundary. Piles of sand with non-native weeds such as New Zealand spinach, *Heliotropium procumbens* var. *depressum*, Guinea grass, and beach wiregrass.

Figure 3. Low growing weedy vegetation at the southeastern corner of the property with silt fence at property line.

Figure 4. Existing structure in background with shipping container along driveway. Tall ironwood trees to the west.

Figure 5. Understory in ironwood stand harbors scattered weedy plants such as Guinea grass and Chinese violet.

APPENDIX C

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Archaeological Assessment for a Portion of TMK: (1) 5-6-001:033

Mālaekahana Ahupuaʻa
Koʻolauloa District
Island of Oʻahu

FINAL VERSION

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Archaeological Assessment for a Portion of TMK: (1) 5-6-001:033

Mālaekahana Ahupua‘a
Ko‘olauloa District
Island of O‘ahu

ASM affiliates

EXECUTIVE SUMMARY

At the request of Adam Lee of Malaekahana, LLC (Landowner), ASM Affiliates (ASM) conducted an Archaeological Inventory Survey (AIS) of a roughly 0.57-acre project area located on Tax Map Key (TMK): (1) 5-6-001:033, in Mālaekahana Ahupuaʻa, Koʻolauloa District, Island of Oʻahu. This study was conducted pursuant to a Department of Land and Natural Resources (DLNR-SHPD) Chapter 6E-42 review (Log No.: 202002811, Doc.: 2012LS02) of City and County of Honolulu grading and building permit applications. The current study was undertaken in compliance with Hawaiʻi Administrative Rules (HAR) §13–284 and was performed in accordance with the *Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports* as contained in HAR 13§13–276. Compliance with the above standards is sufficient for meeting the historic preservation review process requirements of the DLNR-SHPD. According to HAR 13§13-284-5(b)(5)(A) when no archaeological resources are discovered during an Archaeological Inventory Survey the production of an Archaeological Assessment report is appropriate. Fieldwork for the current study was conducted on February 4, 2021 by Robert B. Rechtman, Ph.D. and Daina Avila, B.A. Excavator assistance was provided by C. Fujimoto Contracting LLC. There were no archaeological resources observed on the surface of the project area; and likewise, there were no archaeological resources observed during the subsurface testing. Although the current study produced negative findings with respect to the identification of historic resources, the SHPD believes that insufficient information is available at this time to determine that the project will not adversely affect subsurface cultural layers or burials. The soils within the project area and vicinity consist of Jaucas sands, which are known to contain significant subsurface cultural layers and human remains/burials. Additionally, previous archaeological findings show human burials, an *imu* pit and at least two fire pits were identified at 56-155 Kamehameha Highway (adjacent parcel). The SHPD has requested that a program of on-site archaeological monitoring for identification purposes be conducted for any ground-disturbing activities for the proposed project. Such monitoring should be conducted pursuant to an Archaeological Monitoring Plan prepared in accordance with HAR §13-279.

CHAPTERS

FIGURES

FIGURES

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1. INTRODUCTION

At the request of Adam Lee of Malaekahana, LLC (Landowner), ASM Affiliates (ASM) conducted an Archaeological Inventory Survey (AIS) of a roughly 0.57-acre project area located on Tax Map Key (TMK): (1) 5-6-001:033, in Mālaekahana Ahupuaʻa, Koʻolauloa District, Island of Oʻahu (Figures 1, 2, and 3). The current project area is a portion of a larger 1.47-acre parcel under multiple Condominium Property Regime (CPR) ownership. Malaekahana Hui West, LLC is proposing the construction of five small (four measuring 312 square feet and one measuring 576 square feet) dwelling units on CPR lots within the overall tax map parcel. Development activities will include foundation footings for the post and pier structures, underground water connections, and septic tank and leach field excavations (Figure 4). This study was conducted pursuant to a Department of Land and Natural Resources (DLNR-SHPD) Chapter 6E-42 review (Log No.: 2020.02811, Doc.: 2012LS02) of City and County of Honolulu grading and building permit applications (HICRIS Project 2020PR34918).

The current study was undertaken in compliance with Hawaiʻi Administrative Rules (HAR) §13–284 and was performed in accordance with the *Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports* as contained in HAR 13§13–276. Compliance with the above standards is sufficient for meeting the historic preservation review process requirements of the DLNR-SHPD. According to HAR 13§13-284-5(b)(5)(A) when no archaeological resources are discovered during an Archaeological Inventory Survey the production of an Archaeological Assessment report is appropriate. This report contains background information describing the location and environment of the project area, presentation of a brief culture-historical context for the project area, a summary of the previous archaeological work conducted in the vicinity of the subject property, an explanation of the survey methods and results of the current fieldwork, and recommendations based on these results.

PROJECT AREA DESCRIPTION

As described, the current project area (Figure 5) occupies a small portion of a larger Tax Map parcel that is itself relatively small. The *makai* portion of the overall parcel has been developed with a single-family residence on CPR Unit 1 (Figure 6), which is accessed along a concrete driveway (Figure 7) extending through the center of the parcel and dividing the current project area into two halves (see Figure 4). CPR Unit 2 toward the makai portion of the overall parcel formerly had a single-family residence (since demolished) and currently there are no plans to develop CPR Unit 6. The eastern half of the current project area will contain three dwellings (on CPR Units 3, 4, and 5) and western half two dwellings (on CPR Units 7 and 8) (see Figure 4). The placement of the driveway was preceded by grading that left a sizeable spoils pile (Figure 8) in the western half of the current project, where a 40-foot shipping container is also located (Figure 9). The eastern half of the current project area, like the western half is largely devoid of vegetation except for low-lying weeds and two ironwood trees (see Figure 5).

Climate information provided by Giambelluca et al. (2014) indicates a mean annual rainfall in the project area of about 48.3 inches (1226.9 millimeters), which is typically heaviest between October and March; and that the annual average daily air temperature ranges from 70.9° to 77.7°F, with January being the coldest and August being the warmest month. The underlying geology (Figure 10) of the project area has been identified as Younger dune deposits (Qdy) and Beach deposits (Qbd) (Sherrod et al. 2007). The surface soils (Figure 11) within the project area are entirely Jaucas sand (JaC).

Figure 1. Project area location.

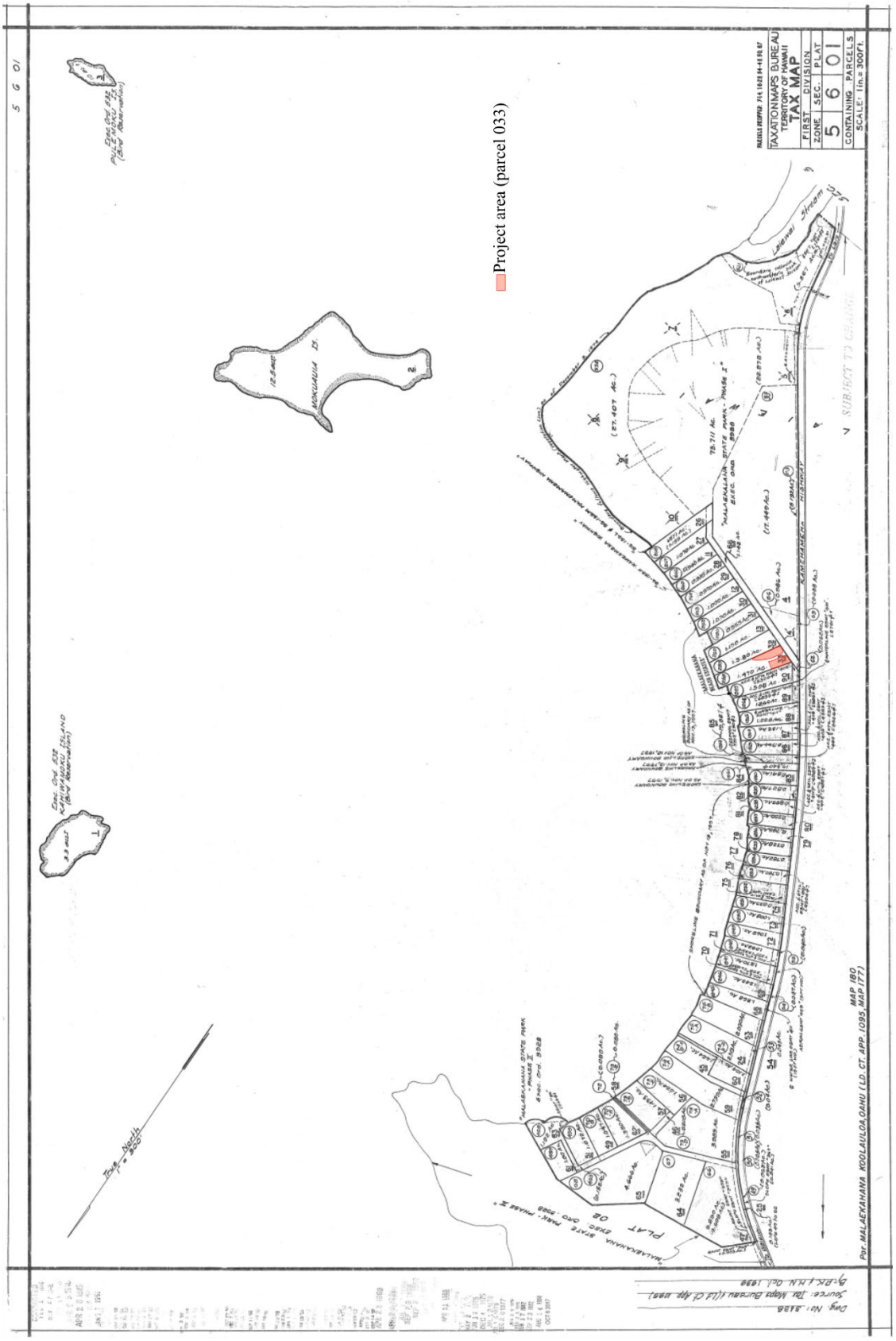

Figure 2. Tax Map Key (TMK): (1) 5-6-001 showing project area location (shaded red) within Parcel 033.

Figure 3. Aerial image showing project area.

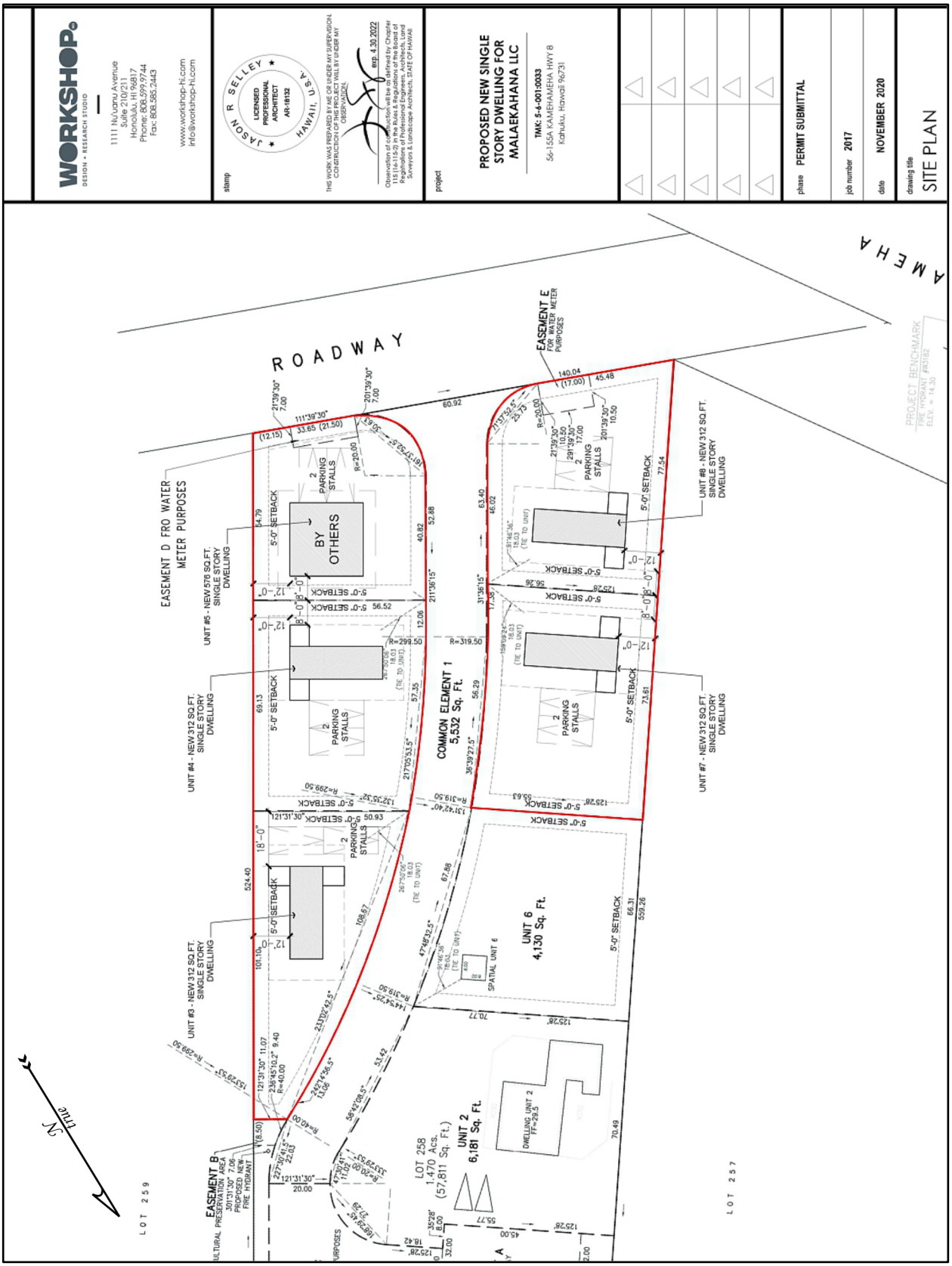

Figure 4. *Mauka* portion of Tax Map Parcel showing proposed development plan (project area outlined in red).

Figure 5. View to the southwest of the current project area.

Figure 6. Single-family dwelling at *makai* end of Tax Map parcel, view to the north.

Figure 7. Concrete driveway extending through the center of the Tax Map parcel, view to the southwest.

Figure 8. Spoils pile from driveway grading in the western half of the project area, view to the west.

Figure 9. Shipping container in the western half of the project area, view to the west.

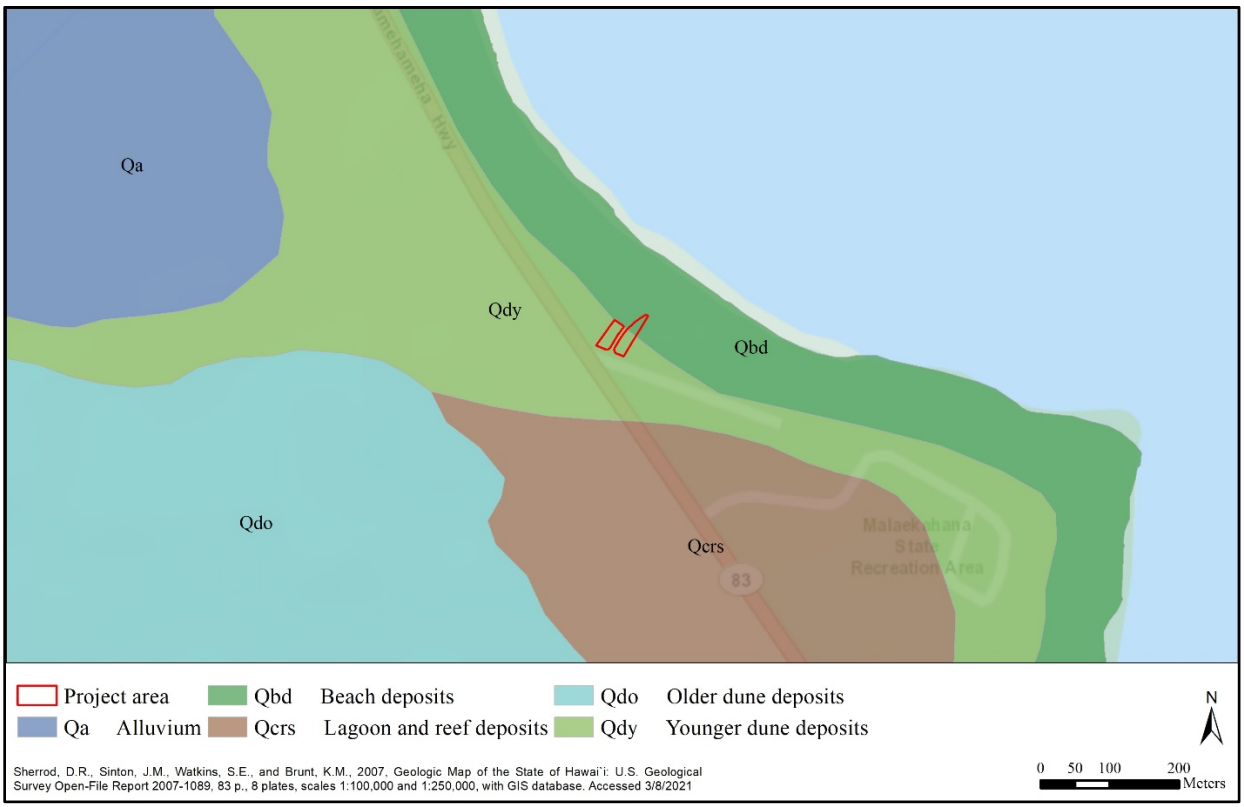

Figure 10. Geology of the project area.

