

DAVID Y. IGE  
GOVERNOR



**FILE COPY**  
JUL 23 2019

CRAIG K. HIRAI  
EXECUTIVE DIRECTOR

**STATE OF HAWAII**  
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM  
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION  
677 QUEEN STREET, SUITE 300  
Honolulu, Hawaii 96813  
FAX: (808) 587-0600

IN REPLY REFER TO:  
19:PECB/42

July 10, 2019

Mr. Scott Glenn, Director  
Office of Environmental Quality Control  
Department of Health, State of Hawai'i  
235 S. Beretania Street, Room 702  
Honolulu, Hawai'i 96813

**RECEIVED**  
19 JUL 11 AM 8:19  
OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

Dear Mr. Glenn:

Subject: Publication of the Final Environmental Assessment (FEA-FONSI) for the Proposed  
Kaiaulu O Waikoloa Housing Development, South Kohala District, Island of  
Hawaii, TMK No. (3) 6-8-003:028

With this letter, the Hawaii Housing Finance and Development Corporation (HHFDC) hereby transmits the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the proposed Kaiaulu O Waikoloa Housing Development situated at TMK No. (3) 6-8-003:028, in the South Kohala District on the island of Hawaii for publication in next available edition of The Environmental Notice.

HHFDC has included copies of public comments and the corresponding responses from the applicant that were received during the 30-day public comment period on the Draft Environmental Assessment.

Enclosed is a completed OEQC Publication Form, one (1) hard copy of the FEA-FONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact Janice Takahashi, Chief Planner, at (808) 587-0639.

Sincerely,

Craig K. Hirai  
Executive Director

Enclosures

c: K00674 Waikoloa, L.P., Attn: James Rock  
Environmental Risk Analysis, LLC, Attn: Rachel Okoji

20-006

**Submittal Form for Periodic Bulletin Publication :  
Entry # 575****Action Name**

Kaiaulu O Waikoloa

**Type of Document/Determination**

Final environmental assessment and finding of no significant impact (FEA-FONSI)

**HRS §343-5(a) Trigger(s)**

- (1) Propose the use of state or county lands or the use of state or county funds

**Judicial district**

South Kohala, Hawai'i

**Tax Map Key(s) (TMK(s))**

(3)6-8-003:028

**Proponent type**

Applicant

**Permit(s)/approval(s)**

- Other

**Approving agency**

Hawaii Housing Finance and Development Corporation

**Agency contact name**

Janice Takahashi

**Agency contact email**

[Janice.N.Takahashi@hawaii.gov](mailto:Janice.N.Takahashi@hawaii.gov)

**Agency contact phone**

(808) 587-0639

**Agency address**

677 Queen Street, Suite 300  
Honolulu, Hawaii 96813  
United States  
[Map It](#)

**Applicant**

**Submittal Form for Periodic Bulletin Publication :  
Entry # 575**

K00674 Waikoloa, LP.

**Applicant contact name**

James Rock

**Applicant contact email**

[jrock@uhcllc.net](mailto:jrock@uhcllc.net)

**Applicant contact phone**

(714) 835-3955

**Applicant address**

2000 E Fourth Street, Suite 220  
Santa Ana, California 92705  
United States  
[Map It](#)

**Was this submittal prepared by a consultant?**

Yes

**Consultant**

Environmental Risk Analysis LLC

**Consultant contact name**

Rachel Okoji

**Consultant contact email**

[rachelokoji@enviroriskhawaii.com](mailto:rachelokoji@enviroriskhawaii.com)

**Consultant contact phone**

(808) 783-6840

**Consultant address**

905A Makahiki Way  
Honolulu, Hawaii 96826  
United States  
[Map It](#)

**Action summary**

**Submittal Form for Periodic Bulletin Publication :  
Entry # 575**

The proposed development site (Parcel #680030280000) encompasses 4.6 acres of land situated in Waikoloa on the west side of the Island of Hawai'i. Currently, this location is zoned for apartment homes. K00674 Waikoloa, LP. is proposing to develop an affordable rental complex of 60 units, consisting of 28 two-bedroom units, an estimated 25 three-bedroom units, and an estimated 7 four-bedroom units in Waikoloa. The development will include a community center and at least 75 parking stalls. The objective of this project is to produce an affordable rental development, while utilizing the least amount of State of Hawai'i resources. These apartments will target low income households earning less than 60 percent of the Area Median Income (AMI) for the County of Hawai'i. These units will address the dire need for affordable rentals for the households in this income bracket, many of whom are at risk of becoming homeless due to the severe housing shortage.

**Reasons supporting determination**

Please see Section 7.

**Attached Documents (agency letter & EA/EIS)**

- [Kaiaulu-O-Waikoloa-Final-EA.pdf](#)
- [Kaiaulu-O-Waikoloa-Final-EA1.pdf](#)
- [Kaiaulu-O-Waikoloa-Final-EA2.pdf](#)
- [Kaiaulu-O-Waikoloa-Final-EA3.pdf](#)
- [Kaiaulu-O-Waikoloa-Housing-Development OEQC-Transmittal-FEA-FONSI.pdf](#)

**Shapefile**

- The location map for this Final EA is the same as the location map for the associated Draft EA.

**Shapefile upload**

- [Figure-1\\_Site-Location-Map.pdf.zip](#)

**Authorized individual**

Rachel Okoji

**Proponent**

K00674 Waikoloa, LP.

**Authorization**

- The above named authorized individual hereby certifies that he/she has the authority on behalf of the identified proponent to make this submission.



**DRAFT FINAL**  
**ENVIRONMENTAL ASSESSMENT**

**Kaiaulu O Waikoloa  
Proposed Housing Development  
Pua Melia Street  
Waikoloa, Hawaii 96738  
Tax Map Key (3) 6-8-3:28**

**Applicant:**  
K00674 Waikoloa, L.P.

**Approving Agency:**  
Hawaii Housing Finance and Development Corporation

May July 2019

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**DRAFT FINAL**  
**ENVIRONMENTAL ASSESSMENT**

**Kaiaulu O Waikoloa  
Proposed Housing Development  
Pua Melia Street  
Waikoloa, Hawaii 96738  
Tax Map Key (3) 6-8-3:28**

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

**Prepared for:**  
K00674 Waikoloa, L.P.  
2000 E. Fourth Street, Suite 220  
Santa Ana, California 92705

**Applicant:**  
K00674 Waikoloa, L.P.

**Approving Agency:**  
Hawaii Housing Finance and Development Corporation  
677 Queen Street, Suite 300  
Honolulu, Hawaii 96813

May-July 2019

**Changes between the Final Environmental Assessment  
and the Draft Environmental Assessment are indicated as underlined.**



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## *Acronyms and Abbreviations*

AMI	Area Median Income
Census	U.S. Census Bureau
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dBA	decibels
EA	Environmental Assessment
EDR	Environmental Database Resource
EPA	Environmental Protection Agency
FEMA	Federal Emergency Response Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FUDS	Formerly Used Defense Site
HAR	Hawaii Administrative Rules
HCDA	Hawaii Community Development Authority
HDOH	Hawaii State Department of Health
HRS	Hawaii Revised Statutes
HHFDC	Hawaii Housing Finance and Development Corporation
HUD	Department of Housing and Urban Development
LUCs	Land Use Controls
LUO	Land Use Ordinance
MEC	munitions of environmental concern
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
OHCD	Office of Housing and Community Development
PM2.5	particulate matter at 2.5 microns or less
PMA	Primary Market Area
SEL	sound exposure levels
SHPD	Hawaii State Historic Preservation
SMA	Secondary Market Area
SO2	sulfur dioxide
TMK	tax map key
UIC	Underground Injection Control
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UXO	unexploded ordnance

## Executive Summary

This Environmental Assessment (EA) was conducted to assess potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as Tax Map Key (TMK) (3)6-8-3:28 in Waikoloa, Hawaii on the island of Hawaii. The EA was prepared to identify, document and address potential environmental impacts associated with the Proposed Action. The EA examines two alternatives, the Proposed Action, and the No Action Alternative.

- Alternative I – No Action Alternative
- Alternative II – The Proposed Action – 60-Unit housing development on Pua Melia Street in Waikoloa, Hawaii. This multi-family apartment development would provide affordable rental housing for low income households.

The Office of the Governor of Hawaii, Hawaii State Legislature, and Hawaii Housing Finance and Development Corporation (HHFDC) have identified a need for affordable housing in Hawaii. In support of the Proposed Action, the County of Hawaii will be granting funds for Section 8 rent subsidy on 15 of the 60 units.

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

## Findings

- A Finding of No Significant Impact (FONSI) ~~is anticipated~~ determination has been made based on the environmental and societal factors considered under the Proposed Action and the No-Action Alternative, as well as comments received on the Draft Environmental Assessment.

- While potential impacts to Soil, Air Quality, Noise and Circulation and Traffic are possible during construction, implementing best management practices would reduce these impacts to less than significant levels.
- Potential impacts from previous site use by the military are possible, however the property was provided a Conditional No Further Action with Institutional Controls (NFA w/ICs) designation. The Conditional NFA w/ICs stipulates the property must be accompanied by an ongoing safety awareness program, all future subsurface activities must be conducted following the *Areawide Environmental Hazard Management Plan, Waikoloa Maneuver Area, Island of Hawaii* (2019), all subsurface activities must be conducted with UXO Construction Support, and for large scale developments, a Site-Specific Environmental Hazard Management Plan must be submitted to and approved by HDOH prior to construction. Implementing the ICs would reduce the risk to negligible.
- Beneficial impacts to Land Use Considerations and Zoning are anticipated as they would address the necessity of additional affordable rental housing for lower income persons.
- 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. Additional negative impacts are anticipated to Social Factors and Community Identity under Alternative I. If No Action is taken, lower income persons will not have the additional affordable housing units and support services available to them.

## **SECTION 1 INTRODUCTION AND SUMMARY**

### **1.1 Scope and Authority**

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) 1500-1508) and pursuant to Chapter 343, Hawaii Revised Statutes (HRS) and associated Title 11, Chapter 200 Hawaii Administrative Rules (HAR). 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 construction of a new housing development on Hawaii Island, in Waikoloa, Hawaii (Figure 1). A Chapter 343, HRS EA is required because the project is partially funded by the Rental Housing Revolving Fund, which was awarded by the Hawaii Housing Finance and Development Corporation (HHFDC) in January 2017.


### **1.2 Project Information**

Project Name:	Kaiaulu O Waikoloa Proposed Housing Development Project Waikoloa, Hawaii
Applicant:	K00674 Waikoloa, L.P. 2000 E. Fourth Street, Suite 220 Santa Ana, California 92705 Contact: James Rock (714) 835-3955
Agent:	Environmental Risk Analysis, LLC 905A Makahiki Way Honolulu, Hawaii 96826 Contact: Russell Okoji (808) 425-0968
Approving Agency:	HHFDC 677 Queen Street, Suite 300 Honolulu, Hawaii 96813
Project Location:	Pua Melia Street Waikoloa, Hawaii 96738 Island of Hawaii
Tax Map Key No.:	(3) 6-8-3-28 (Figure 2)
Total Affected Area:	4.6-acre parcel
Existing Land Use:	Currently unpaved and undeveloped
State Land Use Classification:	Urban

State Special District: N/A  
Land Use Ordinance Zoning: Multi-Family Dwelling Units (RM 1.5)  
Land Use Ordinance Special District:None  
Flood Zone: Flood Insurance Rate Map Zone X  
Land Owner: K00674 Waikoloa, L.P.





	<p>PROJECT NAME:          Environmental Assessment          Kaiaulu O Waikoloa          Pua Melia Street          Waikoloa, Hawaii 96738          TMK (3) 6-8-3-28</p>	<p>FIGURE TITLE:          Site Location Map</p>
		<p>FIGURE NUMBER:          1</p>

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PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 TMK Map

FIGURE NUMBER:  
 2

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## **SECTION 2 PROJECT DESCRIPTION**

### **2.1 Purpose and Need**

**Purpose:** This Environmental Assessment (EA) has been prepared to satisfy the requirements of HRS Chapter 343 and National Environmental Policy Act (NEPA) and 24 CFR Part 58 Environmental Review Procedures . The purpose of the Proposed Action (i.e., construction of a new affordable housing development) is to assist the State of Hawaii in addressing affordable housing needs.

**Need:** The Office of the Governor of Hawaii has expressed a specific need to create additional affordable housing for the very low income to moderate income households. The Hawaii State Legislature has also recognized this need by passing legislation that has increased monies to funds such as the Rental Housing Revolving Fund for financing to build affordable rental housing units. This project helps to fulfill this need for affordable rental housing. The Department of Business, Economic Development & Tourism (DBEDT) projects a population increase in Hawaii County of 29% by 2025. This would result in a total demand of between 19,600 and 20,100 additional housing units for Hawaii County by 2025. (DBEDT, 2015 and 2018)

### **2.2 Project Description**

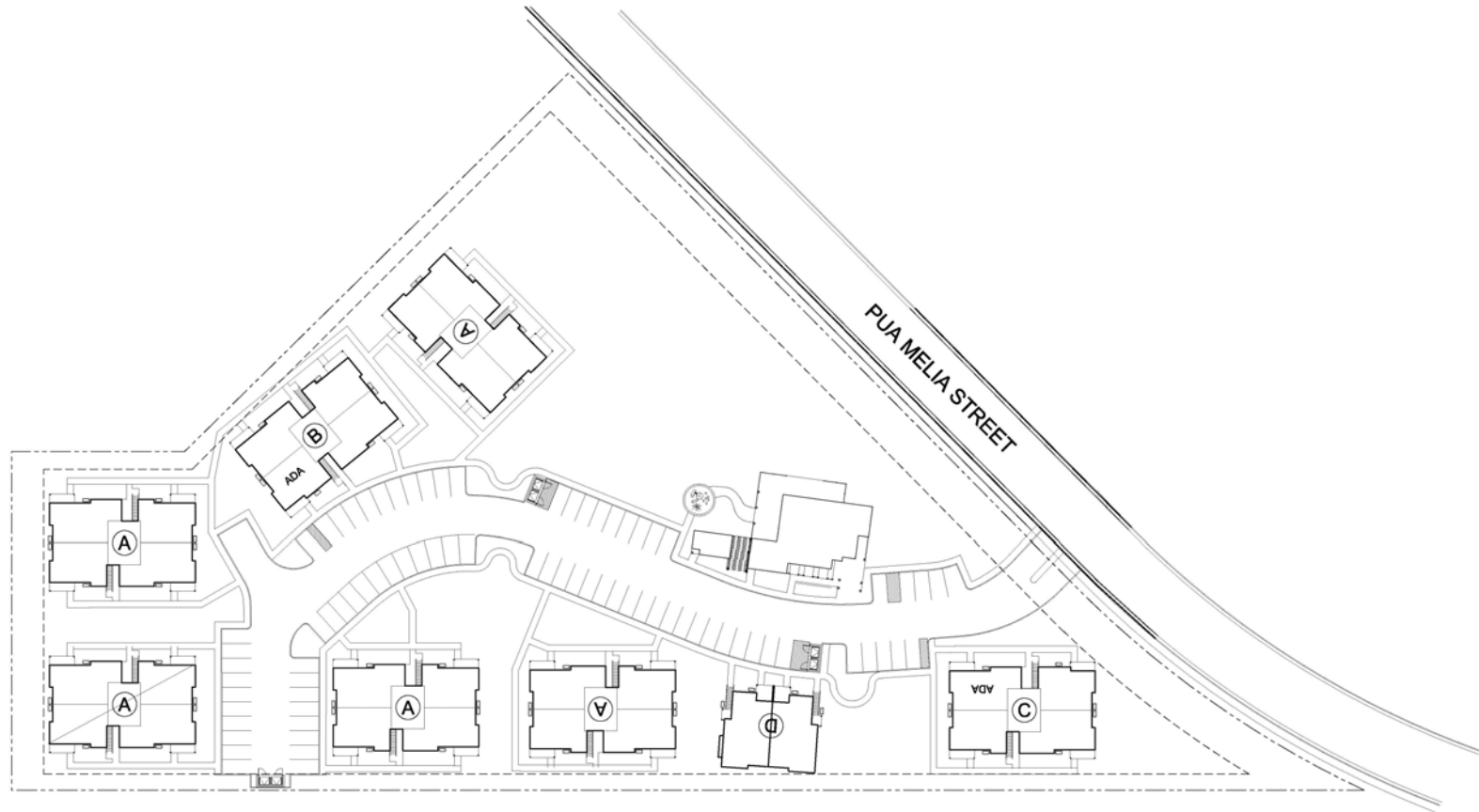
The proposed development site (Parcel #680030280000) encompasses 4.6 acres of land situated in Waikoloa on the west side of the Island of Hawai'i. Currently, this location is zoned for apartment homes. K00674 Waikoloa, L.P. is proposing to develop an affordable rental complex of 60 units, consisting of 28 two-bedroom units, an estimated 25 three-bedroom units, and an estimated 7 four-bedroom units in Waikoloa (Figures 3 - 5). The development will include a community center (Figures 6 and 7) and at least 75 parking stalls. The objective of this project is to produce an affordable rental development, while utilizing the least amount of State of Hawai'i resources. These apartments will target low income households earning less than 60 percent of the Area Median Income (AMI) for the County of Hawai'i. These units will address the dire need for affordable rentals for the households in this income bracket, many of whom are at risk of becoming homeless due to the severe housing shortage.

### **2.3 Construction Time Frame and Estimated Project Construction Costs**

The construction period is estimated to be from 2019 through 2021. Construction is estimated to begin by November 2019. Completion is anticipated in the first quarter of 2021.

The total budget for these improvement activities is estimated at \$30 million. The anticipated primary financing will be provided by Hunt Capital Partners. HHFDC will be providing Tax Exempt Bonds, tax credits and the State's Rental Housing Revolving Funds.

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**Kaiaulu O Waikoloa**  
 URBAN HOUSING COMMUNITIES, LLC  
 Design Partners Incorporated

0 30 60  
 SCALE: 1" = 30'  
 PLAN NORTH

**Concept Site Plan**  
 NOVEMBER 29, 2018



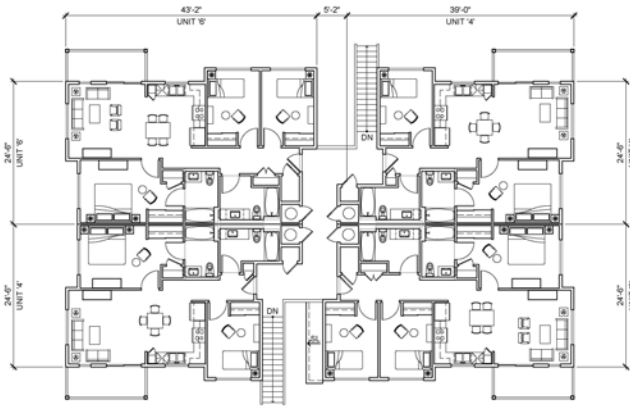
PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Site Plan

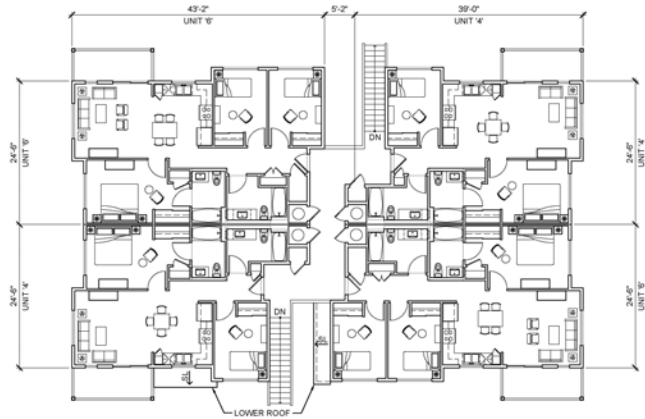
FIGURE NUMBER:  
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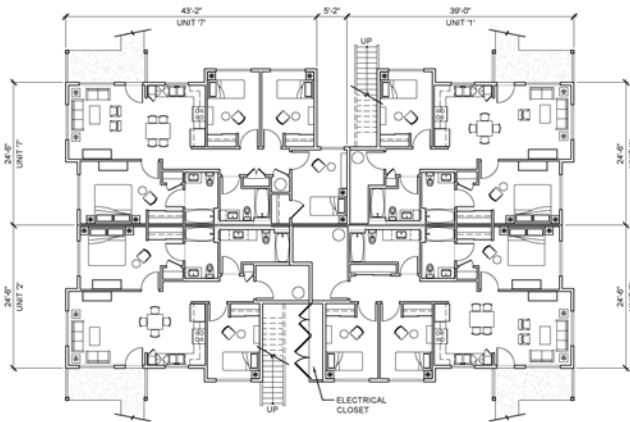




② SECOND FLOOR PLAN  
SCALE: 1/8"=1'-0"  
A-10

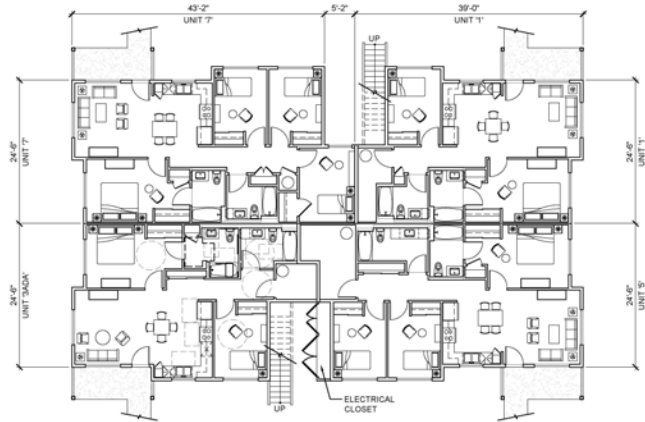


② SECOND FLOOR PLAN  
SCALE: 1/8"=1'-0"  
A-20



① FIRST FLOOR PLAN  
SCALE: 1/8"=1'-0"  
A-15

Building A



① FIRST FLOOR PLAN  
SCALE: 1/8"=1'-0"  
A-25

Building B

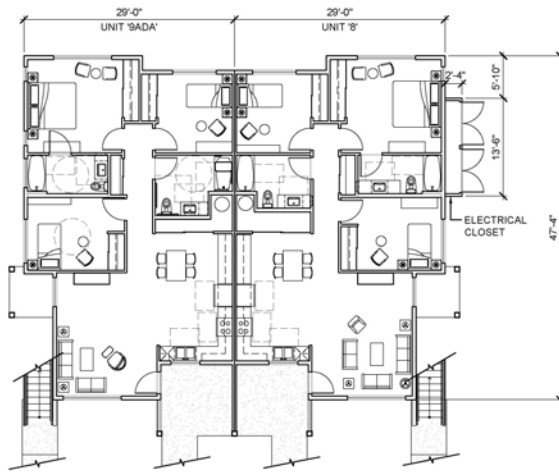


PROJECT NAME:  
Environmental Assessment  
Kaialu O Waikoloa  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

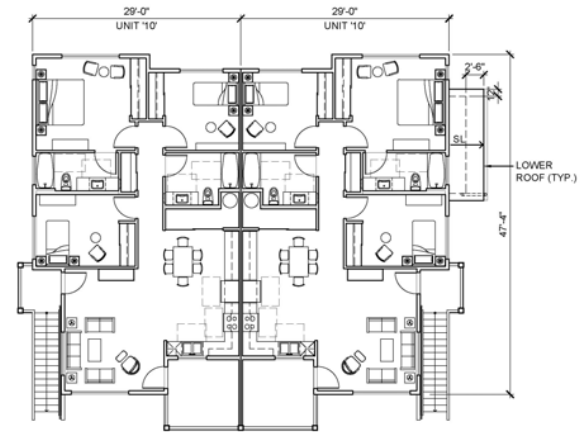
FIGURE TITLE:  
Building Type A & B Floor Plan

FIGURE NUMBER:

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1 FIRST FLOOR PLAN  
SCALE: 1/8"=1'-0" A-3/0



2 SECOND FLOOR PLAN  
SCALE: 1/8"=1'-0" A-3/0



PROJECT NAME:  
Environmental Assessment  
Kaiaulu O Waikoloa  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

FIGURE TITLE:  
Building Type C Floor Plan

FIGURE NUMBER:

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**Design Partners Incorporated**  
Architects  
Planning  
Interior Design

Signature  
0310103  
Tina L. L. L. L.

Revision Number/Description

**UHC - Kaialulu O Waikoloa**  
**Urban Housing Communities**  
Ikaika Ohana LLC  
TMK : 6-8-003-028

Drawing Title		COMMUNITY CENTER ELEVATIONS	
Project Number	17090	Date	SEP 20 2018
Drawn	YSC	Checked	YSC
Drawing Number		A-4.2	
Sheet No. ___ of ___			

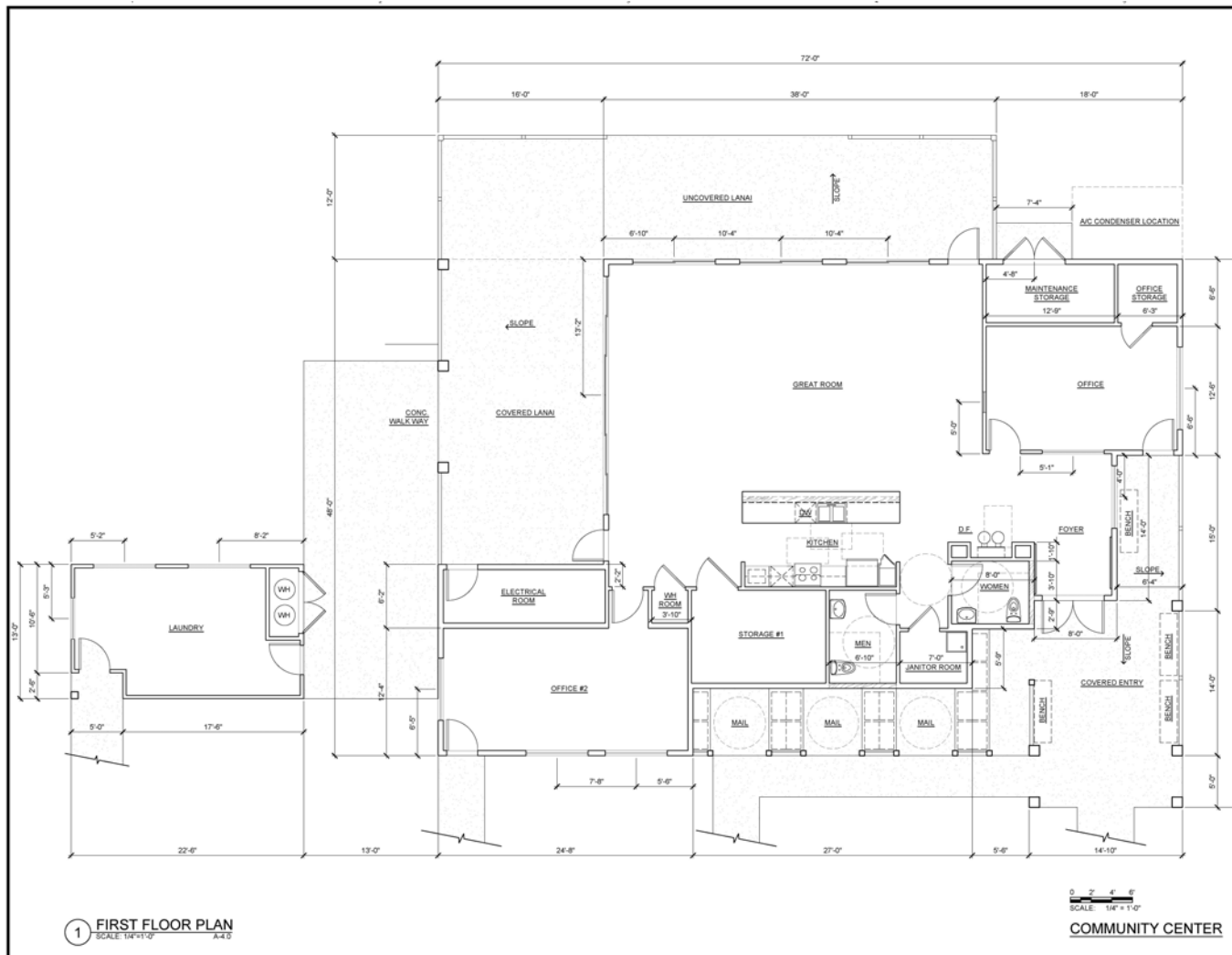


**PROJECT NAME:**  
Environmental Assessment  
Kaialulu O Waikoloa  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

**FIGURE TITLE:**  
Community Center - Elevations

**FIGURE NUMBER:**  
6

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1 FIRST FLOOR PLAN  
SCALE: 1/4"=1'-0"  
A-4.0

SCALE: 1/4" = 1'-0"  
COMMUNITY CENTER



**Design Partners Incorporated**  
Architects  
Planning  
Interior Design

Uplink  
11/10/10  
Kaiulani, Hawaii, USA

Revision Number/Description

**UHC - Kaialulu O Waikoloa**  
**Urban Housing Communities**  
Ikaika Ohana LLC  
TMK : 6-8-003.028

Project Name

Drawing Title  
COMMUNITY CENTER  
FLOOR PLAN

Project Number	Date
17050	SEP 20 2016
Drawn	Checked
YSC	YSK
Designed	

Drawing Number  
**A-4.0**

Sheet No. of



**PROJECT NAME:**  
Environmental Assessment  
Kaialulu O Waikoloa  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

**FIGURE TITLE:**  
Community Center round Floor Plan

**FIGURE NUMBER:**

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## ***SECTION 3 ALTERNATIVES INCLUDING THE PROPOSED ACTION***

This section details the alternatives that were analyzed in the EA. Under NEPA (as implemented by the CEQ regulations [40 CFR Parts 1500-1508]) and HAR, Title 11, Department of Health, Chapter 200 Environmental Impact Statement Rules, Section 11-200-17(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. This alternative would not accomplish the goals detailed in Section 2.1, Purpose and Need and would leave much of the existing Site vacant.

### **3.2 Alternative II: The Proposed Action**

The Proposed Action is the construction of a 60-unit multi-family apartment complex (Figure 4). This development would provide affordable housing to low income households.

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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 1000 feet above mean sea level. The Site is unpaved and undeveloped with overgrown vegetation covering the majority of the parcel. Vegetation on the Site and surrounding property was found to be dry and withered, most likely associated with the arid condition of the area. No chemicals or hazardous materials were observed on the subject property. No noticeable spills, unusual odors, or evidence of oil contamination was noted during the site reconnaissance in June 2018.

The subject Site was not listed on The Environmental Database Resource, Inc. (EDR), which provides a review of federal, state, and local lists and available files of reported hazardous waste sites and hazardous substance/petroleum product sources and releases. However, the subject Site has been identified as a part of a Formerly Used Defense Site (FUDS). The FUDS site was known as the former Waikoloa Maneuver Area and encompasses most of the South Kohala district of Hawaii Island. The land was used in the early and mid-1940's as an artillery firing range and for conducting troop maneuver activities. The land was returned to Parker Ranch in 1946. Munitions clearances were conducted in the areas in 1946 and 1954. Additional site investigations and cleanup activities have been conducted in multiple phases between 1999 to the present and is currently ongoing. Site sweeps of the subject Site for unexploded ordnance (UXO) were conducted by the US Army Corp of Engineers (USACE) in 2011 and 2018. No munitions of environmental concern (MEC) were noted during the sweep in 2011. Exception areas covered in trash or debris were not investigated.

Consistent with the CERCLA process for munitions cleanup, UXO sweeps conducted in 2018 covered the exception areas. A Final Remedial Action Report (RAR) has been released by the USACE in collaboration with the Hawaii Department of Health (HDOH) (USACE 2019). The Final RAR determination no munitions were found during the 2018 field effort. The study further determined that with limitations to instruments used during this and previous investigations, it is possible munitions may remain undetected at the Site and potential exposure to MEC has not been reduced to negligible. Land Use Controls (LUCs) to reduce the munitions risk have been implemented for the Waikoloa area to reduce the risk to negligible. The HDOH has determined, in a letter dated April 26, 2019, that based on the findings of the RAR, the "residual risk of unexploded ordnance (UXO)... has been reduced to negligible provided the USACE's Land Use Controls (LUCs) stated in the RAR remain in place." The property was provided a Conditional No Further Action with Institutional Controls (NFA w/ICs) designation. The Conditional NFA w/ICs stipulates the property must be accompanied by an ongoing safety awareness program, all

future subsurface activities must be conducted following the *Areawide Environmental Hazard Management Plan, Waikoloa Maneuver Area, Island of Hawaii* (2019), all subsurface activities must be conducted with UXO Construction Support, and for large scale developments, a Site-Specific Environmental Hazard Management Plan must be submitted to and approved by HDOH prior to construction.

#### 4.1.2 Soils

The United States Department of Agriculture (USDA) Soil Conservation Service classifies the soil within the Site as Kawaihae extremely stony very fine sandy loam, 6-12 percent slopes. The soil is moderately well to well drained, with moderate permeability and infiltration rates. Runoff is medium and erosion hazard is moderate. Typical profile includes neutral surface and neutral to slightly alkaline subsurface, stony loam from 0 to 33 inches followed by pahoehoe lava (USDA, 2004).

#### 4.1.3 Natural Hazard

The Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM Map No. 1551660291C is a Non-Printed Flood Map Boundary. Upon consultation with the County of Hawaii Engineering division, it was determined that the Site lies within Flood Zone X, beyond the 500-year flood plain (Figure 8).