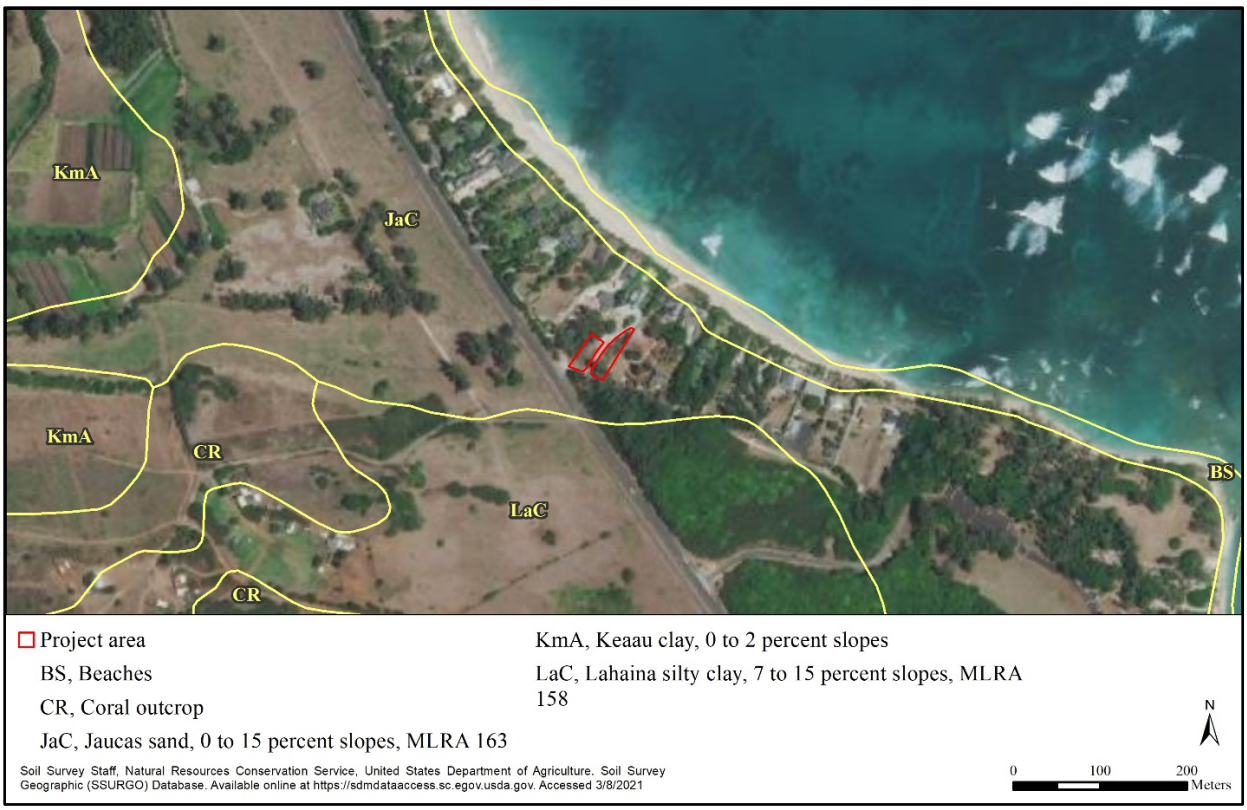

Figure 11. Soils within the project area.

2. BACKGROUND

To generate a set of expectations regarding the nature of archaeological resources that might be encountered within the current study area, and to establish an environment within which to assess the significance of any such resources, a brief culture-historical context for the Koʻolauloa region and Mālaekahana Ahupuaʻa is presented. This is followed by a discussion of prior archaeological studies conducted in the vicinity of the project area.

CULTURE-HISTORICAL CONTEXT

In an effort to provide a comprehensive and holistic understanding of the current study area and to generate a set of expectations for the subject parcels, archival and historical data relevant to Mālaekahana Ahupuaʻa, along with the general settlement patterns for the Koʻolauloa District are presented.

A Brief Overview of Hawaiian Settlement

While the exact timing of the initial settlement of the windward coast of Oʻahu remains unclear, with advances in palynology and radiocarbon dating techniques, Kirch (2011), Athens et al. (2014), and Wilmshurst et al. (2011) have argued that Polynesians arrived in the Hawaiian Islands sometime between A.D. 1000 and A.D. 1200. What is clearer based on radiocarbon data is that by A.D. 1200 large scale settlement was occurring, and steadily increasing until the time of Western contact (A.D. 1778) (Stride et al. 2003). Early settlement likely occurred from the Marquesas and Society Islands (Emory in Tatar 1982:16-18). In these early times, Hawaiʻi's inhabitants were primarily engaged in subsistence level agriculture and fishing (Handy and Handy 1972:287). This was a period of great exploitation and environmental modification, when early Hawaiian farmers developed new subsistence strategies by adapting their familiar patterns and traditional tools to their new environment (Kirch 1985; Pogue 1978). Their ancient and ingrained philosophy of life tied them to their environment and kept order. Order was further assured by the conical clan principle of genealogical seniority (Kirch 1984). According to Fornander (1969), the Hawaiians brought from their homeland certain universal Polynesian customs: the major gods *Kane, Ku*, and *Lono*; the *kapu* system of law and order; cities of refuge; the ʻ*aumakua* concept; various supernatural beliefs; and the concept of *mana*.

For generations following initial settlement, communities in Koʻolauloa were clustered along the shores which offered sheltered bays from which deep sea fisheries could be easily accessed. The near shore fisheries and coastal fishponds, which were enriched by nutrients carried in the fresh water, also offered opportunities for resource extraction and stewardship. It was in these coastal areas that clusters of houses were found, and where agricultural production first became established. Over a period of several centuries, these areas became populated and perhaps even crowded, and inland elevations began to be used for agriculture and some habitation. Taro would have been the dominant crop in this area with sweet potatoes planted only as a supplement for it (Handy and Handy 1972:282-283). Other crops would have included *wauke*, *noni*, gourds, sugarcane, *ʻawa,* breadfruit, bananas, coconuts, and ti (Stride et al. 2003). Other resources important to subsistence would have been gathered from the sea to the mountains.

The period between A.D. 1200–1650 was characterized by the greatest social stratification, major socioeconomic changes, and intensive land modification (Kirch 1985). Most of the ecologically favorable zones of the windward and coastal regions of all major islands were settled and the more marginal leeward areas were being developed. The concept of the *ahupuaʻa* was established during the A.D. 1400s (idid.), adding another component to a then well-stratified society. This land unit became the equivalent of a local community, with its own social, economic, and political significance. *Ahupuaʻa* were ruled by *aliʻi ʻai ahupuaʻa* or lesser chiefs; who, for the most part, had complete autonomy over this generally economically self-supporting piece of land, which was managed by a *konohiki*. *Ahupuaʻa* were usually wedge or pie-shaped, incorporating all of the eco-zones from the mountains to the sea and for several hundred yards beyond the shore, assuring a diverse subsistence resource base (Hommon 1986).

The *aliʻi* and the *makaʻāinana* (commoners) were not confined to the boundaries of the *ahupuaʻa*; when there was a perceived need, they also shared with their neighbor *ahupuaʻa ʻohana*. The *ahupuaʻa* was further divided into smaller sections such as the *ʻili*, *moʻoʻaina*, *paukuʻaina*, *kihapai*, *koele*, *hakuone*, and *kuakua* (Hommon 1986, Pogue 1978). The chiefs of these land units gave their allegiance to a territorial chief or *moʻi* (king). *Heiau* building flourished during this period as religion became more complex and embedded in a sociopolitical climate of territorial competition. Monumental architecture, such as *heiau*, "played a key role as visual markers of chiefly dominance" (Kirch 1990:206).

Entire *ahupuaʻa*, or portions of the land were generally under the jurisdiction of appointed *konohiki* or lesser chief-landlords, who answered to an *aliʻi-ʻai-ahupuaʻa* (chief who controlled the *ahupuaʻa* resources). The *aliʻi-ʻai-ahupuaʻa* in turn answered to an *aliʻi ʻai moku* (chief who claimed the abundance of the entire district). Thus, *ahupuaʻa* resources supported not only the *makaʻāinana* and *ʻohana* who lived on the land, but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided fruits and vegetables and some meat in the diet, and the ocean provided a wealth of protein resources. Also, in communities with long-term royal residents, divisions of labor (with specialists in various occupations on land and in procurement of marine resources) came to be strictly adhered to. It is in the general cultural setting outlined above, that we find the *ahupuaʻa* of Mālaekahana.

Legendary Accounts and Traditional Land Use

Mālaekahana is referred to by Handy et al. (1991:462) as one of "two small *ahupuaʻa* intervening between Laʻie and Kahuku," and indicate that Mālaekahana exhibits the same geomorphic and land use pattern as its larger neighbors albeit on a smaller scale; with "dune coasts, elevated coral, and broken level land seaward from the hills," and "a small stream." Although Handy (1940) related that there were some irrigated taro terraces fed by Kaukanalaau Stream, Handy et al. (1991:460) suggest that the areas to the northward from Kahana and Punaluʻu were "less suitable for wet-taro culture;" a supposition supported by a review of land use practices identified in the *Māhele* records (see discussion below).

Mālaekahana is mentioned only in passing by Emerson (1915) in *Pele and Hiiaka: a Myth from Hawaii*, but the *ahupuaʻa* features more prominently in two legends (Mano-niho-kahi and Manuwahi) recounted by Rice (1923). With respect to the former:

> Near the water hole in Malae-kahana, between Laie and Kahuku, lived a man called Mano-niho-kahi, who was possessed of the power to turn himself into a shark. Mano-niho-kahi appeared as other men except that he always wore a tapa cloth which concealed the shark's mouth in his back.
>
> Whenever he saw women going to the sea to fish or to get *limu* he would call out, "are you going into the sea to fish?"
>
> Upon hearing that they were, he would hasten in a roundabout way to reach the sea, where he would come upon them and, biting them with his one shark's tooth, kill them.

> This happened many times. Many women were killed by Mano-niho-kahi. At last the chief of the region became alarmed and ordered all the people to gather together on the plain. Standing with his kahuna, the chief commanded all the people to disrobe. All obeyed by Mano-niho-kahi, Shark-with-One-Tooth. So his tapa was dragged off and there on his back was seen the shark's mouth. He was put to death at once and there were no more deaths among the women. (ibid.:111)

Rice (1923:113-115) relates the story of Manuwahi, a man with supernatural powers who protected Mālaekahana during the conquest of Oʻahu by Kamehameha I and his warriors. According to the story, Kamehameha "had succeeded in subduing all the island except for Malae-kahana, between Laie and Kahuku;" so he sent a contingent of warriors led by Kahalaiu to defeat the powerful *kahuna* (Manuwahi) that protected Mālaekahana. Mahuwahi proved too strong as he was assisted by several *akua*, and Kahalaiu ultimately relented and joined Manuwahi in planting the valley with *ʻawa*, "[s]o Malae-kahana was not conquered."

Lastly, a pond (Waiʻāpuka) in Mālaekahana (possibly the same pond referred to in the Mani-niho-kahi legend) is the entrance to an underground cavern that sheltered Lāʻieikawai as described in "The Story of Lāʻieikawai" (Kalakaua 1888:455-480). In this story, the chief of both Koolau districts was Kahauokapaka and his wife was Malaekahana. Only desirable of sons, Kahauokapaka put to death the first four of his wife's newborn daughters. Pregnant again, Malaekahana was determined to see her offspring live no matter what their gender. So, when birth was imminent, she sent her husband on a journey to retrieve her favorite fish (*ohua palemo*). In his absence she gave birth to twin daughters, Lāʻieikawai and Lāʻielohelohe, and to protect them they were secreted away before Kahauokapaka returned. Lāʻielohelohe was sent to Kukaniloko and Lāʻieikawai was taken by her protector (Waka) into the cavern of Waiapuka. As she grew older, Waka took Laʻieikawai to Molokaʻi, then to Hawaiʻi Island, all the while followed by a potential suiters. After much intrigue and deception, Laʻieikawai, forsaken and residing in the netherworld, was granted a return to earth where she lived out her life with her sister, changing her name to "*Ka wahine o ka liula*—the 'the lady of the twilight'—under which title she was worshiped by certain families after her death." (Kalākaua 1883:480).

While informative as parables, these legendary accounts also provide insights into resource availability, land use, and occupational practices. The Mano-niho-kahi legend describes nearshore fishing and *limu* collection by women, and the Manuwahi legend describes *ʻawa* cultivation practices as well as a habitation cave named "Kaukana-leau" where "natives made their stone adzes." (Rice 1923:114).

History After Contact (1779-1847)

Just two weeks after the death of Captain Cook, the H.M.S. Resolution captained by Charles Clerke rounded the northern tip of Oʻahu providing the first historical accounts of the that area (in Beaglehole 1967). Both Clerke and Lieutenant James King wrote similar descriptions of the area as populous and verdant. However, in 1794, British Captain, George Vancouver also visited the northern tip of Oʻahu, but found the area to be slightly different than the verdant, well populated plain described by Clerke and King fifteen years earlier. He wrote:

> . . . In every other respect our examination confirmed the remark of Capt. King excepting that in point of cultivation or fertility, the country did not appear in so flourishing a state, nor to be so numerously inhabited, as he represented it to have been at that time, occasioned most probably by the constant hostilities that had existed since that period. (Vancouver 1798(3):71)

Much attention has been paid to these two descriptions, separated by only fifteen years, but describing two different places; one with thriving villages and extensive agricultural fields, and another that is not so populated or agriculturally productive. Specific to the neighboring *ahupuaʻa* of Kahuku, Handy and Handy (1972:462) ask, "What catastrophe of the elements, slow or swift, has wrought change in Kahuku?" They write that:

> Kahuku *ahupuaʻa* presents something of a paradox. McAllister (1933 p. 153) remarked in his survey that it did not seem possible that this "rather desolate, wind swept" plain could ever have supported much life, agricultural or human, before the era of industrial machinery and organization. Yet one of his informants "remembers the time when trees now found only in the mountains" covered it. (Handy and Handy 1972:462)

In 1833, E. O. Hall observed at Kahuku that "much taro land now lies in waste because of the diminished population of the district does not require its cultivation" (Hall 1839 in Handy and Handy 1972:462). The changes in Kahuku were the same changes taking place throughout the Hawaiian Islands. Although early explorers blamed the decline in population on warfare, others suggest the reason for such rapid population decline was the introduction of Western diseases (Kuykendall 1938; Nakamura 1981; Wong-Smith 1989). Once introduced, the foreign diseases quickly decimated the Hawaiian population which had no immunity to them. The sudden dramatic reduction in

population radically altered the Hawaiian way of life and paved the way for further change. The 1831-32 Mission census (Schmitt 1973) recorded a total of 114 individuals (90 adults and 24 children) in Mālaekahana (and 49 in neighboring Kaʻena). In the 1835 census, the combined population number for Mālaekahana and Kaʻena was 146 individuals. This slight decrease in population over a four year period is also reflected in the overall population of Koʻolauloa, which saw a 210 drop between 1832 and 1836 (ibid.). Also, at this time, the increasing presence of foreigners led to major socioeconomic and political changes. As Osorio (2002:5) explains, it was foreign economic interests originally promoted by the Hawaiian League and their "bayonet constitution" that ultimately infiltrated beliefs, ideas, and institutions; and as he put it, "literally and figuratively dismembered the *lāhui* (the people) from their traditions, their land and ultimately their government." Indeed, the Hawaiian culture was well on its way towards Western assimilation, although not without resistance (Silva 2004), as industry in Hawaiʻi went from the sandalwood trade, to a short-lived whaling industry, to the more lucrative, but environmentally destructive sugar industry. The slopes and *kula* of the north shore of Oʻahu ultimately became a center of sugarcane production.