The Site is not located in a tsunami evacuation zone. The County of Hawaii, Evacuation Zone Map is presented in Appendix A, Exhibit 5.

#### 4.1.4 Flora and Fauna

A Biological Survey was performed in 2016 (Appendix A, Exhibit 7). No mammals were observed during the pedestrian survey; however, signs of feral goats (*Capra aegagrus hircus*) including scads and bones were observed. Birds observed include: common myna, Japanese white-eye, saffron finch, African silverbills, Eurasian skylark, northern mocking bird, mourning dove, chestnut-bellied sandgrouse. The majority of the birds detected were flying over and did not use the project area. Arthropods in the survey area consists entirely of introduced species including Western honey bee (*Apis mellifera*), Sonoran carpenter bee (*Xylocopa sonorina*), and vagrant grasshopper (*Schistocerca nitens*).

No federal or state-listed threatened or endangered plants or animals were observed during the biological survey. All identified animals are introduced species. The Kāwelu Grassland, however, represents a native plant community that has become less common due to impacts caused by invasive species and past land use. Except for the Kāwelu Grassland, the majority of the parcel is highly degraded habitat and in its current state provides little value for native fauna.

A data inquiry for records of listed threatened or endangered species for the parcel was conducted at the University of Hawaii Mānoa Center for Conservation Research and Training prior to the field survey. The inquiry returned with no records for the parcel.

# National Flood Hazard Layer FIRMette



## Legend

- SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL L01011'
- SPECIAL FLOOD HAZARD AREAS**
    - Without Base Flood Elevation (BFE) *Zone A, X, AE, AH*
    - With BFE or Depth *Zone AE, AG, AH, VE, AR*
    - Regulatory Floodway
  - OTHER AREAS OF FLOOD HAZARD**
    - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone A*
    - Future Conditions 1% Annual Chance Flood Hazard *Zone A*
    - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
    - Area with Flood Risk due to Levee *Zone O*
  - OTHER AREAS**
    - Area of Minimal Flood Hazard *Zone X*
    - Effective LOMs
    - Area of Undetermined Flood Hazard *Zone D*
  - GENERAL STRUCTURES**
    - Channel, Culvert, or Storm Sewer
    - Levee, Dike, or Floodwall
  - OTHER FEATURES**
    - Cross Sections with 1% Annual Chance Water Surface Elevation *20.2, 12.5*
    - Coastal Transsect
    - Base Flood Elevation Line (BFE)
    - Limit of Study
    - Jurisdiction Boundary
    - Coastal Transsect Baseline
    - Profile Baseline
    - Hydrographic Feature
  - MAP PANELS**
    - Digital Data Available
    - No Digital Data Available
    - Unmapped
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/28/2018 at 7:42:15 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

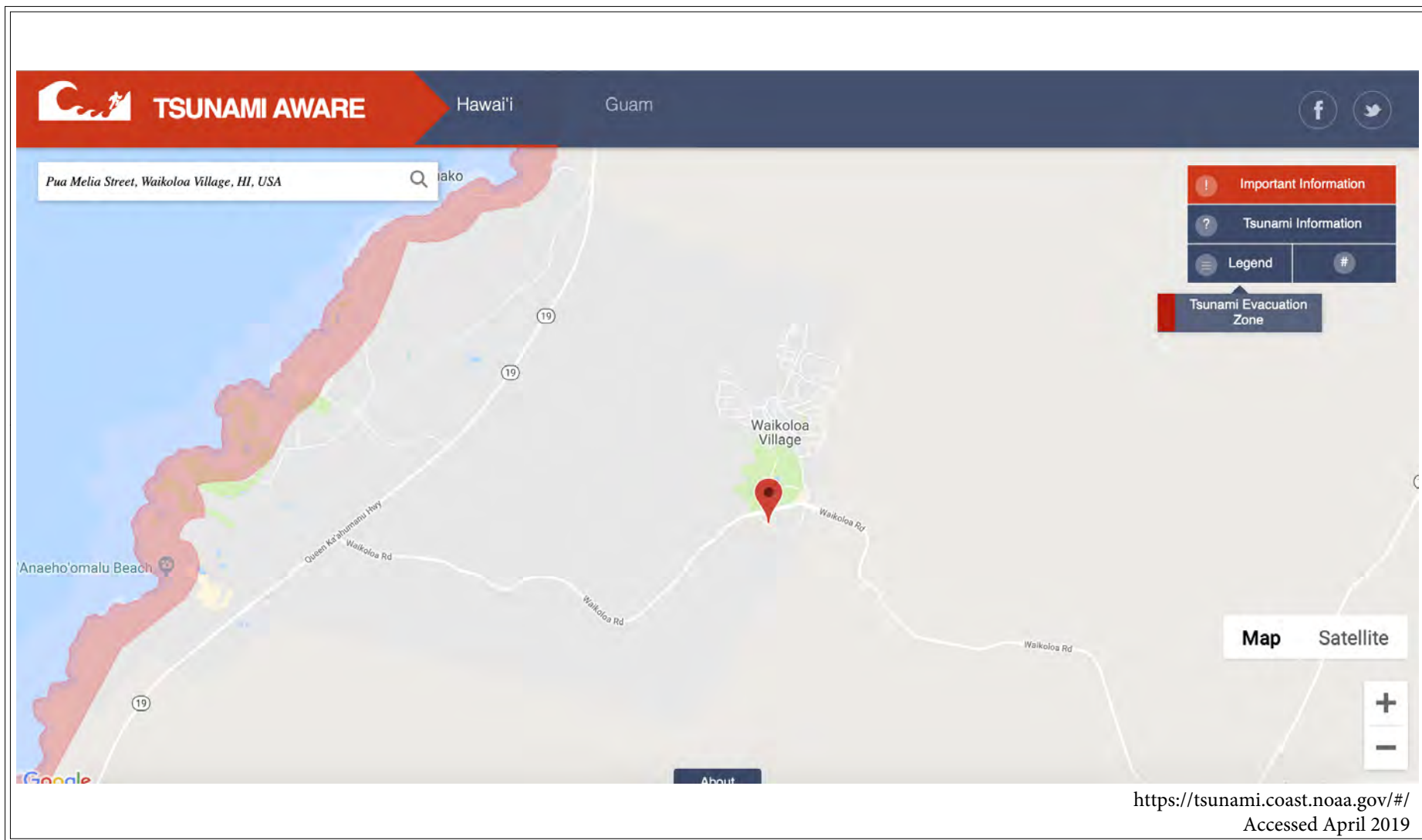


**PROJECT NAME:**  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

**FIGURE TITLE:**  
 Flood Insurance Rate Map

**FIGURE NUMBER:**  
 8

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PROJECT NAME:  
 Environmental Assessment  
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 Pua Melia Street  
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FIGURE TITLE:  
 Tsunami Inundation Zone Map

FIGURE NUMBER:  
 9

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An inquiry with the US Fish and Wildlife Service (USFWS, 2018) revealed there are five federally listed species in the vicinity of the project area:

- the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*),
- the endangered Hawaiian goose (*Branta sandvicensis*),
- the endangered Band-rumped storm petrel (*Oceanodroma castro*),
- the endangered Hawaiian petrel (*Pterodroma sandwichensis*), ~~and~~
- the threatened Newell's shearwater (*Puffinus newelli*), and
- the endangered Blackburn's sphinx moth.

The State of Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife provided comment (DLNR DFW 2019) noted State listed water birds have the potential to occur in the vicinity of the proposed project site. These include:

- the Hawaiian Duck (*Anas wyvilliana*),
- the Hawaiian Stilt (*Himantopus mexicanus knudseni*),
- the Hawaiian Coot (*Fulica alai*), and
- the Hawaiian Goose or Nene (*Branta sandvicensis*).

#### 4.1.5 Wetlands

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory, Wetlands Mapper (USFWS, 2017) did not identify any wetlands in the project area. The nearest wetlands are two small freshwater ponds at the Waikoloa Village Golf Club approximately a 1/2 mile to the north of the Site. The Wetlands Mapper figure is presented as Figure 10 and in Appendix A, Exhibit 14.

#### 4.1.6 Water Resources

##### Groundwater

The Site overlies the Waimea aquifer system of the West Mauna Kea aquifer sector. The Waimea aquifer system is described as a Basal (freshwater in contact with seawater), unconfined (where water table is upper surface of saturated aquifer), flank (horizontally extensive lavas) aquifer (Mink and Lau, 1990). It is classified as a currently used low salinity drinking water source (250-1000 milligrams per liter [mg/l] chloride [Cl-], irreplaceable, and highly vulnerable to contamination (Mink and Lau, 1990). The sustainable yield of the aquifer has been estimated at 24 million gallons per day (County of Hawaii, 2010). The Project Site is not located above any of the nine Sole-Source aquifers identified in the US EPA's Region 9.

According to the EDR report, there is one USGS well within a 1-mile radius of the Site. No water wells are listed on the Federal Public Water Supply System Information database and two water wells identified in the State Database Well Information are located within a 1-mile radius of the subject property (EDR, 2015e). The Site is up-gradient of the Underground Injection Control (UIC) line (Figure 11) as such; the underlying aquifer is considered a drinking water source and permit limitations governing the use of these waters may be imposed.

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

There are no streams or surface water features at the Site. The nearest natural body of water is the Pacific Ocean to the West. There is a reservoir and small ponds in the vicinity that is used to provide recycled water for the private resorts. The water is mainly used for irrigation to maintain the private golf courses. The water consists of effluent from the wastewater treatment facility and brackish water from the reservoir or wells. (Department of Land and Natural Resources. 2013 Update of the Hawaii Water Reuse Survey and Report.)

#### 4.1.7 Climate and Air Quality

The climate in Waikoloa is characterized as dry and arid, with temperatures averaging from the low-60s to the high 80s. There is moderate humidity and easterly trade winds. The average annual rainfall is approximately 10-15 inches per year.

Air quality in the vicinity is most affected by proximity to the volcano. Monitoring stations in communities near the volcano record higher levels of sulfur dioxide (SO<sub>2</sub>) and particulate matter at 2.5 microns or less (PM<sub>2.5</sub>), with regular exceedances of the National Ambient Air Quality Standards (NAAQS) for SO<sub>2</sub> and occasional exceedances of the NAAQS for PM<sub>2.5</sub>. The Environmental Protection Agency (EPA) considers the volcano a natural, uncontrollable event, therefore the state requests exclusion of these NAAQS exceedances from attainment/non-attainment determination. Excluding the exceedances due to the volcano, in 2015 the State of Hawaii was in attainment of all NAAQS. (HDOH Annual Summary 2015 Air Quality Data).

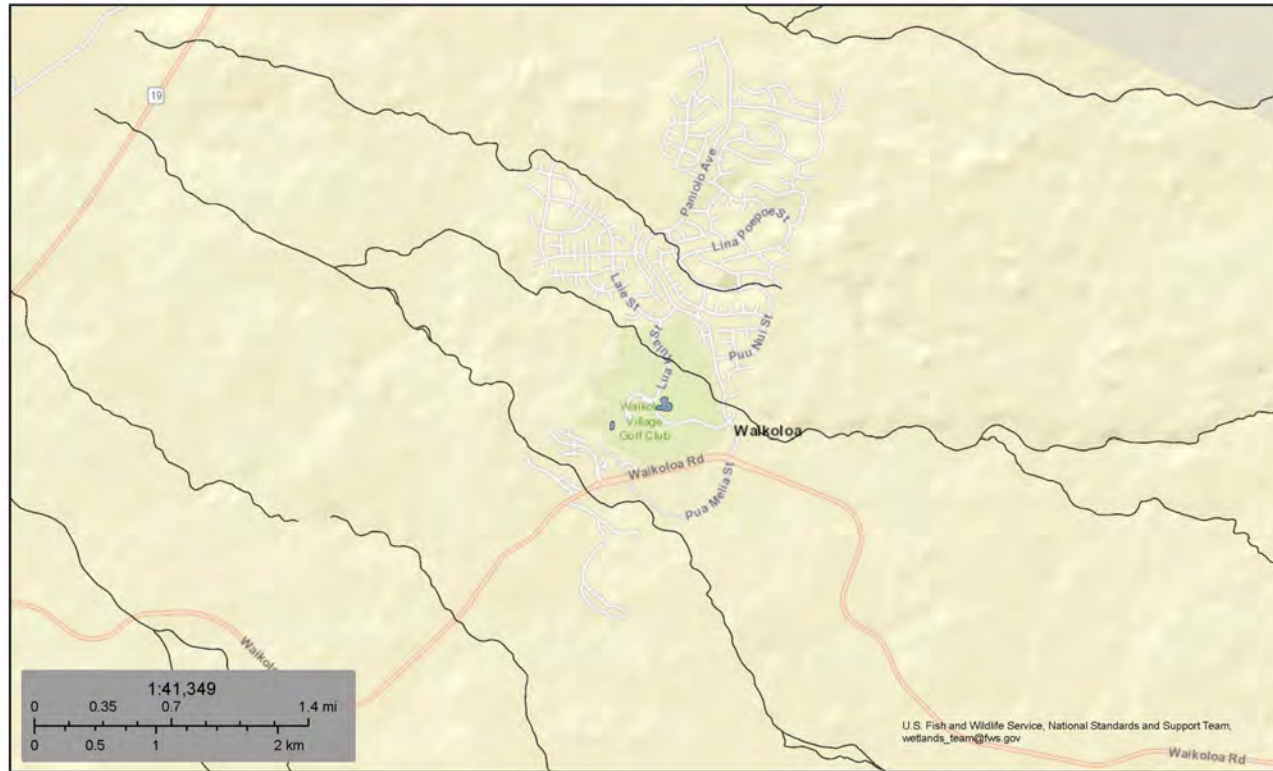
The HDOH maintains air monitoring locations throughout the state. The Waikoloa station was established on July 1, 2012 monitoring for PM<sub>2.5</sub> and SO<sub>2</sub>. The data indicated that there were no measurable impacts from volcanic emissions and the station was closed on March 31, 2014. (HDOH Document CABMA-5YRA-2015-v01).

#### 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**



April 28, 2019

**Wetlands**

- |                                |                                   |          |
|--------------------------------|-----------------------------------|----------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland       | Lake     |
| Estuarine and Marine Wetland   | Freshwater Forested/Shrub Wetland | Other    |
|                                | Freshwater Pond                   | Riverine |

U.S. Fish and Wildlife Service, National Standards and Support Team,  
 wetlands\_team@fws.gov

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)  
 This page was produced by the NW mapper



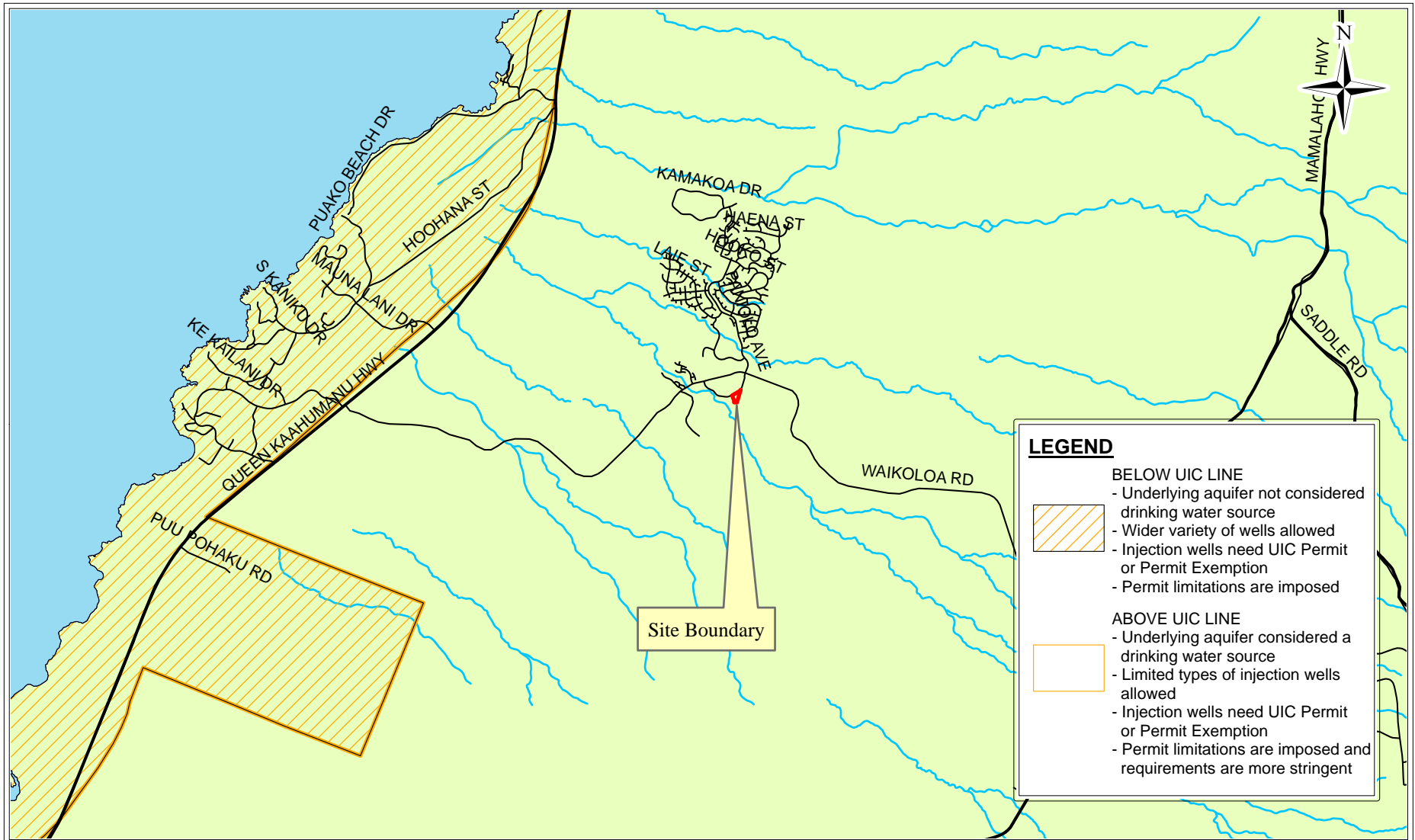
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**FIGURE TITLE:**

WWetlands Map

**FIGURE NUMBER:**

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0 3 6 12 Miles



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**FIGURE TITLE:**  
 Underground Injection Control Map

**FIGURE NUMBER:**

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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

#### 4.1.9 Solid Waste

Public facilities for solid waste on the island of Hawaii includes two landfills and twenty-one transfer stations. There are two locations near the site, Pu'uanaulu Landfill (West Hawaii Sanitary Landfill) and West Hawaii Organics Facility Puako Recycling and Transfer Station. The latter is a green waste recycling facility. A scrap metal recycling collection site is located in the neighboring city of Kealahou/Kailua-Kona.

#### 4.1.10 Hazardous Waste

Environmental Risk Analysis LLC performed a Phase 1 Environmental Site Assessment (ESA) in 2018. The findings are summarized below:

- The subject Site has been identified as a part of a Formerly Used Defense Site (FUDS). The FUDS site was known as the former Waikoloa Maneuver Area and encompasses most of the South Kohala district of Hawaii Island. The land was used in the early and mid-1940's as an artillery firing range and for conducting troop maneuver activities. The land was returned to Parker Ranch in 1946. Munitions clearances were conducted in the areas in 1946 and in 1954. Additional site investigations and cleanup activities have been conducted in multiple phases between 1999 to the present and is currently ongoing. According to an interview with State Department of Health personnel, the subject Site had been investigated in 2011 and no UXO or MEC) were discovered. An interview questionnaire dated June 15, 2018, and completed by the property owner, James Rock of K00674 Waikoloa L.P., stated that under the direction of the USACE, an unexploded ordinance survey and cleanup was conducted, and no munitions of concern were located. USACE submitted their Final RAR to HDOH in April 2019. The Site received a Conditional NFA w/ICs designation from the HDOH. Following the identified ICs would reduce the risk at the site from UXOs to negligible. No ASTM defined RECs were noted from review of the historical use of the Site.
- The Site is unpaved and undeveloped with overgrown vegetation covering the majority of the parcel. No chemicals or hazardous materials were observed on the subject property. No noticeable spills or evidence of oil contamination was noted during the site

reconnaissance. Vegetation on the Site and surrounding property was found to be dry and withered, most likely associated with the arid condition of the area. No unusual odors or staining were noticed indicating a potential environmental condition.

- Large rocks were observed at the center of the Site. Portions of the Site have been bulldozed and an unpaved road transects the northern portion of the property. Various items including trash, a tire, a washing machine, metal debris, concrete debris, scrap wood, and asphalt were noted on the Site, primarily in the vicinity of the unpaved road on the north side of the Site. On the north side of the site, adjacent to Pua Melia Street, GPS survey equipment was observed. ERA did not observe any RECs during the site reconnaissance. On the debris items observed, there is the potential for lead, asbestos, and arsenic containing materials to be present at the Site. These items may require testing for proper handling, prior to removal and disposal.
- The subject Site was not listed in any of the databases searched by EDR. The Environmental Database Resource, Inc. (EDR) database provides a review of federal, state, and local lists and available files of reported hazardous waste sites and hazardous substance/petroleum product sources and releases.
- There are no underground storage tanks (USTs) located on the Site, or on properties adjacent to the Site. No leaking underground storage tank (LUST) sites were located directly adjacent to the Site. A search of the HDOH UST Branch database records (dated 03/16/2018) indicated that one (1) site reported UST releases within a ½-mile radius of the Site. According to the HDOH LUST database, cleanup activities have been completed (NFA) for the site. It is located about ½-mile down-gradient from the subject Site and would not impact the subject Site. The LUST site does not pose an environmental threat to the subject Site.
- ERA observed one (1) electrical transformer along Pua Melia Street to the west of the subject Site during the site reconnaissance. HELCO was queried regarding the polychlorinated biphenyl (PCB) status of the transformers. HELCO confirmed that the electrical transformer was non-PCB containing.

## **4.2 Social Environment**

### **4.2.1 Land Use Considerations and Zoning**

The County of Hawaii, Planning Division, indicates the Site Land Use Ordinance Zoning Designation is Multi-Family Dwelling Units (RM 1.5). The Site is not located in a Special District or Special Management Area.

### **4.2.2 Archaeological and Cultural Considerations**

The project area located at Waikoloa Village Parcel, Tax Map Key (TMK) (3) 6-8-03:28, South Kohala, Hawai'i consists of a 4.6-acre parcel located on the south side of Pua Melia Street, which is a loop road intersecting with Waikoloa Road (the main thoroughfare into Waikoloa). Waikoloa



Village is located on the leeward coastal plain of Mauna Kea at an elevation of 1,000 feet above sea level. The ground surface consists of Kawaihae extremely stony very fine sandy loam, which is dark reddish brown. This type of area is mostly used for pasture (Sato et al. 1973:26). The project area itself is hilly with numerous exposed pahoehoe outcroppings and loose basalt boulders.

The first European visitors to Kohala described the area as barren and treeless. Traditional use of the area by Hawaiians appears to have been infrequent or minimal due to its difficult terrain. Its dry, windy, and rocky nature would not easily support permanent habitation. Few archaeological sites are located within the upland portion of Waikoloa (Soehren 1980; Bonk 1988; Barrera 1990; Hurst and Sinoto 1991; Shiltz and Shun 1992; Kalima and Smith 1992; Nees and Williams 1995; Wolforth 2000; Rechtman 2001; Rechtman and Dougherty 2001). The sites that exist consist of temporary habitation shelters, burial caves, and trails and possibly dryland agriculture sites. People probably traveled through Waikoloa on their way to the upland region to gather natural resources.

An archaeological survey was conducted within the project parcel by Soehren in 1980 (Appendix A, Exhibit 11). Soehren found no evidence of archaeological features or of an aboriginal Hawaiian presence. He noted that the possibility that refuge caves or burial places might be concealed here seems remote but cannot be ruled out” (Soehren 1980:1). Other archaeological surveys located within Waikoloa, but outside the project area uncovered few, if any archaeological sites. Most of the sites related to ranching activities or military training (Bonk 1988; Barrera 1990; Hurst and Sinoto 1991; Shiltz and Shun 1992; Kalima and Smith 1992; Nees and Williams 1995; Wolforth 2000; Rechtman 2001; Rechtman and Dougherty 2001).

In 2005, an archaeological survey was performed by International Archaeological Research Institute, Inc., to identify archaeological features and sites that may be located on the parcel. No evidence of prehistoric or historic sites or features was observed during the field survey of the parcel. Modern trash and evidence of bulldozing was apparent. Also, the presence of cow bones and a nearby bullock pen suggest cattle ranching activities formerly took place in the area.

At the request of ERA, on behalf of K00674 Waikoloa, L.P., a Cultural Impact Assessment (Appendix A, Exhibit 11) as performed by Pacific Consulting Services, Inc. (PCSI) to determine the impact the Kaiaulu O Waikoloa Proposed Housing Development would have on the Site and in the project area. An archaeological reconnaissance survey was conducted by PCSI Senior Archaeologist, Dennis Gossar. No surface archaeological sites were encountered. Based on historical and archaeological literature review, consultation efforts and responses, and the reconnaissance survey, PCSI concluded that there are no indications that specific traditional and customary practices are being carried in the vicinity of the project area. There is a low probability that surface and subsurface archaeological features and/or human remains would be discovered by excavations in the area. The report dated May 2018 corroborates the findings of prior archaeological investigations. PCSI recommended a determination of “no historic properties affected” for the proposed development project.

### 4.2.3 Circulation and Traffic

The Site is only accessible by way of Waikoloa Road. The closest major highway (H1-19) is over 6 miles away. Waikoloa Road provides two points of access to Pua Melia Street. The immediate area surrounding the Site is not densely populated, therefore, traffic is light to moderate. The main source of traffic on Pua Melia Street would be from the nearby post office and Waikoloa Gardens, a 24-unit housing complex.

Waikoloa Road is also the only paved access road to Waikoloa Village from two major highways, Ka'ahumanu and Mamalahoa. The Village is a family-oriented community but also caters to resorts and visitors alike. The Hilton Waikoloa Village alone employed 1,100 people in 2004, making it the largest employer in Hawaii County only after governmental agencies. Traffic is moderate to heavy in the greater Waikoloa area during peak hours.

Access at the north end of Pua Melia Street is closest to public transportation. Public transportation in Hawaii is provided by the County of Hawaii Mass Transit Agency. Hele-On buses service the South Kohala area seven days a week and offers fixed-route schedules for a general fare of \$2, or a discounted fare of \$1 for seniors, students and disabled persons. Sheets of ten tickets and monthly passes are also available for purchase at various locations. Bus stops serving Waikoloa Village are located on Laie Street, just past the Waikoloa Terrace and on Lua Kula Street, at lamp post number 22. The stops are approximately 1- 2 miles from the Site.

Traffic in the area was evaluated for the Saddle Road Extension project (US Department of Transportation, 2017). Traffic counts were performed at the following roadways:

- Saddle Road (Daniel K. Inouye Highway);
- Queen Ka'ahumanu Highway;
- Māmalahoa Highway;
- Waikoloa Road.

The link traffic volumes were collected by HDOT and reflect traffic volumes on the major roadways for a 24-hour period. Turning movement volumes were conducted separately. The study determined for the intersections observed, “traffic operate acceptably to well for peak hour conditions with Level of Service (LOS) C and B operation. There instances of vehicle queuing that occur for selected movements, especially the left-turn movements. However, the observed queuing was for a fairly short duration and the overall operation was LOS C or better.” Specifically, traffic in the proposed project area received a LOS of C or better. The summary table from the report is presented below.

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
Māmalahoa Hwy/SRX	2-way Unsig	7.4/10.7/9.0	A/B/A	7.7/12.9/9.4	A/B/A
Māmalahoa Hwy/Waikoloa Rd	2-way Unsig	0.1/0.7/0.6	A/B/A	7.6/12.8/9.1	A/B/A
Queen Kaahumanu Hwy/Waikoloa Beach Road	Signalized	12.2	B	19.6	B
Queen Kaahumanu Hwy/Waikoloa Road	Signalized	14.9	B	14.4	B
Waikoloa Rd/Paniolo Dr/Pua Melia	All-way Unsig	10.5/10.8/ 11.3/16.5	B/B/ B/C	16.5/10.5/ 10.8/11.3	C/B/ B/B
Note: Delay is in seconds/vehicle 2-way unsig = Left turn from major street/left turn from minor street/right turn from minor street All-way unsig = EB approach/WB approach/NB approach/SB approach Synchro worksheets are in Appendix					

### 2014 Base Year Peak Hour Intersection Operations

Project traffic in 2035 was performed for the same intersections. The project traffic took into consideration:

- Saddle Road – Improvements completed to Hilo (Table 6-2 of LR Plan);
- Queen Ka‘ahumanu Highway – widen from two to four from Kona International Airport to Kawaihae-Waimea Road (Table 6-2 of LR Plan);
- Waikoloa Beach Drive – loop through Waikoloa Beach Resort completed with second connection to Queen Ka‘ahumanu Highway located opposite existing Waikoloa Road (Current Conditions of Development);
- Intersection control: both Saddle Road and Waikoloa Road intersections on Māmalahoa Highway and the Waikoloa Road/Paniolo Drive intersection assumed to be signalized by the projected year 2035 time frame to enable comparative analyses. Alternative configurations could be explored at implementation;
- Intersection configuration: all key intersections are assumed to be fully channelized, providing separate lanes for right and left-turning movements.

By 2035, traffic conditions are expected to worsen, as indicated below:

Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Queen Kaahumanu/Waikoloa Beach Rd/Waikoloa Rd	56.4	E	74.5	E
Mamalahoa Hwy/Waikoloa Rd	55.0	D	40.9	D
Mamalahoa Hwy/SRX	28.5	C	146.0	F
Queen Kaahumanu/Waikoloa Beach Rd/SRX	36.7	D	23.6	C
Waikoloa Rd/Paniolo Dr/Pua Melia	20.7	C	18.4	B

Traffic in the immediate area of the project site would remain about the same. However, the surrounding roadways will significantly worsen. Implementation of the Saddle Road Extension would alleviate some of the traffic delay.

Based on the ITE Trip Generation, 10th Edition, the proposed project's 60 multi-family residential units will generate a total of 30(38) vehicular trips during the AM(PM) peak hours of traffic, respectively. This will only result in an additional 5-15 vehicles per direction per peak hour along Waikoloa Road.

The Project is not expected to require a TIAR, based on ITE's recommended 100 trip threshold or the Hawaii County Code 50 trip threshold for need of a TIAR. Although the Waikoloa Road/Paniolo Avenue/Pua Melia Street intersection currently experiences some levels of congestion during the peak hours of traffic, the Project is expected to add at most 25 total peak hour trips to the intersection and is anticipated to have minimal impacts on existing traffic conditions.

The Department of Transportation was sent a preconsultation letter for the proposed project. No response was provided.

#### 4.2.4 Social Factors and Community Identity

Aerial photographs from 2014 depicts the area as it appears today with a fire station occupying the west end of Pua Melia Street and a post office at the north end of Pua Melia Street. 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 five miles.

According to the U.S. Census Bureau the population in Waikoloa Village CDP was approximately 6,362 people (Census, 2010). There are approximately 2,383 households with an average of 2.52 people per household (Census, 2013-2017).

#### 4.2.5 Economic Considerations

A Market Study was performed for the proposed project in 2016. The Primary Market Area (PMA) includes the 19 square miles adjacent to the proposed development site. Within the PMA, there are approximately 8,237 residents living in 2,980 households. The median age among Waikoloa residents is 42 years. The median household income for those living in the PMA is \$74,260. According to the U.S. Census Bureau (Census, 2018) the median household income in Waikoloa Village CDP is \$73,453, compared to the \$66,875 median household income for all of Hawaii County.

There were 5,689 housing units within the PMA, most of which are single-family residences. The 2016 median home value is \$428,880, up 5.2 percent over the previous year. Home values have increased, with 2018 median home value at \$469,900. While a significant portion of the housing units in the PMA were vacant (46%, 3,206 units), only about 500 units are vacant and available to Hawai'i residents for rent or for purchase. Almost all of the rest of the vacant units are held for migrant workers, for seasonal, recreational, or occasional use, and units vacant for other reasons.

A Secondary Market Area (SMA) for the proposed development was defined as encompassing an additional 56,985 Hawai'i residents on the western portion of the island of Hawai'i. At 40 years, the average age among SMA residents is slightly younger than PMA residents.

There are 19,344 SMA households with an average household size of 2.94 persons. At \$58,728, the median household income among SMA residents is notably lower than for PMA households.

The SMA includes 6,661 vacant housing units and 19,344 occupied housing units. Among the vacant housing units, only 18 percent (1,202 units) are vacant and available. The median home price for homes in this area is \$479,040, which has climbed 3.8 percent over the last 12 months.

#### 4.2.6 Recreational and Public Facilities

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

A number of recreational areas and facilities are located throughout the island of Hawai'i, consisting of beach parks, golf courses, district and neighborhood parks, and community centers. Hana Pono Park, Black Sand Beach, Puako Petroglyph Park, Waialea Beach, Hapuna Beach are located along the coast on the Pacific Ocean, Waikoloa Village Golf Club is located to the north of the Site. There are numerous other golf clubs (both private and public) on the west side of Hawaii Island. There are also a many state parks on the west side and throughout Hawaii Island. Pu'u O Umi Natural Reserve Area, Pu'u Wa'awa'a Cinder Cone State Park, and Kaloko-Honokohau National Historic Park, to name a few.

#### 4.2.7 Visual and Aesthetic Resources

Waikoloa does afford beautiful views, however the subject property is not specifically identified in any county or State plans or studies as containing scenic vistas or view planes. Kaiaulu O Waikoloa site is not identified as a scenic vista or view plane nor will it affect identified scenic vistas or view planes. The community will not affect scenic corridors and coastal scenic and open space resources.

Vacant land bound the Site to the south and east. In addition, the project development will not have buildings exceeding three stories.

#### 4.2.8 Infrastructure Systems and Utilities

Drinking water and wastewater utility services is supplied by the Hawaii Water Service Company. Drinking water supply is from the Waimea aquifer system and is drawn from seven wells that are 1,200 feet deep. Sewer services are managed by the West Hawaii Sewer Company. Electricity and gas service are supplied by Hawaii Electric Light Company. Telephone, cable, and internet can be provided by Spectrum or Hawaiian Telcom, as well as satellite service providers.

The Hawaii County Fire Department has 20 stations throughout the island of Hawaii. There is one station in Waikoloa; "Station 16" is located at 68-1771 Pua Melia St. Station 16 is located less than a half mile from the Site. The next nearest station is "Station 14", located at 68-4550 Queen Kaahumanu Hwy, which is approximately 8 miles from the Site.

The Hawaii Police Department is headquartered in Hilo. The department's Waimea District is located at 67-5185 Kamamalu Street, approximately 19 miles from the Site.

West Hawaii Community Health Center is approximately 0.3 miles from the project site. West Hawaii Community Health Center provides medical, dental, and behavioral health services.

Kaiaulu O Waikoloa is located within the Hawaii School District, Kealakehe complex. Waikoloa Elementary and Middle School and Kealakehe High are the schools within the Kealakehe complex that would service the Kaiaulu O Waikoloa community. Waikoloa Elementary and Middle School reported 833 students on its 2018-2019 academic year roster. The school was reporting overcapacity in 2017. The school has since broke ground in 2018 on a new 2-story building that will house classrooms, labs, and art studios for grades 6-8. This was intended to alleviate some of the capacity issues. Kealakehe High reported room for additional students, though this excess capacity is anticipated to disappear in the short term. In addition, there are 2 private schools approximately 10 miles away, Parker School and Hawaii Preparatory Academy.

The proposed project would add roughly an additional 13 students. The proposed project is located within the West Hawaii School Impact Fee District, however implementation of fee collection was suspended by the Department of Education. It is anticipated the proposed project would not be subject to the West Hawaii School Impact fees, though the Department of Education is reassessing whether collection of the fees will be implemented in the future.

University of Hawaii, Hawaii Community College, Palamanui is located in west Hawaii Island. The campus offers on-site and distance learning classes and programs from the Hawaii Community College, University of Hawaii Hilo, University of Hawaii Manoa, and University of Hawaii West Oahu. Other colleges and universities are located on the east site of Hawaii Island.

## **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 currently flat with mostly dry and withering vegetation, no significant changes to the topography are necessary for construction. Construction and operational activities would follow existing topography.

### 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. 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.

All earthwork will conform to Hawaii County Code Chapter 10. All runoff will be disposed of on-site. An existing flood route is in the immediate vicinity of the proposed project site. Impacts from the undeveloped flood route have been evaluated. The flood route will remain to convey flow across the corner of the site to Pua Melia Street. The developed condition flow will not exceed the pre-developed condition flow in accordance with County drainage standards.

The Site received a Conditional NFA w/ICs designation from the HDOH in May 2019. The Conditional NFA w/ICs stipulates the property must be accompanied by an ongoing safety awareness program, all future subsurface activities must be conducted following the *Areawide Environmental Hazard Management Plan, Waikoloa Maneuver Area, Island of Hawaii* (2019), all subsurface activities must be conducted with UXO Construction Support, and for large scale developments, a Site-Specific Environmental Hazard Management Plan must be submitted to and approved by HDOH prior to construction. Following the identified ICs would reduce the risk at the site from UXOs to negligible.



### 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 lies approximately 1000 feet above mean sea level and is classified within Flood Zone X, where the risk of flooding would be minimal.

### 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 are known to exist in the project area. An inquiry with the US Fish and Wildlife Service (USFWS, 2018) revealed there are five federally listed species in the vicinity of the project area. The USFWS provided the following recommendations to avoid or minimize project impacts to listed species:

#### Endangered Hawaiian hoary bat

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.

### Endangered Nene

Nene are found on the islands of Hawaii, Maui, Molokai, and Kauai predominately, with a small population on Oahu. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

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

- Do not approach, feed, or disturb nene.
- If nene are observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with the nesting behavior of nene survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
  - Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed work, or a previously undiscovered nest is found within said radius after work begins.
  - In areas where nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

### Endangered Hawaiian petrel, Threatened Newell's Shearwater, and Endangered Band-rumped storm-petrel

Newell's shearwaters are found in the highest densities on Kauai with lower densities on all of the other islands, except Lanai. Hawaiian Petrel populations are greatest on Maui, Lanai, and Kauai with lower densities on Hawaii 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 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 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.

#### Endangered Blackburn's sphinx moth

The Blackburn's sphinx moth may be in the vicinity of the proposed project area. Adult moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum sp.*). To pupate, the larvae burrow into the soil and can remain in a state of torpor for up to a year (or more) before emerging from the soil. Soil disturbance can result in death of the pupae.

We offer the following survey recommendations to assess whether the Blackburn's sphinx moth is within the project area:

- A biologist familiar with the species should survey areas of proposed activities for Blackburn's sphinx moth and its larval host plant tree tobacco prior to work initiation.
  - Surveys should be conducted within 4-6 weeks prior to construction.
  - Surveys should include searches for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage).
- If no Blackburn's sphinx moth are found on the tree tobacco during surveys, it is imperative that measures be taken to avoid attraction of Blackburn's sphinx moth to the project location and prohibit additional tree tobacco from entering the site. Tree tobacco can grow greater than 3 feet tall in approximately 6 weeks. If it grows over 3 feet, the plants may become a host plant for Blackburn's sphinx moth. We therefore recommend that you:
  - Remove any existing tree tobacco less than 3 feet tall.
  - Monitor the site every 4-6 weeks for new tree tobacco growth before, during and after the proposed ground-disturbing activity and remove all tree tobacco that resprouts before it reaches 3 feet in height.
    - Monitoring for tree tobacco can be completed by any staff, such as groundskeeper or regular maintenance crew, provided with picture placards of tree tobacco at different life stages.
  - Soil around tree tobacco smaller than 3 feet may be disturbed after removal.
- If tree tobacco is more than 3 feet in height, it is possible that the signs of Blackburn's sphinx moth foraging have been shed and pupating larvae may be in the ground in the area beneath the plant(s). Therefore, if there are no signs of Blackburn's sphinx moth on tree tobacco more than 3 feet in height, the above-ground portion of the plant(s) may be cut off and removed and the following measures implemented to minimize the potential for future use of the plant by Blackburn's sphinx moth and potential impact to a pupae that may already be in the soil near the plant:
  - Treat stems with herbicide or re-trim to prevent leaf growth and potential use by Blackburn's sphinx moth.
  - A 33-ft (10-m) buffer should be established around the plant's location for three months assuming a heavy rain event occurs. If no heavy rains occur, then this period should be extended for six months until rains do occur. After this period, the plant roots may be removed and the soil disturbed.

- If additional Blackburn’s sphinx moth eggs or larvae are found, notify the Service biologist ... to coordinate on avoiding take.

A “Biosecurity Protocol – Hawaii Island (July 2018)” was included as information to prevent the spread of harmful invasive species. This document is presented in Appendix A, Exhibit 17.

Recommendations provided by the State of Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife include:

- stop work of all activities within 100 feet (30 meters).
- do not approach the bird.
- work may continue if the bird leaves of its own accord.
- if a nest is discovered, to contact the Division of Forestry and Wildlife, and
- minimizing predator (cats, rodents, mongoose) presence by
  - removal of the predator, and/or
  - providing covered trash receptacles, and/or
  - placing bait stations.

The Division of Forestry and Wildlife also recommends using native plant species for landscaping and not using invasive plant species.

#### 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 as there are no designated wetlands near the Site.

#### 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 housing. 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.

Potable water calculations are being determined at this time with the finalization of fixture types/counts through the building design process. However, potable water estimates based on the unit count (60 units) and unit type (2, 3, and 4 bedrooms) were used by the West Hawaii Water Company and it was determined that there is sufficient water for the project. The amount of water determined to be necessary for the development was estimated at 53,200 gallons per day.

Waste water calculations are being determined at this time with the finalization of fixture types/counts through the building design process. Waste water estimates based on the unit count (60 units) and unit type (2, 3, and 4 bedroom) were used by the West Hawaii Sewer Company and it was determined that there is sufficient sewer capacity for the project. The amount of waste water generated by the development was estimated at 29,200 gallons per day.

The Site is not located on a sole source aquifer. Additionally, reuse of stormwater or use of “gray water” are being assessed for incorporation into the proposed design. No significant impact to surface water near the Site is anticipated as a result of construction or operations associated with Alternative II as there are no streams or surface water bodies at the Site. There are no designated wild and scenic rivers in the State of Hawaii.

To determine if A NPDES permit 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).

#### 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. A Best management practices (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. Once project construction is complete, impacts to air quality would not be significant.

### 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

No significant noise disturbance is anticipated, as the properties immediately surrounding the Site are undeveloped. HDOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations and CFR 24 CFR Subpart B - Noise Abatement and Control will be complied with 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. No industrial processes or activities that would contribute to a significant adverse impact to the noise environment are planned under Alternative II.

Once the project is completed, no significant increases in noise are anticipated. While overall noise levels would increase due to a rise in area population, increases would only be observed as modest increases in vehicular traffic, mechanical noise (i.e. air conditioning) and voice load. No industrial processes or activities that would contribute to a significant adverse impact to the noise environment are planned under Alternative II.

### 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 vegetation, rocks, and debris from clearing, grubbing, and grading. Very little demolition material is expected, as the site is essentially vacant. These wastes will be minimized by proper planning of building materials and recycling efforts. A solid waste management plan will be coordinated with the County's Solid Waste Division for the disposal of onsite and construction-related waste material.

Once the project is completed, solid waste generation will be increased over the current conditions. However West Hawaii Sanitary Landfill will have adequate capacity to accommodate waste generate from the proposed project. This increase in waste generation would not contribute to a significant adverse impact under Alternative II. There are two facilities nearby that manage solid waste. In addition, the proposed project will support programs that encourage waste reduction, recycling, and other green/environmentally friendly practice

### 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 will increase hazardous wastes. These wastes can be minimized by pre-construction proper planning. Existing potentially hazardous wastes would be removed during construction activities.

Once the project is completed, household hazardous waste (e.g., batteries, paints, cleaners, etc.) generation will be increased over the current conditions. This increase in waste generation would not contribute to a significant adverse impact under Alternative II. There are two facilities nearby that manage solid waste.

## **5.2 Social Environment**

### 5.2.1 Land Use Considerations and Zoning

#### Alternative I

Alternative I would have a direct adverse impact to land use and zoning. The Site is currently undeveloped but is zoned RM 1.5 Multi-Family Dwelling Units. The No Action Alternative would not be utilizing the land to its fullest potential.

#### Alternative II

Alternative II would have a significant beneficial impact on land use and zoning. Consistency with its zoning designation would make available additional rental housing for low income families.

### 5.2.2 Archaeological and 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

Alternative II would involve ground disturbing activities that may adversely impact historical and archaeological resources. However, these impacts are considered unlikely. The area surrounding the Site has no history of archeological resources. The archeological surveys conducted in 2005 and in 1980 did not reveal any cultural, historic, or natural resources, or practices and beliefs

concerning the project area. A Cultural Impact Assessment in 2018 determined that though there have been numerous discoveries of archaeological sites in the larger Waikoloa area, previous archaeological studies conducted in the project area revealed no traditional Hawaiian archaeological sites were present. The reconnaissance survey determined that no rock outcrops that could signal the presence of caves were encountered. Because of the absence of archaeological sites in the project area, and because the parcel has been bulldozed, it is recommended that a determination of “no historic properties affected” be considered for the proposed Kaialulu O Waikoloa Housing Development Project, on Pua Melia Street.

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 the Hawaii State Historic Preservation (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.

### 5.2.3 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. The Site is in the middle of a U-shaped street with two structures at each end of the street, a fire station on the west end of Pua Melia Street and a post office at the north end of the street. The street exits nearest to the businesses would not be affected by the construction. The primary traffic affected would be a nearby affordable housing complex with 24 units, however the side opposite the Site would likely be unrestricted during construction, therefore minimal disruption to the area is anticipated.

Traffic in the area was evaluated for the Saddle Road Extension project. Traffic was evaluated along Saddle Road, Queen Kaahumanu Highway, Mamalahoa Highway and Waikoloa Road. The link traffic volumes were collected by HDOT and reflect traffic volumes on the major roadways for a 24-hour period. Turning movement volumes were conducted separately.

Traffic at these areas operated at a LOS of C or better. Projected traffic in the year 2035 showed a worsening of traffic conditions operating at a LOS of F or better. Traffic at Pua Melia Street was projected at a LOS of C or better. Implementation of the Saddle Road Extension would alleviate some of the traffic burden.

Based on the ITE Trip Generation, 10th Edition, the proposed project’s 60 multi-family residential units will generate a total of 30(38) vehicular trips during the AM(PM) peak hours of traffic,



respectively. This will only result in an additional 5-15 vehicles per direction per peak hour along Waikoloa Road.

The Project is not expected to require a TIAR, based on ITE's recommended 100 trip threshold or the Hawaii County Code 50 trip threshold for need of a TIAR. Although the Waikoloa Road/Paniolo Avenue/Pua Melia Street intersection currently experiences some levels of congestion during the peak hours of traffic, the Project is expected to add at most 25 total peak hour trips to the intersection and is anticipated to have minimal impacts on existing traffic conditions.

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.

Access via Pua Melia Road will be submitted to the County of Hawaii Department of Public Works for review and approval. This includes streetlights, signs, and any markings that may be installed as required.

#### 5.2.4 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 housing for low income households is expected to have a significant beneficial impact on the social and community identity of the area. The 2016 Market Study found while a significant portion of the housing units in the PMA are vacant (46%, 3,206 units), only about 500 units were vacant and available to Hawai'i residents for rent or for purchase. If the proposed project is not completed, the property would remain vacant and unused for an undetermined amount of time. The proposed project will add residential units to the district and assist families who would otherwise have few, if any options, for affordable housing in the area.

## 5.2.5 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 development will result in short-term economic benefits for the construction industry in Waikoloa and may help support small businesses in the area. The Site is close to Waikoloa Shopping Center, Village Market, restaurants and other small businesses.

## 5.2.6 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. The proposed development plans on having an onsite tot lot with open space and areas to gather, such as picnic tables. This is in addition to the onsite community center that will be constructed.

## 5.2.7 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

Significant adverse impacts to visual resources are not expected under Alternative II. Construction of the new housing complex will not significantly impact the view of adjacent buildings, as there are few buildings near the site. Significant public views will also not be affected. The project location is set back from the main street and would not obstruct the view.

## 5.2.8 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 little impact on the infrastructure and utilities in and around the project area. Water, sewer, electricity and gas services are expected to be supplied by the same service providers used within the area. The addition of the 60-unit dwellings will not tax the current supply.

Waste diversion will be implemented during the proposed project construction and operation. The proposed project plans to recycle/reuse (mulch for ground cover, repurpose excavated rock on our site rather than export, etc). In addition, the proposed project will have a LEED consultant throughout our design and construction of the project to minimize waste and optimize utilization of resources.

Should impacts to educational facilities become anticipated, the developer will work with DOE to address and migrate project impacts.

## **5.3 Cumulative Impacts**

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 construction of a 60-unit housing facility. Population changes or effects on public facilities would be minimal. The addition of an estimated 304 individuals would minimally add to the existing population of 6,362 for the area (4.8% increase in population). The change in population and demand for public facilities would be readily met by existing infrastructure.

Two major infrastructure and housing projects expected in the Waikoloa area in the future are Villages of Aina Le'a and Waikoloa Heights. The population increase in the area would be noticeable, as these communities have a combined planned buildout of 4,806 units, with the potential for additional units. According to the Aina Le'a website, The Villages of Aina Le'a is intended to be a "fully developed upscale town" with lakes, parks, restaurants, retail areas, commercial centers and a clubhouse. As per the Riverwest Investments website, the Waikoloa Heights project also intends to develop a commercial center, a community center and parks.

These future housing projects are likely to make a noticeable impact on traffic patterns. There would also be increase demand for public facilities and resources, which may not be readily met by existing infrastructure, and would require appropriate evaluation of resources to determine impacts to the project area and the greater South Kohala area.

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## **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 County Zoning

The County of Hawaii, Planning Division, indicates the Site Land Use Ordinance Zoning Designation is Multi-Family Dwelling Units (RM 1.5). The Site is not located in a Special District or Special Management Area.

#### 6.1.3 Hawaii State Plan

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan that serves as a guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. The Kaiaulu O Waikoloa housing development is in accordance with the following goals of the Hawaii State Plan:

- A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.
- A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.
- Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.

The Kaiaulu O Waikoloa housing development is in conformance with the following objectives and policies of the Hawaii State Plan:

Chapter 226-5, HRS, Objective and Policies for Population

*226-5(b)(1), HRS: Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.*

*226-5(b)(3), HRS: Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.*

Chapter 226-6, HRS, Objectives and Policies for the Economy – in General

*226-6(b)(6), HRS: Strive to achieve a level of construction activity responsive to, and consistent with, State growth objectives.*

Chapter 226-11, HRS, Objectives and Policies for the Physical Environment – Land Based, Shoreline, and Marine Resources

*226-11(b)(3), HRS: Take into account the physical attributes of areas when planning and designing activities and facilities.*

*226-11(b)(8), HRS: Pursue compatible relationships among activities, facilities, and natural resources.*

Chapter 226-13, Hawaii Revised Statutes, Objectives and Policies for the Physical Environment – Land, Air, and Water Quality

*226-13(b)(6), HRS: Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.*

*226-13(b)(7), HRS: Encourage urban developments in close proximity to existing services and facilities.*

Chapter 226-19, HRS, Objectives and Policies for Socio-Cultural Advancement – Housing

*226-19(a)(2), HRS: The orderly development of residential areas sensitive to community needs and other land uses.*

*226-19(b)(1), HRS: Effectively accommodate the housing needs of Hawaii's people.*

*226-19(b)(3), HRS: Increase home ownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.*

*226-19(b)(5), HRS: Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.*

*226-19(b)(7), HRS: Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.*

*The Kaiaulu O Waikoloa housing development complies with the following priority guidelines of the Hawaii State Plan:*

Chapter 226-103, HRS, Economic Priority Guidelines

*226-103(1), HRS: Seek a variety of means to increase the availability of investment capital of new and expanding enterprises.*

*226-103(1)(a), HRS: Encourage investments which:*

- (i) Reflect long-term commitments to the State;*
- (ii) Rely on economic linkages within the local economy;*
- (iii) Diversify the economy;*
- (iv) Reinvest in the local economy;*
- (v) Are sensitive to community needs and priorities; and*
- (vi) Demonstrate a commitment to management opportunities to Hawaii residents.*

Chapter 226-104, HRS, Population Growth and Land Resources Priority Guidelines

*226-104(a)(1), HRS: Encourage planning and resource management to ensure that population growth rates throughout the State are consistent with available planned resource capacities and reflect the needs and desires of Hawaii's people.*

*226-104(b)(1), HRS: Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.*

*226-104(b)(2), HRS: Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.*

*226-104(b)(12), HRS: Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline conservation lands, and other limited resources for future generations.*

*The Kaiaulu O Waikoloa housing development is consistent with the following priority guidelines of the Hawaii State Plan:*

State Housing Functional Plan 2017

*Objective A: Increase and sustain the supply of permanent rental housing that is affordable and accessible to Hawaii residents, particularly those with incomes at or below 80% AMI.*

### 6.1.3 South Kohala Community Development Plan

The County of Hawai'i General Plan section 15.1 (February 2005, as amended) calls for the preparation of community development plans (CDP) "to translate the broad General Plan statements to specific actions as they apply to specific geographical areas." The General Plan requires CDPs be adopted as an "ordinance", giving the plans force of law. This is a long-term plan with a planning horizon to year 2020, consistent with the General Plan. The South Kohala CDP was prepared by the South Kohala Community with the assistance of The County of Hawaii Planning Department and Townscape, Inc. It was adopted on November 20, 2008.

The Kaiaulu O Waikoloa Proposed Housing Development is in accordance with the following CDP Plan goals, objectives, and policies:

#### GOAL: AFFORDABLE HOUSING

#### GENERAL POLICY NO. 3: PROVIDE AFFORDABLE AND WORKFORCE HOUSING RESOURCES FOR LOW AND MODERATE INCOME INDIVIDUALS, FAMILIES, AND FOR THOSE RESIDENTS OF SOUTH KOHALA WITH SPECIAL NEEDS

Related sub-policies are:

3.1 The County shall establish policies and programs for the implementation of affordable and workforce housing projects in those areas of the island where such projects are most needed, including Waimea and Waikoloa Village.

3.2 The South Kohala Community shall organize one or more community-based, non-profit entities that can partner with the County Office of Housing and Community Development and with other non-profit organizations and for-profit contractors and developers to provide affordable housing units.

3.4 The County shall provide more opportunities for low income housing and transitional shelters.

5.12 Incorporate the concept of "Sustainability" as defined in the State of Hawai'i "2050

Sustainability Plan” in all future planning and projects in South Kohala. The State of Hawai’i “2050 Sustainability Plan” defines sustainability as a Hawai’i that achieves the following:

- Respects the culture, character, beauty and history of our State’s island communities
- Strikes a balance between economic, social and community, and environmental priorities
- Meets the needs of the present without compromising the ability of future generations to meet their own needs.

WAIKOLOA POLICY 4: ENCOURAGE AFFORDABLE HOUSING AND SMART GROWTH BY CONCENTRATING DEVELOPMENT IN AREAS THAT ARE ALREADY ZONED FOR RESORT, RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL GROWTH, OR AREAS THAT ARE OTHERWISE APPROPRIATE FOR BUSINESSES THAT ADDRESS THE NEEDS OF THIS COMMUNITY.

## **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 permit for construction stormwater discharges.
- (c) Chapter 6E, HRS, State Historic Preservation Division, as required

### 6.2.2 County of Hawaii

- (a) Conditional Use Permit, as required.
- (b) Building Permits for infrastructure improvements.
- (c) Grading Permits for earthwork activities associated with infrastructure improvements.



## **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.

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. Except for a small apartment complex nearby, and two businesses at either end of the street, the areas adjacent to the Site are undeveloped. Archaeological surveys concluded that there were no natural resources and there was no evidence of historic sites or features. Furthermore, biological survey revealed that there were no threatened or endangered plants or animals on the Site.

**(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 affordable housing in an otherwise underutilized area.

**(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 make available much needed housing for low income households. 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. The operation of the proposed alternative would assist low income families who may not otherwise receive assistance, and offer those families better quality of life.

Cultural practices would not be affected. Archeological surveys conducted in 2005 and in 1980 did not reveal any cultural resources, practices and beliefs concerning the project area.

**(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 construction of a 60-unit apartment complex. Population changes or effects on public facilities would be minimal. The addition of an estimated 304 individuals would minimally add to the existing population of 6,362 for the area (4.8% increase in population). 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 undeveloped, and the construction of 60 units will have minimal 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 five (5) 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) Detrimentially 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 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 not 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.

**(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 Site.

**(13) Requires substantial energy consumption.**

Alternative II would not require substantial energy consumption. The addition of about 304 individuals would minimally add to the existing population of 6,362 for the area (4.8% increase in population). The change in population and demand for energy would be readily met by existing infrastructure. In addition, energy efficient appliances will be incorporated into the project design.

In summary, the proposed project will provide 60 units of much needed affordable family rental housing in Waikoloa. 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 (AFNSI) has been determined for the proposed project.

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## ***SECTION 9 AGENCIES AND ORGANIZATIONS CONSULTED***

The following agencies and organizations were contacted during the pre-consultation and during the 30-day comment period. Pre-consultation, comment letters and response letters have been reproduced and included in Appendix A, Exhibit 17.

### **Federal Agencies**

U.S. Fish and Wildlife Service\* \*\*

Department of the Navy, Pacific Division

Environmental Protection Agency, Region IX Pacific Islands

Federal Aviation Administration

Federal Highways Administration

Federal Transit Administration

Natural Resources Conservation Service

National Marine Fisheries Service

National Parks Service

National Resources Conservation Service

US Army Corps of Engineers

US Coast Guard, Department of Homeland Security

### **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

Department of Health, Wastewater Branch

DOH, Clean Air Branch

DOH, Clean Water Branch

DOH, Environmental Health Administration

DOH, Environmental Planning Office

DOH, Wastewater Branch

Department of Education\*

Department of Land & Natural Resources

DLNR, Land Division

DLNR SHPD

DLNR Division of Forestry and Wildlife\*\*

Department of Transportation\*\*

Office of Hawaiian Affairs

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\*\*

Department of Planning and Permitting\*

Department of Transportation Services

County of Hawaii Fire Department

County of Hawaii Police Department\* \*\*

County of Hawaii Department of Public Works\*\*

County of Hawaii Department of Environmental Management\*\*

**Other**

Hawaii Electric Light Company

Office of Representative Colleen Hanabusa

Office of Senator Mazie Hirono

Alexandra (private citizen)\*\*

Kohala Coast Resort Association\*\*

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

\*\*Indicates a comment letter was received during the 30-day comment period.



**APPENDIX A**  
DETERMINATIONS AND COMPLIANCE FINDINGS  
FOR HUD-ASSISTED PROJECTS  
24 CFR PART 58

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**U.S. Department of Housing and Urban  
Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

[espanol.hud.gov](http://espanol.hud.gov)

# **Environmental Assessment Determinations and Compliance Findings for HUD-assisted Projects 24 CFR Part 58**

## **Project Information**

**Project Name:** Kaiaulu O Waikoloa Proposed Housing Development

**Responsible Entity:** Hawaii Housing Finance and Development Corporation

**Grant Recipient** (if different than Responsible Entity): K00674 Waikoloa, L.P.

**State/Local Identifier:** Waikoloa, Hawaii (Hawaii Island)

**Preparer:** Environmental Risk Analysis, LLC

**Certifying Officer Name and Title:**

**Grant Recipient** (if different than Responsible Entity):

**Consultant** (if applicable):

**Direct Comments to:**

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

**Project Location:** The proposed development site is located in the state of Hawaii, at property tax map key (TMK) is 3-6-8-3-28. It encompasses 4.6 acres of land situated in Waikoloa on the west side of the Island of Hawai'i (Figures 1 and 2). This location is currently zoned for apartment homes.

**Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:**

Ikaika Ohana is proposing to develop an affordable rental complex of 60 units in Waikoloa, consisting of 28 two-bedroom units, an estimated 25 three-bedroom units, and an estimated 7 four-bedroom units. The objective of this project is to produce an affordable rental development, while utilizing the least amount of State of Hawai'i resources. These apartments will target low income households earning less than 60 percent of the Area Median Income (AMI) for the County of Hawai'i. The Kaiaulu O Wailokola Master Plan outlines the planned development phasing. Phase 1 includes infrastructure improvements and is slated for 2019 through 2020. Phase 2 includes infusing mixed-use development between Phase 1 development areas. This would take place between 2019 through 2021. The final phase, Phase 3, would include more mixed-use development in the central portion of Waikoloa. This would take place between 2019 and 2029.

**Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:** The purpose of the Proposed Action is to develop an affordable rental development, while utilizing the least amount of State of Hawai'i resources. These units will address the dire need for affordable housing on the island of Hawai'i, for many residents who are at risk of becoming homeless due to the severe housing shortage.

The Office of the Governor of Hawaii has expressed a specific need to create additional affordable housing for the very low income to moderate income households. The Hawaii State Legislature has also recognized this need by passing legislation that has increased monies to funds such as the Rental Housing Trust Fund for financing to build affordable rental housing units. The Department of Business, Economic Development & Tourism (DBEDT) projects a population increase in Hawaii County of 29% by 2025. This would result in a total demand of between 19,600 and 20,100 additional housing units for Hawaii County by 2025. (DBEDT, 2015)

In May 2015, the HHFDC adopted the Consolidated Plan for funding through the HOME Investment Partnerships Program (HOME), the Housing Opportunities for Persons with AIDS Program (HOPWA), and the Emergency Solutions Grant Program (ESG). The application to HUD will fund the Counties of Maui, Hawaii, and Kauai (HHFDC, Consolidated Plan Information Packet).

**Existing Conditions and Trends [24 CFR 58.40(a)]:**

The property is currently unpaved and undeveloped with overgrown vegetation covering the majority of the parcel. Portions of the Site have been bulldozed and an unpaved road transects the northern portion of the property. Undeveloped property surrounds the subject site to the south and east. The Pua Melia Street and undeveloped property bounds the subject site to the north and west. Aerial photographs from 2014 depicts the area as it appears today with a fire station occupying the west end of Pua Melia Street and a post office at the north end of Pua

Melia Street. 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 five miles. A Market Study was performed in 2014 for the proposed development. The Primary Market Area (PMA) includes the 19 square miles adjacent to the proposed development site. While a significant portion of the housing units in the PMA are vacant (46%, 3,206 units), only about 500 units are vacant and available to Hawai'i residents for rent or for purchase. If the proposed project is not completed, the property would remain vacant and unused for an undetermined amount of time. This would neither benefit the residents of the island of Hawai'i nor fulfill the purpose of the land use zoning ordinance.

**Funding Information**

<b>Grant Number</b>	<b>HUD Program</b>	<b>Funding Amount</b>
TBD	Rental Housing Revolving Fund	\$9,900,000

**Estimated Total HUD Funded Amount:** The total is \$9,900,000. However, as of today, no funding from this source has taken place.

**Estimated Total Project Cost** (HUD and non-HUD funds) [24 CFR 58.32(d)]: The total is \$30,000,000. This includes the HUD amount of \$9,900,000 and the following non-HUD funds: Permanent Loan \$3,250,000, \$12,120,000 Federal Equity, \$4,030,000 State Equity, and \$1,425,000 private sources.

**Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities**

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

<b>Compliance Factors:</b> Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal complianc e steps or mitigation required?	Compliance determinations
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6</b>		
<b>Airport Hazards</b>  24 CFR Part 51 Subpart D	Yes    No <input checked="" type="checkbox"/>	A site visit confirmed the Project Area is not within 2,500 feet from the end of a runway at a civil airport or 15,000 feet from the end of a runway at a military airfield.  Site visit conducted by Vincent Yanagita of Environmental Risk Analysis, LLC on 6/25/2018.  Please see Exhibit 1.  <a href="http://aviation.hawaii.gov/airfields-airports/">http://aviation.hawaii.gov/airfields-airports/</a> <a href="http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_14225.pdf">http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_14225.pdf</a>
<b>Coastal Barrier Resources</b>  Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes    No <input checked="" type="checkbox"/>	Not within a coastal zone. There are no streams or surface water features at the Site. The nearest water bodies are the Pacific Ocean to the west and a reservoir and small ponds used to provide recycled water for the private resorts.  Please see Exhibit 2.  <a href="https://www.fws.gov/CBRA/Maps/Mapper.html">https://www.fws.gov/CBRA/Maps/Mapper.html</a> <a href="https://www.fws.gov/cbra/">https://www.fws.gov/cbra/</a>
<b>Flood Insurance</b>  Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994	Yes    No <input checked="" type="checkbox"/>	Flood insurance is not required because the project location lies beyond the 500-year flood plain, within Flood Zone X. Refer to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM).