The *Māhele ʻĀina* of 1848

By the mid-19th-century, the Hawaiian Kingdom was an established center of commerce and trade in the Pacific, recognized internationally by the United States and other nations in the Pacific and Europe (Sai 2011). As Hawaiian political elite sought ways to modernize the burgeoning Kingdom, and as more Westerners settled in the Hawaiian Islands, major socioeconomic and political changes took place, including the formal adoption of a Hawaiian constitution by 1840, the change in governance from an absolute monarchy to a constitutional monarchy, and the shift towards a Euro-American model of private land ownership. This change in land governance was partially informed by ex-missionaries and Euro-American businessmen in the islands who were generally hesitant to enter business deals on leasehold lands that could be revoked from them at any time. *Mōʻī* (Ruler) Kauikeaouli (Kamehameha III), through intense deliberations with his high-ranking chiefs and political advisors, separated and defined the ownership of all lands in the Kingdom (King n.d.). They decided that three classes of people each had one-third vested rights to the lands of Hawaiʻi: the *Mōʻī*, the *aliʻi* and *konohiki*, and the native tenants (*hoaʻāina*). In 1846, King Kauikeaouli formed the Board of Commissioners to Quiet Land Titles (more commonly known as the Land Commission) to adopt guiding principles and procedures for dividing the lands, grant land titles, and act as a court of record to investigate and ultimately award or reject all claims brought before them (Bailey in Commissioner of Public Lands 1929). All land claims, whether by chiefs for an entire *ahupuaʻa* or *ʻili kūpono* (nearly independent *ʻili* land division within an *ahupuaʻa*, that paid tribute to the ruling chief and not to the chief of the *ahupuaʻa*), or by *hoaʻāina* for their house lots and gardens, had to be filed with the Land Commission within two years of the effective date of the Act (February 14, 1846) to be considered. This deadline was extended for chiefs and *konohiki*, but not for native tenants (Soehren 2005).

The King and some 245 chiefs spent nearly two years trying unsuccessfully to divide all the lands of Hawaiʻi amongst themselves before the whole matter was referred to the Privy Council on December 18, 1847 (King n.d.; Kuykendall 1938). Once Kauikeaouli and his chiefs accepted the principles of the Privy Council, the *Māhele ʻĀina* (Land Division) was completed in just forty days (on March 7, 1848). The names of nearly all of the *ahupuaʻa* and *ʻili kūpono* of the Hawaiian Islands, as well as the names of the chiefs who claimed them, were recorded in the *Buke Māhele* (*Māhele* Book) (*Buke Māhele* 1848; Soehren 2005). As this process unfolded, King Kauikeaouli, who received roughly one-third of the lands of Hawaiʻi, realized the importance of setting aside public lands that could be sold to raise money for the government and also purchased for fee simple title by his subjects. Accordingly, the day after the division when the name of the last chief was recorded in the *Buke Māhele*, the King commuted about two-thirds of the lands awarded to him to the government (King n.d.). Unlike Kauikeaouli, the chiefs and *konohiki* were required to present their claims to the Land Commission to receive their Land Commission Awards (LCAw.). The chiefs who participated in the *Māhele* were also required to provide to the government commutations of a portion of their lands in order to receive a Royal Patent giving them title to their remaining lands. The lands surrendered to the government by the King and chiefs became known as "Government Land." The lands personally retained by the King became known as "Crown Land." Lastly, the lands received by the chiefs became known as "Konohiki Land" (Chinen 1958:vii; 1961:13). Lots awarded to *hoaʻāina* became known as *kuleana*. To expedite the work of the Land Commission, all lands awarded during the *Māhele* were identified by name only, with the understanding that the ancient boundaries would prevail until the lands could be formally surveyed.

Following the *Māhele,* the Hawaiian kingdom initiated a grant program to encourage more native tenants to engage in fee-simple ownership of parcels of land. These parcels consisted primarily of Government lands-those lands given outright by the King or commuted to the Government by the *aliʻi* in lieu of paying the commutation fees on the parcels awarded them during the *Māhele*. These land grants were quite large, ranging in size from approximately ten acres to many hundreds of acres. When the sales were agreed upon, Royal Patents were issued and recorded following

a numerical system that remains in use today. In 1862, the Commission of Boundaries (Boundary Commission) was established to legally set the boundaries of the *ahupua'a* that had been awarded (not retained by or commuted to the government) as a part of the *Māhele*. The primary informants for the boundary descriptions were old native residents of the lands, many of which had also been claimants for *kuleana* during the *Māhele*.

During the *Māhele*, Mālaekahana was awarded as *konohiki* land (LCAw. 8452:1) to Ane Keohokālole; but Kame'eleihiwa (1992) points out that before the *Māhele*, Mālaekahana was the property of Kaisara Kapa'akea, Keohokālole's husband and cousin.

Within Mālaekahana, there were nine *kuleana* parcels were awarded to five individuals. Table 1 below list the names of these individuals along with the details of their awards; this information was extracted from the *Indicies of Awards* published by the Commissioner of Public Lands (1929) and notes on land use were obtained from the awardees associated *kuleana* claim documents (i.e. Native Register and Foreign Testimony) retrieved from the Office of Hawaiian Affairs Papakilo and Kīpuka databases. All of the awarded *kuleana* parcels were located *mauka* of the current project area on the inland side of current Kamehameha Highway (Figure 13).

Table 1. Kuleana awards in Mālaekahana Ahupua'a

Awardee Name	*LCAw.*	*Royal Patent Grant No.*	*Acres*	*Number of Parcels Awarded*	*Land Use*
Kahawaii	8537	7970	0.28	2	*mo'o 'āina kula*; portion planted in *wauke.*
Kakau	8355	n/a	0.55	3	*mo'o 'āina kula* planted in banana and *wauke.*
Nawai	9894	n/a	0.45	3	Only two of the three parcels are in Malaekahana. *Kula* land planted in *wauke* and banana and a house lot.
Paukoa	7727	7965	0.13	1	*mo'o 'āina kula*; portion planted in *wauke.*
Puu	3870	7966	0.22	1	Potato and banana; parcel had become overgrown due to cattle grazing.

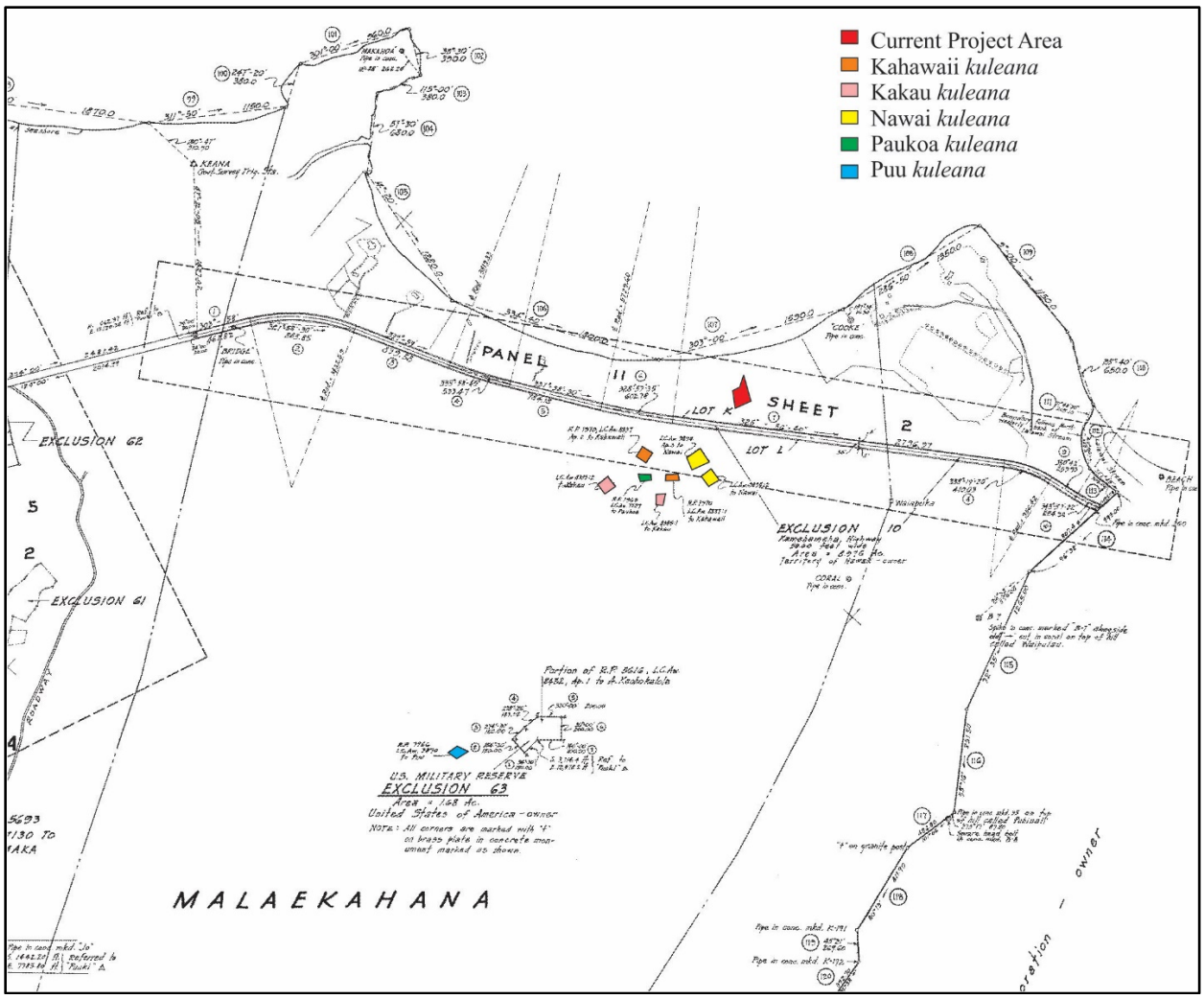

Figure 12. *Kuleana* lots awarded in Mālaekahana.

Kahawaii (LCAw. 8537) claimed lands in two *ahupua'a*; Lā'ie in which three *lo'i* (wet land taro patch) were located and another for a *mo'o 'āina* of *kula* lands in Mālaekahana. In the Native Register, Kahawaii described the Mālaekahana lands as extending from the sea of Halii to their house site to the uplands. Kahawaii noted that these lands were received during the time of Kamehameha I. In the Foreign Testimony, Kuhapa testified on behalf of Kahawaii and noted that part of the Mālaekahana lands were planted in *wauke* (paper mulberry; *Broussonetia papyrifera*)—a plant utilized in the production of bark cloth (Abbott 1992). Furthermore, Kuhapa's testimony idicates that Kahawaii died in 1850 and that the land had passed to his wife.

Similar land use patterns were also noted in Kakau (LCAw. 8355) and Paukoa's (LCAw. 7965) claim in which claims for *lo'i* in Lā'ie were made along with a *mo'o 'āina kula* in Mālaekahana. Kuhapa also testified on behalf of Kakau and Paukoa and described their *mo'o 'āina kula* as extending from the sea (*kai*) to the uplands (*kuahiwi*). Kuhapa noted that Kakau's land were not cultivated and that Paukoa died in 1850 and his land passed to his wife who cultivated a portion of it in *wauke*.

Regarding the claim made by Nawai (LCAw. 9894), Kalimakuhi who testified on behalf of Nawai noted three *lo'i* in Lā'ie and a piece of *kula* land and a house site in Mālaekahana. The *kula* land was planted in *wauke* and banana and the houselot was not enclosed. Kalimakuhi noted that the lands were received from his ancestors but no specific time period was noted.

Concerning the claim made by Puu (LCAw. 3870), Kuhapa testified that Puu's land was overgrown with weeds (*nāhelehele*) and had not been planted in several months on account of cattle grazing. According to Kuhapa's testimony, Puu's land was once cultivated with potatos and banana.

It is clear from the review of the land claim documents, that many of the awardees had land in Lāʻie where they cultivated taro in *loʻi* while their lands in Mālaekahana were used for dryland agriculture, specifically the cultivation of banana, potato, and *wauke*. The testimony describing the extent of the parcels suggest that the *moʻo ʻāina kula* in Mālaekahana were much larger than the parcels that were awarded by the Land Commission. Also, from the testimony, we learn that the agricultural practices of at least one of the native tenants was being impacted by cattle.

Nineteenth and Twentieth Century Land Use

Traditional land use patterns saw a rapid shift after the *Māhele* of 1848. At that time, land ownership was defined by grants and awards by the king (Kamehameha III) to the chiefs and other retainers. By 1850 laws were enacted under which commoners could also own land (*kuleana*) if they could prove that they actually occupied those lands. See Kemeʻeleihiwa (1992) for an in-depth discussion on indigenous perspectives, possible motivations, and dire outcomes of the 1848 *Māhele*. Needless to say, the *Māhele* paved the way for Hawaiʻi's land to be sold to foreigners. Beginning in the 1850s, *ahupuaʻa* in this part of Koʻolauloa were granted, leased, and sold to foreigners, who established sheep and cattle ranches on Oʻahu's north shore (Williams and Patolo 1998). Two of the early ranches that encompassed a large portion of the Koʻolauloa District, were known as the Mālaekahana and Kahuku Ranches. By 1873 the Mālaekahana and Kahuku Ranches had been purchased by Herman A. Widemann (Thayer 1934:138). On January 19, 1874 Widemann sold his interest in the ranches to Julius L. Richardson for $45,000, who in turn sold them to James Campbell for $63,500 on October 2, 1876 (Thayer 1934:138). Ushered in by Campbell, sugar soon became the dominant industry in the area; and in 1889, Campbell leased the ranch to B.F. Dillingham and it remained in business until the mid-1900s. At this time, the Kahuku Sugar Company had been established and soon at least 150 acres of sugarcane fields extended into Mālaekahana. Dillingham, in 1886 had proposed, "The Great Land Colonization Scheme" for the Kahuku Ranch lands, writing:

> The Kahuku Ranch consists of 20,000 acres in fee simple and 5,000 acres Government leasehold…On the estate is a level tract of land at an elevation of from 10 to 25 feet above sea level…This tract is pronounced excellent Sugar cane land. There are already flowing artesian wells on either side of this level tract, while near the middle is an unfailing spring in which the water rises to within 2-1/2 feet of the surface, in a column of at least one foot in diameter, and flows thence to the sea. This proves that an ample supply may be found for irrigation.
>
> There have been offered by rice growers to the present owners $10,000 a year for 400 acres of this land, water for cultivation being furnished. A contract has been made to bore five additional artesian wells to comply with this requirement. (Dillingham 1886:76)

Another important part of Dillingham's land colonization scheme for Kahuku was the construction of an around the island Oʻahu railroad. In 1889, Dillingham was granted franchise and charter by the Hawaiian Government to create the Oahu Railway and Land Company (Nakamura 1981). Construction began on the O. R. & L. railroad in March of 1889, the line was competed to Kahuku on December 28, 1898, and the railroad began operations on January 1, 1899 (Kuykendall 1967). By 1903 the railway crossed through Mālaekahana and continued to Lāʻie, and would eventually be extended to Kahana Bay. Near the current project area, the railway line was adjacent to current day Kamehameha Highway. Between 1934 and 1938, the Campbell Estate was initially partitioned through a Land Court action, which established many of the current day tax map parcels. Commercial sugarcane cultivation continued in the area through the middle twentieth century, and the railroad continued its Kahuku operations until 1972 (McElroy and Duhaylonsod 2017).