[42 USC 4001-4128 and 42 USC 5154a]		Please see Exhibit 3. <a href="http://gis.hawaiiinfip.org/FHAT/">http://gis.hawaiiinfip.org/FHAT/</a>
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 &amp; 58.5</b>		
<b>Clean Air</b>  Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The Hawaii State Department of Health (HDOH) maintains air monitoring locations throughout the state. Air quality in the state is most affected by proximity to the volcano. Monitoring stations with communities near the volcano (Big Island) record higher levels of sulfur dioxide (SO2) and particulate matter at 2.5 microns or less (PM2.5), with regular exceedances of the National Ambient Air Quality Standards (NAAQS) for SO2 and occasional exceedances of the NAAQS for PM2.5. The Environmental Protection Agency (EPA) considers the volcano a natural, uncontrollable event, therefore the state requests exclusion of these NAAQS exceedances from attainment/non-attainment determination. Excluding the exceedances due to the volcano, in 2015 the State of Hawaii was in attainment of all NAAQS. (HDOH Annual Summary 2015 Air Quality Data). The Waikoloa area is currently in attainment of all criteria pollutants established by the Clean Air Act, State Ambient Air Quality Standards (SAAQS), and NAAQS. Please see Exhibit 4.  <a href="http://health.hawaii.gov/cab/">http://health.hawaii.gov/cab/</a>
<b>Coastal Zone Management</b>  Coastal Zone Management Act, sections 307(c) & (d)	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The Site is not located in a tsunami evacuation zone. The County of Hawaii, Evacuation Zone Map (2013) for the area is presented as EA Figure 9.  Please see Exhibit 5.
<b>Contamination and Toxic Substances</b>  24 CFR Part 50.3(i) & 58.5(i)(2)	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	According to a Phase 1 Environmental Site Assessment (ESA) dated May 2015, and a subsequent reconnaissance visits in May 2016 and June 2018, the subject Site was not listed on any of the databases searched by Environmental Data Resources (EDR), which provides a review of federal, state, and local lists and available files of reported hazardous waste sites and hazardous substance/petroleum product sources

		<p>and releases. The ESA did not identify any American Society for Testing and Materials (ASTM) defined (Recognized Environmental Conditions) RECs for the subject Site. ASTM proximity search guidelines were used to evaluate properties near the Site. One site had an underground storage tank (UST) release within a ½ miles radius of the site. According to the HDOH LUST database, cleanup activities were completed and a no further action release was issued. There were two HDOH Registered UST sites within a ¼-mile radius of the Site. They also do not pose an environmental threat to the subject Site. One electrical transformer nearby was determined to be non-PCB containing by Hawaiian Electric Light Co.</p> <p>The Site is located in the former Waikoloa Maneuver Area. This is further discussed under Explosive and Flammable Hazards.</p> <p>Please see Exhibit 6.</p>
<p><b>Endangered Species</b></p> <p>Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>There are no endangered or threatened species, no candidates listed as endangered or threatened species, or any critical habitat for any such species known to occur on the site.</p> <p>Please see Exhibit 7.</p>
<p><b>Explosive and Flammable Hazards</b></p> <p>24 CFR Part 51 Subpart C</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>Research regarding historical land use was conducted to determine any RECS at the Site and if the surrounding area may have impacted the Site. The Site was historically used for cattle grazing. The Waikoloa area was used as a military training area during World War II with live firing exercises conducted within the vicinity. The subject Site was investigated for unexploded ordnance (UXO) in 2011 and 2018 by the U.S. Army Corp of Engineers. No munitions of environmental concern (MEC) were found on the Site in 2011. Exception areas covered in trash or debris were not investigated. Consistent with the CERCLA process for munitions cleanup, UXO sweeps conducted in 2018 covered the exception areas. USACE submitted their Final RAR to HDOH in April 2019. The Site received a Conditional NFA w/ICs designation from the HDOH. Following</p>



		<p>the identified ICs would reduce the risk at the site from UXOs to negligible. No other RECS identified from historical records or site investigations.</p> <p>The development will not increase residential densities requiring stationary aboveground storage containers (of more than 100-gallon capacity containing common liquid industrial fuels or of any capacity containing hazardous liquids or gases that are not common liquid industrial fuels) currently or planned within 1 mile of the Site. There are no hazardous facilities included in the project.</p> <p>Please see Exhibit 8.</p>
<p><b>Farmlands Protection</b></p> <p>Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The County of Hawaii, Planning Division, indicates the Site Land Use Ordinance Zoning Designation is Multi-Family Dwelling Units (RM 1.5). The Site is not located in a Special District or Special Management Area.</p> <p>The United States Department of Agriculture (USDA) Soil Conservation Service classifies the soil within the Site as Hapuna-Waikui-Lalamilo complex (373), 0-20 percent slopes. Elevations range from 0 to 2,000 feet. The soil is sourced from alluvium over basic volcanic ash. The soil is well drained with more than 80 inches to the water table (USDA, 2018). The soil comprises Hapuna, Waikui, and Lalamilo soils. Hapuna soils are well drained with high runoff potential. Waikui soils are well drained with low runoff potential. Lalamilo soils are well drained with low runoff potential.</p> <p>The Site is not suitable for agricultural purposes.</p> <p>Please see Exhibit 9.</p>
<p><b>Floodplain Management</b></p> <p>Executive Order 11988, particularly section 2(a); 24 CFR Part 55</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>According to FEMA FIRM Map No. 1551660291C, it was determined that the Site lies beyond the 500-year flood plain (within Flood Zone X).</p> <p>Please see Exhibit 10.</p>
<p><b>Historic Preservation</b></p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>Three surveys were conducted of the project parcel, by Soehren in 1980, International</p>

<p>National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800</p>		<p>Archaeological Research Institute in 2005, and Pacific Consulting Services Inc in 2018. No evidence of prehistoric or historic sites or features was observed during the field surveys. No areas of cultural significance were identified during consultation with locals or during the literature review.</p> <p>Please see Exhibit 11.</p>
<p><b>Noise Abatement and Control</b></p> <p>Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The properties immediately surrounding the Site are undeveloped. No significant noise disturbance is anticipated. Construction activities at the Site may increase noise levels, however limiting these activities to daylight hours will help to minimize noise impacts during construction. HDOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations will be complied with for the duration of the project. If noise levels exceed allowable levels, as stated in Chapter 46 rules, a noise permit will be obtained. Once the project is completed, no significant increases in noise are anticipated. While overall noise levels would increase due to a rise in area population, increases would only be observed as modest increases in vehicular traffic, mechanical noise (i.e. air conditioning) and voice load. No industrial processes or activities that would contribute to a significant adverse impact to the noise environment are anticipated.</p> <p>Please see Exhibit 12.</p>
<p><b>Sole Source Aquifers</b></p> <p>Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The Site is not located on a sole source aquifer. The Hawaii Water Service Company provides public water service for Waikoloa. Water supply is from the Waimea aquifer system and is drawn from seven wells that are 1,200 feet deep.</p> <p>The potable water calculations are being determined at this time with the finalization of fixture types/counts through the building design process. Potable water estimates based on the unit count and unit type were used by the West Hawaii Water Company and it was determined that there is sufficient water for the project.</p>

		Please see Exhibit 13.
<b>Wetlands Protection</b>  Executive Order 11990, particularly sections 2 and 5	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory, Wetlands Mapper (USFWS, 2018) did not identify any wetlands in the project area. Riverine features were mapped to the northeast and to the west/southwest of the Site.  Please see Exhibit 14.
<b>Wild and Scenic Rivers</b>  Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>	There are no streams or surface water features at the Site. The nearest natural body of water is the Pacific Ocean to the west.  Please see Exhibit 15.
<b>ENVIRONMENTAL JUSTICE</b>		
<b>Environmental Justice</b>  Executive Order 12898	Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>	The Office of the Governor of Hawaii, Hawaii State Legislature, and HHFDC have identified a need for affordable housing in Hawaii.  The proposed project involves the new construction of 60 affordably-priced multi-family subdivision housing units. There are no adverse environmental conditions affecting the Site. The development will have a positive effect on the targeted community, as there is a dire need for affordable housing in the State of Hawaii.  Please see Exhibit 16.  <a href="https://www.epa.gov/environmentaljustice">https://www.epa.gov/environmentaljustice</a> <a href="https://www.epa.gov/environmentaljustice/environmental-justice-and-national-environmental-policy-act">https://www.epa.gov/environmentaljustice/environmental-justice-and-national-environmental-policy-act</a>

**Environmental Assessment Factors** [24 CFR 58.40; Ref. 40 CFR 1508.8 & 1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

**Impact Codes:** Use an impact code from the following list to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>LAND DEVELOPMENT</b>		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	1	The Proposed Action would have a significant beneficial impact on land use and zoning. Consistency with its zoning designation would make available additional housing for low income families.
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	3	<p>The Proposed Action could have a potential significant adverse impact to soils because of construction activities (i.e., grubbing, grading, excavation and trenching) that disturb the earth and soils. Exposed soils are susceptible to erosion during periods of heavy rain or wind. Short-term adverse impacts would be minimized to less than significant or avoided by implementing temporary erosion control measures during construction activities.</p> <p>A National Pollutant Discharge Elimination System (NPDES) permit for Construction Storm Water Activities will be obtained from the HDOH. During site preparation, storm runoff from the community site will be controlled in compliance with the County’s “Soil Erosion and Sediment Control Standards.” Typical mitigation measures include appropriately stockpiling materials on-site to prevent runoff and building over or establishing landscaping as early as possible on disturbed soils to minimize length of exposure.</p> <p>Geotechnical studies were performed on site and it was determined that surface water runoff can be sufficiently collected and drained through onsite retention pits or basins.</p>
Hazards and Nuisances including Site Safety and Noise	3	Construction activities at the Site will increase noise levels during this project. Limiting those activities that may increase noise levels to daylight hours will help to minimize noise impacts during construction. HDOH Administrative Rules, Title 11, Chapter 46, “Community

		<p>Noise Control” regulations will be complied with for the duration of the project. If noise levels exceed allowable levels, stated in Chapter 46 rules, a noise permit will be obtained.</p> <p>Once the project is completed, no significant increases in noise are anticipated. While overall noise levels would increase due to a rise in area population, increases would only be observed as modest increases in vehicular traffic, mechanical noise (i.e. air conditioning) and voice load. No industrial processes or activities that would contribute to a significant adverse impact to the noise environment are planned under the Proposed Action.</p>
Energy Consumption	2	The Proposed Action would not require substantial energy consumption. The Kaiaulu O Waikoloa will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long-term, the community will create an additional demand for electricity. However, this demand is not deemed substantial or excessive within the context of the region’s overall energy consumption. The change in population and demand for energy would be readily met by existing infrastructure.
<b>SOCIOECONOMIC</b>		
Employment and Income Patterns	2	No adverse impacts to the economy near the Site are anticipated as a result under proposed project. The proposed renovations will result in short-term economic benefits for the construction industry. Over the long term, residents of the subdivision will contribute to the economy through the payment of sales and property taxes, as well as the consumption of goods and services from local businesses.
Demographic Character Changes, Displacement	1	Construction of housing for low income households is expected to have a significant beneficial impact on the social and community identity of the area. The proposed project will add residential units to the district and assist families who would otherwise have few, if any options, for affordable housing in the area.
<b>COMMUNITY FACILITIES AND SERVICES</b>		
Educational and Cultural Facilities	2	The Kaiaulu O Waikoloa is located within the Hawaii School District, Kealakehe complex. Waikoloa Elementary and Middle School and Kealakehe High are the schools

		<p>within the Kealahou complex that would service the Kaiaulu O Waikoloa community.</p> <p>The proposed project is located within the West Hawaii School Impact Fee District, however implementation of fee collection was suspended by the Department of Education. It is anticipated the proposed project would not be subject to the West Hawaii School Impact fees, though the Department of Education is reassessing whether collection of the fees will be implemented in the future.</p>
Commercial Facilities	2	The Proposed Action is expected to have no impact to commercial facilities. No commercial facilities are needed for the project and there are no commercial facilities near the project area.
Health Care and Social Services	2	The Proposed Action is expected to have no adverse impact on health care on the island. West Hawaii Community Health Center is approximately 0.3 miles from the project site. West Hawaii Community Health Center provides medical, dental, and behavioral health services.
Solid Waste Disposal / Recycling	3	<p>Construction activities at the Site will increase solid waste and construction wastes. Waste generated by site preparation will primarily consist of vegetation, rocks, and debris from clearing, grubbing, and grading. Very little demolition material is expected, as the site is essentially vacant. These wastes will be minimized by proper planning of building materials and recycling efforts. A solid waste management plan will be coordinated with the County's Solid Waste Division for the disposal of onsite and construction-related waste material.</p> <p>Once the project is completed, solid waste generation will be increased over the current conditions. This increase in waste generation would not contribute to a significant adverse impact under proposed project. Residential wastes are disposed of at the Puuanahulu Landfill, operated by Waste Management, located to the west of the Site in Waikoloa. The nearest transfer station is in Puako.</p> <p>Specialty wastes (metals, greenwaste, hazardous materials, etc) need to be taken to their respective disposal facilities. Currently the Puuanahulu Landfill has enough capacity. It is anticipated the proposed project will not add significant burden to the landfill.</p>
Waste Water / Sanitary Sewers	2	There are existing sewer lines along Pua Melia Street connecting to Waikoloa Road. West Hawaii Sewer Company maintains their own piping, pump stations, and

		<p>wastewater treatment plants that specifically service Waikoloa.</p> <p>The waste water calculations are being determined at this time with the finalization of fixture types/counts through the building design process. Waste water estimates based on the unit count and unit type were used by the West Hawaii Sewer Company and it was determined that there is sufficient sewer capacity for the project.</p>
Water Supply	2	<p>The Proposed Action is expected to have no significant adverse impact on the public facilities on the island. Water will continue to be provided to the existing recreational and public facilities and their operations will continue as they exist today.</p> <p>The potable water calculations are being determined at this time with the finalization of fixture types/counts through the building design process. Potable water estimates based on the unit count and unit type were used by the West Hawaii Water Company and it was determined that there is sufficient water for the project.</p>
Public Safety - Police, Fire and Emergency Medical	2	<p>The Proposed Action is expected to have no adverse impact on public safety on the island. Medical facilities, police and fire protection services are nearby.</p> <p>The Hawaii County Fire Department has 20 stations throughout the island of Hawaii. There is one station in Waikoloa; “Station 16” is located at 68-1771 Pua Melia St. Station 16 is located less than a half mile from the Site. The next nearest station is “Station 14”, located at 68-4550 Queen Kaahumanu Hwy, which is approximately 8 miles from the Site.</p> <p>The Hawaii Police Department is headquartered in Hilo. The department’s Waimea District is located at 67-5185 Kamamalu Street, approximately 19 miles from the Site.</p> <p>West Hawaii Community Health Center is approximately 0.3 miles from the project site. West Hawaii Community Health Center provides medical, dental, and behavioral health services.</p>
Parks, Open Space and Recreation	2	<p>The Proposed Action is expected to have no adverse impact on the recreational facilities on the island. The Department of Parks and Recreation operates and maintains over a dozen parks, including numerous beach parks as well as community recreational facilities and the Hilo Municipal Golf Course. There are numerous</p>

		<p>privately owned golf courses open to the public within the Waikoloa and west Hawaii area.</p> <p>The development plans on having an onsite tot lot with open space and areas to gather, such as picnic tables. This is in addition to the community center.</p>
Transportation and Accessibility	3	<p>No significant adverse impacts are anticipated under the Proposed Action. Traffic in the area was evaluated for the Saddle Road Extension project. Traffic was evaluated along Saddle Road, Queen Kaahumanu Highway, Mamalahoa Highway and Waikoloa Road. The link traffic volumes were collected by HDOT and reflect traffic volumes on the major roadways for a 24-hour period. Turning movement volumes were conducted separately.</p> <p>Traffic at these areas operated at a LOS of C or better. Projected traffic in the year 2035 showed a worsening of traffic conditions operating at a LOS of F or better. Traffic at Pua Melia Street was projected at a LOS of C or better. Implementation of the Saddle Road Extension would alleviate some of the traffic burden.</p> <p>During construction activities, access and traffic are anticipated to increase compared to normal Site operations. If access and traffic are impacted because of renovation activities, minimizing impact on traffic and access to less than significant levels can be accomplished by the following:</p> <ol style="list-style-type: none"> <li>1) Mobilizing and de-mobilizing construction vehicles and equipment during non-peak traffic hours.</li> <li>2) Use of temporary traffic control devices, such as signage, barricades, and cones, in accordance with City and County traffic standards; and</li> <li>3) If necessary, utilize off-duty police to manage traffic.</li> </ol>
<b>NATURAL FEATURES</b>		
Unique Natural Features, Water Resources	3	<p>No significant adverse impacts are anticipated to groundwater resources assuming implementation of 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 housing. Water system improvements will be designed and constructed in accordance with the West Hawaii Water Company standards and requirements. Fire hydrants will be installed with a maximum spacing of 250 feet.</p>



Vegetation, Wildlife	2	No significant adverse impacts to flora/fauna are anticipated due to the Proposed project. No threatened or endangered species, or candidates for listing as endangered or threatened species of concern, are known to exist in the project area.
Other Factors	2	No significant adverse impacts to natural hazard vulnerability would result from proposed project. The project area lies approximately 1000 feet above mean sea level and is classified within Flood Zone X, where the risk of flooding would be minimal.

**Additional Studies Performed:**

November 1980 - Archeological Letter  
September 2005 - Archaeological Inventory Survey  
June 2016 - Biological Survey  
November 2018 - Cultural Impact Assessment

**Field Inspection** (Date and completed by):

May 4, 2015 by Steven Okoji of Environmental Risk Analysis, LLC  
May 11, 2016 by Steven Okoji of Environmental Risk Analysis, LLC  
June 25, 2018 by Vincent Yanagita of Environmental Risk Analysis, LLC

**List of Sources, Agencies and Persons Consulted** [40 CFR 1508.9(b)]:

Various Federal, State, and County agencies were consulted during the preparation of the draft environmental assessment.

County of Hawaii Office of Housing and Community Development - 2018

The project was presented to representatives of the County of Hawaii Office of Housing and Community, including Housing Administrator Mr. Neil Gyotoku.

**List of Permits Obtained:**

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, Hawaii Revised Statutes (HRS), environmental review

(b) Department of Health

- Chapter 46, Hawaii Administrative Rules (HAR) – noise permit, as required
- Chapter 11-55, HAR – National Pollutant Discharge Elimination System permit for construction stormwater discharges

(c) Chapter 6E, HRS, State Historic Preservation Division, as required

6.2.2 County of Hawaii

(a) Conditional Use Permit, as required

(b) Building Permits for infrastructure improvements

(c) Grading Permits for earthwork activities associated with infrastructure improvements

**Public Outreach** [24 CFR 50.23 & 58.43]:

Pre-Consultation Letters - December 1, 2017

A pre-consultation letter was sent informing various federal, state, and county agencies, as well as representatives for the project area. The letter provided a background of the project and requested any comments for consideration in preparing the draft EA.

**Cumulative Impact Analysis** [24 CFR 58.32]:

Cumulative effects are not anticipated as a result of implementing the proposed project. The proposed project represents a logical use of lands entitled for residential uses, within the urban area of Waikoloa. While further development in the Waikoloa is probable, the Kaiaulu O Waikoloa development is an in-fill of the recognized residential growth boundaries of the region and has been seen as such by the South Kohala Community Plan.

Secondary impacts are those that have the potential to occur later in time or farther in distance, but which are reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing transportation impediments to growth.

There are no substantial, adverse, secondary impacts associated with the proposed project. The build-out of 60 affordable units will create minimal impacts upon area infrastructure, as discussed above, and will not generate a need to expand public infrastructure.

**Alternatives** [24 CFR 58.40(e); 40 CFR 1508.9]

The Proposed Action is the construction of a 60-unit multi-family subdivision. This development would provide affordable housing to low income households. If approved, the subject parcel would require grading and construction permits for implementation.

**No Action Alternative** [24 CFR 58.40(e)]:

Under the No Action alternative, the property which is zoned for residential uses, would continue to remain vacant. Additionally, 60 affordable residential units targeted at low income families would not become available. Given the recognized need for affordable-priced housing as well as the land owner's desire to see some use made of the land, this No Action Alternative is not preferred.

**Summary of Findings and Conclusions:**

The Kaiaulu O Waikoloa development will not result in an irrevocable commitment to loss or destruction of any natural or cultural resources. There are no archaeological sites to be preserved, no evidence of past or present use for Hawaiian cultural practices, resources, or

beliefs, and no known rare, endangered or threatened species of flora, fauna or avifauna or critical habitat for any such species located within the property.

Kaiaulu O Waikoloa will not curtail the range of beneficial uses of the environment. This community is intended to provide affordable housing in the South Kohala region. Use of the land for housing is appropriate in the context of the South Kohala Community Plan and the current need for affordable housing inventory.

Kaiaulu O Waikoloa is in accord with the State's policies and goals, as set forth in HRS Chapter 344-3 (listed below). The subdivision will not waste or misuse natural resources. The proposed project is suitable for the area proposed and will improve social and economic welfare by providing affordable housing inventory.

The State's Environmental Policy is set forth in Chapter 344-3, HRS.

- (1) Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by pre-serving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.
- (2) Enhance the quality of life by:
  - (A) Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;
  - (B) Creating opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;
  - (C) Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and
  - (D) Establishing a commitment on the part of each person to protect and enhance Hawaii's environment and reduce the drain on nonrenewable resources.

Kaiaulu O Waikoloa is expected to have a direct beneficial effect on the local economy. The addition of affordable housing units addresses the need for homes in the region. The project is not expected to impact cultural resources as no cultural resources have been identified on the property; there is no evidence of past or present use for Hawaiian cultural practices, resources, or beliefs.

Kaiaulu O Waikoloa is not expected to substantially affect public health. Environmental impacts from the community, such as noise and air pollution, will be minimal. A clean source of water will be provided. Wastewater will be properly handled. Additional drainage will be retained onsite. Solid waste will be disposed of properly.

Kaiaulu O Waikoloa does involve substantial secondary impacts. Residents are not expected to adversely impact public services such as police, fire, and emergency medical operations, nor are they anticipated to have an adverse effect upon educational and recreational facilities.

Kaiaulu O Waikoloa does not involve a substantial degradation of environmental quality. During the construction phase, there will be short-term air quality and noise impacts. In the long-term, effects upon air quality and ambient noise levels will be minimal. Other impacts, such as site grading, increased runoff, and use of resources, are not expected to be significant and can be mitigated with proper management techniques.

Kaiaulu O Waikoloa does not involve a commitment to larger action as it is an “infill” project. As represented by the RM 1.5 multi-family dwelling units designation, residential uses on the site represent the carefully thought out development in Waikoloa. While the project may add new residents to the area, impacts from these new residents are not expected to be significant, and can be accommodated without substantially increasing public infrastructure or services.

No endangered or threatened species or critical habitats are known to exist in the Kaiaulu O Waikoloa project area. Best Management Practices will be implemented to prevent secondary impacts to the coastal habitat, which may contain rare, threatened, or endangered species.

Kaiaulu O Waikoloa will meet all required State and County air, water, and ambient noise quality standards prior to and during construction. No significant long-term impacts are anticipated.

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction-related activities. It is anticipated that construction will be limited to daylight working hours. Water quality is not expected to be affected. In the long term, the community is not anticipated to have significant impacts on air, water quality, or ambient noise levels.

Kaiaulu O Waikoloa is not located within, and will not affect, environmentally sensitive areas. The site is not subject to flooding or tsunami inundation. There are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the site.

Waikoloa does afford beautiful views, however the subject property is not specifically identified in any county or State plans or studies as containing scenic vistas or view planes. Kaiaulu O Waikoloa site is not identified as a scenic vista or view plane nor will it affect identified scenic vistas or view planes. The community will not affect scenic corridors and coastal scenic and open space resources.

No substantial increase in energy consumption is expected as a result of the proposed action. The Kaiaulu O Waikoloa will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long-term, the community will create an additional demand for electricity. However, this demand is not deemed substantial or excessive within the context of the region’s overall energy consumption.

Based on the foregoing findings, it is anticipated that the Kaiaulu O Waikoloa will not result in any significant impacts.

**Mitigation Measures and Conditions [40 CFR 1505.2(c)]**

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

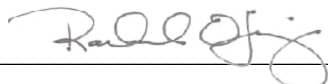
Law, Authority, or Factor	Mitigation Measure
<p>HAR, Chapter 11-46, Community Noise Control</p> <p>HAR Chapter 11-60.1, Air Pollution Control, Section 11-60.1-33, Fugitive Dust;</p> <p>County’s “Soil Erosion and Sediment Control Standards.”</p>	<p>Grading activities will be limited to normal daylight hours in order to limit noise impact and adhere to the Department of Health’s noise regulations for construction equipment.</p> <p>All construction activities will comply with all applicable Federal, State, and County regulations and rules for erosion control. Before issuance of a grading permit by the County of Hawaii, the final erosion control plan and best management practices required for the NPDES permit will be completed.</p> <p>Typical mitigation measures taken to control erosion during the site development period include: minimizing the time of construction; retaining existing ground cover as long as possible; constructing drainage control features early; using temporary sprinklers in non-active construction areas when ground cover is removed; appropriately stockpiling materials on-site to prevent runoff; watering graded areas as needed, using temporary berms and cut-off ditches where needed, installing silt screens where appropriate, covering open-bodied trucks.</p>
<p>In 2007, the Hawaii Legislature enacted Act 245 as Section 302A, HRS, “School Impact Fees”.</p>	<p>Based upon this legislation, the Department of Education will be enacting impact fees for residential developments that occur within identified school impact districts. Should the area be so designated prior to final subdivision approval, the applicant will coordinate with the DOE to determine the appropriate measures to be taken as required by the Section 302A-1603(b), HRS.</p>
<p>Drainage</p>	<p>An onsite drainage system will be constructed to accommodate runoff generated by a 50-year storm for one (1) hour for a fully developed site. The proposed system will include curb-inlet catch basins, drain manholes, drain lines and perforated drain lines. The system will be</p>

	constructed in accordance with the County rules for the design of storm drainage facilities and to ensure that there are no adverse impacts to adjacent and downstream properties.
Department of Water Supply	Based upon coordination with the West Hawaii Water Company, water for the subdivision will be provided from their water system. The water system improvements will be designed and constructed in accordance with County standards and requirements.  Best management practices designed to minimize infiltration and runoff from daily operations will be implemented.

**Determination:**

**Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]  
The project will not result in a significant impact on the quality of the human environment.

**Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]  
The project may significantly affect the quality of the human environment.

Preparer Signature:  Date: 5/13/2019

Name/Title/Organization: Rachel Okoji, President, Environmental Risk Analysis LLC

Housing Administrator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title: \_\_\_\_\_

Planning Director Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title: \_\_\_\_\_

**APPROVED AS TO FORM AND LEGALITY:**

Deputy Corporation Counsel Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title \_\_\_\_\_

Certifying Officer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title: \_\_\_\_\_

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

## EXHIBITS

Exhibit 1: Airport Hazards

Exhibit 2: Coastal Barrier Resources

Exhibit 3: Flood Insurance

Exhibit 4: Clean Air

Exhibit 5: Coastal Zone Management

Exhibit 6: Contamination and Toxic Substances

Exhibit 7: Endangered Species

Exhibit 8: Explosive and Flammable Hazards

Exhibit 9: Farmlands Protection

Exhibit 10: Floodplain Management

Exhibit 11: Historic Preservation

Exhibit 12: Noise Abatement and Control

Exhibit 13: Sole Source Aquifers/Safe Drinking Water

Exhibit 14: Wetlands Protection

Exhibit 15: Wild and Scenic Rivers

Exhibit 16: Environmental Justice

Exhibit 17: Consultation Letters

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## Exhibit 1: Airport Hazards

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Fluwp'ltqo "Ukg<

Puu Waa Waa Ranch  
Approximately 52,000 feet

Kona International Airport:  
Approximately 112,000 feet

Honokaa Airstrip  
Approximately 116,000 feet

Upolu Airport  
Approximately 123,000 feet

Hilo International Airport  
Approximately 268,000 feet

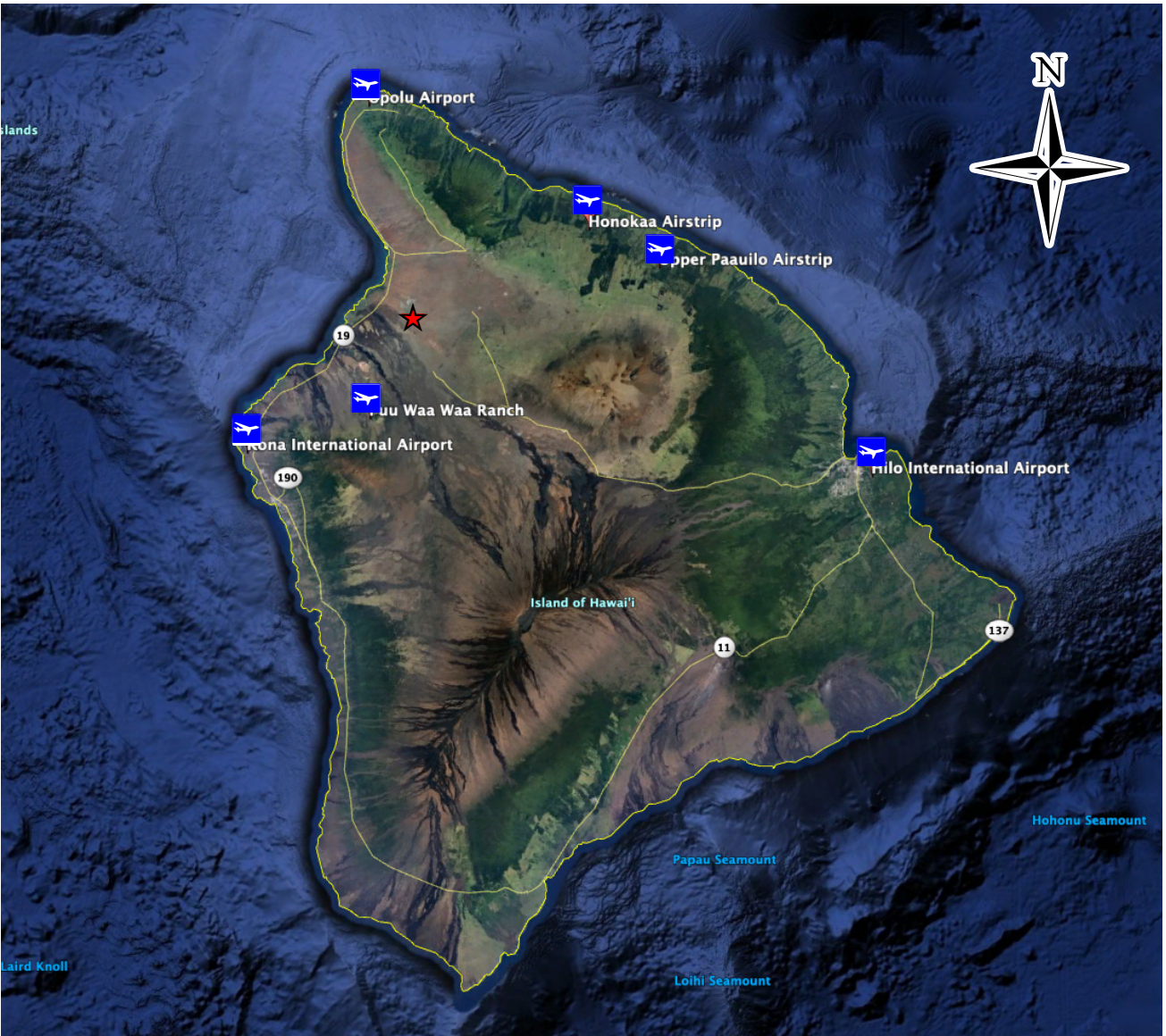
Bradshaw Army Airfield  
Approximately 98,000 feet

Upper Paauilo Airstrip  
Approximately 139,000 feet

Site is not located within 15,000 feet  
of a military airport or 2,500 feet of  
a civilian airport

**LEGEND**

-  Site Location
-  Airport Location



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Airport Zones  
 Accident Potential Zone



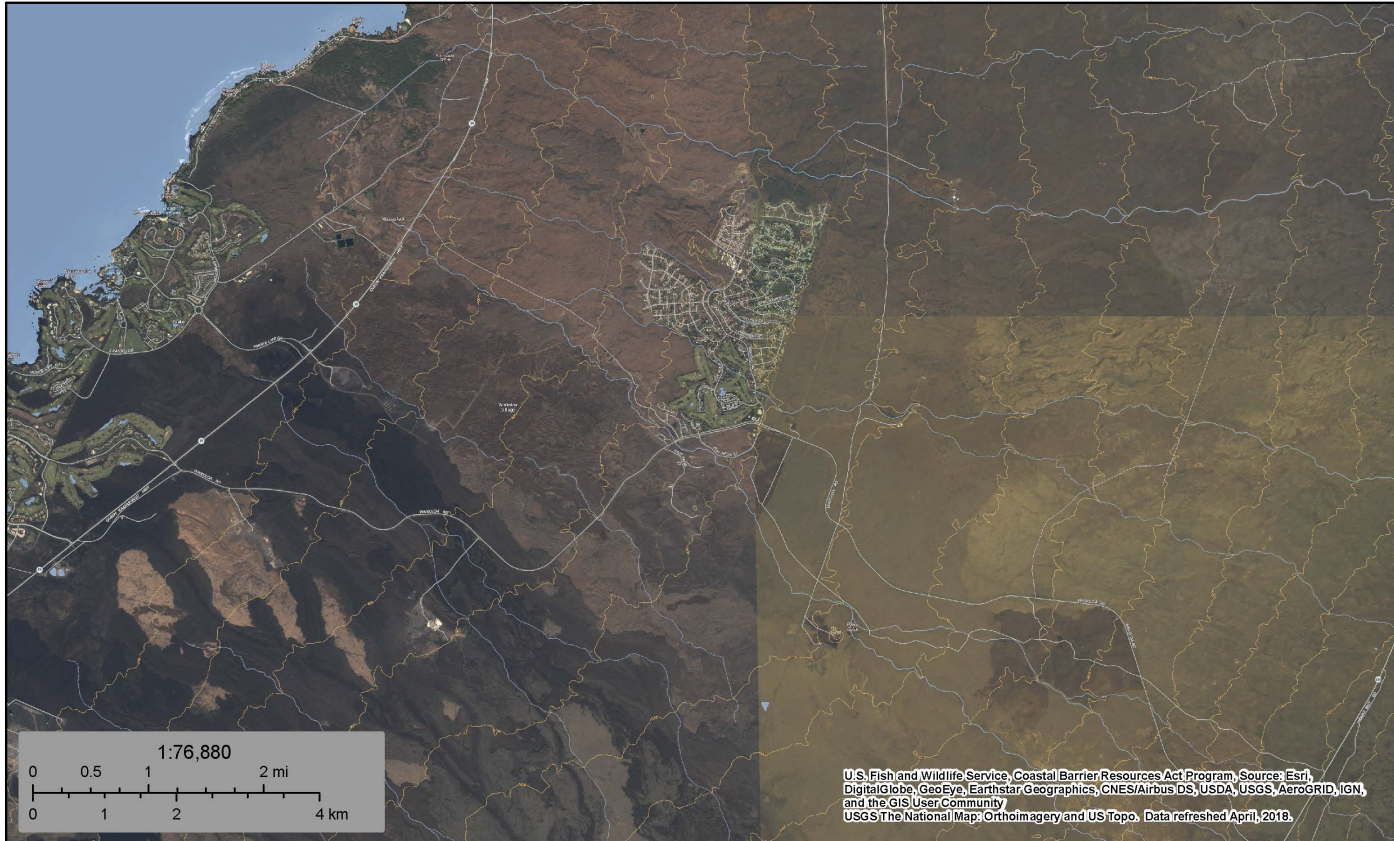
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## Exhibit 2: Coastal Barrier Resources

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**U.S. Fish and Wildlife Service**  
**Coastal Barrier Resources System**



May 8, 2019

CBRS Buffer Zone      System Unit

**CBRS Units**

Otherwise Protected Area

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at <https://www.fws.gov/cbra/maps/index.html>. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (<http://www.fws.gov/cbra/Determinations.html>) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS mapper.