PRIOR ARCHAEOLOGICAL STUDIES

While there have been several archaeological studies conducted in Mālaekahana Ahupuaʻa (see McElroy and Duhaylonsod 2017), the discussion here will focus on those studies (Table 2) most proximate (Figure 13) to the current project area. In the Bishop Museum publication *Archaeology of Oahu*, McAllister (1933) identified four sites in the coastal portion of Mālaekahana: Site 272, a fishing *koʻa* on Makahoa Point; Site 273, the stone foundation of Manuwahi's coastal house; Site 274, another fishing *koʻa* and human skeletal remains in the Kalanai portion of the Mālaekahana State Recreation Area; and Site 275, Waiʻāpuka Pond in a field on the *mauka* side of Kamehameha Highway.

A series of archaeological studies (Hammatt 1977; Yent and Estioko-Griffin 1980; Yent and Ota 1982; Griffin and Yent 1986; Smith 1990) was conducted within the discontinuous Mālaekahana State Recreation Areas (see Figure 13) between 1997 and 1990. Collectively, these studies documented a widespread cultural deposit (SIHP Site 50-80-02-2801) reflective of habitation, ceremonial, and burial activities dating from at least the A.D. 1600s.

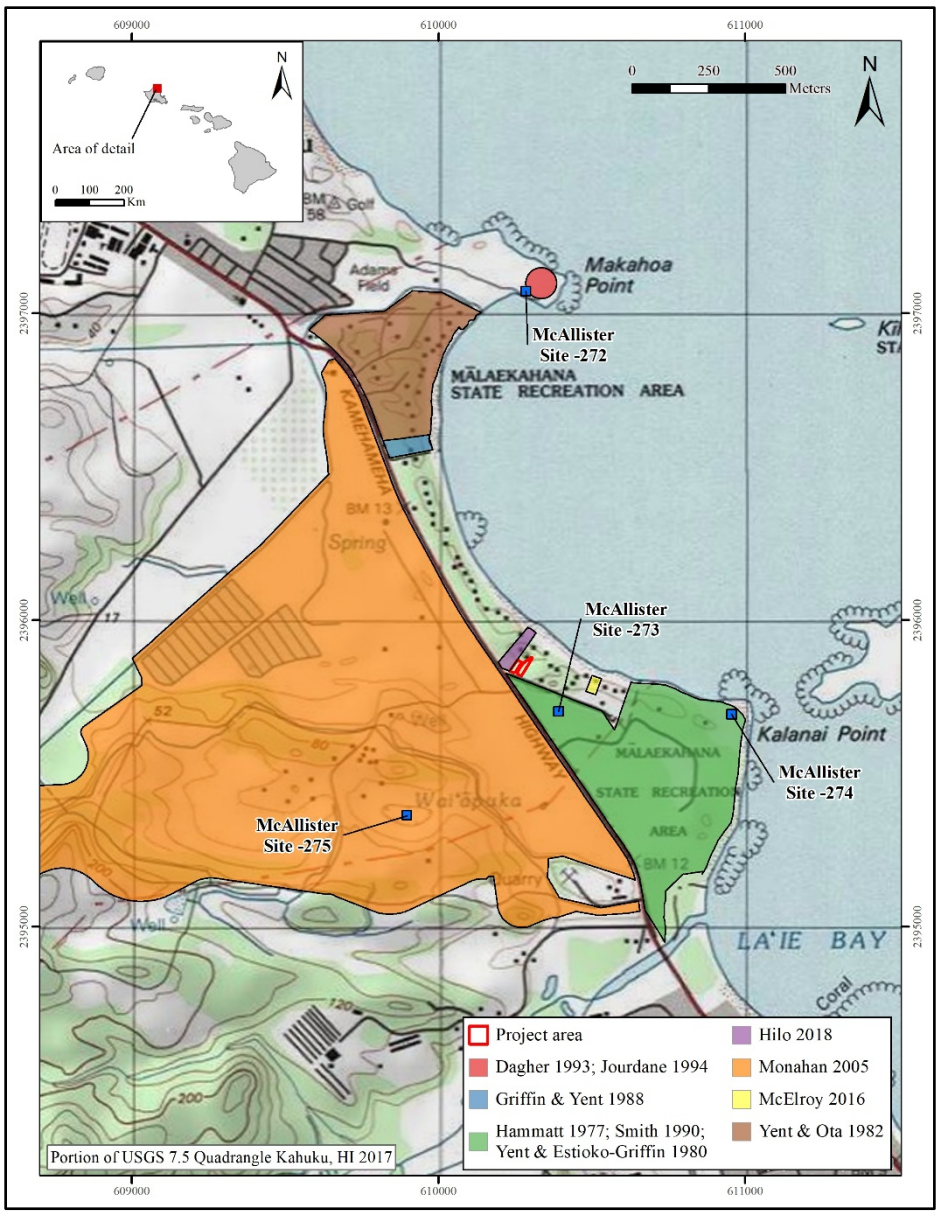

Figure 13. Prior archaeological studies conducted in the vicinity of the current project area.

Table 2. Prior archaeological studies conducted in the vicinity of the current project area.

Year	*Author(s)*	*Type of Study*	*Location*
1933	McAllister	Survey	Coastal Mālaekahana
1977	Hammatt	Stratigraphic Analysis	Mālaekahana State Recreation Area
1980	Yent and Estioko-Griffin	Archaeological Excavation	Mālaekahana State Recreation Area
1982	Yent and Ota	Archaeological Excavation	Mālaekahana State Recreation Area
1986	Griffin and Yent	Archaeological Excavation	Mālaekahana State Recreation Area
1990	Smith	Archaeological Excavation	Mālaekahana State Recreation Area
1993	Dahger	Inadvertent Discovery	Mālaekahana State Recreation Area
1994	Jourdane	Inadvertent Discovery	Mālaekahana State Recreation Area
2005	Monahan	Inventory Survey	TMK: (1) 5-6-006:006, 058
2016	McElroy	Archaeological Assessment	TMK: (1) 5-6-001:028
2018	Hilo	Inadvertent Discovery	TMK: (1) 5-6-001:090-1, -3

In 1993 and then again in 1994, DLNR-SHPD responded to the inadvertent discovery of human skeletal remains at Makahoa Point to the north of the current study area (see Figure 13). The 1993 discovery was assigned SIHP Site 50-80-02-4665 (Dagher 1993) and the 1994 discovery was assigned SIHP Site 50-80-02-4821 (Jourdane 1994).

In 2005, Scientific Consultant Services, Inc. conducted an archaeological inventory survey (Monahan 2005) of an approximately 500 acre area on the *mauka* side of Kamehameha Highway (see Figure 13) in Mālaekahana and Lāʻie *ahupuaʻa*. Monahan (ibid.) documented forty-four sites, thirty-two of which were interpreted to be historic in age, eleven dating from the Precontact Period, and one of an indeterminate age. The historic sites were primarily representative of commercial sugarcane operations, and the Precontact sites consisted of three rockshelters, interpreted as short-term resting locations, three agricultural sites, two habitation/agricultural sites, one rockshelter with a burial, one buried cultural layer with an *imu* (earth oven), and Waiʻāpuka Pond (McAllister's Site 275). The DLNR-SHPD concurred with Monahan's recommendations of no further work for thirty-eight sites, preservation for six sites, and monitoring of any future subsurface work in the Jaucas sand deposits adjacent to Kamehameha Highway.

In 2016, Keala Pono Archaeological Consulting, LLC conducted an archaeological assessment (McElroy 2016) for the development of a single-family residence on a portion of TMK: (1) 5-6-001:028 (see Figure 13) located seven lots to the east of the current project area. As a result of the surface survey and subsurface testing there were no archaeological resources identified. Despite the negative finding, archaeological monitoring was recommended.

Keala Pono Archaeological Consulting, LLC carried out archaeological monitoring (McElroy and Duhaylonsod 2017) associated with repairs to a 1.14 mile long section Kamehameha Highway spanning the entirety of Mālaekahana Ahupuaʻa and extend southeast into Lāʻiewai Ahupuaʻa (see Figure 13). Excavation work associated with the road repairs "were very shallow and no archaeological resources were encountered during the monitoring" (ibid. 2017:i).

In 2018, DLNR-SHPD responded (Hilo 2018) to the inadvertent discovery of human skeletal remains on TMK: (1) 5-6-001:090 CPR Units 1 and 3, which is located adjacent and to the northwest of the current project area (see Figure 13). A relatively complete set of remains were recovered and a midden deposit was noted. At the time of this writing the skeletal remains have yet to be reinterred.

3. PROJECT AREA EXPECTATIONS

The information garnered form the culture-historical background review coupled with the results of prior archaeological studies conducted in the vicinity of the current project area provides for a clear set of archaeological expectations. A subsurface cultural layer and traditional burials have been observed in the sandy deposits at both ends of the bay fronting Mālaekahana and on the neighboring parcel to the northwest. This deposit and the burials have been encountered in close proximity to the shore, at location slightly more *makai* than the current project area. Given the sandy substrate of the entire project area and given these prior findings, it is possible that either or both a cultural deposit and/or burials could be encountered during the current field effort. It is also recognized that the prior ground-disturbing activities on the overall parcel may have impacted or removed any such resources.

4. FIELDWORK

Fieldwork for the current study was conducted on February 4, 2021 by Robert B. Rechtman, Ph.D. and Daina Avila, B.A. Excavator assistance was provided by C. Fujimoto Contracting LLC. A total of 18 labor hours were expended on the fieldwork.

FIELD METHODS

During the archaeological field survey, the entire (100%) ground surface of study area was visually inspected by field technicians walking transects oriented north-south, spaced at no more than 3 meters apart. Ground visibility was excellent. Project area boundaries were clearly visible and locational information about proposed construction elements was incorporated into a data layer available in the field on a handheld tablet computer running ESRI's Collector application connected to an EOS Arrow 100 GNSS receiver with sub-meter accuracy (set to the UTM NAD 83 datum, Zone 4 North). This technology was also used to record the locations of six mechanically excavated test trenches (Figure 14).

FIELD RESULTS

There were no archaeological resources observed on the surface of the project area; and likewise, there were no archaeological resources observed during the subsurface testing. The entire project area has been subject to extensive prior ground disturbance associated with the placement of a driveway (see Figure 7) and the installation of underground utilities for a single-family residence that was constructed in the *makai* portion of the overall Tax map parcel. A substantial spoils pile (see Figure 8) from the prior grading is located in the western portion of the project area, and buried water lines were encountered in two of the test trenches. Subsurface testing, the results of which are described below, revealed a highly disturbed substrate.

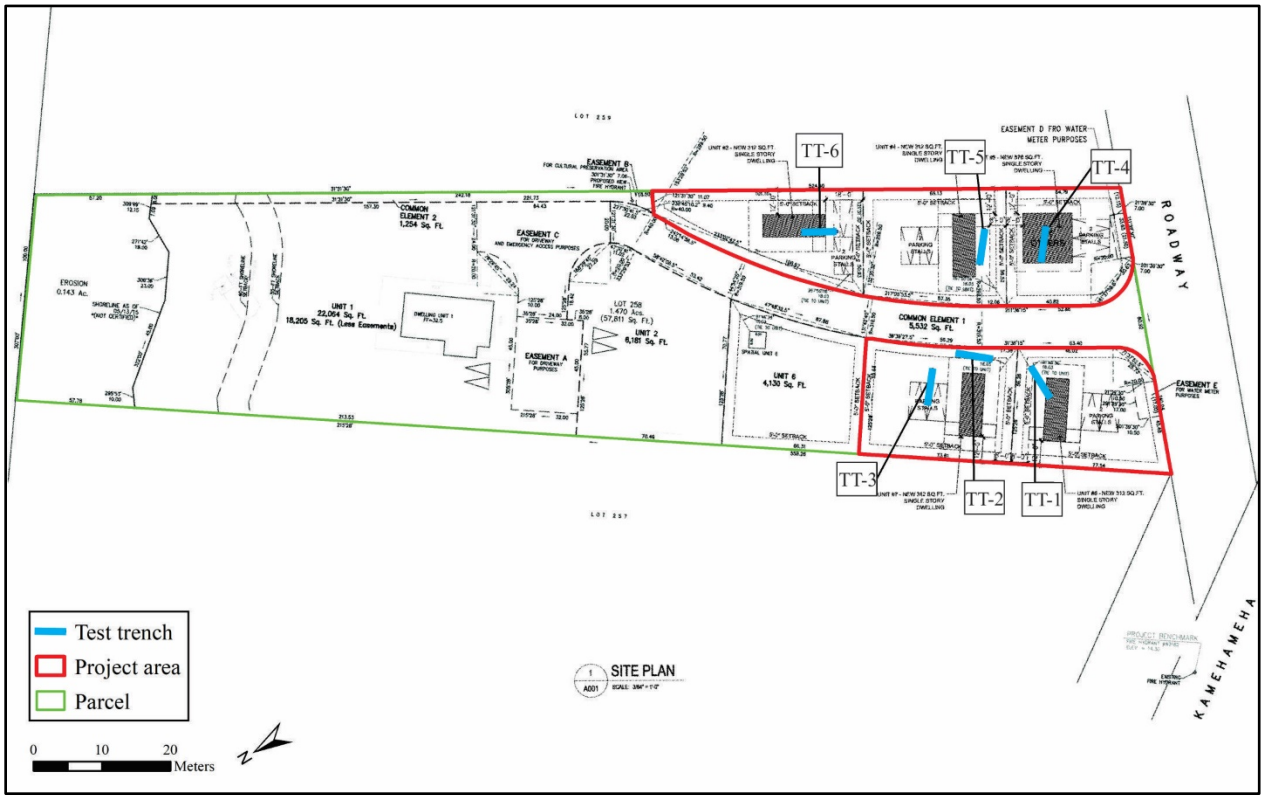

Figure 14. Project area showing locations of test trenches.

Test Trench 1

Test Trench (TT) 1, 6 meters long and 70 centimeters wide, was excavated in CPR Unit 8 (see Figure 14). A buried plastic water line was encountered at a depth of 55 centimeters below the ground surface in the eastern portion of the trench, which led to a 1-meter westward shift in the trench to avoid impacting the utility. Three stratigraphic layers were observed in the trench profile (Figure 15). Layer I was light yellowish brown (10YR 6/4) gravel and sand fill extending between 20 and 70 centimeters in depth below the ground surface with an abrupt contact with Layer II. Layer II was also a fill layer of brown (7.5YR 4/4) sand with clay inclusions. This layer also ended abruptly at depths between 48 and 55 centimeters below the ground surface. Layer III was very pale brown (10YR 7/4) powdery sand excavated to a depth of 170 centimeters below the ground surface; this is the native deposit and was culturally sterile (Figure 16).

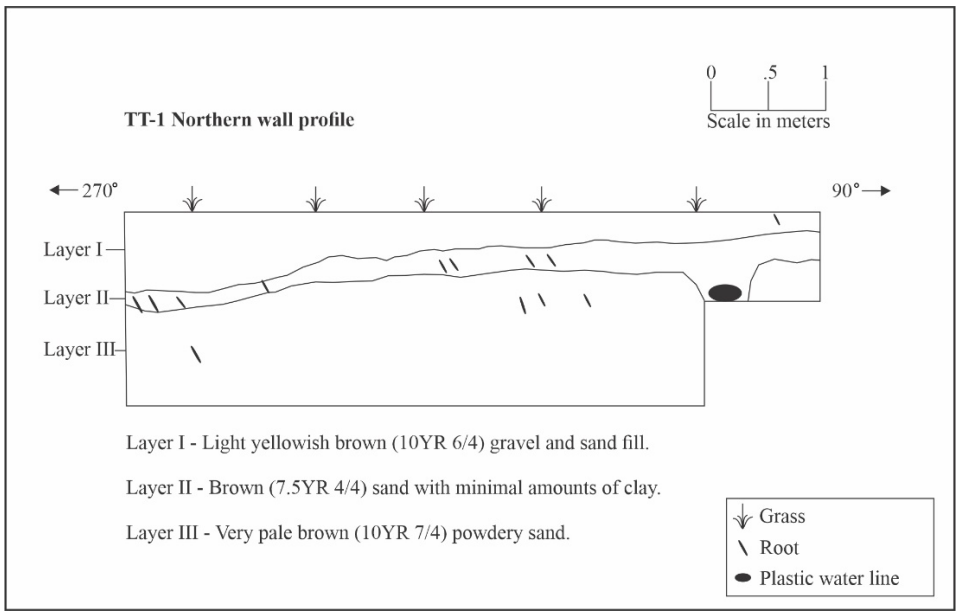

Figure 15. TT-1 profile.