This page was produced by the CBRS Mapper



**PROJECT NAME:**

Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

**FIGURE TITLE:**

Coastal Barrier Resources

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## Exhibit 3: Flood Insurance

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# National Flood Hazard Layer FIRMette



## Legend

SEE FIRM REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LYO101F

- SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, A1, A2, A3*
  - With BFE or Depth *Zone A1, A2, A3, A4, A5, A6, A7, A8*
  - Regulatory Floodway
  
- OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes, *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
  
- OTHER AREAS**
  - Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
  
- GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
  
- OTHER FEATURES**
  - Cross Sections with 1% Annual Chance Water Surface Elevation
    - 26.2
    - 17.5
  - Coastal Transsect
  - Base Flood Elevation Line (BFE) *Zone X*
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transsect Baseline
  - Profile Baseline
  - Hydrographic Feature
  
- MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/28/2019 at 7:42:15 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



**PROJECT NAME:**  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

**FIGURE TITLE:**  
 Flood Insurance Rate Map

**FIGURE NUMBER:**

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## Exhibit 4: Clean Air

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2015 Annual Summary of Hawaii Air Quality Data					
Air Pollutant	Averaging Time	Annual Mean	Standards		
			Hawaii State Standard	Federal Primary Standard	Federal Secondary Standard
Carbon Monoxide	1-hour	0.7 / 0.7 ppm	9 ppm	35 ppm	---
	8-hour	0.7 / 0.7 ppm	4.4 ppm	9 ppm	---
Ozone	24-hour	0.024 / 0.028 ppm	0.08 ppm	0.07 ppm	0.07 ppm
PM <sub>10</sub>	24-hour	15.8 / 21.1 ug/m3	150 ug/m3	150 ug/m3	---
	Annual	15.8 / 21.1 ug/m3	50 ug/m3	---	---
PM <sub>2.5</sub>	24-hour	4.7 ug/m3	---	35 ug/m3	35 ug/m3
	Annual	4.7 ug/m3	---	12 ug/m3	15 ug/m3
Nitrogen Dioxide	1-hour	0.022 ppm*	---	0.100 ppm	---
	Annual	0.004 / 0.004 ppm	0.04 ppm	0.053 ppm	0.053 ppm
Sulfur Dioxide	1-hour	0.001 / 0.026 ppm	---	0.075 ppm	---
	3-hour	0.001 / 0.026 ppm	0.5 ppm	---	0.5 ppm
	24-hour	0.001 / 0.026 ppm	0.14 ppm	---	---
	Annual	0.001 / 0.026 ppm	0.03 ppm	---	---
Lead	Rolling 3 month	0.001 ug/m3	1.5 ug/m3	0.15 ug/m3	0.15 ug/m3
Hydrogen sulfide	1-hour	0.001 ppm (Puna)	0.025 ppm	---	---

Note: All measurements were taken at the Kapolei Monitoring Station, except for PM<sub>2.5</sub> which is reported from the Kihei Monitoring Station. Secondary values are the greatest value of all measurements taken in the State regardless of location. ug/m3 = micrograms per cubic meter. \*98<sup>th</sup>% value.

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# State of Hawaii Annual Summary 2015 Air Quality Data



**Virginia Pressler, M.D.**  
Director of Health



State of Hawaii  
Department of Health  
December 2016

**David Y. Ige**  
Governor of Hawaii

# 2015 Hawaii Air Quality Data

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ERRATA Sheet for 2014 Air Data Book  
The corrections are highlighted in yellow

**Table 4-6. 2014 Summary of the 24-Hour PM<sub>2.5</sub> Averages: SPM Stations**

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 35 µg/m <sup>3</sup>												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	98 <sup>th</sup> %		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				Dec
<b>HAWAII</b>																			
Hilo	19.7	15.5	4.1	0	0	0	0	0	0	0	0	0	0	0	0	0	365	330	90.4
Kona	27.0	17.6	10.4	0	0	0	0	0	0	0	0	0	0	0	0	0	365	335	91.8
Mt. View	20.6	14.4	3.4 <sup>1</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	365	278	76.2
Ocean View	35.2	21.7	11.6	0	0	0	0	0	0	0	0	0	0	0	0	0	365	315	86.3
Pahala	23.7	14.8	5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	365	335	91.8
Waikoloa	42.4	38.8	9.4	0	0	2	-	-	-	-	-	-	-	-	-	-	90 <sup>2</sup>	84	93.3
<b>KAUAI</b>																			
Niumalu	14.5	10.4	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	365	326	89.3
<b>MAUI</b>																			
Paia	49.7	12.6	5.3 <sup>3</sup>	0	0	0	0	0	0	0	0	1	0	0	0	0	365	299	81.9
The special purpose stations on Hawaii island were established to monitor ambient air concentrations of PM <sub>2.5</sub> from volcanic emissions. The special purpose station on Kauai was established to monitor emissions from cruise ships. The special purpose station on Maui was established to monitor emissions from cane burning.																			
<sup>1,3</sup> Does not meet summary criteria, <75% data recovery in one or more quarters										<sup>2</sup> Station shut down 3/31/2014, incomplete year									

vi

ERRATA Sheet for 2014 Air Data Book  
The corrections are highlighted in pink

**Table 4-20. 2014 Monthly Maximum of 24-Hour PM<sub>2.5</sub> Values (µg/m<sup>3</sup>)**

The month with the highest value in the year is highlighted

The federal 24-hr PM<sub>2.5</sub> standard is 35 µg/m<sup>3</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>SLAMS Stations</b>												
Honolulu	12	11	6	12	12	6	6	9	8	9	8	10
Kapolei <sup>1</sup>	10	9	11	14	9	7	6	8	-	-	-	7
Pearl City	16	13	8	12	12	6	5	7	5	7	6	11
Sand Island	12	11	13	10	11	6	5	7	5	9	8	14
Kihei	8	10	9	11	11	9	6	6	3	8	6	14
<b>SPM Stations</b>												
Niumalu (cruise ships)	7	8	9	15	11	9	7	5	10	10	11	12
Hilo (volcano)	20	12	15	8	7	6	7	6	5	7	16	17
Kona (volcano)	18	18	27	16	14	16	16	16	16	15	16	21
Mt. View (volcano)	21	11	17	10	7	6	4	5	6	12	11	10
Ocean View (volcano)	16	18	35	18	18	17	16	15	18	22	24	23
Pahala (volcano)	24	11	20	13	11	8	8	8	8	5	14	19
Waikoloa <sup>2</sup> (volcano)	15	20	42 <sup>3</sup>	-	-	-	-	-	-	-	-	-
Paia (cane burning)	13	24	11	12	12	7	5	12	50 <sup>4</sup>	7	13	11

<sup>1</sup> Kapolei station no values from September to November, incomplete year

<sup>2</sup> Waikoloa station shut down 3/31/14

<sup>3</sup> Value due to high winds/dust

<sup>4</sup> Value due to brush fire

<

ERRATA Sheet for 2014 Air Data Book

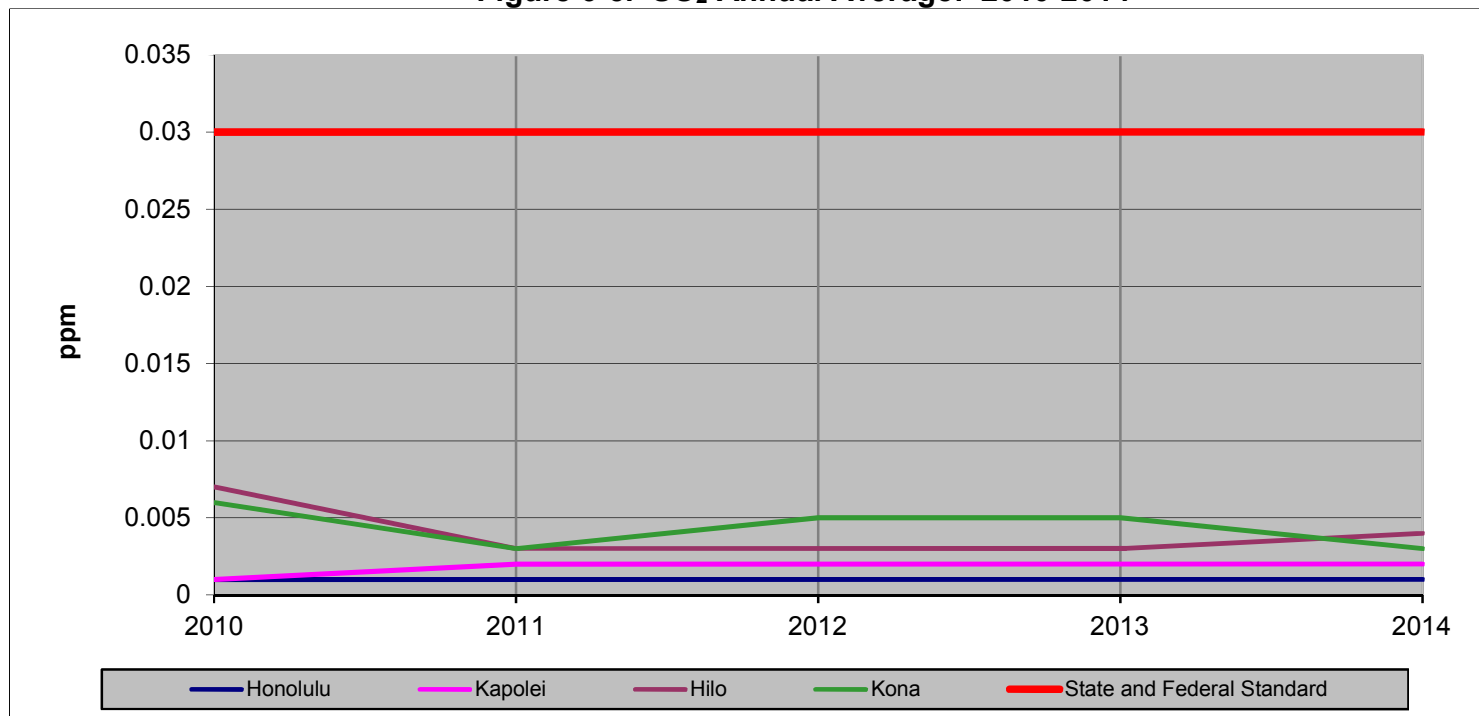
The corrections are highlighted in yellow

Table 5-1 Continued

Parameter	1 <sup>st</sup> High ( $\mu\text{g}/\text{m}^3$ )	2 <sup>nd</sup> High ( $\mu\text{g}/\text{m}^3$ )	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	No. of Samples	Percent Recovery
<b>IONS</b>					
Ammonium Ion	1.25	0.82	0.096	97	80
Potassium Ion	0.51	0.06	0.021	97	80
Sodium Ion	1.17	0.94	0.367	97	80
Total Nitrate	0.97	0.45	0.187	97	80
Sulfate	6.57	4.47	0.959	97	80

ERRATA Sheet for 2014 Air Data Book  
The graph below shows the correction for Hilo

**Figure 6-5. SO<sub>2</sub> Annual Average: 2010-2014**





# Section 1

## INTRODUCTION

The Department of Health, Clean Air Branch, monitors the ambient air in the State of Hawaii for various gaseous and particulate air pollutants. The U. S. Environmental Protection Agency (EPA) has set national ambient air quality standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, ozone, and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Hawaii has also established a state ambient air standard for hydrogen sulfide. The primary purpose of the statewide monitoring network is to measure ambient air concentrations of these pollutants and ensure that these air quality standards are met. The stations are maintained and the data are collected by the Air Surveillance and Analysis Section of the State Laboratories Division.

In addition to monitoring the ambient air for criteria pollutants, the State of Hawaii also participates in the NCore multi pollutant monitoring network; the NCore station in Hawaii is located at the Kapolei monitoring station. The NCore network addresses the following objectives:

- Timely reporting of data to public by supporting AIRNow, air quality forecasting, and other public reporting mechanisms;
- Support for development of emission strategies through air quality model evaluation and other observational methods;
- Accountability of emission strategy progress through tracking long-term trends of criteria and non-criteria pollutants and their precursors;
- Support for long-term health assessments that contribute to ongoing reviews of the NAAQS;
- Compliance through establishing nonattainment/attainment areas through comparison with the NAAQS;
- Support to scientific studies ranging across technological, health, and atmospheric process disciplines;
- Support to ecosystem assessments recognizing that national air quality networks benefit ecosystem assessments and, in turn, benefit from data specifically designed to address ecosystem analyses; and
- PM<sub>2.5</sub> speciation monitoring that EPA determined to be essential for establishing a relationship between particle concentrations and adverse health effects and would provide valuable information in characterizing aerosols, determining the effectiveness of control strategies, and understanding the effects of particle pollution on atmospheric and regional haze.

Air pollution is caused by many different man-made and natural sources. There are industrial sources of pollution, such as power plants and refineries; mobile sources, such as cars, trucks, and buses; agricultural sources, such as cane burning; and natural sources, such as windblown dust and volcanic activity. In 2015, for the most part, the state maintained 14 air monitoring stations on 4 islands. Most commercial, industrial,

and transportation activities and their associated air quality effects occur on Oahu, where 4 of the stations are located. The monitoring stations on Maui are mainly to measure the air quality impacts from agricultural activities. The majority of stations are located on the island of Hawaii to measure air quality impacts from the volcano and geothermal energy production. The monitoring station on Kauai is mainly to measure the air quality impacts from cruise ships. The state's ambient air monitoring network is reviewed annually and relocations, additions and/or discontinuations can occur in the future as the need arises.

This report summarizes the validated air pollutant data collected at the 14 monitoring stations during calendar year 2015. Tabular summaries are provided which compare the measured concentrations of criteria pollutants with federal ambient air quality standards and of hydrogen sulfide with the state standard. The 2015 speciation data is also included in this report. Trend summaries of criteria pollutants parameters are shown graphically.

The Department of Health has a web site that displays near real-time air quality data updated throughout the day from the air monitoring stations. The data has not been reviewed for quality assurance and is subject to change but provides the public with viewing access to current air pollutant and meteorological information. To view this data online, go to <http://health.hawaii.gov/cab> and link to "Hawaii Ambient Air Quality Data."

Additionally, because emissions from the Kilauea volcano are affecting communities on the island of Hawaii on a daily basis, the Department of Health has a website dedicated to displaying short term SO<sub>2</sub> data from stations located on the island. It provides near real-time 15-minute SO<sub>2</sub> averages and advisory level guidance to help individuals protect themselves against possible health effects. To view this data online, go to [www.hiso2index.info](http://www.hiso2index.info)

To view this entire book as well as books from 2013 and 2014 online, go to: <http://health.hawaii.gov/cab> and link to "Hawaii Air Quality Data Book."

Questions or comments regarding data in this report and other air quality information should be addressed to:

Clean Air Branch	Phone: (808)586-4200
Department of Health	Fax: (808)586-4359
P.O. Box 3378	
Honolulu, Hawaii 96801-3378	

The Department of Health provides access to its programs and activities without regard to race, color, national origin (including language), age, sex, religion, or disability. Write our Affirmative Action Officer at P.O. Box 3378, Honolulu, Hawaii 96801-3378, or call (808)586-4616 (voice) within 180 days of a problem.

## Section 2

# DEFINITIONS

<i>98<sup>th</sup> Percentile Value</i>	The PM <sub>2.5</sub> 24-hour average or the maximum daily 1-hour NO <sub>2</sub> average in the year below which 98% of all values fall.
<i>99<sup>th</sup> Percentile Value</i>	The maximum daily 1-hour SO <sub>2</sub> value in the year below which 99% of all values fall.
<i>Ambient Air</i>	The general outdoor atmosphere, external to buildings, to which the general public has access.
<i>Ambient Air Quality Standard</i>	A limit in the quantity and exposure to pollutants dispersed or suspended in the ambient air. Primary standards are set to protect public health, including sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare including protection against visibility degradation, and damage to animals, crops, vegetation and buildings.
<i>Carbon Monoxide</i>	Carbon monoxide (CO) is a colorless, odorless, tasteless gas under atmospheric conditions. It is produced by the incomplete combustion of carbon fuels with the majority of emissions coming from transportation sources.
<i>CFR</i>	Code of Federal Regulations is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal government. Title 40 is the Protection of the Environment.
<i>Collocated</i>	This is a procedure required for a certain percentage of PM <sub>10</sub> and PM <sub>2.5</sub> samplers in the monitoring network. Collocated samplers determine precision or variation in the PM <sub>10</sub> or PM <sub>2.5</sub> concentration measurements of identical samplers run in the same location under the same sampling conditions.
<i>Criteria Pollutants</i>	These are the six pollutants for which the EPA has established national air quality standards. The pollutants are ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead and particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ).
<i>EPA</i>	The U. S. Environmental Protection Agency; established to

protect human health and the natural environment.

*Hydrogen Sulfide*

Hydrogen sulfide (H<sub>2</sub>S) is a toxic, colorless gas with a characteristic “rotten egg” odor detectable at very low levels. It occurs naturally during the decomposition of organic matter, near geothermal sources and is also produced during certain industrial processes, including wastewater treatment facilities.

*Micron*

One micron is one millionth of a meter or approximately 1/25,000 of an inch.

*μg/m<sup>3</sup>*

Micrograms per cubic meter. This is the measurement of air quality expressed as mass per unit volume.

*NAAQS*

National Ambient Air Quality Standards. These are pollutant standards that the EPA has established to protect public health and welfare. NAAQS have been set for carbon monoxide, nitrogen dioxide, PM<sub>10</sub>, PM<sub>2.5</sub>, ozone, sulfur dioxide, and lead. These are commonly referred to as criteria pollutants.

*NCore*

A multi-pollutant network that integrates several advanced measurement systems for particles, pollutant gases and meteorology. Most NCore stations have been operating since the formal start of the network on January 1, 2011, including Hawaii's.

*Nitrogen Dioxide*

Nitrogen dioxide (NO<sub>2</sub>) is a brownish, highly corrosive gas with a pungent odor. It is formed in the atmosphere from emissions of nitrogen oxides (NO<sub>x</sub>). Sources of nitrogen oxides include electric utilities, industrial boilers, motor vehicle exhaust and combustion of fossil fuels. NO<sub>2</sub> is also a component in the atmospheric reaction that produces ground-level ozone.

*Ozone*

Ozone (O<sub>3</sub>) is the main constituent in photochemical air pollution. It is formed in the atmosphere by a chemical reaction of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight. In the upper atmosphere, O<sub>3</sub> shields the earth from harmful ultraviolet radiation; however, at ground level, it can cause harmful effects in humans and plants.

*Particulate Matter*

This refers to any solid or liquid matter dispersed in the air. Particulate matter (PM) includes dust, soot, smoke, and

liquid droplets from sources such as factories, power plants, motor vehicles, construction, agricultural activities, and fires.

<i>PM<sub>10</sub></i>	Particulate matter that is 10 microns or less in aerodynamic diameter. These are considered “coarse” particles, generally from sources such as road and windblown dust, and crushing and grinding operations.
<i>PM<sub>2.5</sub></i>	Particulate matter that is 2.5 microns or less in aerodynamic diameter. Considered “fine” particles, these are generally a result of fuel combustion such as from motor vehicles, utility generation and industrial facilities. Fine particles can also be formed when gases, such as sulfur dioxide and nitrogen dioxide, are chemically transformed into particles.
<i>ppm</i>	Parts per million is one particle in 1,000,000 other particles. It is approximately one drop in 13 gallons.
<i>SLAMS</i>	State and Local Air Monitoring Stations. The Clean Air Act requires that every state establish a network of air monitoring stations for criteria pollutants.
<i>SPM</i>	Special Purpose Monitoring stations. These are stations established to provide data for special studies in support of air program interests and activities. SPM stations supplement the SLAMS network as special circumstances require and adequate resources permit.
<i>Sulfur Dioxide</i>	Sulfur dioxide (SO <sub>2</sub> ) is a colorless gas that easily combines with water vapor forming sulfuric acid. Emissions of sulfur dioxide are largely from sources that burn fossil fuels such as coal and oil. In Hawaii, another major source of sulfur dioxide emissions is from the eruption of Kilauea Volcano on the Big Island.
<i>Vog</i>	Vog is a local term used to express volcanic smog. Vog occurs when volcanic gas and particles combine with air and sunlight to produce atmospheric haze.

## Table 2-1 State and Federal Ambient Air Quality Standards

Sources: State standards HAR §11-59; Federal standards 40 CFR Part 50

Air Pollutant	Averaging Time	Standards		
		Hawaii State Standard	Federal Primary Standard <sup>a</sup>	Federal Secondary Standard <sup>b</sup>
Carbon Monoxide (CO)	1-hour	9 ppm	35 ppm	None
	8-hour	4.4 ppm	9 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	---	0.100 ppm	---
	Annual	0.04 ppm	0.053 ppm	0.053 ppm
PM <sub>10</sub>	24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	---
	Annual <sup>c</sup>	50 µg/m <sup>3</sup>	---	---
PM <sub>2.5</sub>	24-hour	---	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
	Annual		12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
Ozone (O <sub>3</sub> )	8-hour	0.08 ppm	0.070 ppm	0.070 ppm
Sulfur Dioxide (SO <sub>2</sub> )	1-hour	---	0.075 ppm	---
	3-hour	0.5 ppm	---	0.5 ppm
	24-hour	0.14 ppm	---	---
	Annual	0.03 ppm	---	---
Lead (Pb)	Rolling 3-month	1.5 µg/m <sup>3</sup> <sup>d</sup>	0.15 µg/m <sup>3</sup>	0.15 µg/m <sup>3</sup>
Hydrogen Sulfide	1-hour	0.025 ppm	None	None

<sup>a</sup> **Primary Standards** set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children and the elderly.

<sup>b</sup> **Secondary Standards** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

<sup>c</sup> Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM<sub>10</sub> standard effective December 17, 2006. However, the state still has an annual standard.

<sup>d</sup> The state standard is based on calendar quarter.

### Compliance with the National Ambient Air Quality Standards

**CO 1-hour:** May not be exceeded more than once per year.

**CO 8-hour:** May not be exceeded more than once per year.

**NO<sub>2</sub> 1-hour:** The 3-year average of the 98<sup>th</sup> percentile daily maximum 1-hour averages must not exceed the standard.

**NO<sub>2</sub> Annual:** Average of all 1-hour values in the year may not exceed the level of the standard.

**PM<sub>10</sub> 24-hour:** Must not be exceeded more than one day per year, after compensating for days when monitoring did not occur (estimated number of exceedances)

**PM<sub>2.5</sub> 24-hour:** The 3-year average of the 98<sup>th</sup> percentile 24-hour concentrations must not exceed the level of the standard.

**PM<sub>2.5</sub> Annual:** The 3-year average of 24-hour values must not exceed the level of the standard.

**Ozone 8-hour:** The 3-year average of the fourth highest daily maximum value must not exceed the level of the standard.

**SO<sub>2</sub> 1-hour:** The 3-year average of the 99<sup>th</sup> percentile daily maximum 1-hour averages must not exceed the standard.

**SO<sub>2</sub> 3-hour:** Not be exceeded more than once per year.

**SO<sub>2</sub> 24-hour:** Not be exceeded more than once per year.

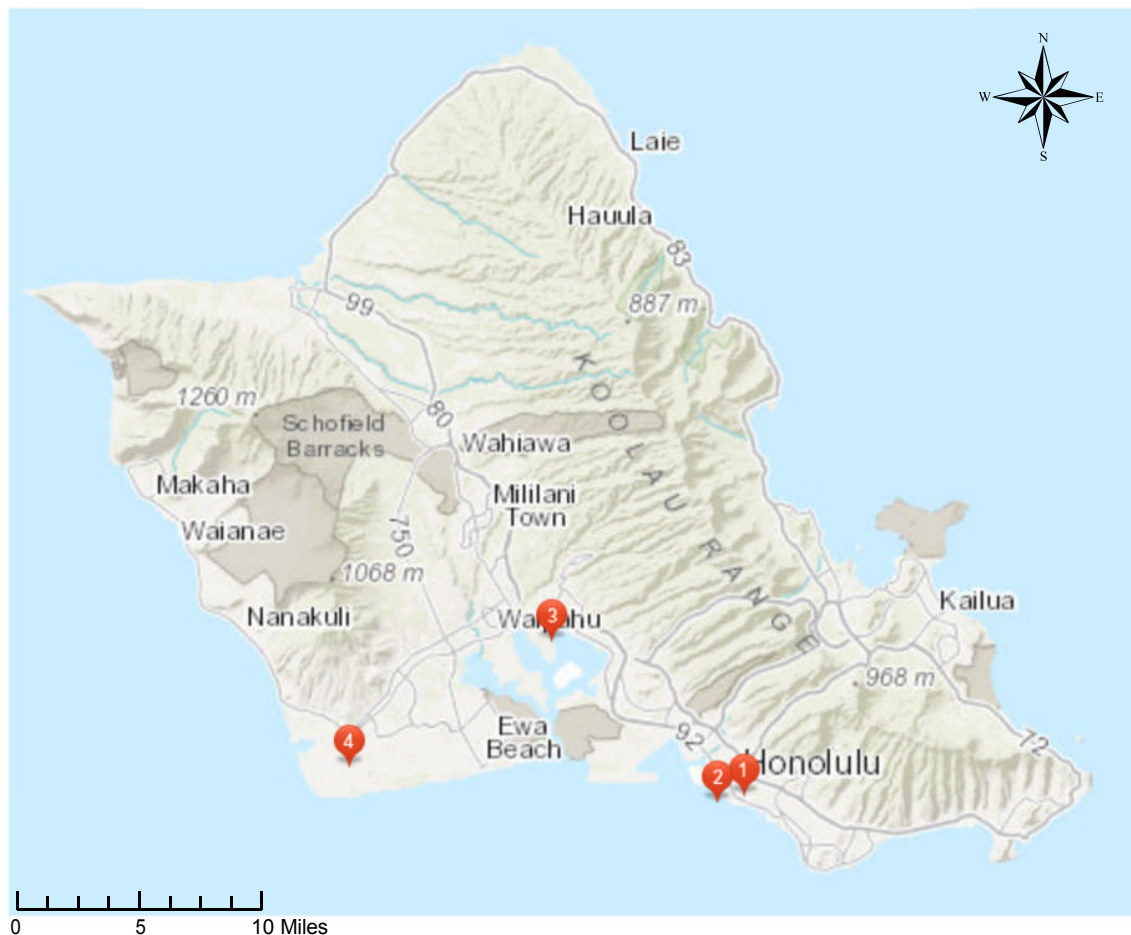
**SO<sub>2</sub> Annual:** Average of all 1-hour values in the year may not exceed the level of the standard.

**Lead:** Average of all 24-hour values in any rolling 3-month period may not exceed the level of the standard.

# Section 3


## SITE LOCATIONS AND DESCRIPTIONS


Figure 3-1: Island of Oahu – Air Monitoring Stations





Station	Name	Location	Pollutants/Parameters Monitored
1	Honolulu	1250 Punchbowl St.	CO, SO <sub>2</sub> , PM <sub>2.5</sub> , PM <sub>10</sub>
2	Sand Island	1039 Sand Island Pkwy.	O <sub>3</sub> , PM <sub>2.5</sub>
3	Pearl City	860 4th St.	PM <sub>2.5</sub> , PM <sub>10</sub>
4	Kapolei	2052 Lauwiliwili St.	CO, SO <sub>2</sub> , NO <sub>2</sub>
	Kapolei NCore	2052 Lauwiliwili St.	CO trace, SO <sub>2</sub> trace, NO/NO <sub>y</sub> , Pb, O <sub>3</sub> , PM <sub>2.5</sub> , PM <sub>2.5</sub> speciation, PM <sub>10</sub> , PM <sub>10-2.5</sub> , WS/WD

The following station descriptions include latitude and longitude in decimal degrees and altitude in meters above mean sea level.

<b>Honolulu (DH)</b>		
	<b>Location:</b>	1250 Punchbowl St., Honolulu
	<b>Latitude:</b>	21.30758
	<b>Longitude:</b>	-157.85542
	<b>Altitude:</b>	20 m
	<b>Parameters:</b>	SO <sub>2</sub> , CO, PM <sub>10</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	February 1971
	<b>Brief Description:</b>	Located in downtown Honolulu on the roof of the Department of Health building, across from the Queen's Medical Center, in a busy commercial, business and government district.

<b>Kapolei (KA)</b>		
	<b>Location:</b>	2052 Lauwiliwili St., Kapolei
	<b>Latitude:</b>	21.32374
	<b>Longitude:</b>	-158.08861
	<b>Altitude:</b>	17.9 m
	<b>Parameters:</b>	SO <sub>2</sub> , CO, NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>2.5</sub> speciation, NCore
	<b>Established:</b>	July 2002
<b>Brief Description:</b>	Located in Kapolei Business Park, southeast of Kapolei Fire Station, next to a drainage canal that separates the park from Barber's Point. Approximately 1.5 miles from Malakole Street in Campbell Industrial Park.	

<b>Pearl City (PC)</b>		
	<b>Location:</b>	860 4 <sup>th</sup> St., Pearl City
	<b>Latitude:</b>	21.39283
	<b>Longitude:</b>	-157.96913
	<b>Altitude:</b>	23.1 m
	<b>Parameters:</b>	PM <sub>10</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	May 1979
<b>Brief Description:</b>	Located on the roof of the Leeward Health Center in a commercial, residential and light industrial area approximately 1.5 miles northwest of the Waiiau power plant and near the Pearl Harbor Naval Complex.	


<b>Sand Island (SI)</b>		
	<b>Location:</b>	1039 Sand Island Pkwy., Honolulu
	<b>Latitude:</b>	21.30384
	<b>Longitude:</b>	-157.87117
	<b>Altitude:</b>	5.3 m
	<b>Parameters:</b>	O <sub>3</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	February 1981
<b>Brief Description:</b>	Located in a light industrial, commercial and recreational area approximately two miles downwind of downtown Honolulu near the entrance to the Sand Island State Recreation Area.	





**Figure 3-2: Island of Maui – Air Monitoring Stations**



Station	Name	Location	Pollutants Monitored
1	Kihei	Hale Piilani Park	PM <sub>2.5</sub>
2	Paia	TMK (2)-2-5-005-05	PM <sub>2.5</sub>
3	Kahului	TMK (2)-3-8-007-153	PM <sub>2.5</sub>

<b>Kihei (KH)</b>		
	<b>Location:</b>	Hale Piilani Park, Kihei
	<b>Latitude:</b>	20.780997
	<b>Longitude:</b>	-156.44637
	<b>Altitude:</b>	46.5 m
	<b>Parameters:</b>	PM <sub>2.5</sub>
	<b>Established:</b>	February 1999
	<b>Brief Description:</b>	
Located in a residential community park, next to agricultural land.		


<b>Paia (PI)</b>		
	<b>Location:</b>	TMK (2)-2-5-005-05, Paia
	<b>Latitude:</b>	20.902031
	<b>Longitude:</b>	-156.370344
	<b>Altitude:</b>	80.8 m
	<b>Parameters:</b>	PM <sub>2.5</sub>
	<b>Established:</b>	March 2013
	<b>Brief Description:</b>	
Located within a fenced area that contains a County of Maui water supply tank. The area is surrounded by residential and agricultural land with sugar cane fields north of the monitor.		


<b>Kahului (KL)</b>		
	<b>Location:</b>	TMK (2)-3—8-007-153, Kahului
	<b>Latitude:</b>	20.869444
	<b>Longitude:</b>	-156.492417
	<b>Altitude:</b>	55.5 m
	<b>Parameters:</b>	PM <sub>2.5</sub>
	<b>Established:</b>	January 2015
	<b>Brief Description:</b>	
Located within a fenced area off of Maulani Parkway, TMK 2-3-8-007-153. The area is surrounded primarily by residential land.		