Figure 16. TT-1 view to the northeast.

Test Trench 2

TT-2, 5 meters long and 70 centimeters wide was excavated in CPR Unit 7 (see Figure 14). Six stratigraphic layers were observed (Figure 17). The upper five layers, each relatively thin, represent various fill episodes to a depth of 80 centimeters below the ground surface, where they end abruptly at Layer VI. Layer VI was very pale brown (10YR 7/4) powdery sand excavated to a depth of 170 centimeters below the ground surface; this is the native deposit and was culturally sterile (Figure 18).

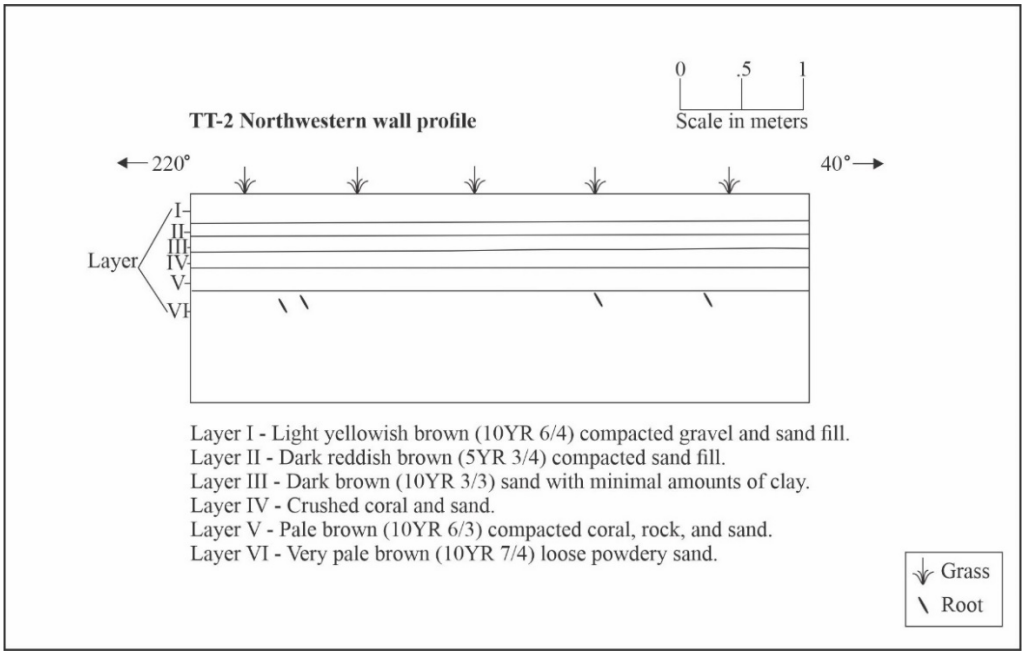

Figure 17. TT-2 profile.

Figure 18. TT-2, view to the southwest.

Test Trench 3

TT-3, 5 meters long and 70 centimeters wide was excavated in CPR Unit 7 (see Figure 14). Two stratigraphic layers were observed (Figure 19). Layer I was a yellowish brown (10YR 5/4) compacted gravel and sand fill extending to between 40 and 70 centimeters below the ground surface, where it ends abruptly at Layer II. Layer II was very pale brown (10YR 7/3) powdery sand excavated to a depth of 150 centimeters below the ground surface; this is the native deposit and was culturally sterile (Figure 20).

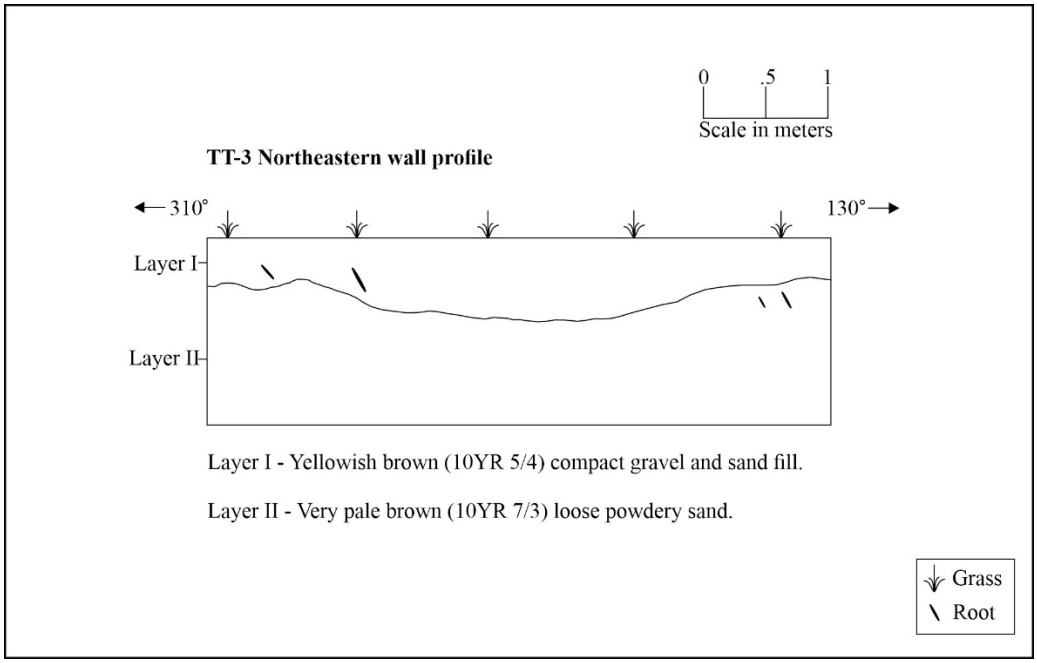

Figure 19. TT-3 profile.

Figure 20. TT-3, view to the northwest.

Test Trench 4

TT-4, 5 meters long and 70 centimeters wide was excavated in CPR Unit 5 (see Figure 14). Three stratigraphic layers were observed (Figure 21). Layer I was a yellowish brown (10YR 5/4) compacted gravel and sand fill extending to between 30 and 40 centimeters below the ground surface, where it ends abruptly at Layer II. Layer II was a thin (no more than 10 centimeters thick) fill strata of very dark grayish brown (10YR 3/2) sand with clay inclusions. Layer III was very pale brown (10YR 7/4) powdery sand excavated to a depth of 150 centimeters below the ground surface; this is the native deposit and was culturally sterile (Figure 22).

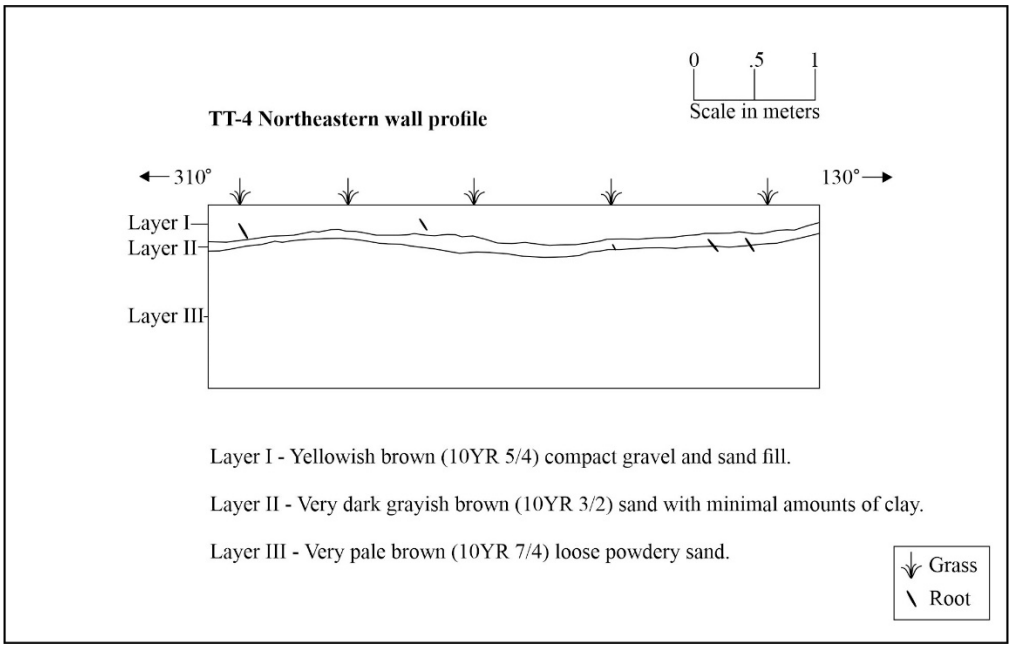

Figure 21. TT-4 profile.


Figure 22. TT-4, view to the southeast.

Test Trench 5

TT-5, 5 meters long and 70 centimeters wide was excavated in CPR Unit 4 (see Figure 14). Six stratigraphic layers were observed (Figure 23). The upper five layers, each relatively thin, represent various fill episodes to a depth of 55 centimeters below the ground surface, where they end abruptly at Layer VI. Layer VI was very pale brown (10YR 7/4) powdery sand excavated to a depth of 200 centimeters below the ground surface; this is the native deposit and was culturally sterile (Figure 24).

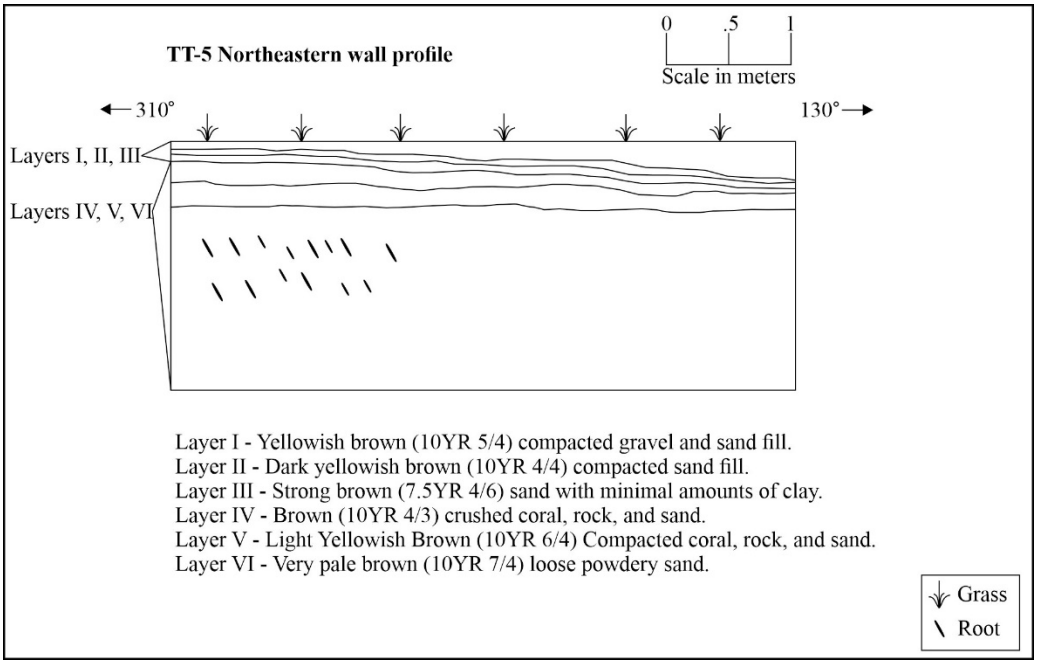

Figure 23. TT-5 profile.

Figure 24. TT-5, view to the southeast.

Test Trench 6

TT-6, 6 meters long and 70 centimeters wide was excavated in CPR Unit 5 (see Figure 14). A buried "warning water line tape" was encountered at a depth of 50 centimeters below the ground surface in the northern portion of the trench, which led to a 1-meter southward shift in the trench to avoid impacting the utility. Three stratigraphic layers were observed (Figure 25). Layer I was a yellowish brown (10YR 5/4) compacted gravel and sand fill extending to between 10 and 70 centimeters below the ground surface, where it ends abruptly at Layer II. Layer II was a 20 centimeters thick fill strata of very dark grayish brown (10YR 3/2) sand with clay inclusions. Layer III was very pale brown (10YR 7/4) powdery sand excavated to a depth of 150 centimeters below the ground surface; this is the native deposit and was culturally sterile (Figure 26).

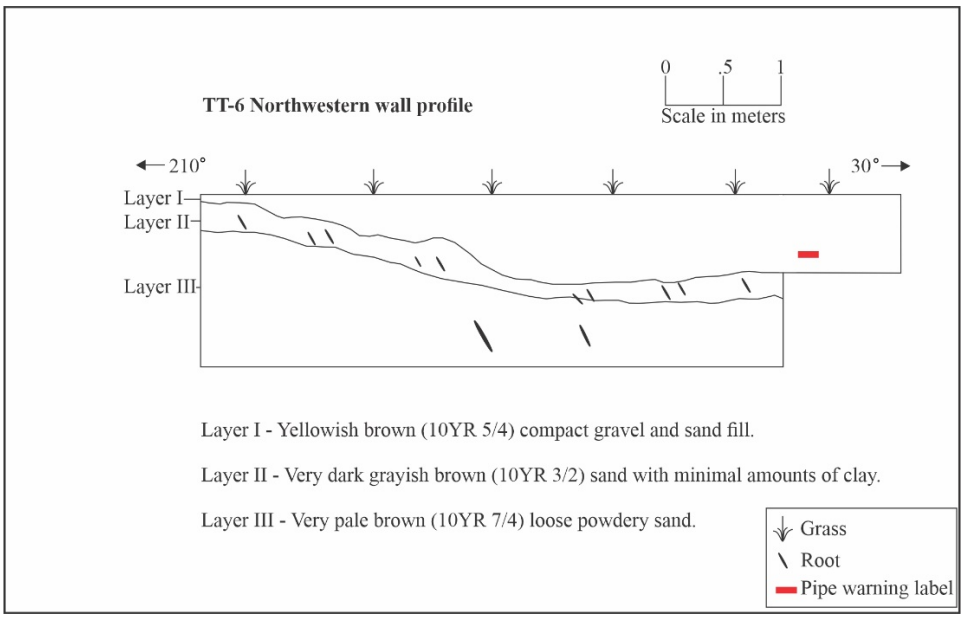

Figure 25. TT-6 profile.

Figure 26. TT-6, view to the northeast.

5. RECOMMENDATION

Although the current study produced negative findings with respect to the identification of historic resources, the SHPD believes that insufficient information is available at this time to determine that the project will not adversely affect subsurface cultural layers or burials. The soils within the project area and vicinity consist of Jaucas sands, which are known to contain significant subsurface cultural layers and human remains/burials. Additionally, previous archaeological findings show human burials, an *imu* pit and at least two fire pits were identified at 56-155 Kamehameha Highway (adjacent parcel). The SHPD has requested that a program of on-site archaeological monitoring for identification purposes be conducted for any ground-disturbing activities for the proposed project. Such monitoring should be conducted pursuant to an Archaeological Monitoring Plan prepared in accordance with HAR §13-279.

REFERENCES CITED

Abbott, I.
1992 *Lā‘au Hawai‘i, Traditional Hawaiian Uses of Plants*. Bishop Museum Press, Honolulu.

Athens, J. S., T. Rieth, and T. S. Dye
2014 A Paleoenvironmental and Archaeological Model-Based Age Estimate for the Colonization of Hawai‘i. *American Antiquity* 79(1):144-155.