**Figure 3-3: Island of Hawaii – Air Monitoring Stations**





Station	Name	Location	Pollutants Monitored
1	Hilo	1099 Waiuanuenue Ave.	SO <sub>2</sub> , PM <sub>2.5</sub>
2	Mountain View	17-1235 Volcano Rd.	SO <sub>2</sub> , PM <sub>2.5</sub>
3	Puna E	TMK (3)-1-3-28-37 (Leilani)	H <sub>2</sub> S, SO <sub>2</sub>
4	Pahala	96-3150 Pikake St.	SO <sub>2</sub> , PM <sub>2.5</sub>
5	Ocean View	92-6091 Orchid Mauka Circ.	SO <sub>2</sub> , PM <sub>2.5</sub>
6	Kona	81-1043 Konawaena School Rd.	SO <sub>2</sub> , PM <sub>2.5</sub>


<b>Hilo (HL)</b>		
	<b>Location:</b>	1099 Waianuenue Ave., Hilo
	<b>Latitude:</b>	19.71756
	<b>Longitude:</b>	-155.11053
	<b>Altitude:</b>	136.8 m
	<b>Parameters:</b>	SO <sub>2</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	January 1997
	<b>Brief Description:</b>	Located near the Hilo Medical Center, this station was established to monitor vog during "Kona" or southerly wind conditions.

<b>Kona (KN)</b>		
	<b>Location:</b>	81-1043 Konawaena School Rd., Kona
	<b>Latitude:</b>	19.50978
	<b>Longitude:</b>	-155.91342
	<b>Altitude:</b>	517.2 m
	<b>Parameters:</b>	SO <sub>2</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	September 2005
	<b>Brief Description:</b>	Located on the upper campus of Konawaena High School, this station monitors for vog on the west side of the island of Hawaii.

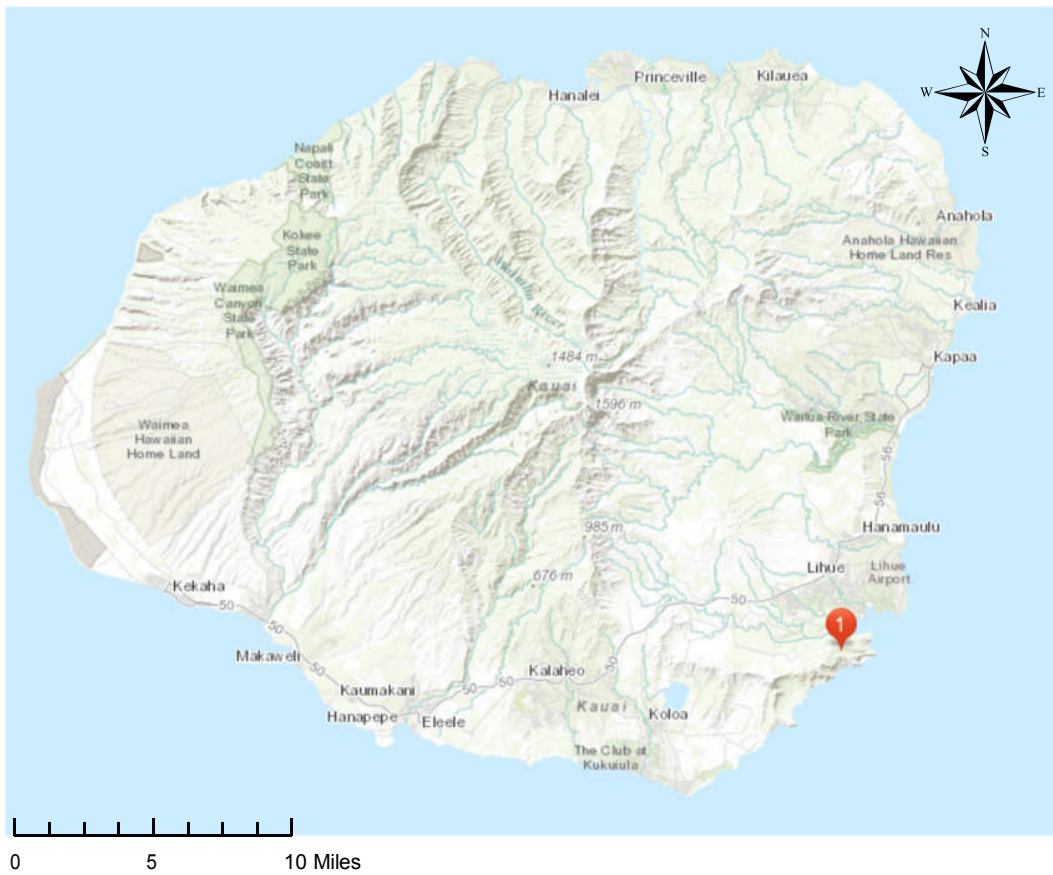
<b>Mt. View (MV)</b>		
	<b>Location:</b>	17-1235 Volcano Rd., Mt. View
	<b>Latitude:</b>	19.57002
	<b>Longitude:</b>	-155.08046
	<b>Altitude:</b>	436.5 m
	<b>Parameters:</b>	SO <sub>2</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	December 2010
	<b>Brief Description:</b>	Located on the grounds of the Mt. View Elementary School, this station was established to monitor vog during southerly wind conditions.

<b>Ocean View (OV)</b>		
	<b>Location:</b>	92-6091 Orchid Mauka Circle, Ocean View
	<b>Latitude:</b>	19.11756
	<b>Longitude:</b>	-155.77814
	<b>Altitude:</b>	862.6 m
	<b>Parameters:</b>	SO <sub>2</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	April 2010
	<b>Brief Description:</b>	This station is located in Hawaii Ocean View Estates at the Ocean View fire station and monitors for volcanic emissions.

<b>Pahala (PA)</b>		
	<b>Location:</b>	96-3150 Pikake St., Pahala
	<b>Latitude:</b>	19.2039
	<b>Longitude:</b>	-155.48018
	<b>Altitude:</b>	320 m
	<b>Parameters:</b>	SO <sub>2</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	August 2007
	<b>Brief Description:</b>	The station is on the grounds of the Kau High and Pahala Elementary School, monitoring for volcanic emissions.

<b>Puna E (PE)</b>		
	<b>Location:</b>	13-763 Leilani Ave., Pahoa
	<b>Latitude:</b>	19.46399
	<b>Longitude:</b>	-154.89871
	<b>Altitude:</b>	207.9 m
	<b>Parameters:</b>	SO <sub>2</sub> , H <sub>2</sub> S
	<b>Established:</b>	March 1991
	<b>Brief Description:</b>	Located in the Leilani Estates residential subdivision, this station monitors for emissions from the geothermal energy facility approximately 1 mile to the northeast. The station also monitors for SO <sub>2</sub> emissions from the volcano during southwesterly wind conditions.

**Figure 3-4: Island of Kauai – Air Monitoring Station**



Station	Name	Location	Pollutants Monitored
1	Kihei	Hale Piilani Park	SO <sub>2</sub> , NO <sub>2</sub> , PM <sub>2.5</sub>


<b>Niumalu (NI)</b>		
	<b>Location:</b>	2342 Hulemalu Road, Lihue
	<b>Latitude:</b>	21.9495
	<b>Longitude:</b>	-159.365
	<b>Altitude:</b>	11 m
	<b>Parameters:</b>	SO <sub>2</sub> , NO <sub>2</sub> , PM <sub>2.5</sub>
	<b>Established:</b>	April 2011
<b>Brief Description:</b>		
Located in the Niumalu residential subdivision, this station monitors for emissions from the cruise ships in Nawiliwili Harbor approximately 1.0 mile upwind.		

Table 3-1 State of Hawaii Ambient Air Monitoring Network

SITE	Pollutants Monitored and Station Type								MONITORING OBJECTIVE	LOCATION SETTING
	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	O <sub>3</sub>	SO <sub>2</sub>	NO <sub>2</sub>	H <sub>2</sub> S	Lead		
<b>OAHU</b>										
Honolulu	S	S	S	-	S	-	-	-	Population Exposure	Urban and Center City Suburban Urban and Center City Urban and Center City
Kapolei <sup>1</sup>	S	S,C	S	S	S	S	-	S,C	Population Exposure	
Pearl City	S	S	-	-	-	-	-	-	Population Exposure	
Sand Island	-	S	-	S	-	-	-	-	Maximum Concentration (O <sub>3</sub> ) Transport (PM <sub>2.5</sub> )	
<b>MAUI</b>										
Kihei	-	S	-	-	-	-	-	-	Source Impact (cane burning)	Suburban
Paia <sup>2</sup>	-	SPM	-	-	-	-	-	-	Source Impact (cane burning)	Neighborhood
Kahului <sup>3</sup>	-	SPM	-	-	-	-	-	-	Source Impact (cane burning)	Neighborhood
<b>HAWAII</b>										
Hilo	-	SPM	-	-	S	-	-	-	Population Exposure	Suburban Suburban
Kona	-	SPM	-	-	S	-	-	-	Population Exposure (SO <sub>2</sub> )/ Maximum concentration (PM <sub>2.5</sub> )	
Mountain View	-	SPM	-	-	SPM	-	-	-	Source Impact	Suburban
Ocean View	-	SPM	-	-	SPM	-	-	-	Welfare Impact (SO <sub>2</sub> )/ Source Impact (PM <sub>2.5</sub> )	Rural
Pahala	-	SPM	-	-	SPM	-	-	-	Maximum concentration (SO <sub>2</sub> )/ Source Impact (PM <sub>2.5</sub> )	Rural
Puna E	-	-	-	-	SPM	-	SPM	SPM	Source Impact (geothermal and volcano)	Suburban
<b>KAUAI</b>										
Niimalu	-	SPM	-	-	SPM	SPM	-	-	Source Impact (cruise ships)	Suburban

C = Collocated Site

S = (SLAMS) State and Local Air Monitoring Station

SPM = Special Purpose Monitoring Station (for monitoring vog, geothermal energy production and cruise ships)

<sup>1</sup> Includes NCore station

<sup>2</sup> Paia began operating 3/1/13

<sup>3</sup> Kahului began operating 1/13/15

**Table 3-2 Sampling Equipment at Each Monitoring Station**

Monitoring Station	PM <sub>10</sub> Continuous Ambient Particulate Monitor	PM <sub>2.5</sub> Manual Particulate Monitor	PM <sub>2.5</sub> Continuous Monitor	CO Continuous Gas Filter Correlation Analyzer	SO <sub>2</sub> Continuous Pulsed Fluorescence Ambient Air Analyzer	O <sub>3</sub> Continuous UV Photometric Analyzer	NO <sub>2</sub> Continuous Chemiluminescence Analyzer	H <sub>2</sub> S Continuous Pulsed Fluorescence Ambient Air Analyzer	Lead 1 in 6 Days Total Suspended Particulate Monitor
<b>OAHU</b>									
Honolulu	■		■	■	■				
Kapolei	■	■	■	■	■	■	■		■
Pearl City	■		■						
Sand Island			■			■			
<b>MAUI</b>									
Kihei			■						
Paia			■						
Kahului			■						
<b>HAWAII</b>									
Hilo			■		■				
Kona			■		■				
Mt. View			■		■				
Ocean View			■		■				
Pahala			■		■				
Puna E					■		■		
<b>KAUAI</b>									
Niumalu			■		■		■		



## Section 4

# 2015 AIR QUALITY DATA

To protect the state's air quality from degradation, the Department of Health's Clean Air Branch is responsible for regulating and monitoring pollution sources to ensure that the levels of criteria pollutants remain well below the state and federal ambient air quality standards. Data collected from the ambient air network is validated by the Air Surveillance and Analysis Section to ensure that the reported data is of good quality and meets all quality control and assurance requirements.

The monitoring stations in communities near the volcano record higher levels of SO<sub>2</sub> and PM<sub>2.5</sub>, with regular exceedances of the NAAQS for SO<sub>2</sub> and occasional exceedances of the NAAQS for PM<sub>2.5</sub>. The EPA considers the volcano a natural, uncontrollable event and therefore the state is requesting exclusion of these NAAQS exceedances from attainment/non-attainment determination.

Excluding the exceedances due to the volcano, in 2015 the State of Hawaii was in attainment of all NAAQS.

### **Explanation of Summary Tables 4-1 through 4-18:**

- Summaries are by pollutant and averaging period, with the number of occurrences exceeding the NAAQS or, in Table 4-17, the number of exceedances of the state H<sub>2</sub>S standard (there is no federal H<sub>2</sub>S standard);
- The "Maximum" is the highest and second highest valid values recorded in the year for the averaging period. For PM<sub>2.5</sub>, the maximum and 98<sup>th</sup> percentile concentrations are provided and for O<sub>3</sub>, the 4<sup>th</sup> highest daily maximum value is also displayed;
- The "Annual Mean" is the arithmetic mean of all valid values recorded in the year;
- "Possible Periods" is the total number of possible sampling periods in the year for the averaging period;
- "Valid Periods" is the total number of acceptable sampling periods after data validation;
- "Percent Recovery" represents the amount of quality data reported;
- Attainment with the NAAQS is determined according to 40 CFR 50.

### **Explanation of Tables 4-19 through 4-29:**

- For each pollutant and averaging period, the highest concentration for each month is presented;
- The month with the highest value recorded in the year for each site is highlighted.

**Table 4-1. 2015 Summary of the 24-Hour PM<sub>10</sub> Averages**

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 150 µg/m <sup>3</sup>												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	2 <sup>nd</sup> High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
<b>OAHU</b>																			
Honolulu	36	29	11.5	0	0	0	0	0	0	0	0	0	0	0	0	0	365	321	88.0
Kapolei	32	32	15.8	0	0	0	0	0	0	0	0	0	-	-	-	0	365	334	91.5
Pearl City	46	42	21.1	0	0	0	0	0	0	0	0	0	0	0	0	0	365	357	98.0

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**Table 4-2. Attainment Determination of the 24-Hour PM<sub>10</sub> NAAQS**

Station	Exceedances in 2013	Exceedances in 2014	Exceedances in 2015	Sites in violation of the NAAQS
Honolulu	0	0	0	0
Kapolei	0	0	0	0
Pearl City	0	0	0	0

Attainment: The standard not to be exceeded more than once per year on average over 3 years.  
**In 2015, Hawaii was in attainment with the 24-hour PM<sub>10</sub> NAAQS.**

**Table 4-3. 2015 Summary of the 24-Hour PM<sub>2.5</sub> Averages: SLAMS Stations**

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 35 µg/m <sup>3</sup>												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	98 <sup>th</sup> %		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				Dec
<b>OAHU</b>																			
Honolulu	17.3	10.4	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	365	354	97.0
Kapolei	17.4	13.7	4.1	0	0	0	0	0	0	0	0	0	0	0	0	0	365	346	94.8
Pearl City	14.0	11.4	5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	365	353	97.0
Sand Island	15.7	11.5	5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	365	354	97.0
<b>MAUI</b>																			
Kihei	23.3	12.9	4.7 <sup>1,2</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	365	306	83.8

<sup>1</sup> Does not meet summary criteria, <75% data recovery in one or more quarters

<sup>2</sup> Passed data substitution test

**Table 4-4. Attainment Determination of the 24-Hour PM<sub>2.5</sub> NAAQS: SLAMS Stations**

Station	2013 98 <sup>th</sup> value	2014 98 <sup>th</sup> value	2015 98 <sup>th</sup> value	3-Year Average	Sites in violation of the NAAQS
Honolulu	12	10	10	11	0
Kapolei	12	11	14	12	0
Pearl City	13	10	11	12	0
Sand Island	12	10	12	11	0
Kihei	13	10	13	12	0

Attainment: The 3-year average of the 98<sup>th</sup> percentile values must be less than or equal to 35 µg/m<sup>3</sup>.  
**In 2015, Hawaii was in attainment with the 24-hour PM<sub>2.5</sub> NAAQS.**

**Table 4-5. Attainment Determination of the Annual PM<sub>2.5</sub> NAAQS: SLAMS Stations**

Station	2013 Ann. Avg.	2014 Ann. Avg.	2015 Ann. Avg.	3-Year Average	Sites in violation of the NAAQS
Honolulu	5.3	4.4	3.7	4.5	0
Kapolei	2.8	3.9	4.1	3.6	0
Pearl City	5.5	3.9	5.2	4.9	0
Sand Island	6.2	4.5	5.4	5.4	0
Kihei	5.8	3.9	4.7	4.8	0

Attainment: The 3-year average of annual mean values must be less than 15 µg/m<sup>3</sup>.  
**In 2015, Hawaii was in attainment with the annual PM<sub>2.5</sub> NAAQS.**

**Table 4-6. 2015 Summary of the 24-Hour PM<sub>2.5</sub> Averages: SPM Stations**

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 35 µg/m <sup>3</sup>												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	98 <sup>th</sup> %		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				Dec
<b>HAWAII</b>																			
Hilo	24.8	17.1	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	365	352	96.4
Kona	25.7	23.0	11.7	0	0	0	0	0	0	0	0	0	0	0	0	0	365	351	96.2
Mt. View	34.6	13.1	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	365	361	98.9
Ocean View	26.6	22.6	12.8	0	0	0	0	0	0	0	0	0	0	0	0	0	365	356	97.5
Pahala	25.9	17.8	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	365	347	95.1
<b>KAUAI</b>																			
Niumalu	13.2	10.1	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	365	338	92.6
<b>MAUI</b>																			
Kahului	19.8	11.5	5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	353	346	98.0
Paia	18.7	14.5	4.7	0	0	0	0	0	0	0	0	0	0	0	0	0	365	362	99.2
The special purpose stations on Hawaii island were established to monitor ambient air concentrations of PM <sub>2.5</sub> from volcanic emissions. The special purpose station on Kauai was established to monitor emissions from cruise ships. The special purpose stations on Maui were established to monitor emissions from cane burning.																			

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**Table 4-7. 2015 Summary of the 8-Hour O<sub>3</sub> Averages**

	Maximum			Annual Mean	No. of Daily Maximum 8-Hour Averages Greater than 0.075 ppm												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	2 <sup>nd</sup> High	4 <sup>th</sup> High		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				Dec
<b>OAHU</b>																				
Sand Island	0.052	0.050	0.049	0.028	0	0	0	0	0	0	0	0	0	0	0	0	0	8755	8331	95.2
Kapolei	0.052	0.052	0.049	0.024	0	0	0	0	0	0	0	0	0	0	0	0	0	8755	8442	96.4

**Table 4-8. Attainment Determination of the 8-Hour O<sub>3</sub> NAAQS**

Station	2013 4 <sup>th</sup> highest	2014 4 <sup>th</sup> highest	2015 4 <sup>th</sup> highest	3-Year Average	Site in violation of the NAAQS
Sand Island	0.047	0.057	0.049	0.051	0
Kapolei	0.051 <sup>1</sup>	0.046 <sup>1</sup>	0.049	0.049 <sup>2</sup>	0

Attainment: The 3-year average of the annual 4<sup>th</sup> highest daily maximum 8-hour average must be less than or equal to 0.075 ppm.  
**In 2015, Hawaii was in attainment with the 8-hour O<sub>3</sub> NAAQS.**  
<sup>1</sup> Does not meet summary criteria, <75% data recovery in year      <sup>2</sup> No values from August to December 2013 and January to March 2014, incomplete years

**Table 4-9. 2015 Summary of the 1-Hour and Annual NO<sub>2</sub> Averages**

	Maximum 1-hr		Annual Mean	No. of Daily Maximum 1-Hour Averages Greater than 0.100 ppm												Possible Periods	Valid Periods	Percent Recovery
	1 <sup>st</sup> High	98 <sup>th</sup> %		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov			
<b>OAHU</b>	<b>SLAMS stations</b>																	
Kapolei	0.031	0.022	0.004	0	0	0	0	0	0	0	0	0	0	0	0	8760	8046	92.0
<b>KAUAI</b>	<b>SPM Station</b>																	
Niumalu	0.038	0.032	0.002	0	0	0	0	0	0	0	0	0	0	0	0	8760	6696	76.4 <sup>1,2</sup>

Attainment of the annual NO<sub>2</sub> NAAQS: The annual mean shall not exceed 0.053 ppm.  
**In 2015, Hawaii was in attainment with the annual NO<sub>2</sub> NAAQS.**

<sup>1</sup> Does not meet summary criteria, <75% data recovery in one or more quarters

<sup>2</sup> Does not pass data substitution test, <50% recovery in one or more quarters

**Table 4-10. Attainment Determination of the 1-Hour NO<sub>2</sub> NAAQS**

Station	2013 98 <sup>th</sup> value	2014 98 <sup>th</sup> value	2015 98 <sup>th</sup> value	3-Year Average	Site in violation of the NAAQS
Kapolei	0.023	0.025	0.022	0.023	0

Attainment: The 3-year average of the 98<sup>th</sup> percentile values must be less than or equal to 0.100 ppm.  
**In 2015, Hawaii was in attainment with the 1-hour NO<sub>2</sub> NAAQS.**

#### 4-11. 2015 Summary of the 1-Hour SO<sub>2</sub> Averages

	Maximum		Annual Mean	No. of 1-hour Averages Greater than 0.075 ppm												Possible Periods	Valid Periods	Percent Recovery
	1 <sup>st</sup> High	99 <sup>th</sup> %		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov			
<b>OAHU</b>	<b>SLAMS Stations</b>																	
Honolulu	0.013	0.010	0.000	0	0	0	0	0	0	0	0	0	0	0	0	8760	8135	92.9
Kapolei	0.026	0.013	0.001	0	0	0	0	0	0	0	0	0	0	0	0	8760	7823	89.3
<b>HAWAII</b>	<b>SPM Stations (see NOTE)</b>																	
Hilo	0.640	0.236	0.004	8	1	2	0	0	0	0	2	0	0	1	1	8760	8557	97.7
Kona	0.053	0.031	0.003	0	0	0	0	0	0	0	0	0	0	0	0	8760	8394	95.8
Mt. View	0.518	0.276	0.004	6	11	2	1	1	0	1	7	2	0	2	3	8760	8496	97.0
Ocean View	0.585	0.382	0.013	6	4	9	11	10	7	9	11	7	13	13	15	8760	8463	96.6
Pahala	0.539	0.496	0.026	16	9	16	20	14	14	15	13	18	20	23	26	8760	8407	96.0
Puna E	0.036	0.015	0.001	0	0	0	0	0	0	0	0	0	0	0	0	8760	8433	96.3
<b>KAUAI</b>	<b>SPM Station</b>																	
Niumalu	0.048	0.014	0.000	0	0	0	0	0	0	0	0	0	0	0	0	8760	7926	90.5

Attainment: The 3-year average of the 99<sup>th</sup> percentile values must be less than or equal to 0.075 ppm. Effective June 2, 2010.

**In 2015, Hawaii was in attainment with the 1-hour SO<sub>2</sub> NAAQS (SLAMS stations only).**

NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Although Hilo and Kona stations are designated SLAMS, the values are still mostly attributed to volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 1-hour NAAQS from attainment determinations. The SPM station on Kauai was established to monitor emissions from cruise ships.

**Table 4-12. Attainment Determination of the 1-Hour SO<sub>2</sub> NAAQS: SLAMS Stations**

	2013 99 <sup>th</sup> value	2014 99 <sup>th</sup> value	2015 99 <sup>th</sup> value	3-Year Average	Violation of the NAAQS
<b>OAHU SLAMS stations</b>					N= NO Y= YES
Honolulu	0.007	0.006	0.010	0.008	N
Kapolei	0.009	0.021 <sup>1</sup>	0.013	0.014	N
<b>HAWAII SPM stations (SEE note)</b>					
Hilo	0.169	0.144 <sup>1</sup>	0.236	0.183	Y
Kona	0.042	0.035	0.031	0.036	N
Mt. View	0.248	0.312	0.276	0.279	Y
Ocean View	0.466	0.379	0.382	0.409	Y
Pahala	0.757	0.444	0.496	0.565	Y
Puna E	0.016	0.034	0.015	0.022	N
<b>KAUAI SPM station</b>					
Niumalu	0.025	0.036	0.014	0.025	N
<p>Attainment: The 3-year average of the 99<sup>th</sup> percentile values must be less than or equal to 0.075 ppm. Effective June 2, 2010.  <b>In 2015, Hawaii was in attainment with the 1-hour SO<sub>2</sub> NAAQS (SLAMS stations only).</b></p> <p>NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Although Hilo and Kona stations are designated SLAMS, the values are still mostly attributed to volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 1-hour NAAQS from attainment determinations. The SPM station on Kauai was established to monitor emissions from cruise ships.</p> <p><sup>1</sup> Does not meet summary criteria, &lt; 75% data recovery in one or more quarters</p>					

**Table 4-13. 2015 Summary of the 3-Hour SO<sub>2</sub> Averages**

	Maximum		Annual Mean	No. of 3-hour Averages Greater than 0.5 ppm												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	2 <sup>nd</sup> High		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				Dec
<b>OAHU</b>	<b>SLAMS stations</b>																		
Honolulu	0.007	0.007	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2642	90.5
Kapolei	0.015	0.011	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2542	87.1
<b>HAWAII</b>	<b>SPM stations (see NOTE)</b>																		
Hilo	0.472	0.370	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2742	93.9
Kona	0.049	0.028	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2681	91.8
Mt. View	0.294	0.173	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2733	93.6
Ocean View	0.293	0.283	0.013	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2710	92.8
Pahala	0.423	0.364	0.026	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2694	92.3
Puna E	0.025	0.013	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2656	91.0
<b>KAUAI</b>	<b>SPM station</b>																		
Niualu	0.021	0.011	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	2920	2515	86.1

Attainment: 3-hour values not to exceed 0.5 ppm more than once per year.

**In 2015, Hawaii was in attainment with the 3-hour SO<sub>2</sub> NAAQS (SLAMS stations only).**

NOTE: The SPM stations on Hawaii island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Although Hilo and Kona stations are designated SLAMS, the values are still mostly attributed to volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 3-hour NAAQS from attainment determinations.



**Table 4-14. 2015 Summary of the 24-Hour and Annual SO<sub>2</sub> Averages**

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 0.140 ppm												Possible Periods	Valid Periods	Percent Recovery
	1 <sup>st</sup> High	2 <sup>nd</sup> High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
<b>OAHU</b>	<b>SLAMS Stations</b>																	
Honolulu	0.003	0.002	0.000	0	0	0	0	0	0	0	0	0	0	0	0	365	341	93.4
Kapolei	0.004	0.004	0.001	0	0	0	0	0	0	0	0	0	0	0	0	365	339	92.9
<b>HAWAII</b>	<b>SPM Stations (see NOTE)</b>																	
Hilo	0.160	0.074	0.004	1	0	0	0	0	0	0	0	0	0	0	0	365	365	100.0
Kona	0.017	0.010	0.003	0	0	0	0	0	0	0	0	0	0	0	0	365	354	97.0
Mt. View	0.071	0.054	0.004	0	0	0	0	0	0	0	0	0	0	0	0	365	359	98.4
Ocean View	0.079	0.067	0.013	0	0	0	0	0	0	0	0	0	0	0	0	365	359	98.4
Pahala	0.140	0.094	0.026	0	0	0	0	0	0	0	0	0	0	0	0	365	354	97.0
Puna E	0.007	0.004	0.001	0	0	0	0	0	0	0	0	0	0	0	0	365	361	98.9
<b>KAUAI</b>	<b>SPM Station</b>																	
Niimalu	0.005	0.005	0.000	0	0	0	0	0	0	0	0	0	0	0	0	365	324	88.8
<p>Attainment: 24-hour values not to exceed 0.14 ppm more than once per year.  <b>In 2015, Hawaii was in attainment of the state 24-hour SO<sub>2</sub> standard (SLAMS stations only).</b></p> <p>NOTE: The SPM stations on Hawaii island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Although Hilo and Kona stations are designated SLAMS, the values are still mostly attributed to volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 24-hour NAAQS from attainment determinations.</p>																		
<p>Attainment: Annual average (from SLAMS stations only) not to exceed 0.03 ppm.  <b>In 2015, Hawaii was in attainment of the state annual SO<sub>2</sub> standard.</b></p> <p>NOTE: The SPM stations on Hawaii island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Although Hilo and Kona stations are designated SLAMS, the values are still mostly attributed to volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the annual NAAQS from attainment determinations.</p>																		

**Table 4-15. 2015 Summary of the 1-Hour CO Averages**

	Maximum		Annual Mean	No. of 1-hour Averages Greater than 35 ppm												Possible Periods	Valid Periods	Percent Recovery
	1 <sup>st</sup> High	2 <sup>nd</sup> High		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov			
<b>OAHU</b>	<b>SLAMS stations</b>																	
Honolulu	1.4	1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	8760	8124	92.7
Kapolei	2.4	2.1	0.7	0	0	0	0	0	0	0	0	0	0	0	0	8760	7709	88.0
Attainment: 1-hour values not to exceed 35 ppm more than once per year. <b>In 2015, Hawaii was in attainment with the 1-hour CO NAAQS.</b>																		

**Table 4-16. 2015 Summary of the 8-Hour CO Averages**

	Maximum		Annual Mean	No. of 8-hour Averages Greater than 9 ppm												Possible Periods	Valid Periods	Percent Recovery
	1 <sup>st</sup> High	2 <sup>nd</sup> High		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov			
<b>OAHU</b>	<b>SLAMS stations</b>																	
Honolulu	1.0	1.0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	8755	8194	93.6
Kapolei	1.7	1.6	0.7	0	0	0	0	0	0	0	0	0	0	0	0	8755	7486	85.5
Attainment: 8-hour values not to exceed 9 ppm more than once per year. <b>In 2015, Hawaii was in attainment with the 8-hour CO NAAQS.</b>																		

**Table 4-17. 2015 Summary of the 1-Hour H<sub>2</sub>S Averages (State Standard)**

	Maximum		Annual Mean	No. of 1-hour Averages Greater than 0.025 ppm												Possible Periods	Valid Periods	Percent Recovery
	1 <sup>st</sup> High	2 <sup>nd</sup> High		All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov			
<b>HAWAII</b>																		
Puna E	0.004	0.003	0.001	0	0	0	0	0	0	0	0	0	0	0	0	8760	8277	94.5
Attainment of the state standard: 1-hour values not to exceed 0.025 ppm. <b>In 2015, Hawaii was in attainment of the state 1-hour H<sub>2</sub>S standard.</b>																		

**Table 4-18. 2015 Summary of the Rolling 3-Month Lead Averages**

	Maximum		Annual Mean	No. of 3-Month Averages Greater than 0.15 µg/m <sup>3</sup>												Possible Periods	Valid Periods	Percent Recovery	
	1 <sup>st</sup> High	2 <sup>nd</sup> High	All Hours	Rolling 3-Month period ending in the month of															
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
<b>HAWAII</b>																			
Kapolei	0.002	0.001	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	61	53	86.9

Attainment: Maximum 3-month average concentration for a 3-year period must be less than or equal to 0.15 µg/m<sup>3</sup>.  
 Note: Sampling for lead conducted 1 in 6 days. Sampling began 1/1/2012.

**Table 4-19. 2015 Monthly Maximum of 24-Hour PM<sub>10</sub> Values (µg/m<sup>3</sup>)**

The month with the highest value in the year is highlighted

The state and federal 24-hr PM<sub>10</sub> standard is 150 µg/m<sup>3</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Honolulu	24	36	16	24	27	14	14	15	11	12	25	25
Kapolei	24	32	26	26	29	18	21	26	21	27	27	22
Pearl City	33	39	37	46	40	27	29	30	30	26	28	33

**Table 4-20. 2015 Monthly Maximum of 24-Hour PM<sub>2.5</sub> Values (µg/m<sup>3</sup>)**

The month with the highest value in the year is highlighted

The federal 24-hr PM<sub>2.5</sub> standard is 35 µg/m<sup>3</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>SLAMS Stations</b>												
Honolulu	17	14	6	8	12	5	10	6	8	12	8	6
Kapolei	7	10	10	7	7	2	4	5	11	17	16	13
Pearl City	14	13	12	11	11	9	10	8	9	9	10	8
Sand Island	16	16	11	11	9	11	8	7	12	11	9	9
Kihei	23	12	11	9	12	9	11	14	11	20	16	10
<b>SPM Stations</b>												
Niimalu (cruise ships)	11	13	11	11	11	7	6	4	5	6	2	10
Hilo (volcano)	25	21	19	10	10	5	6	8	15	6	10	6
Kahului	20	13	9	12	10	7	7	8	8	11	7	13
Kona (volcano)	19	20	25	22	16	13	13	15	18	24	25	26
Mt. View (volcano)	21	20	12	8	6	3	5	7	12	12	14	35
Ocean View (volcano)	25	19	27	21	23	19	23	19	19	25	16	24
Pahala (volcano)	26	20	16	12	18	11	11	14	18	14	9	14
Paia (cane burning)	17	14	15	12	10	7	19	8	8	17	7	5

**Table 4-21. 2015 Monthly Maximum of 1-Hour NO<sub>2</sub> Values (ppm)**

The month with the highest value in the year is highlighted *The federal 1-hour standard for NO<sub>2</sub> is 0.100 ppm*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kapolei	0.031	0.026	0.030	0.021	0.022	0.021	0.021	0.018	0.012	0.026	0.024	0.024
Niimalu <sup>1</sup>	0.029	0.016	0.000	0.027	0.031	0.024	0.017	0.014	0.038	0.022	0.037	0.034

<sup>1</sup> Does not meet summary criteria, < 75% data recovery in one or more quarters

**Table 4-22. 2015 Monthly Maximum of 1-Hour CO Values (ppm)**

The month with the highest value in the year is highlighted *The federal 1-hr CO standard is 35 ppm, the state standard is 9ppm*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Honolulu	1.3	1.1	1.4	1.1	0.5	0.7	0.6	1	1.1	1.3	1	1.3
Kapolei	0.9	0.9	0.9	1	1.1	0.9	0.7	2.4	1.4	1.5	1.4	1.5

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**Table 4-23. 2015 Monthly Maximum of 8-Hour CO Values (ppm)**

The month with the highest value in the year is highlighted *The federal 8-hr CO standard is 9 ppm, the state standard is 4.4 ppm*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Honolulu	0.8	0.7	0.9	0.9	0.3	0.5	0.5	0.8	0.8	1.0	0.9	0.8
Kapolei	0.7	0.6	0.7	0.8	0.8	0.7	0.7	1.7	1.3	1.5	1.4	1.5

#### 4-24. 2015 Monthly Maximum of 8-Hour O<sub>3</sub> Values (ppm)

The month with the highest value in the year is highlighted

The federal 8-hr O<sub>3</sub> standard is 0.075 ppm

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sand Island	0.049	0.049	0.048	0.047	0.052	0.030	0.034	0.027	0.039	0.039	0.042	0.041
Kapolei NCore	0.047	0.047	0.049	0.048	0.052	0.035	0.036	0.030	0.036	0.040	0.041	0.043

#### Table 4-25. 2015 Monthly Maximum of 1-Hour SO<sub>2</sub> Values (ppm)

The month with the highest value in the year is highlighted

The federal 1-hr SO<sub>2</sub> standard is 0.075 ppm (75 ppb)

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>SLAMS Stations</b>												
Honolulu	0.013	0.004	0.005	0.012	0.006	0.010	0.007	0.006	0.007	0.005	0.003	0.004
Kapolei	0.013	0.013	0.016	0.008	0.006	0.007	0.026	0.007	0.009	0.008	0.004	0.009
<b>SPM Stations (see NOTE)</b>												
Niimalu (cruise ships)	0.011	0.002	0.014	0.002	0.005	0.002	0.005	0.014	0.015	0.009	0.001	0.048
Hilo (volcano)	0.640	0.215	0.335	0.036	0.009	0.040	0.022	0.128	0.074	0.025	0.088	0.076
Kona (volcano)	0.028	0.011	0.053	0.013	0.014	0.011	0.022	0.031	0.017	0.048	0.019	0.023
Mt. View (volcano)	0.329	0.518	0.191	0.113	0.229	0.027	0.119	0.241	0.187	0.071	0.107	0.269
Ocean View (volcano)	0.382	0.218	0.231	0.323	0.169	0.162	0.243	0.311	0.220	0.585	0.200	0.570
Pahala (volcano)	0.516	0.305	0.368	0.325	0.282	0.319	0.433	0.175	0.382	0.539	0.496	0.527
Puna E (volcano)	0.018	0.036	0.004	0.001	0.011	0.001	0.001	0.005	0.011	0.003	0.001	0.002

NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Although Hilo and Kona stations are designated SLAMS, the values are still mostly attributed to volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 1-hour NAAQS from attainment determinations.

**Table 4-26. 2015 Monthly Maximum of 3-Hour SO<sub>2</sub> Values (ppm)**

The month with the highest value in the year is highlighted

*The state and federal 3-hr SO<sub>2</sub> standard is 0.5 ppm*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>SLAMS Stations</b>												
Honolulu	0.004	0.004	0.003	0.004	0.004	0.007	0.007	0.003	0.003	0.004	0.001	0.004
Kapolei	0.011	0.011	0.009	0.005	0.003	0.002	0.015	0.004	0.006	0.004	0.003	0.005
<b>SPM Stations (see NOTE)</b>												
Niualu (cruise ships)	0.007	0.001	0.011	0.001	0.002	0.000	0.000	0.001	0.002	0.004	0.001	0.021
Hilo (volcano)	0.472	0.194	0.275	0.032	0.007	0.034	0.004	0.048	0.050	0.022	0.035	0.040
Kona (volcano)	0.025	0.009	0.049	0.011	0.011	0.09	0.021	0.016	0.012	0.025	0.015	0.020
Mt. View (volcano)	0.173	0.249	0.106	0.039	0.081	0.013	0.080	0.109	0.099	0.059	0.079	0.138
Ocean View (volcano)	0.199	0.102	0.107	0.212	0.136	0.106	0.122	0.283	0.142	0.293	0.103	0.213
Pahala (volcano)	0.340	0.192	0.232	0.169	0.155	0.236	0.228	0.120	0.240	0.423	0.331	0.364
Puna E (volcano)	0.013	0.025	0.003	0.001	0.010	0.001	0.001	0.004	0.006	0.002	0.001	0.002

NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 3-hour NAAQS from attainment determinations.

**Table 4-27. 2015 Monthly Maximum of 24-Hour SO<sub>2</sub> Values (ppm)**

The month with the highest value in the year is highlighted

The state and federal 24-hr SO<sub>2</sub> standard is 0.14 ppm

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>SLAMS Stations</b>												
Honolulu	0.002	0.002	0.001	0.002	0.001	0.003	0.002	0.001	0.001	0.001	0.001	0.001
Kapolei	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.001	0.001	0.001	0.001	0.001
<b>SPM Stations (see NOTE)</b>												
Niumalu (cruise ships)	0.001	0.000	0.005	0.000	0.001	0.000	0.001	0.001	0.002	0.001	0.000	0.005
Hilo (volcano)	0.160	0.033	0.050	0.009	0.005	0.010	0.004	0.013	0.016	0.007	0.008	0.009
Kona (volcano)	0.008	0.004	0.017	0.006	0.006	0.004	0.010	0.005	0.005	0.006	0.005	0.010
Mt. View (volcano)	0.054	0.071	0.020	0.019	0.021	0.004	0.015	0.029	0.047	0.009	0.034	0.030
Ocean View (volcano)	0.065	0.029	0.052	0.079	0.036	0.034	0.040	0.054	0.035	0.067	0.041	0.056
Pahala (volcano)	0.140	0.061	0.049	0.058	0.047	0.054	0.061	0.059	0.077	0.078	0.091	0.092
Puna E (volcano)	0.004	0.007	0.002	0.001	0.003	0.001	0.001	0.002	0.003	0.001	0.001	0.001

NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO<sub>2</sub> from volcanic emissions. Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 24-hour NAAQS from attainment determinations.

**Table 4-28. 2015 Monthly Maximum of 1-Hour H<sub>2</sub>S Values (ppm)**

The month with the highest value in the year is highlighted

The state 1-hour H<sub>2</sub>S standard is .025 ppm

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Puna E	0.003	0.003	0.003	0.003	0.003	0.004	0.002	0.001	0.003	0.003	0.001	0.001

**Table 4-29. 2015 Monthly Maximum of Rolling 3-Month Lead Values (µg/m<sup>3</sup>)**

The month with the highest value in the year is highlighted

The federal rolling 3-month lead standard is 0.15 µg/m<sup>3</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kapolei NCore (1 in 6 days)	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.001	0.001	0.001	0.001	0.002



## **Section 5**

# **2015 PM<sub>2.5</sub> SPECIATION DATA**

Atmospheric aerosols are solid or liquid particles suspended in air that come directly from a variety of sources (primary) or are formed by chemical reactions (secondary). Primary and secondary particles tend to have long lifetimes in the atmosphere and can travel long distances, up to hundreds or perhaps thousands of miles. Sources include dust from roads, construction, and agriculture; combustion particles from motor vehicles, electric utilities and agricultural burning; and particles from natural sources such as the ocean or volcano.

Most of the PM<sub>2.5</sub> is a combination of the following components: sulfates, nitrates, ammonium, elemental carbon, organic compounds, water and metals. The EPA selected target particulates of interest based on data use objectives, primary constituents of PM<sub>2.5</sub>, and the capability and availability of current analytical methods.

The filter-based speciation sampler collects samples once every 3 days for analyses performed by an EPA contract laboratory. The speciation sampler is located at the Kapolei NCore monitoring station.

Table 5-1 lists the parameters measured, highest and second highest values recorded in the year, the annual arithmetic mean of all valid samples and the total number of samples collected in the year. Table 5-2 lists the analysis methods for each parameter.

With the exception of lead, there are no ambient air quality standards for the individual components of speciated PM<sub>2.5</sub>.

For more information on EPA's speciation program, go to:  
[www.epa.gov/ttn/amtic/speciepg.html](http://www.epa.gov/ttn/amtic/speciepg.html)

**Table 5-1. Annual Summary of PM<sub>2.5</sub> Speciation Data**

Parameter	1 <sup>st</sup> High (µg/m <sup>3</sup> )	2 <sup>nd</sup> High (µg/m <sup>3</sup> )	Annual Mean (µg/m <sup>3</sup> )	No. of Samples	Percent Recovery
<b>CARBON</b>					
Organic Carbon	1.28	1.02	0.3695	82	68
Elemental Carbon	0.384	0.341	0.1144	82	68
<b>METALS</b>					
Aluminum	0.237	0.174	0.021	94	78
Antimony	0.058	0.043	0.0043	94	78
Arsenic	0.004	0.003	0.0002	94	78
Barium	0.024	0.019	0.0032	94	78
Bromine	0.007	0.006	0.0019	94	78
Cadmium	0.025	0.019	0.0021	94	78
Calcium	0.181	0.115	0.0414	94	78
Cerium	0.059	0.056	0.0019	94	78
Cesium	0.041	0.031	0.0039	94	78
Chlorine	2.08	1.92	0.6218	85	70
Chromium	0.05	0.012	0.0013	94	78
Cobalt	0.003	0.002	0.0005	94	78
Copper	0.007	0.006	0.0007	94	78
Indium	0.036	0.028	0.0036	94	78
Iron	0.186	0.15	0.0295	94	78
Lead	0.013	0.007	0.0006	94	78
Magnesium	0.213	0.2	0.0626	94	78
Manganese	0.003	0.002	0.0002	94	78
Nickel	0.016	0.015	0.0034	94	78
Phosphorus	0.004	0	0	94	78
Potassium	0.127	0.089	0.0267	94	78
Rubidium	0.004	0.003	0.0003	94	78
Selenium	0.003	0.003	0.0003	94	78
Silicon	0.459	0.276	0.0435	94	78
Silver	0.02	0.02	0.0021	94	78
Sodium	1.43	1.2	0.4351	94	78
Strontium	0.005	0.004	0.0006	94	78
Sulfur	2.03	1.57	0.3268	94	78
Tin	0.033	0.03	0.0019	94	78
Titanium	0.011	0.007	0.0014	94	78
Vanadium	0.008	0.005	0.0013	94	78
Zinc	0.012	0.007	0.0008	94	78
Zirconium	0.015	0.012	0.0008	94	78

Table 5-1 Continued

Parameter	1 <sup>st</sup> High (µg/m <sup>3</sup> )	2 <sup>nd</sup> High (µg/m <sup>3</sup> )	Annual Mean (µg/m <sup>3</sup> )	No. of Samples	Percent Recovery
<b>IONS</b>					
Ammonium Ion	1	0.95	0.085	95	79
Potassium Ion	0.13	0.09	0.039	95	79
Sodium Ion	1.83	1.75	0.534	95	79
Total Nitrate	0.68	0.55	0.206	95	79
Sulfate	5.53	5.08	1.006	95	79

**Table 5-2. Speciation Collection and Analysis Methods**

Parameter	Collection Method	Analysis Method
Carbon	URG 300N Quartz Filter	Thermal Optical Transmittance
Metals	Met-One SASS Teflon Filter	Energy Dispersive X-Ray Fluorescence
Ions	Met-One SASS Nylon Filter	Ion Chromatography

## **Section 6**

# **AMBIENT AIR QUALITY TRENDS**

The following graphs illustrate 5-year trends for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, and CO from 2011 to 2015 at all SLAMS stations monitoring for those pollutants.

Figures 6-1 and 6-2 are graphs of the PM<sub>10</sub> annual and maximum 24-hour averages.

Figure 6-3 is the graph of the PM<sub>2.5</sub> annual averages. Attainment of the PM<sub>2.5</sub> 24-hour standard is based on the 98<sup>th</sup> percentile value at each station, which is depicted in Figure 6-4.

Figures 6-5 and 6-6 are graphs of the SO<sub>2</sub> annual and maximum 24-hour averages.

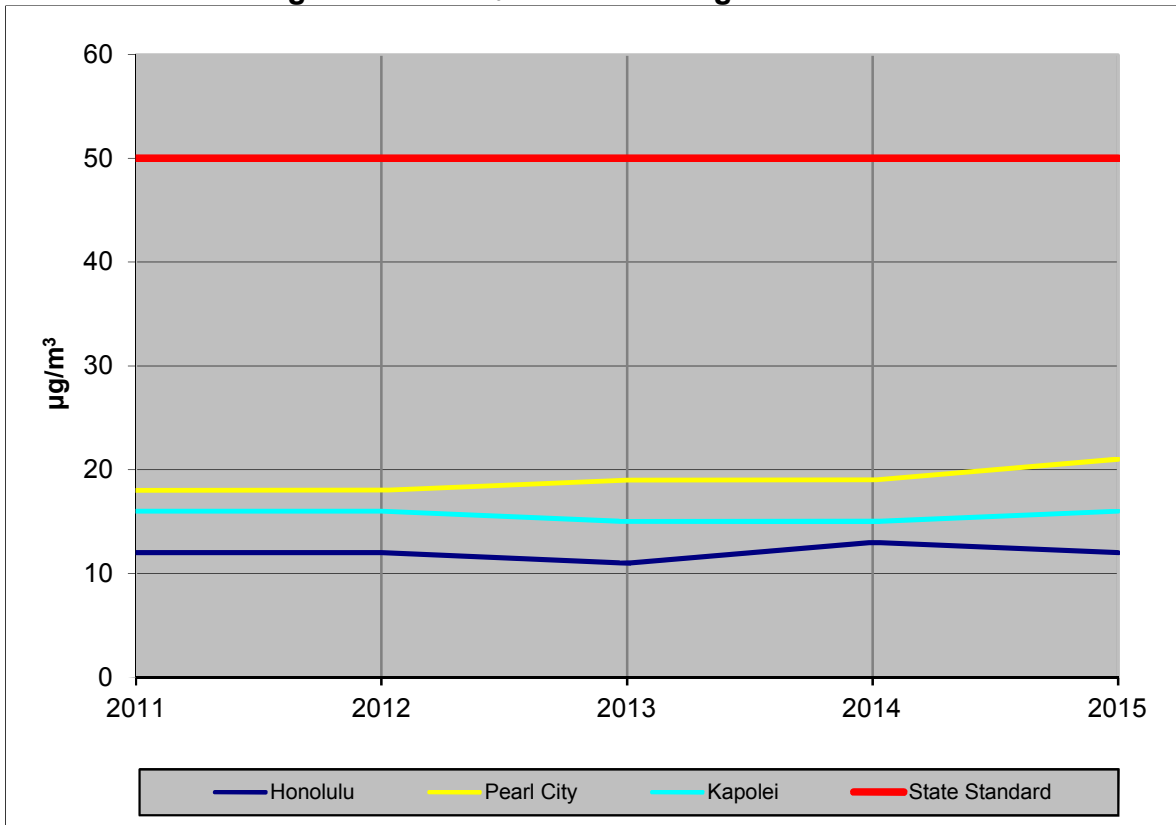
Figure 6-7 and 6-8 shows the annual and maximum 1-hour averages of NO<sub>2</sub> compared to the federal NAAQS.

Attainment of the 8-hour ozone standard is achieved by averaging 3 years of the fourth highest daily maximum 8-hour average concentrations, which must not exceed 0.070 ppm (standard effective October 1, 2015). Figure 6-9 is a graph of the fourth highest daily maximum values recorded at the Sand Island and Kapolei (since 2011) ozone monitoring stations in the past five years.

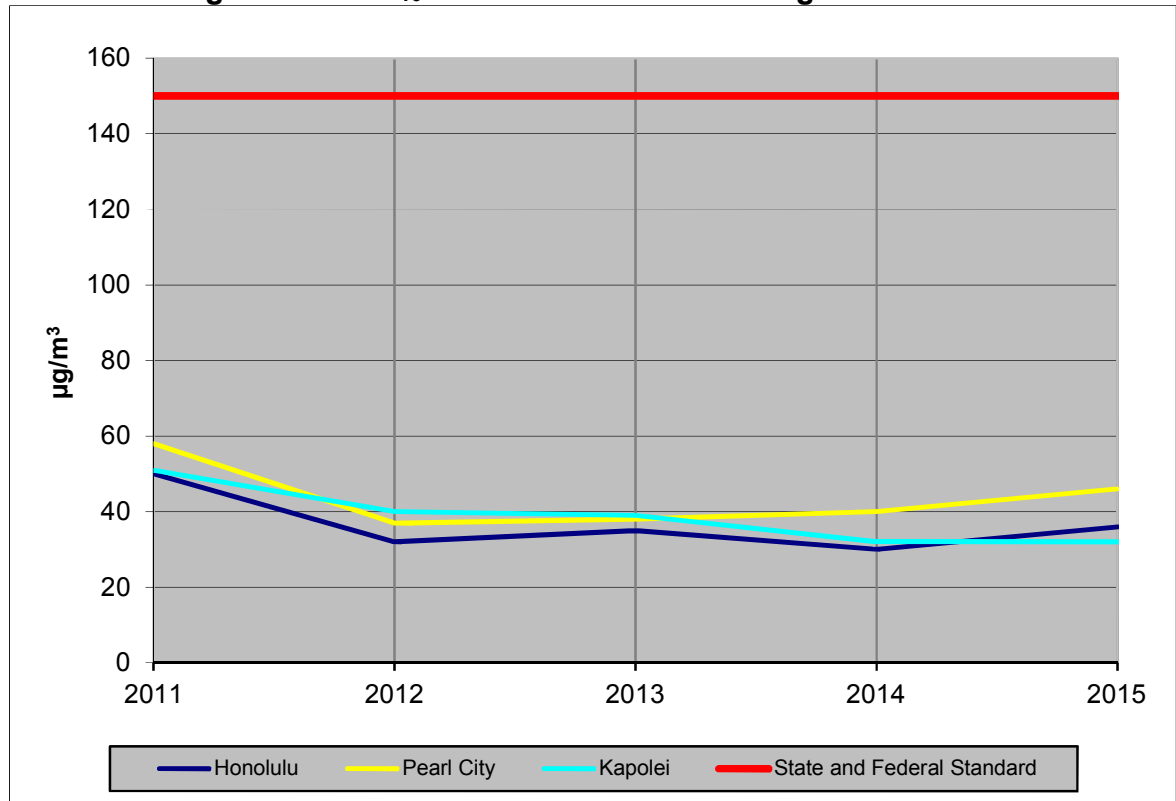
The graphs for 1-hour and 8-hour carbon monoxide (figures 6-10 and 6-11, respectively) represent the maximum 1-hour or 8-hour values recorded in the year.

Criteria pollutant levels remain below state and federal ambient air quality standards at all SLAMS stations in the state.

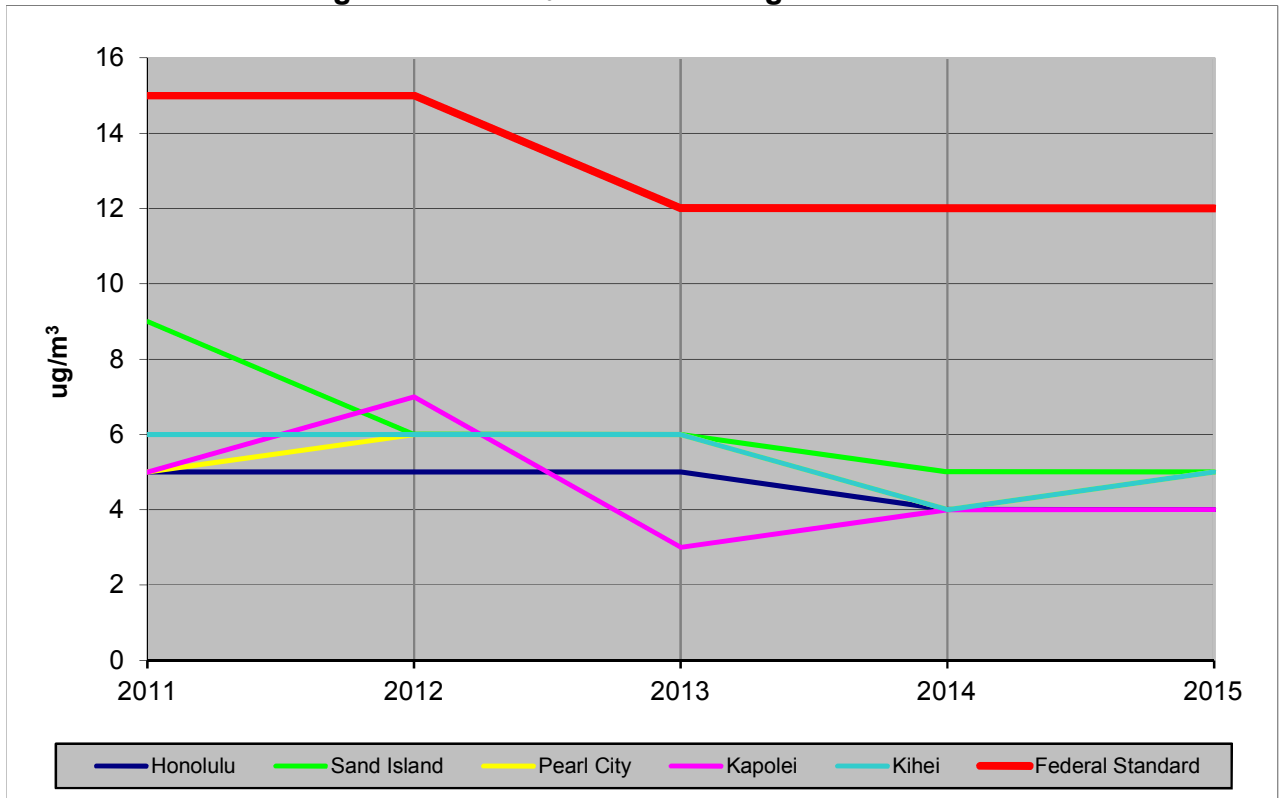
**Figure 6-1. PM<sub>10</sub> Annual Average: 2011-2015**



**Figure 6-2. PM<sub>10</sub> Maximum 24-Hour Average: 2011-2015**



**Figure 6-3. PM<sub>2.5</sub> Annual Average: 2011-2015**



**Figure 6-4. PM<sub>2.5</sub> 98<sup>th</sup> Percentile 24-Hour Average: 2011-2015**

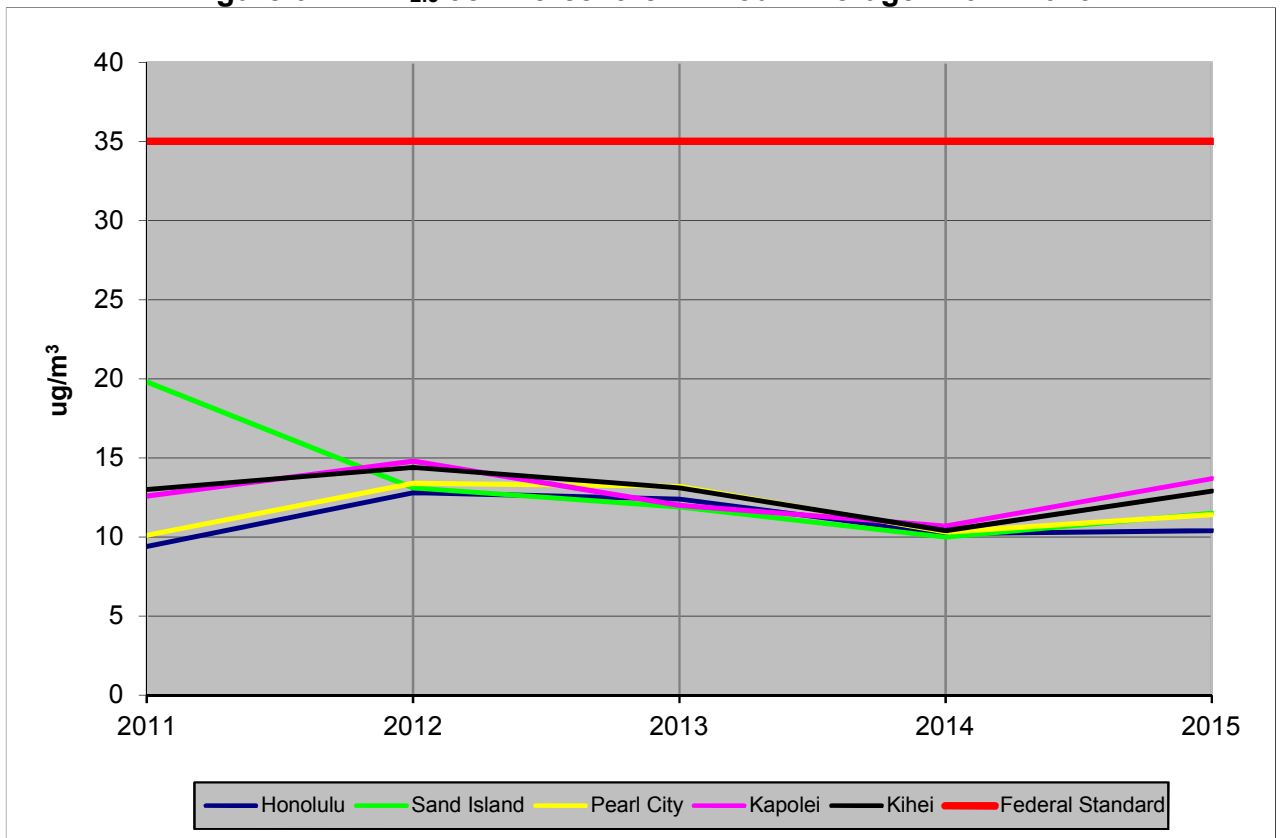


Figure 6-5. SO<sub>2</sub> Annual Average: 2011-2015

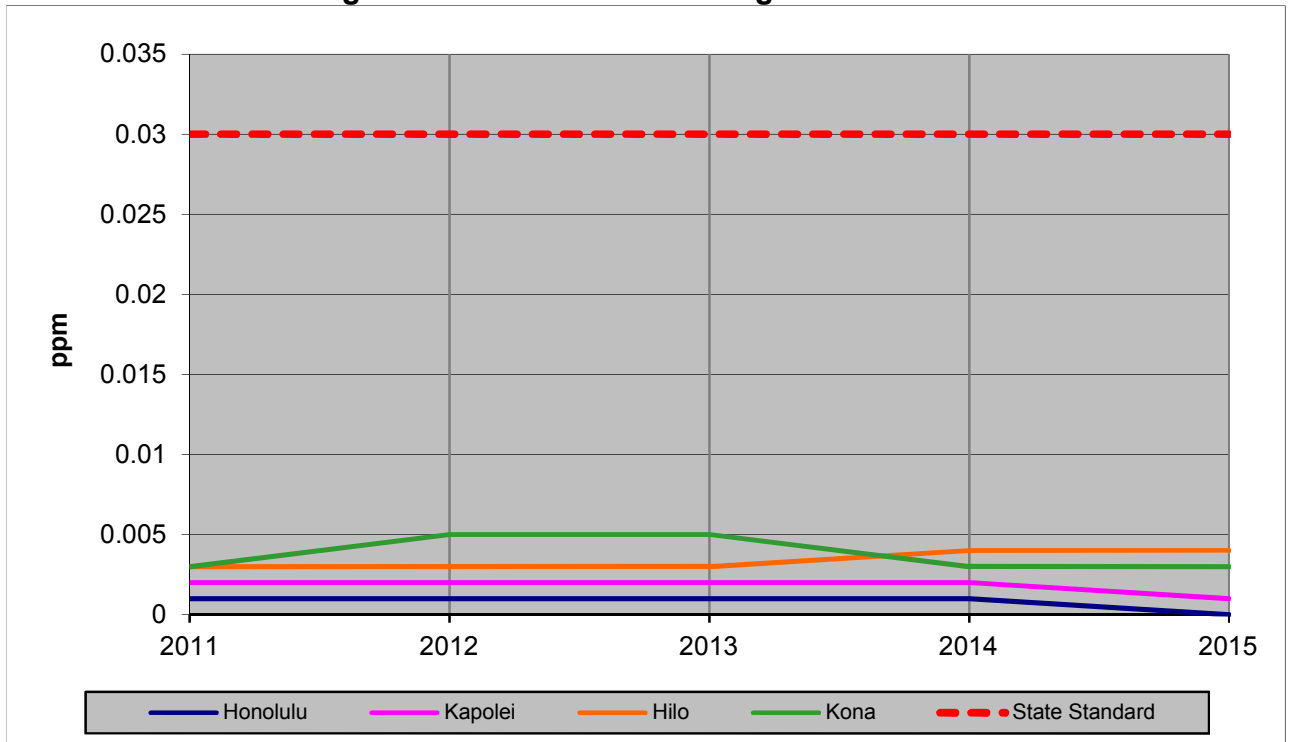
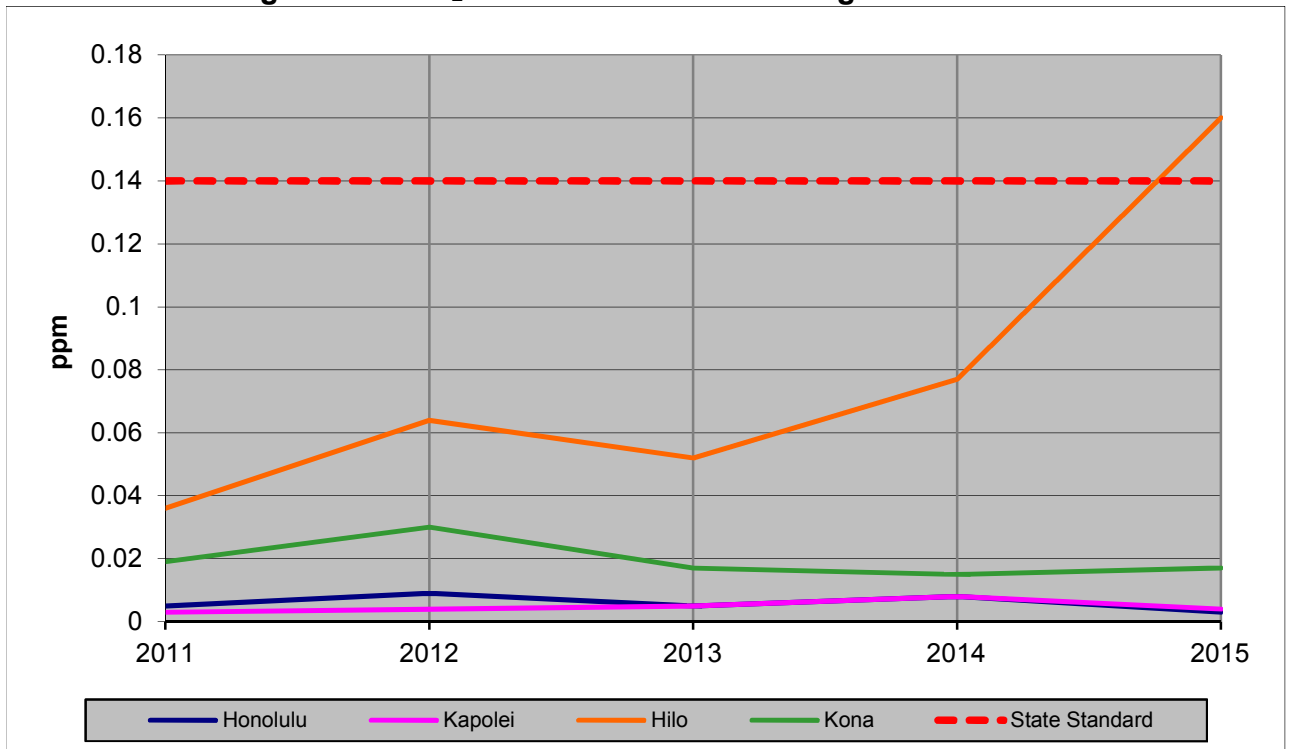
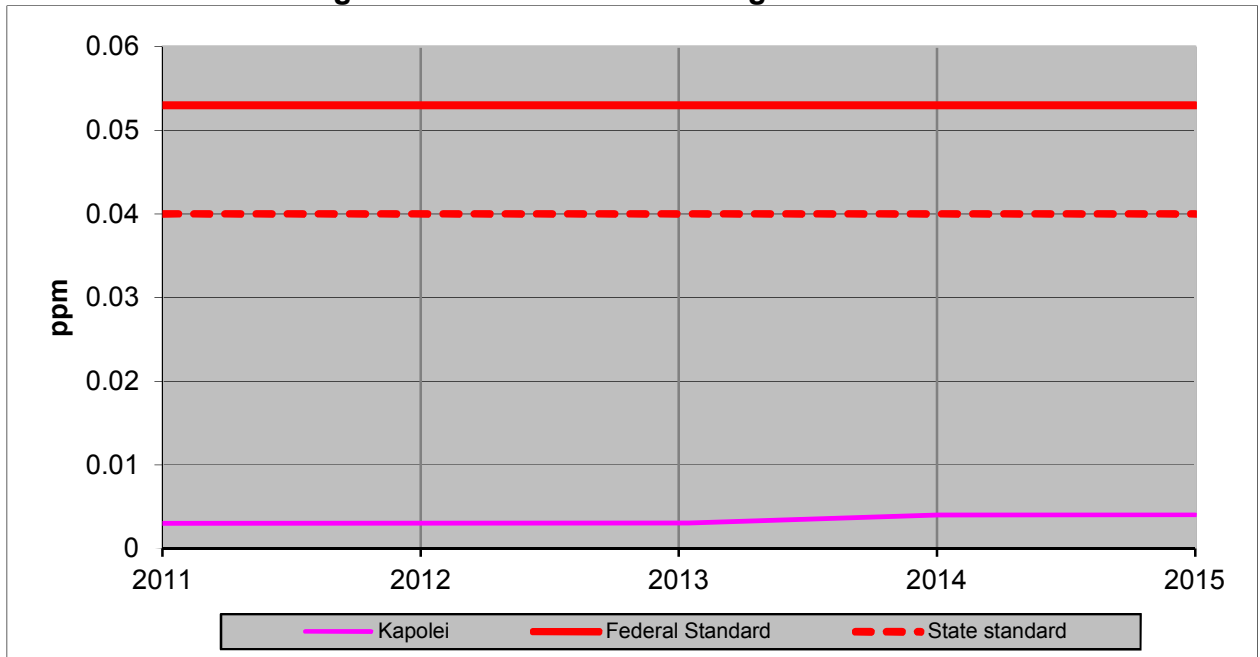