Beaglehole, J.
1967 *The Journals of Captain James Cook on His Voyages of Discovery: The Voyage of the Resolution and Discovery, 1776–1780. Vol. III, Part 1*. Cambridge: Hakluyt Society

Chinen, J.
1958 *The Great Mahele: Hawaii's Land Division of 1848*. University of Hawaii Press, Honolulu.

1961 *Original Land Titles in Hawaii*. Privately published.

Commissioner of Public Lands (Office of the Commissioner of Public Lands of the Territory of Hawaii)
1929 *Indices of Awards Made by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands*. Star Bulletin Press, Honolulu.

Dagher, C.
1993 Inadvertent Discovery of a Human Burial at Makahoa Point, Malaekahana, Ko‘olauloa, O‘ahu. State Historic Preservation Division, Kapolei, Hawai‘i.

Dillingham, B.
1886 "Great Land Colonization Scheme." IN Thos G. Thrum (ed.) *Hawaiian Almanac for 1902*, pp. 128-132. Honolulu.

Emerson, N.
1915 *Pele and Hiiaka; a myth from Hawaii*. Honolulu Star Bulletin Limited, Honolulu.

Fornander, A.

1969 *An Account of the Polynesian Race: Its Origin and Migrations.* Tokyo: Charles E. Tuttle Co., Inc.

Giambelluca, T.W., X. Shuai, M.L. Barnes, R.J. Alliss, R.J. Longman, T. Miura, Q. Chen, A.G. Frazier, R.G. Mudd, L. Cuo, and A.D. Businger
2014 Evapotranspiration of Hawai‘i. Final report submitted to the U.S. Army Corps of Engineers—Honolulu District, and the Commission on Water Resource Management, State of Hawai‘i.

Griffin A., and M. Yent
1986 Auger Coring at Malaekahana State Park, Phase II. Department of Land and Natural Resources, Division of State Parks, Honolulu.

Hammatt, H.
1977 Soil Analysis for Archaeological Investigation of Malaekahana State Park.

Handy, E.S.C.
1940 *The Hawaiian Planter, Vol. I*. Bishop Museum Bulletin 161. Bernice P. Bishop Museum, Honolulu

Handy, E.S.C., and E.G. Handy
1972 *Native Planters in Old Hawaii: Their Life, Lore and Environment.* B.P. Bishop Museum Bulletin 223. Bishop Museum Press, Honolulu. (with M.K. Pukui)

Handy, E. S. C., E. G. Handy, and M. K. Pukui
1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Bernice P. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.

Hilo, R.
2018 DLNR-SHPD Internal Memo Inadvertent Discovery of Human Skeletal Remains at TMK: (1) 5-6-001:090. Two parts, State Historic Preservation Division, Honolulu.

Hommon, R.
1986 Social Evolution in Ancient Hawai‘i. In *Island Societies: Archaeological Approaches to Evolution and Transformation*, pp. 55-88. edited by P. Kirch. Cambridge University Press, Cambridge, Massachusetts.

Jourdane, E.
1994 Inadvertent Discovery and Removal of Human Burial, Makahoa Point, Laie Koolauloa, Oahu. State Historic Preservation Division, Honolulu.

Kalākaua, L.
1888 *The Legends and Myths of Hawaii. The Fables and Folk-Lore of a Strange People*. Charles L. Webster & Company, New York.

Kame‘eleihiwa, L.
1992 *Native Land and Foreign Desires: Ko Hawaii ‘Āina a Me Nā Koi Pu‘umake a Ka Po‘e Haole, Pehea lā e Pono ai? How Shall We Live in Harmony?* Bishop Museum Press, Honolulu.

King, R.
n.d. Hawaiian Land Titles. n.d. Electronic document, https://ags.hawaii.gov/wp-content/uploads, accessed May 15, 2020.

Kirch, P.
1984 *The Evolution of the Polynesian Chiefdoms*. Cambridge University Press, New York.

1985 *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory*. University of Hawaii Press, Honolulu.

1990 Monumental Architecture and Power in Polynesian Chiefdoms: A Comparison of Tonga and Hawaii. World Archaeology 22(2).

2011 When did the Polynesians Settle Hawai‘i? A Review of 150 years of Scholarly Inquiry and a Tentative Answer. *Hawaiian Archaeology* Vol. 12:3-26. Society for Hawaiian Archaeology.

Kuykendall, R.
1938 *The Hawaiian Kingdom 1778–1854. Foundation and Transformation.* Honolulu: University of Hawaii Press.

1967 *The Hawaiian Kingdom 1874–1893. The Kalakaua Dynasty.* Honolulu: University of Hawaii Press.

McAllister, J.
1933 Archaeology of Oahu. *B.P. Bishop Museum Bulletin* 104. Bishop Museum Press, Honolulu. (New York: Kraus Reprint Co., reprinted 1971).

McElroy, W.
2016 Archaeological Assessment for TMK: (1) 5-6-001:028 (por.), Mālaekahana Ahupua‘a, Ko‘olauloa District, Island of O‘ahu, Hawai‘i. Keala Pono Report.

McElroy, W., and D. Duhaylonsod
2017 Archaeological Monitoring Report for Kamehameha Highway Resurfacing from Mālaekahana Stream Bridge to Kahawainui Stream-Lā‘iewai Bridge, Mālaekahana and Lā‘iewai Ahupua‘a, Ko‘olauloa District, O‘ahu. Keala Pono Report, Prepared for Road and Highway Builders, Honolulu.

Nakamura, B.
1981 Historical Survey of the Kahuku Wind Farm Site and Notes on the Power Transmission Line Route, Kahuku, Oʻahu, Hawaiʻi. Manuscript 060481. Department of Anthropology, B.P. Bishop Museum, Honolulu. Prepared for Bechtel Power Corp.

Monahan, C.M.
2005 An Archaeological Inventory Survey Report on an Approximately 500-Acre Area in Mālaekahana, Mālaekahana and Lāʻie Ahupuaʻa, Koʻolauloa District, Oʻahu Island, Hawaiʻi [TMK: (1) 5-6-006: 006 And 058]. Scientific Consultant Services, Inc., Honolulu.

Osorio, J.
2002 *Dismembering Lāhui: A History of the Hawaiian Nation to 1887*. University of Hawaii Press, Honolulu.

Pogue, J.
1978 *Mooleo Hawaii*. Hale Paipalapala Aupuni, Honolulu (Revised Edition).

Rice, W.H.
1923 *Hawaiian Legends*. Bernice P. Bishop Museum Bulletin 3, Honolulu.

Sai, D. K.
2011 *Ua Mau Ke Ea Sovereignty Endures: An Overview of the Political and Legal History of the Hawaiian Islands.* Pūʻā Foundation, Honolulu.

Schmitt, R.
1973 The Missionary Censuses of Hawaii. *Pacific Anthropological Records No. 29*. Department of Anthropology, Bishop Museum, Honolulu.

Sherrod, D., J. Sinton, S. Watkins, and K. Brunt
2007 *Geologic Map of the State of Hawai'i*. U.S. Department of the Interior, U.S. Geological Survey. Open-File Report 2007-1089. Electronic document, http://pubs.usgs.gov/of/2007/1089, accessed Apr 27, 2018.

Silva, N.
2004 Aloha Betrayed: Native Hawaiian Resistance to American Colonialism. Duke University Press, Durham.

Smith, M.
1990 Subsurface Testing at Malaekahana State Recreation Area, Phase I, Sewer And Water Improvements (Job No. 85-OP-F2), Laie And Malaekahana, Koolauloa, Oahu. Division of State Parks, Honolulu.

Soehren, L.
2005 A Catalog of Hawaiʻi Place Names Compiled from the Records of the Boundary Commission and the Board of Commissioners to Quiet Land Title of the Kingdom of Hawaii. Part 1: Puna and Hilo. 2005. Electronic document, http://ulukau.org/cgi-bin/hpn?, accessed September 14, 2016.

Stride, M., T. Craddock, and H. Hammatt
2003 Archaeological Inventory Survey of the Proposed 785-Acre Kahuku Agricultural Park (TMK:1-5-6-8:2). Cultural Surveys Hawaii, Inc. Prepared for M and E Pacific, Inc. (Revised)

Tatar, E.
1982 Nineteenth Century Hawaiian Chant. *Pacific Anthropological Records No. 33*. Department of Anthropology, B.P. Bishop Museum, Honolulu.

Thayer, W.
1934 "Report of the Examiner: In the Matter of the Application of A.N. Campbell, et al, Trustees of the Estate of James Campbell Deceased, for Registration of Tittle to Land in Koolauloa, Oahu. Land Court "1095." In Hawaiʻi (Terr.) Land Court, *Land Court Application Number 1095*, 1934, pp. 130-183.

Vancouver, G.
1798 *A Voyage of Discovery to the North Pacific Ocean, and Round the World*, Volumes 1-3. London: Robinsons and Edwards.

Williams, S., and T. Patolo
1998 Final Report, Archaeological Inventory Survey of the Kahuku Training Area, for the Legacy Resource Management Program, Oʻahu Island, Hawaiʻi (TMK:1-5-6; -7). Ogden Environmental and Energy Services Co., Inc., Honolulu, Hawaiʻi. Prepared for U.S. Army Corps of Engineers, Corps of Engineers District, Honolulu, Fort Shafter, Hawaiʻi.

Wilmshurst, J., T. Hunt, C. Lipo, and A. Anderson
2011 High-Precision Radiocarbon Dating Shows Recent and Rapid Colonization of East Polynesia. *Proceedings of the National Academy of Sciences* 108:1815-1820.

Wong-Smith, H.
1989 Preliminary Historical Documentary Research Punamano and Malaekahana Golf Courses Land of Kahuku, Island of Oʻahu. Appendix A in Jensen 1989. Paul H. Rosendahl, Ph.D., Inc., Report 483-040489. Prepared for Kuilima Development Corp.

Yent, M., and A. Estioko-Griffin
1980 Archaeological Investigations at Malaekahana (50-80-02-2801), Windward Oahu. Department of Land and Natural Resources, Division of State Parks, Honolulu.

Yent, M., and J. Ota
1982 Results of Auger Coring Conducted at Malaekahana State Recreation Area, Phase II, Koʻolauloa, Oahu. TMK: 5-6-01:24,45-47,49,51,53,55–65. Department of Land and Natural Resources, Division of State Parks, Honolulu.

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD., STE 555
KAPOLEI, HI 96707

December 31, 2020

IN REPLY REFER TO:
Project No.: 2020PR34918
Log No.: 2020.02811
Doc. No.: 2012LS02
Archaeology
History & Culture

Ms. Kathy Sokugawa, Acting Director
Department of Planning and Permitting
City and County of Honolulu
One Main Plaza Building
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Sokugawa:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Building Permit Applications – A2016-11-0326, A2016-12-0580, A2016-12-0581, A2016-12-0582, A2016-12-0583
Grading Permit Application – GP2020-01-0020
56-155-A Kamehameha Hwy., Kahuku – New 2-story SFD
Owner Name: Malaekahana Hui West LLC
Malaekahana Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 5-6-001:033 and 066

This letter provides the State Historic Preservation Division's (SHPD's) review of these subject permit applications for the proposed construction of five new 2-story dwellings at 56-155-A Kamehameha Highway.

- A2016-11-0326 – TMK: (1) 5-6-001:033 (1.47 acres) - New 2-story SFD, new 6' high retaining wall at the middle of the property; and TMK: (1) 5-6-066 (1.142-acres)
- A2016-12-0580 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit D1, new 2-story SFD
- A2016-12-0581 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit F1, new 2-story SFD
- A2016-12-0582 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit G1, new 2 story SFD
- A2016-12-0583 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit H1, new 2 story SFD

The SHPD received this permit application on November 24, 2020 which included building permit applications, a TMK map, construction plans, and an HRS 6E Submittal Form. On December 4, 2020, the applicant submitted a grading permit application and photos of the project area. The project area comprises of a 0.57-acre portion of a 1.47-acre parcel. Subsurface disturbance will include excavation to a maximum of 3 ft. below grade including utilities.

Our records show that the parcel has not been surveyed for archaeological historic properties. The soils in the project area and vicinity consist of Jaucas sands, which are known to contain significant subsurface cultural layers and human remains/burials. Previous archaeological findings include human burials, an imu and at least two firepits located at 56-155 Kamehameha Highway. This address is associated with a small cluster residential development. A burial was recovered from an eroding beach face dune (Yent and Ota 1983). In 2018 and 2019, at least two inadvertent discoveries of in situ burials occurred during excavation and grading activities at Unit 1 and Unit 2.

At this time, SHPD has insufficient information for making a determination that no historic properties will be affected by the proposed project which involves a significant amount of subsurface excavation. Therefore, **SHPD requests an archaeological inventory survey** with a subsurface testing component be conducted within the proposed project area. The AIS shall be conducted by a qualified archaeologist in order to adequately identify and

document any archaeological historic properties that may be present, to assess their significance, to determine the potential impacts of this project on any identified archaeological historic properties, and to identify and ensure appropriate mitigation is implemented, if needed. A list of permitted archaeological firms is provided on the SHPD website at: http://dlnr.hawaii.gov/shpd/about/branches/archaeology/.

SHPD requests the project proponent and archaeological firm consult with our office regarding an appropriate testing strategy prior to initiation of the AIS.

When the AIS is completed, please submit the draft report to SHPD to **HICRIS Project 2020PR34918** using the Project Supplement option in HICRIS.

SHPD shall notify the County when the required archaeological reports and/or plans have been reviewed and accepted and the permit issuance process may continue.

Please contact Regina Hilo, Oahu Island Burial Sites Specialist, at Regina.Hilo@hawaii.gov, for concerns regarding human burials, and Susan A. Lebo, Archaeology Branch Chief, at Susan.A.Lebo@hawaii.gov or at (808) 321-9000, for matters regarding archaeological resources or this letter.

Aloha,
Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Wallace Carvalho, wcarvalho@honolulu.gov
Kanani Padeken, kpadeken@honolulu.gov
Perry Tamayo, ptamayo@honolulu.gov
Adam Lee, adam@nojuice.com

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD., STE 555
KAPOLEI, HI 96707

March 31, 2022

IN REPLY REFER TO:
Project No. 2020PR34918
Doc. No. 2103DM06
Archaeology

Mr. Dean Uchida, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813
c/o Perry Tamayo
ptamayo@honolulu.gov

Dear Mr Uchida:

SUBJECT: **HRS Chapter 6E-42 Historic Preservation Review –**
Building Permit Applications – A2016-11-0326, A2016-12-0580, A2016-12-0581, A2016-12-0582, A2016-12-0583
Grading Permit Application – GP2020-01-0020
Archaeological Assessment for a Portion of TMK: (1) 5-6-001:033
Mālaekahana Ahupua'a, Ko'olauloa District, Island of O'ahu
TMK: (1) 5-6-001:033 por.

This letter provides the State Historic Preservation Division's (SHPD's) review of the subject archaeological assessment (AA) report titled *Archaeological Assessment for a Portion of TMK: (1) 5-6-001:033, Mālaekahana Ahupua'a, Ko'olauloaDistrict, Island of O'ahu TMK: (1) 5-6-001:033* (Rechtman, March 2021), Building Permit Applications A2016-11-0326, A2016-12-0580, A2016-12-0581,A2016-12-0582, A2016-12-0583, and Grading Permit Application (GP2020-01-0020). SHPD previously reviewed the subject permit applications, requested an archaeological inventory survey (AIS) be conducted for the project (December 31, 2020; Project No. 2020PR34918, Log No. 2020.02811, Doc. No. 2012LS02). SHPD received the draft AA report on March 22, 2021, and a final revised report on March 30, 2021. Due to negative findings the AIS results are presented in an AA report as specified in HAR§ 13-284-5(b)(5)(A).

Malaekahana, LLC (landowner) proposes the development of five small housing units on lots; four measuring 312 square feet and one measuring 576 square feet. The project area comprises a 0.57-acre portion of the 1.47-acre property under multiple Condominium Property Regime (CPR) ownership. The development will include ground disturbances for foundation footings for post and pier structures, underground water connections, leach field excavations, and septic tank installations.

ASM Affiliates (ASM) conducted an AIS consisting of a 100% pedestrian survey with transects spaced 3 meters apart across the entire project area, and six backhoe test trenches in locations where project related ground disturbance were proposed. The surface survey and subsurface testing yielded negative results for historic properties within the project area. Profiles were recorded for each of the six backhoe test trenches which measured roughly 5 to 6 meters long and 1.5 to 2 meters deep. Although the AIS yielded negative results, Rechtman (March 2021) recommends archaeological monitoring be conducted for the project due to the potential for cultural deposits and burials to be present and impacted.

Based on the presence of Jaucas sands within the project area, which are known to contain significant subsurface cultural layers and human remains/burials, SHPD has insufficient information to determine the project will not

adversely affect historic properties and/or burials. Additionally, previous archaeological findings show human burials, an imu and at least two firepits were identified at 56-155 Kamehameha Highway. **SHPD requests** that an archaeological monitoring plan (AMP) meeting the requirements of HAR §13-279-4 be submitted to SHPD for review and acceptance prior to project initiation.

The AA report satisfies the requirements of HAR §13-276-5. **It is accepted.** Please send one hard copy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version of the report to the Kapolei SHPD office, attention SHPD Library. Please also send a text-searchable PDF copy of this letter to HICRIS Project No. 2021PR34918 using the Supplemental Attachment option, and a text-searchable PDF copy of the report to lehua.k.soares@hawaii.gov.

SHPD shall notify the County when an archaeological monitoring plan (AMP) meeting the requirements of HAR §13-279-4 has been reviewed and accepted so the permit issuance process may proceed.

Please contact Deidra Moore, O'ahu Archaeologist III, at deidra.moore@hawaii.gov for any questions regarding this letter.

Aloha,

Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Adam Lee, adam@nojuice.com

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APPENDIX D

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai‘i 96850

In Reply Refer To:
2022-0027960-S7-001

April 6, 2022

Ms. Rachel Okoji
President
Environmental Risk Analysis, LLC
905A Makahiki Way
Honolulu, Hawaii 96826

Subject: Technical Assistance for the Demolition and Construction of a New Residence at 56-155 Kamehameha Highway, Kahuku, O‘ahu

Dear Ms. Okoji:

Thank you for your recent correspondence requesting technical assistance on species biology, habitat, or life requisite requirements. The Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (Service) appreciates your efforts to avoid or minimize effects to protected species associated with your proposed actions. We provide the following information for your consideration under the authorities of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 *et seq*.), as amended.

Due to significant workload constraints, PIFWO is currently unable to specifically address your information request. The table below lists the protected species most likely to be encountered by projects implemented within the Hawaiian Islands. Based on your project location and description, we have noted the species most likely to occur within the vicinity of the project area, in the '**Occurs In or Near Project Area'** column. Please note this list is not comprehensive and should only be used for general guidance. We have added to the PIFWO website, located at https://www.fws.gov/pacificislands/promo.cfm?id=177175840 recommended conservation measures intended to avoid or minimize adverse effects to these federally protected species and best management practices to minimize and avoid sedimentation and erosion impacts to water quality. If your project occurs on the island of Hawai‘i, we have also enclosed our biosecurity protocol for activities in or near natural areas.

If you are representing a federal action agency, please request an official species list following the instructions at our PIFWO website https://www.fws.gov/pacificislands/articles.cfm?id=149489558. You can find out if your project occurs in or near designated critical habitat here: https://ecos.fws.gov/ipac/.

Under section 7 of the ESA, it is the Federal agency's (or their non-Federal designee) responsibility to make the determination of whether or not the proposed project "may affect" federally listed species or designated critical habitat. A "may affect, not likely to adversely affect" determination is appropriate when effects to federally listed species are expected to be discountable (i.e., unlikely to occur), insignificant (minimal in size), or completely beneficial. This conclusion requires written concurrence from the Service. If a "may affect, likely to adversely affect" determination is made, then the Federal agency must initiate formal consultation with the Service. Projects that are determined to have "no effect" on federally listed species and/or critical habitat do not require additional coordination or consultation.

Implementing the avoidance, minimization, or conservation measures for the species that may occur in your project area will normally enable you to make a "may affect, not likely to adversely affect" determination for your project. If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with the ESA compliance. If the proposed project is funded, authorized, or permitted by a Federal agency, then that agency should consult with us pursuant to section 7(a)(2) of the ESA. If no Federal agency is involved with the proposed project, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the ESA. A section 10 permit application must include a habitat conservation plan that identifies the effects of the action on listed species and their habitats and defines measures to minimize and mitigate those adverse effects.

We appreciate your efforts to conserve endangered species. We regret that we cannot provide you with more specific protected species information for your project site. If you have questions that are not answered by the information on our website, you can contact PIFWO at (808) 792-9400 and ask to speak to the lead biologist for the island where your project is located.

Sincerely,

Island Team Manager
Pacific Islands Fish and Wildlife Office

Enclosures (2)

The table below lists the protected species most likely to be encountered by projects implemented within the Hawaiian Islands. For your guidance, we have marked species that may occur in the vicinity of your project, this list is not comprehensive and should only be used for general guidance.

Enclosure 1. Federal Status of Animal Species

Scientific Name	**Common Name / Hawaiian Name**	**Federal Status**	**May Occur In Project Area**
Mammals			
Lasiurus cinereus semotus	Hawaiian hoary bat/‘ōpe‘ape‘a	E	☒
Reptiles			
Chelonia mydas	green sea turtle/honu - Central North Pacific distinct population segment (DPS)	T	☒
Eretmochelys imbricata	hawksbill sea turtle/ honu ‘ea or ‘ea	E	☒
Birds			
Anas wyvilliana	Hawaiian duck/koloa	E	☐
Branta sandvicensis	Hawaiian goose/nēnē	T	☐
Fulica alai	Hawaiian coot/‘alae ke‘oke‘o	E	☐
Gallinula galeata sandvicensis	Hawaiian gallinule/‘alae ‘ula	E	☐
Himantopus mexicanus knudseni	Hawaiian stilt/ae‘o	E	☐
Oceanodroma castro	band-rumped storm-petrel Hawai‘i DPS/‘akē‘akē	E	☒
Pterodroma sandwichensis	Hawaiian petrel/‘ua‘u	E	☒
Puffinus auricularis newelli	Newell’s shearwater/‘a‘o	T	☒
Ardenna pacificus	wedge-tailed shearwater/‘ua‘u kani	MBTA	☒
Buteo solitarius	Hawaiian hawk/‘io	MBTA	☐
Gygis alba	white tern/manu-o-kū	MBTA	☐
Insects			
Manduca blackburni	Blackburn’s sphinx moth	E	☐
Megalagrion pacificum	Pacific Hawaiian damselfly	E	☐
Megalagrion xanthomelas	orangeblack Hawaiian damselfly	E	☐
Megalagrion nigrohamatum nigrolineatum	blackline Hawaiian damselfly	E	☐

Enclosure 2. Federal Status of Plant Species

Plants				
Scientific Name	**Common Name or Hawaiian Name**	**Federal Status**	**Locations**	**May Occur In Project Area**
Abutilon menziesii	koʻoloaʻula	E	O, L, M, H	☐
Achyranthes splendens var. *rotundata*	ʻewa hinahina	E	O	☐
Bonamia menziesii	no common name	E	K, O, L, M, H	☐
Canavalia pubescens	ʻāwikiwiki	E	Ni, K, L, M	☐
Colubrina oppositifolia	kauila	E	O, M, H	☐
Cyperus trachysanthos	puʻukaʻa	E	K, O	☐
Gouania hillebrandii	no common name	E	Mo, M	☐
Hibiscus brackenridgei	maʻo hau hele	E	O, Mo, L, M, H	☐
Ischaemum byrone	Hilo ischaemum	E	K, O, Mo, M, H	☐
Isodendrion pyrifolium	wahine noho kula	E	O, H	☐
Marsilea villosa	ʻihiʻihi	E	Ni, O, Mo	☐
Mezoneuron kavaiense	uhiuhi	E	O, H	☐
Nothocestrum breviflorum	ʻaiea	E	H	☐
Panicum fauriei var. *carteri*	Carter's panicgrass	E	Molokini Islet (O), Mo	☐
Panicum niihauense	lauʻehu	E	K	☐
Peucedanum sandwicense	makou	E	K, O, Mo, M	☐
Pleomele (Chrysodracon) hawaiiensis	halapepe	E	H	☐
Portulaca sclerocarpa	ʻihi	E	L, H	☐
Portulaca villosa	ʻihi	E	Le, Ka, Ni, O, Mo, M, L, H, Nihoa	☐
Pritchardia affinis (maideniana)	loulu	E	H	☐
Pseudognaphalium sandwicensium var. *molokaiense*	ʻenaʻena	E	Mo, M	☐
Scaevola coriacea	dwarf naupaka	E	Mo, M	☐
Schenkia (*Centaurium*) *sebaeoides*	ʻāwiwi	E	K, O, Mo, L, M	☐
Sesbania tomentosa	ʻōhai	E	Ni, Ka, K, O, Mo, M, L, H, Necker, Nihoa	☐
Tetramolopium rockii	no common name	T	Mo	☐
Vigna o-wahuensis	no common name	E	Mo, M, L, H, Ka	☐

Location key: O=Oʻahu, K=Kauaʻi, M=Maui, H=island of Hawaiʻi, L=Lānaʻi, Mo=Molokaʻi, Ka=Kahoʻolawe, Ni=Niʻihau, Le=Lehua

DAVID Y. IGE
GOVERNOR

CURT T. OTAGURO
COMPTROLLER

AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)22.142

AUG - 5 2022

Ms. Rachel Okoji, M.S., President
Environmental Risk Assessment, LLC
905A Makahiki Way
Honolulu, Hawaii 96826

Dear Ms. Okoji:

Subject: Environmental Assessment for
56-155 Kamehameha Highway - New Residences
Kahuku, Oahu, Hawaii
TMK: (1) 5-6-001: 003

Thank you for the opportunity to comment on the subject project. We have no comments to offer at this time as the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities.

If you have any questions, your staff may call Ms. Gayle Takasaki of the Planning Branch at (808) 586-0584.

Sincerely,

CHRISTINE L. KINIMAKA
Public Works Administrator

GT:mo

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
925 DILLINGHAM BOULEVARD, SUITE 200•HONOLULU, HAWAII 96817
PHONE: (808) 768-7762 • FAX: (808) 768-7792
www.honolulu.gov/dcs

RICK BLANGIARDI
MAYOR

ANTON C. KRUCKY
DIRECTOR

AEDWARD LOS BANOS
DEPUTY DIRECTOR

August 05, 2022

Ms. Rachel Okoji, M.S., President
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawai'i 96826

Dear Ms. Okoji:

SUBJECT: Environmental Assessment & Anticipated FONSI for SMP
56-155 Kamehameha Highway New Residences
TMK: (1) 5-6-001:033 Kahuku, O'ahu, Hawai'i

Thank you for your notice of an Environmental Assessment (EA) and anticipated Finding of No Significant Impact (FONSI) for the 56-155 Kamehameha Highway project, which requires an EA in support of a Special Management Area Use Permit (SMP).

Our review indicates that the proposed project will have no adverse impacts on any Department of Community Services activities or projects in the surrounding neighborhood.

Thank you for providing us the opportunity to comment on this matter.

Sincerely,

for Anton C. Krucky
Director

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Ulu'ohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

RICK BLANGIARDI
MAYOR

DAWN B. SZEWCZYK, P.E.
DIRECTOR AND CHIEF ENGINEER

WARREN K. MAMIZUKA
ACTING DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 22-264

August 17, 2022

Environmental Risk Analysis LLC
Ms. Rachel Okoji, M.S., President
905 A Makahiki Way
Honolulu, HI 96826

Dear Ms. Okoji:

Subject: Environmental Assessment
56-155 Kamehameha Highway – New Residences
TMK: 5-6-001:033

Thank you for the opportunity to review the subject project.

We have no comments at this time, as we do not have any facilities or easements on the subject properties.

If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at (808) 768-3697.

Sincerely,

for Dawn B. Szewczyk, P.E.
Director and Chief Engineer

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
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

RICK BLANGIARDI
MAYOR

DEAN UCHIDA
DIRECTOR

DAWN TAKEUCHI APUNA
DEPUTY DIRECTOR

August 11, 2022

2022/ELOG-1595(ST)
2016/SMA-24

Ms. Rachel Okoji, President
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawaii 96826

Dear Ms. Okoji:

SUBJECT: Early Consultation for an Environmental Assessment (EA)
Special Management Area (SMA) Use Permit
Seven Single-Family Dwellings
56-155 Kamehameha Highway - Kahuku
Tax Map Key 5-6-001: 033

This responds to your request, received on August 2, 2022, for comment regarding your forthcoming Draft EA. The proposal is to demolish an existing dwelling and construct seven new single-family dwellings on a 1.47-acre shoreline lot in the R-5 Residential District. It is our understanding that the Draft EA is being prepared for submission of an application for a Major SMA Use Permit. The proposal will supersede the previous minor SMA permit No. 2016/SMA-24 (2016 SMA Permit), which authorized the construction of six 312-square-foot single-family dwellings.

Please note that changes in the SMA law have taken effect since the 2016 SMA Permit, including the adoption of Act 16 (2020) and Ordinance 21-27. Please refer to our updated instructions for preparing an EA and SMA Major permit application on our web-site at:

http://www.honoluludpp.org/Portals/0/pdfs/zoning/DPP%20EA%20Instructions.pdf

http://www.honoluludpp.org/LinkClick.aspx?fileticket=kNj-FVUmrGQ%3d&tabid=93&portalid=0&mid=420

Should you have any questions, please contact Steve Tagawa, of our staff, at (808) 768-8024.

Very truly yours,

for Dean Uchida
Director

cc: Site Development Division

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

RICK BLANGIARDI
MAYOR

LAURA H. THIELEN
DIRECTOR

KEHAULANI PU'U
DEPUTY DIRECTOR

August 8, 2022

Ms. Rachel Okoji, M.S.
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawaii 96826
Attn: 56-155 Kamehameha Highway

Dear Ms. Okoji:

SUBJECT: Pre-Consultation for an Environmental Assessment
56-155 Kamehameha Highway - New Residences
TMK: 5-6-001:033 Kahuku, Hawaii

Thank you for the opportunity to review and comment at the pre-assessment consultation stage of the subject Draft Environmental Assessment.

The net increase of seven single family residences will require the developer to comply with the requirements of the Park Dedication Ordinance.

Should you have any questions, please contact Ms. Jennifer Barra, Planner V at 808-768-3017.

Sincerely,

for Laura H. Thielen
Director

LHT:jb
(885973)

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

RICK BLANGIARDI
MAYOR

SHELDON K. HAO
FIRE CHIEF

JASON SAMALA
DEPUTY FIRE CHIEF

August 11, 2022

Ms. Rachel Okoji, M.S.
President
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawaii 96826

Dear Ms. Okoji:

Subject: Environmental Assessment
Seven Single-Family Residences
56-155 Kamehameha Highway
Kahuku, Hawaii 96731
Tax Map Key: 5-6-001: 033

In response to your letter received on August 1, 2022, regarding the abovementioned subject, the Honolulu Fire Department (HFD) reviewed the submitted information and 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 (46 meters) 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; 2018 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1, as amended)

   A fire department access road shall extend to within 50 feet (15 meters) 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; 2018 Edition, Section 18.2.3.2.1)

2. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities, buildings, or portions of buildings are hereafter constructed or

moved into the jurisdiction. The approved water supply shall be in accordance with NFPA 1; 2018 Edition, Sections 18.3 and 18.4.

3. The fire department access roads shall be in accordance with NFPA 1; 2018 Edition, Section 18.2.3.

4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Acting Battalion Chief Kendall Ching of our Fire Prevention Bureau at 808-723-7154 or kching3@honolulu.gov.

Sincerely,

CRAIG UCHIMURA
Acting Assistant Chief

CU/RZ:bh

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

October 8, 2020

Mr. Adam Lee
4960 Mana Place
Honolulu, Hawaii 96816

Dear Mr. Lee:

Subject: Request for Fire Department Hydrant Equivalency
Five Proposed Single-Family Dwellings
56-155A Kamehameha Highway
Kahuku, Hawaii 96731
Tax Map Keys: 5-6-001: 033 and 066

In response to your letter dated September 13, 2020, regarding the abovementioned subject, the Honolulu Fire Department reviewed the submitted information and approves your request for fire department hydrant equivalency provided the following are complied with:

1. The proposed dwellings shall be equipped with full coverage automatic fire sprinkler systems in accordance with National Fire Protection Association (NFPA) 13D.

2. The proposed dwellings shall meet all fire department access road requirements of NFPA 1, 2012 Edition.

3. Fire extinguishers meeting the requirements of NFPA 10, 2010 Edition are installed.

4. Submit civil drawings to the City and County of Honolulu's Department of Planning and Permitting for review and approval.

Should you have questions, please contact Acting Battalion Chief Timothy Caires of our Fire Prevention Bureau at 723-7094 tcaires@honolulu.gov.

Sincerely,

JASON SAMALA
Assistant Chief

JS/TC:bh

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD., STE 555
KAPOLEI, HI 96707

December 31, 2020

IN REPLY REFER TO:
Project No.: 2020PR34918
Log No.: 2020.02811
Doc. No.: 2012LS02
Archaeology
History & Culture

Ms. Kathy Sokugawa, Acting Director
Department of Planning and Permitting
City and County of Honolulu
One Main Plaza Building
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Sokugawa:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Building Permit Applications – A2016-11-0326, A2016-12-0580, A2016-12-0581, A2016-12-0582, A2016-12-0583
Grading Permit Application – GP2020-01-0020
56-155-A Kamehameha Hwy., Kahuku – New 2-story SFD
Owner Name: Malaekahana Hui West LLC
Malaekahana Ahupua'a, Ko'olaupoko District, Island of O'ahu
TMK: (1) 5-6-001:033 and 066

This letter provides the State Historic Preservation Division's (SHPD's) review of these subject permit applications for the proposed construction of five new 2-story dwellings at 56-155-A Kamehameha Highway.

- A2016-11-0326 – TMK: (1) 5-6-001:033 (1.47 acres) - New 2-story SFD, new 6' high retaining wall at the middle of the property; and TMK: (1) 5-6-066 (1.142-acres)
- A2016-12-0580 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit D1, new 2-story SFD
- A2016-12-0581 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit F1, new 2-story SFD
- A2016-12-0582 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit G1, new 2 story SFD
- A2016-12-0583 – TMK: (1) 5-6-001:033 (1.47-acres) 56-155-A Kam Hwy., Unit H1, new 2 story SFD

The SHPD received this permit application on November 24, 2020 which included building permit applications, a TMK map, construction plans, and an HRS 6E Submittal Form. On December 4, 2020, the applicant submitted a grading permit application and photos of the project area. The project area comprises of a 0.57-acre portion of a 1.47-acre parcel. Subsurface disturbance will include excavation to a maximum of 3 ft. below grade including utilities.

Our records show that the parcel has not been surveyed for archaeological historic properties. The soils in the project area and vicinity consist of Jaucas sands, which are known to contain significant subsurface cultural layers and human remains/burials. Previous archaeological findings include human burials, an imu and at least two firepits located at 56-155 Kamehameha Highway. This address is associated with a small cluster residential development. A burial was recovered from an eroding beach face dune (Yent and Ota 1983). In 2018 and 2019, at least two inadvertent discoveries of in situ burials occurred during excavation and grading activities at Unit 1 and Unit 2.

At this time, SHPD has insufficient information for making a determination that no historic properties will be affected by the proposed project which involves a significant amount of subsurface excavation. Therefore, **SHPD requests an archaeological inventory survey** with a subsurface testing component be conducted within the proposed project area. The AIS shall be conducted by a qualified archaeologist in order to adequately identify and

document any archaeological historic properties that may be present, to assess their significance, to determine the potential impacts of this project on any identified archaeological historic properties, and to identify and ensure appropriate mitigation is implemented, if needed. A list of permitted archaeological firms is provided on the SHPD website at: http://dlnr.hawaii.gov/shpd/about/branches/archaeology/.

SHPD requests the project proponent and archaeological firm consult with our office regarding an appropriate testing strategy prior to initiation of the AIS.

When the AIS is completed, please submit the draft report to SHPD to **HICRIS Project 2020PR34918** using the Project Supplement option in HICRIS.

SHPD shall notify the County when the required archaeological reports and/or plans have been reviewed and accepted and the permit issuance process may continue.

Please contact Regina Hilo, Oahu Island Burial Sites Specialist, at Regina.Hilo@hawaii.gov, for concerns regarding human burials, and Susan A. Lebo, Archaeology Branch Chief, at Susan.A.Lebo@hawaii.gov or at (808) 321-9000, for matters regarding archaeological resources or this letter.

Aloha,
Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Wallace Carvalho, wcarvalho@honolulu.gov
Kanani Padeken, kpadeken@honolulu.gov
Perry Tamayo, ptamayo@honolulu.gov
Adam Lee, adam@nojuice.com

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD., STE 555
KAPOLEI, HI 96707

March 31, 2022

IN REPLY REFER TO:
Project No. 2020PR34918
Doc. No. 2103DM06
Archaeology

Mr. Dean Uchida, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813
c/o Perry Tamayo
ptamayo@honolulu.gov

Dear Mr Uchida:

SUBJECT: **HRS Chapter 6E-42 Historic Preservation Review –**
Building Permit Applications – A2016-11-0326, A2016-12-0580, A2016-12-0581, A2016-12-0582, A2016-12-0583
Grading Permit Application – GP2020-01-0020
Archaeological Assessment for a Portion of TMK: (1) 5-6-001:033
Mālaekahana Ahupua'a, Ko'olauloa District, Island of O'ahu
TMK: (1) 5-6-001:033 por.

This letter provides the State Historic Preservation Division's (SHPD's) review of the subject archaeological assessment (AA) report titled *Archaeological Assessment for a Portion of TMK: (1) 5-6-001:033, Mālaekahana Ahupua'a, Ko'olauloaDistrict, Island of O'ahu TMK: (1) 5-6-001:033* (Rechtman, March 2021), Building Permit Applications A2016-11-0326, A2016-12-0580, A2016-12-0581,A2016-12-0582, A2016-12-0583, and Grading Permit Application (GP2020-01-0020). SHPD previously reviewed the subject permit applications, requested an archaeological inventory survey (AIS) be conducted for the project (December 31, 2020; Project No. 2020PR34918, Log No. 2020.02811, Doc. No. 2012LS02). SHPD received the draft AA report on March 22, 2021, and a final revised report on March 30, 2021. Due to negative findings the AIS results are presented in an AA report as specified in HAR§ 13-284-5(b)(5)(A).

Malaekahana, LLC (landowner) proposes the development of five small housing units on lots; four measuring 312 square feet and one measuring 576 square feet. The project area comprises a 0.57-acre portion of the 1.47-acre property under multiple Condominium Property Regime (CPR) ownership. The development will include ground disturbances for foundation footings for post and pier structures, underground water connections, leach field excavations, and septic tank installations.

ASM Affiliates (ASM) conducted an AIS consisting of a 100% pedestrian survey with transects spaced 3 meters apart across the entire project area, and six backhoe test trenches in locations where project related ground disturbance were proposed. The surface survey and subsurface testing yielded negative results for historic properties within the project area. Profiles were recorded for each of the six backhoe test trenches which measured roughly 5 to 6 meters long and 1.5 to 2 meters deep. Although the AIS yielded negative results, Rechtman (March 2021) recommends archaeological monitoring be conducted for the project due to the potential for cultural deposits and burials to be present and impacted.

Based on the presence of Jaucas sands within the project area, which are known to contain significant subsurface cultural layers and human remains/burials, SHPD has insufficient information to determine the project will not

adversely affect historic properties and/or burials. Additionally, previous archaeological findings show human burials, an imu and at least two firepits were identified at 56-155 Kamehameha Highway. **SHPD requests** that an archaeological monitoring plan (AMP) meeting the requirements of HAR §13-279-4 be submitted to SHPD for review and acceptance prior to project initiation.

The AA report satisfies the requirements of HAR §13-276-5. **It is accepted.** Please send one hard copy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version of the report to the Kapolei SHPD office, attention SHPD Library. Please also send a text-searchable PDF copy of this letter to HICRIS Project No. 2021PR34918 using the Supplemental Attachment option, and a text-searchable PDF copy of the report to lehua.k.soares@hawaii.gov.

SHPD shall notify the County when an archaeological monitoring plan (AMP) meeting the requirements of HAR §13-279-4 has been reviewed and accepted so the permit issuance process may proceed.

Please contact Deidra Moore, O'ahu Archaeologist III, at deidra.moore@hawaii.gov for any questions regarding this letter.

Aloha,

Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Adam Lee, adam@nojuice.com

Solid and Hazardous Waste Branch Standard Comments

November 26, 2018

The Solid and Hazardous Waste Branch administers programs in the areas of:

1) Management of hazardous waste;
2) Management of solid waste; and
3) Regulation of underground storage tanks.

Our general comments on projects are below. For further information about these programs, please contact the Solid and Hazardous Waste Branch at (808) 586-4226. All chapters of the Hawaii Revised Statutes (HRS) are at https://www.capitol.hawaii .gov/hrscurrent/.

Hazardous Waste Program

- The state regulations for hazardous waste and used oil are in chapters 11-260.1 to 11-279.1, Hawaii Administrative Rules (HAR) [http://health.hawaii.go v/shwb/hwrules/]. These rules apply to the identification, handling, transportation, storage and disposal of regulated hazardous waste and used oil. Generators, transporters and treatment, storage, and disposal facilities of hazardous waste and used oil must adhere to these requirements. Violations are subject to penalties under chapter 342J, HRS.

Solid Waste Section

- The Solid Waste Section (SWS) enforces laws and regulations contained in chapters 342H and 3421, HRS, and chapter 11-58.1, HAR, "Solid Waste Management Control" [http://health.hawaii .gov/shwb/solid-waste/].

- The purpose of the rules is to establish minimum standards governing the design, construction, installation, operation, and maintenance of solid waste disposal, recycling, reclamation and transfer systems.

- All facilities that accept solid wastes are required to obtain a solid waste management permit from the SWS. Examples of the types of facilities governed by these regulations include landfills, transfer stations and convenience centers, recycling facilities, composting facilities, and salvage facilities. Medical waste, infectious waste, and foreign waste treatment facilities are also included.

- Generators of solid waste are required to ensure that their wastes are properly delivered to permitted solid waste management facilities. Managers of construction and demolition projects should require their waste contractors to submit disposal receipts and invoices to ensure proper disposal of wastes.

- Chapter 342G, HRS, encourages the reduction of waste generation, reuse of discarded materials, and the recycling of solid waste. The project developer is highly encouraged to develop a demolition and construction solid waste management plan to ensure proper handling of wastes and divert recyclables from being landfilled. Ideally, the plan would seek to maximize waste diversion and minimize disposal.

  Furthermore, building plans should include designated areas to promote the collection of reusable and recyclable materials.

- Chapters 342H and 3421, HRS, and chapter 11-58.1, HAR, "Solid Waste Management Control" requires the proper management of solid wastes. Generators of solid waste are required to ensure that their wastes are properly delivered to permitted solid waste management facilities. Project managers should require their waste contractors to submit disposal (and recycling) receipts and invoices to ensure proper disposal (or recycling) of wastes.

Office of Solid Waste Management

- The Office of Solid Waste Management (OSWM) administers statewide integrated solid waste management planning activities, which apply to the counties, as well as various recycling programs, e.g. the Glass Advance Disposal Fee (ADF) and Deposit Beverage Container (DBC) Programs. Management of the DBC Program is conducted pursuant to chapter 342G, HRS, which contains compliance and enforcement provisions, and chapter 11-282, HAR, "Deposit Beverage Recycling" [http://health.hawaii.gov/hi5/rules-regulations-additional- links/]. OSWM is also responsible for limited enforcement and compliance of solid waste management facilities that operate primarily as certified DBC redemption centers pursuant to chapter 342H, HRS, and chapter 11-58.1, HAR, "Solid Waste Management Control" [http://health.hawaii.gov/shwb/solid-waste/]. Authority for the integrated solid waste management planning and ADF programs is contained in chapter 342G, HRS.

- Glass Advance Disposal Fee Program: Businesses that import glass containers into Hawaii are required to register with the Department of Health and pay a 1.5 cent per container fee. Fee revenue is distributed to the counties for the operation of glass recycling programs.

- Deposit Beverage Container Program: Business that manufacture or import deposit beverage containers into Hawaii are required to register with the Department of Health and pay the five-cent deposit and one cent container fee on each deposit container. Deposits and fees are deposited into a special fund and are used to reimburse DBC redemption center refunds paid to consumers; and to pay handling fees to redemption/recycling companies to process and recycle collected deposit beverage containers; and to pay program administrative costs.

- The Department of Health reimburses and pays an associated handling fee for the redemption of deposit beverage containers (DBC). These transactions are conducted only with certified redemption centers. Certification requires obtaining a solid waste management permit from the SWS (which addresses environmental issues) and a certification from the DBC program (which standardizes the redemption process).

For further information about these programs, please contact the Solid and Hazardous Waste Branch at (808) 586-4226.

Solid and Hazardous Waste Branch Standard Comments

- Chapter 342G, HRS, encourages the reduction of waste generation, reuse of discarded materials, and the recycling of solid waste. Businesses, property managers and developers, and government entities are highly encouraged to develop solid waste management plans to ensure proper handling of wastes and divert recyclables from being landfilled. The project developer is highly encouraged to develop a solid waste management plan to ensure proper handling of wastes and divert recyclables from being landfilled. Ideally, the plan would seek to

  maximize waste diversion and minimize disposal. Such plans should include designated areas to promote the collection of reusable and recyclable materials.

- Solid waste management plans seek to maximize waste diversion and minimize disposal. Such plans should include designated areas to promote the collection of reusable and recyclable materials.

Underground Storage Tank Program

- The state's underground storage tank (UST) regulations, found in chapter 11-280.1, HAR [http://health.hawaii.gov/shwb/underg round-storage-tanks/], include specific requirements that UST owners and operators must meet when installing, operating, and permanently closing their UST systems and addressing releases from USTs. Violations are subject to penalties under chapter 11-280.1, HAR, and chapter 342L, HRS.

- A permit is required prior to the installation and operation of a UST. Any new UST system that will be installed must have secondary containment with interstitial monitoring. Refer to subchapters 2, 3, 4, and 12 of chapter 11-280.1, HAR. The installation permit expires 1 year from the date of issuance. The operation permit expires 5 years from the date of issuance.

- §11-280.1-50, HAR, requires owners and operators of USTs or tank systems to notify DOH within twenty-four (24) hours and follow the procedures in§ 11-280.1-52, HAR, if any of the following occur, with specific exceptions found in the rules:
  1) The discovery by any person of evidence of regulated substances which may have been released at the UST site or in the surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, or nearby surface water);
  2) Unusual UST system operating conditions observed or experienced (such as the erratic behavior of product dispensing equipment, the sudden loss of product from the UST, or an unexplained presence of water in the tank); or
  3) Monitoring results from a release detection method required under §§11-280.1-41 or 11-280 .1-42 indicate a release may have occurred.

For further information about these programs, please contact the Solid and Hazardous Waste Branch at (808) 586-4226.

Solid and Hazardous Waste Branch Standard Comments

- For release response actions, responsible parties and their consultants and contractors should follow the applicable guidance in the Department of Health Hazard Evaluation Emergency (HEER) Office Technical Guidance Manual, HEER Environmental Action Level (EAL) guidance, and other guidance documents on the DOH HEER Office website [http://eha-web.doh.hawaii.gov /eha-cma/Org/HEER/], including those pertaining to Multi-Increment Sampling of soil, low flow groundwater sampling, soil vapor sampling, and Environmental Hazard Evaluations (EHE)/Environmental Hazard Management Plans (EHMP).