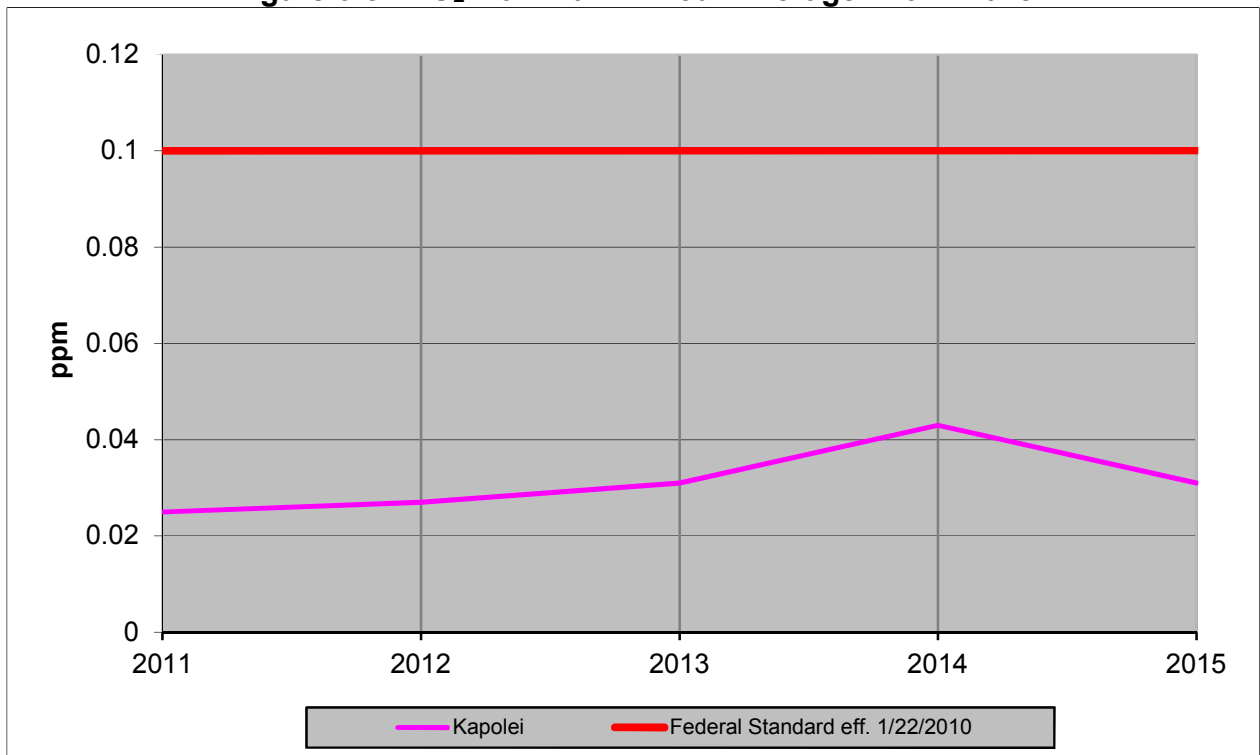
Figure 6-6. SO<sub>2</sub> Maximum 24-Hour Average: 2011-2015



**Figure 6-7. NO<sub>2</sub> Annual Average: 2011-2015**

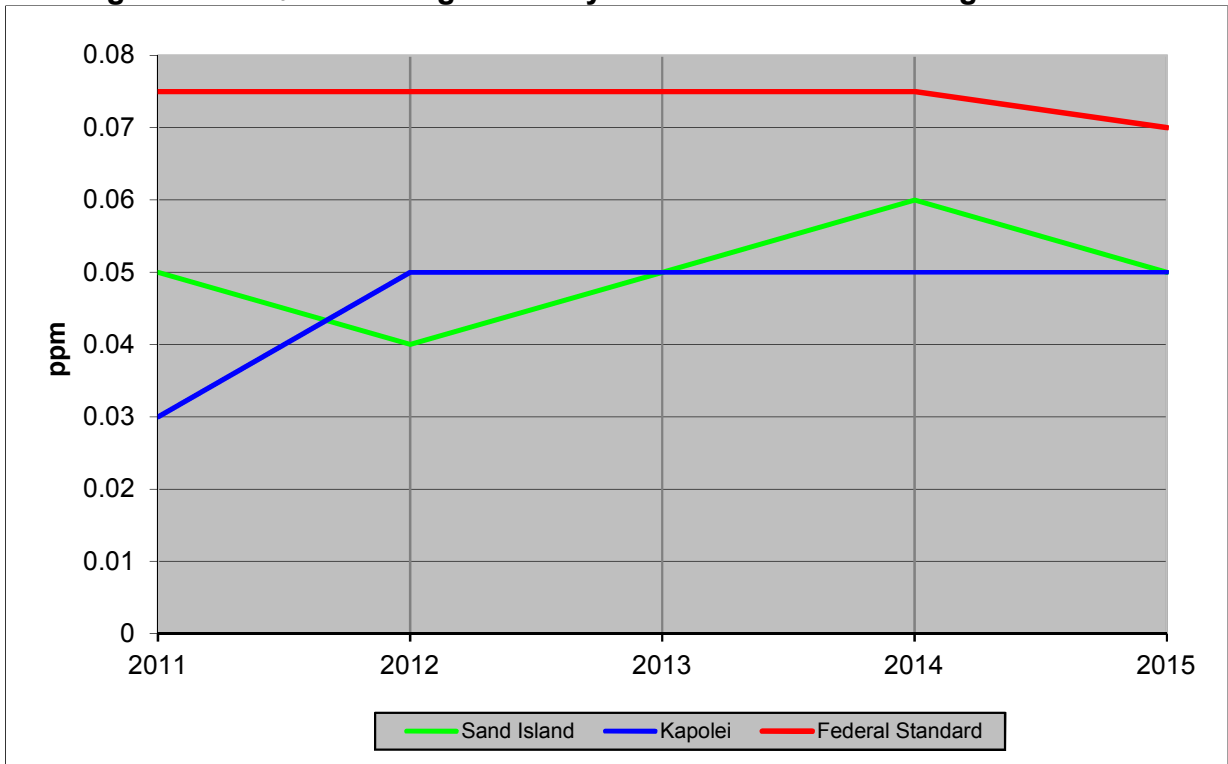


**Figure 6-8. NO<sub>2</sub> Maximum 1-Hour Average: 2011-2015**





**Figure 6-9. O<sub>3</sub> Fourth Highest Daily Maximum 8-Hour Average: 2011-2015**



**Figure 6-10. CO Maximum 1-Hour Average: 2011-2015**

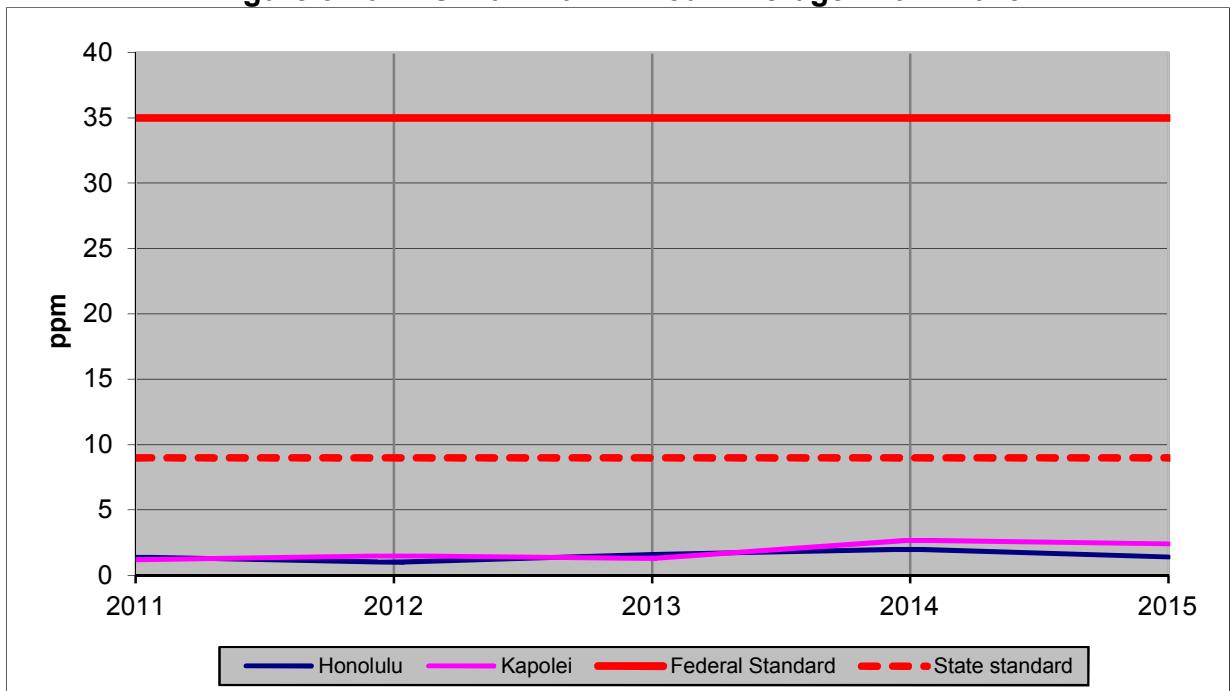
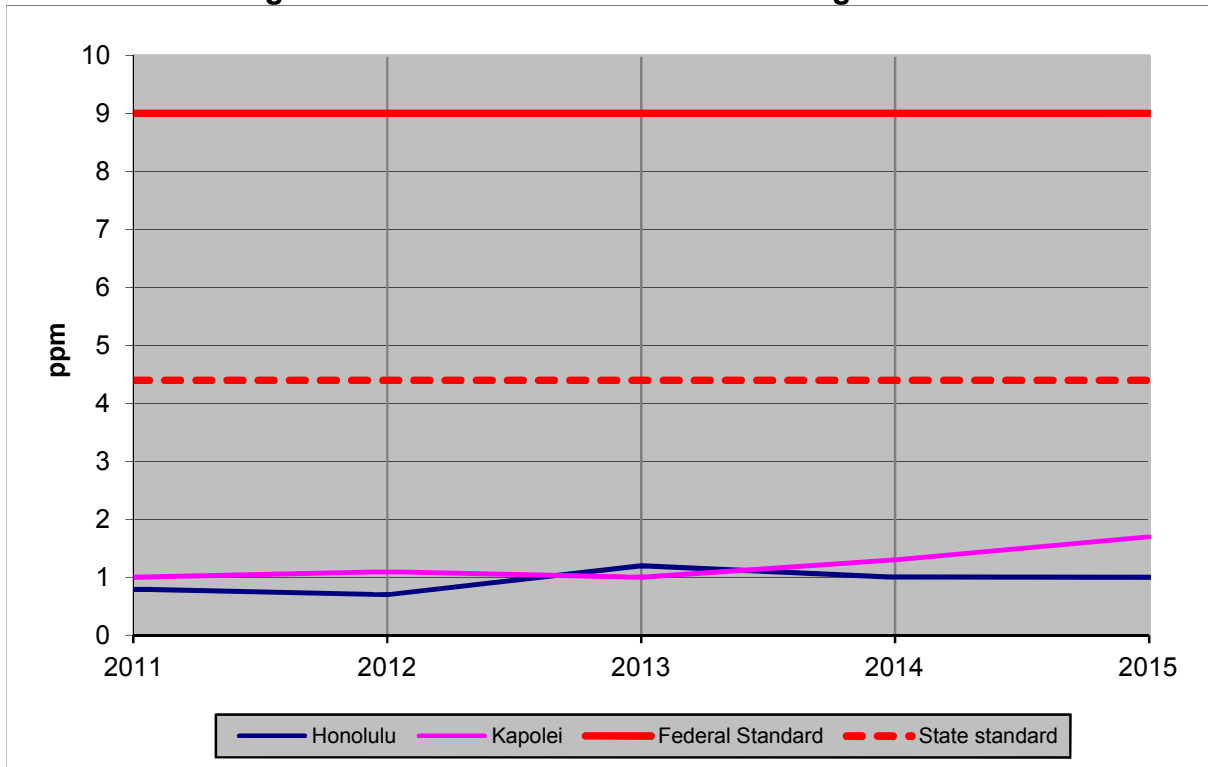


Figure 6-11. CO Maximum 8-Hour Average: 2011-2015



## Exhibit 5: Coastal Zone Management

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## Coastal Zone Management Act (CEST and EA)

General requirements	Legislation	Regulation
Federal assistance to applicant agencies for activities affecting any coastal use or resource is granted only when such activities are consistent with federally approved State Coastal Zone Management Act Plans.	Coastal Zone Management Act (16 USC 1451-1464), particularly section 307(c) and (d) (16 USC 1456(c) and (d))	15 CFR Part 930
References		
<a href="https://www.onecpd.info/environmental-review/coastal-zone-management">https://www.onecpd.info/environmental-review/coastal-zone-management</a>		

Projects located in the following states must complete this form.

Alabama	Florida	Louisiana	Mississippi	Ohio	Texas
Alaska	Georgia	Maine	New Hampshire	Oregon	Virgin Islands
American Samona	Guam	Maryland	New Jersey	Pennsylvania	Virginia
California	Hawaii	Massachusetts	New York	Puerto Rico	Washington
Connecticut	Illinois	Michigan	North Carolina	Rhode Island	Wisconsin
Delaware	Indiana	Minnesota	Northern Mariana Islands	South Carolina	

### 1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?

Yes → *Continue to Question 2.*

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a Coastal Zone.*

### 2. Does this project include activities that are subject to state review?

Yes → *Continue to Question 3.*

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.*

### 3. Has this project been determined to be consistent with the State Coastal Management Program?

Yes, with mitigation. → *Continue to Question 4.*

Yes, without mitigation. → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.*

No, project must be canceled.

Project cannot proceed at this location.

**4. Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

Please see attached documentation.

→ *Continue to the Worksheet Summary below. Provide documentation of the consultation (including the State Coastal Management Program letter of consistency) and any other documentation used to make your determination.*

**Worksheet Summary**

**Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

**Are formal compliance steps or mitigation required?**

Yes

No

## COASTAL ZONE MANAGEMENT/SPECIAL MANAGEMENT AREA

The Hawai'i Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawai'i's coastal zone. The project site is not located in a Special Management Area (SMA).

As set forth in Chapter 205A, HRS, this section addresses the project's relationship to applicable coastal zone management considerations.

### 1. Recreational Resources

**Objective:** Provide coastal recreational opportunities accessible to the public.

**Policies:**

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

**Response:** Recreational area needs of the proposed project are anticipated to be addressed through the provision of open space. The project proposes an onsite tot lot with open space and areas to gather, such as picnic tables., and a community center. Based on its location and development parameters, the project is not anticipated to adversely impact coastal resources, including access to the shoreline.

## 2. **Historic Resources**

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

### **Policies:**

- a. Identify and analyze significant archaeological resources;
- b. Maximize information retention through preservation of remains and artifacts or salvage operations; and
- c. Support state goals for protection, restoration, interpretation, and display of historic resources.

**Response:** As noted previously, archaeological inventory survey and a cultural impact assessment were performed for the proposed project to identify and issue recommendations regarding historic, cultural, and archaeological resources. No historic properties affected was determined for the proposed project. In accordance with Section 6E- 43.6, Hawai'i Revised Statutes and Chapter 13-300, Hawai'i Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the applicant will contact the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD/DLNR). Pursuant to their specific request, the Office of Hawaiian

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Affairs (OHA) will also be notified.

**3. Scenic and Open Space Resources**

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

**Policies:**

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

**Response:** The subject property is located in Waikoloa at elevations ranging from approximately 1,000-feet above mean sea level. The proposed project plan will conform to the South Kohala Community Development Plan and will be buffered with landscaping and open space areas to mitigate visual impact. View corridors will not be adversely affected by the proposed project, as the subject property is not specifically identified in any county or State plans or studies as containing scenic vistas or view planes.

**4. Coastal Ecosystems**

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

**Policies:**

- 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.

**Response:** The project site is located approximately 26,000 feet from the shoreline and is not anticipated to affect the coastal ecosystems. With implementation of Best Management Practices (BMPs), the proposed project should have minimal long-term adverse effects on the nearby coastal ecosystems. Appropriate BMPs and erosion-control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities. Project-related drainage system improvements will be designed in accordance with applicable regulatory standards to mitigate potential adverse impact to surrounding properties.

## 5. Economic Uses

**Objective:** Provide public or private facilities and improvements important to the State's economy in suitable locations.

### **Policies:**

- a. Concentrate coastal dependent development in appropriate areas;
  - b. Ensure that coastal dependent 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.

**Response:** The proposed project is not located at or near the coastline and will, therefore, not involve coastal development. The proposed action does not contravene the objective and policies for economic use.

## 6. Coastal Hazards

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

### **Policies:**

- a. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
- b. Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;
- c. Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
- d. Prevent coastal flooding from inland projects.

**Response:** The project site is not within a tsunami or flood zone. Project-related drainage system improvements will be designed in accordance with applicable regulatory standards to mitigate potential adverse impact to surrounding properties.

## 7. **Managing Development**

**Objective:** Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

### **Policies:**

- a. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
  - b. Facilitate timely processing of applications for development permits and resolve overlapping 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.

**Response:** Public input was solicited in coordination with the processing of the EA pursuant to the environmental assessment review process. All aspects of development will be conducted in accordance with applicable Federal, State, and County standards. Opportunities for review of the proposed action are offered through the regulatory review process for construction and development permits.

## 8. **Public Participation**

**Objective:** Stimulate public awareness, education, and participation in coastal management.

**Policies:**

- 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.

**Response:** The EA document environmental review process allows opportunity for comment by agencies and the public.

---

9. **Beach Protection**

**Objective:** Protect beaches for public use and recreation.

**Policies:**

- a. Locate new structures inland from the shoreline setback to conserve open space, 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.

**Response:** The proposed project is situated inland, away from the shoreline (approximately 26,000 feet) and no adverse effect on beach processes is anticipated. Appropriate BMPs will be implemented to mitigate storm water runoff associated with the project and to ensure that downstream and adjoining properties will not be adversely affected.

10. **Marine Resources**

**Objective:** Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

**Policies:**

- 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.

**Response:** The proposed project is situated inland (approximately 26,000 feet), away from the ocean and no adverse effect on marine or coastal resources is anticipated. Appropriate BMPs and erosion control measures will be implemented to ensure that coastal resources are not adversely impacted by construction activities.

In addition to the foregoing objectives and policies, SMA permit review criteria pursuant to Act 224 (2005) provides that:

No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:

- (1) Directly illuminates the shoreline and ocean waters; or
- (2) Is directed to travel across property boundaries toward the shoreline and ocean waters.

**Response:** The proposed subdivision is not located on or near the shoreline. The preliminary lighting plan for the project will be designed to ensure that no lighting is directed across property boundaries towards the shoreline.

---

**Manned Roadblocks**

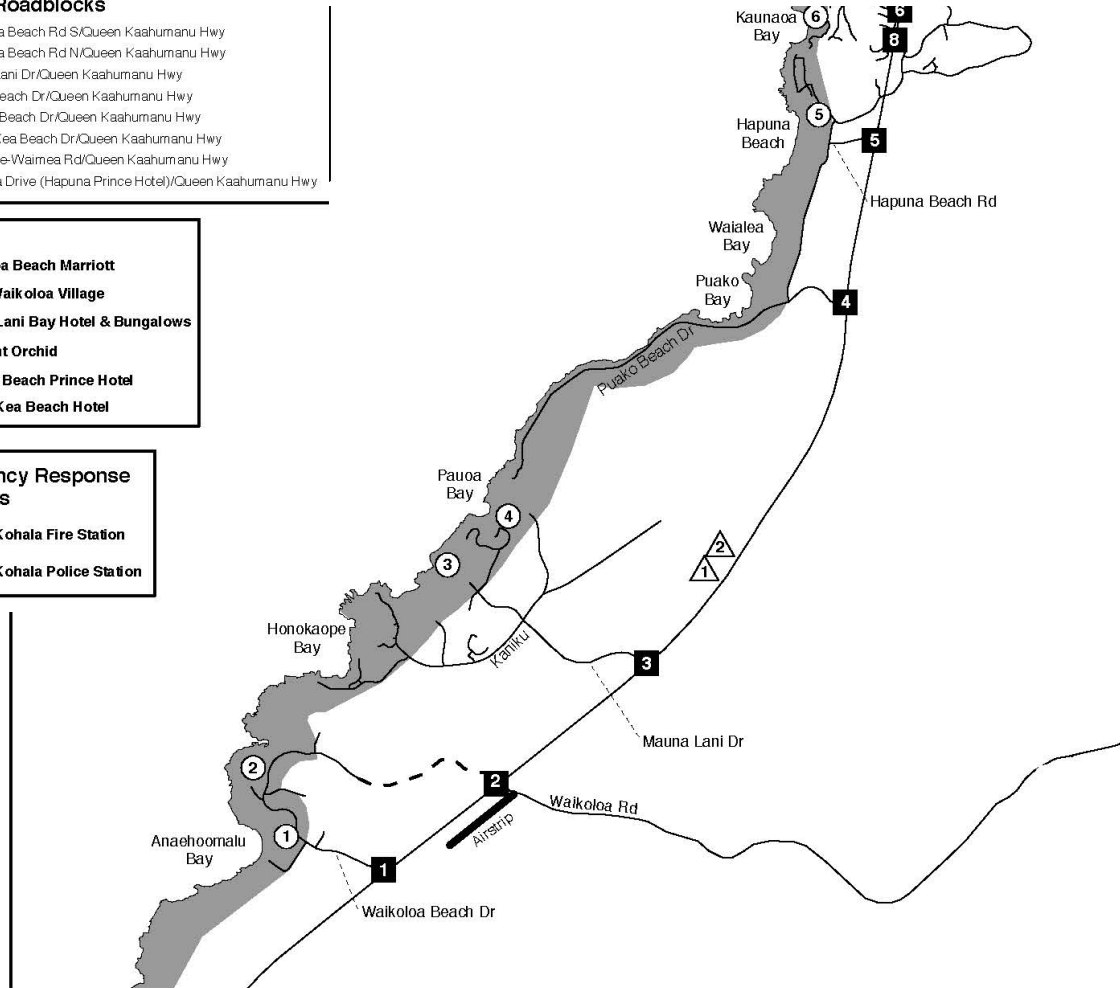
- 1 Waikoloa Beach Rd S/Queen Kaahumanu Hwy
- 2 Waikoloa Beach Rd N/Queen Kaahumanu Hwy
- 3 Mauna Lani Dr/Queen Kaahumanu Hwy
- 4 Puako Beach Dr/Queen Kaahumanu Hwy
- 5 Hapuna Beach Dr/Queen Kaahumanu Hwy
- 6 Mauna Kea Beach Dr/Queen Kaahumanu Hwy
- 7 Kawaihae-Waimea Rd/Queen Kaahumanu Hwy
- 8 Kaunaoa Drive (Hapuna Prince Hotel)/Queen Kaahumanu Hwy

**Resorts**

- 1 Waikoloa Beach Marriott
- 2 Hilton Waikoloa Village
- 3 Mauna Lani Bay Hotel & Bungalows
- 4 Fairmont Orchid
- 5 Hapuna Beach Prince Hotel
- 6 Mauna Kea Beach Hotel

**Emergency Response Agencies**

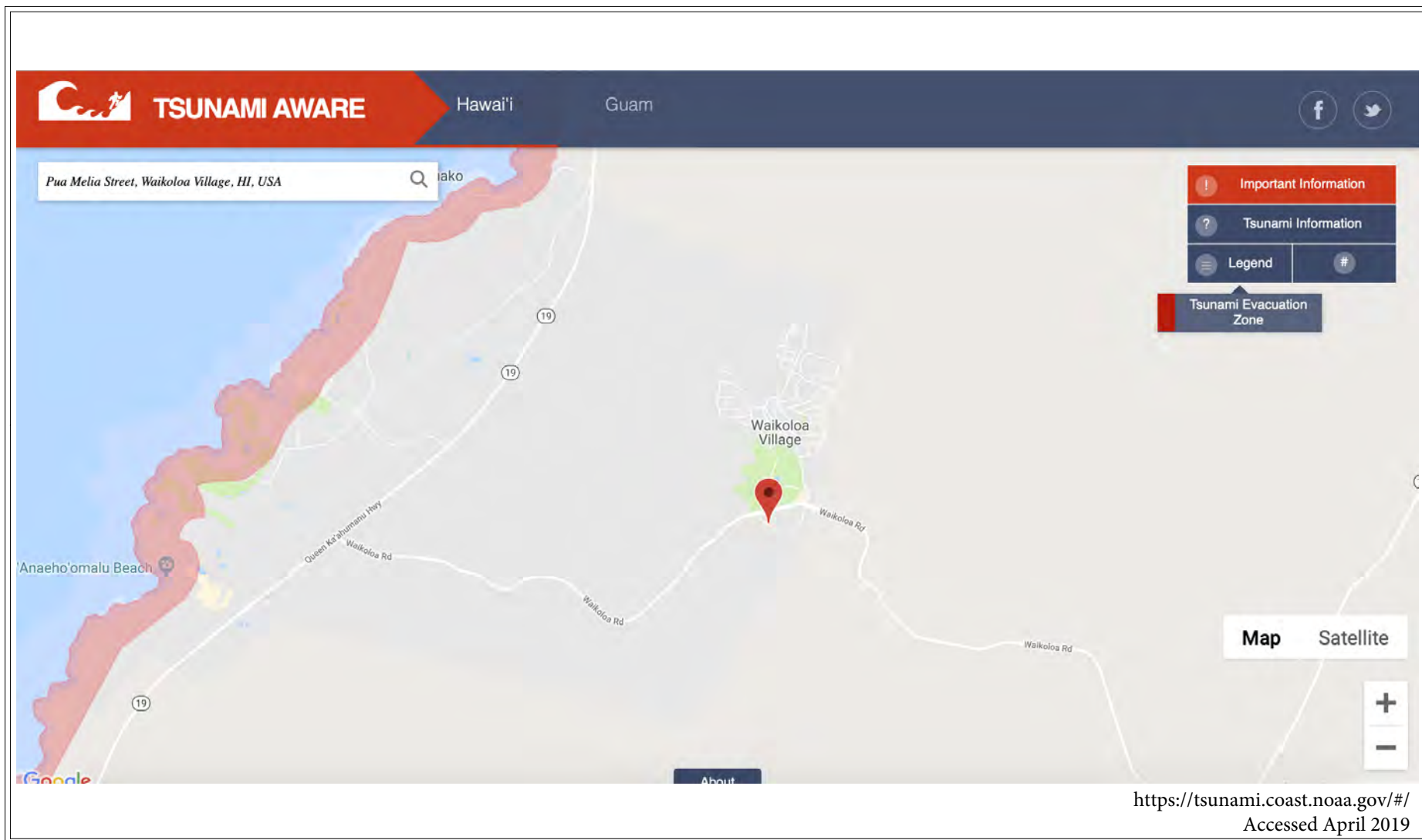
- ▲ South Kohala Fire Station
- ▲ South Kohala Police Station



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Tsunami Evacuation Zone Map

FIGURE NUMBER:



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Tsunami Inundation Zone Map

FIGURE NUMBER:



## Exhibit 6: Contamination and Toxic Substances

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**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28**

Prepared for:  
**K00674 Waikoloa L.P.**  
**2000 E. Fourth Street, Suite 205**  
**Santa Ana, California 92705**

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

**July 2018**

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Figure 3: Underground Injection Control Map

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- Appendix A: Environmental Professional Qualifications  
Appendix B: Aerial Photographs  
Appendix C: EDR Report, Sanborn Fire Insurance Maps, Historical Topographic Maps,  
Historical Aerial Photographs and City Directory  
Appendix D: Interview Documentation  
Appendix E: Hawaiian Electric Company Transformer Documentation  
Appendix F: Site Reconnaissance Photographs

**ACRONYMS**

ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
Cl <sup>-</sup>	chloride
CMU	Concrete Masonry Unit
CORRACTS	Treatment, storage and disposal facility subject to Corrective Action under RCRA
C-REC	Controlled Recognized Environmental Condition
DOD	Department of Defense
EAL	Environmental Action Level
EDR	Environmental Data Resources, Inc.
ERA	Environmental Risk Analysis, LLC
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FINDS	Facility Index System/Facility Identification Initiative Program Summary Report
FIRM	Flood Insurance Rate Map
FUDS	Formerly Used Defense Sites
HDOH	Hawai'i Department of Health
HECO	Hawaiian Electric Company
HEER	HDOH Hazard Evaluation and Emergency Response
H-RECs	Historical Recognized Environmental Condition
INST CONTROL	institutional controls
KNC	Kawaihae extremely stony very fine sandy loam
LCP	Lead Containing Paint
LLC	Limited Liability Company
LUST	Leaking Underground Storage Tank
MEC	Munitions of Environmental Concern
mg/l	milligrams/liter

MINES	Mines Master Index File
msl	mean sea level
NFA	no further action
NPL	National Priorities List
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
PAH	polycyclic aromatic hydrocarbon
RCRA	Resource Conservation and Recovery Act
RCRA-LQG	Resource Conservation and Recovery Act – large quantity generators
RCRA-SQG	Resource Conservation and Recovery Act – small quantity generators
RCRA-CESQG	Resource Conservation and Recovery Act – conditionally exempt small quantity generators
RCRA-TSDF	Resource Conservation and Recovery Act – treatment, storage, and disposal facilities
REC	Recognized Environmental Condition
SARA	Superfund Amendments and Reauthorization Act
SHWB	Solid and Hazardous Waste Branch
SHWS	State Hazardous Waste Sites List
TMK	Tax Map Key
TPH	Total Petroleum Hydrocarbons
UIC	Underground Injection Control
US	United States
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VRP	Voluntary Response Program Sites



**QUALIFICATIONS AND SIGNATURES OF ENVIRONMENTAL PROFESSIONALS**

The undersigned environmental professional was responsible for conducting and preparing the Phase I Environmental Site Assessment for the property designated by Tax Map Key (3) 6-8-3: 28 located in Waikoloa, Hawaii.

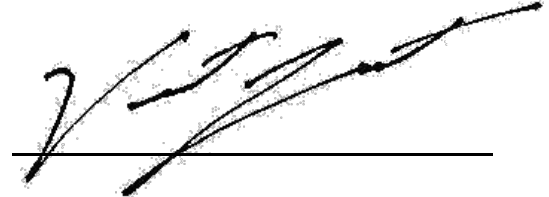
I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40CFR312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40CFRPart312.

Environmental professional qualifications are provided in Appendix A.

Environmental Risk Analysis LLC

**Prepared By:**



**Name:** Vincent Yanagita

**Title:** Environmental Scientist

**Reviewed By:**



**Name:** \_\_\_\_\_

**Title:** Principal Scientist

## EXECUTIVE SUMMARY

At the request of K00674 Waikoloa L.P., Environmental Risk Analysis LLC (ERA) has conducted a Phase I Environmental Site Assessment (ESA) for a single parcel located on Pua Melia Street in Waikoloa, South Kohala, Hawaii (hereafter referred to as the Site). The Site, TMK (3) 6-8-3-28, is comprised of a single 4.6-acre (200,375 square foot) parcel of land.

The purpose of this updated ESA was to verify that environmental conditions at the Site remain consistent with the environmental conditions noted in the 2016 ESA and to identify, to the extent feasible, Recognized Environmental Conditions (RECs) associated with the Site. The investigation included a physical inspection of the property; review of current regulatory environmental database information; interviews of persons knowledgeable about the property, review of historical records; and preparation of this Phase I ESA Report. This ESA report conforms to the format outlined in the *American Society for Testing and Materials (ASTM) Document E1527-13* and the United States Environmental Protection Agency's (USEPA) All Appropriate Inquiries Rule. The site reconnaissance visit was conducted by Mr. Vincent Yanagita on June 25, 2018. ERA conducted previous site reconnaissance on May 4, 2015 and May 11, 2016.

### Findings

Aerial photographs from 1954 through 2018 indicate that TMK (3) 6-8-3-28 has not been developed. The 1985 photo depicts three (3) large structures located on the property west of the Site, a small structure at the west end of Pua Melia Street, and a few structures located at the north end of Pua Melia Street. The 2001 view show the previously existing structures as well as a large structure at the west end of Pua Melia Street and another large structure at the north end of Pua Melia Street. The 2013 through 2018 views depict the area as it appears today with a fire station occupying the west end of Pua Melia Street and a post office at the north end of Pua Melia Street. No ASTM defined RECs were noted from review of the historical aerial photographs.

Undeveloped property surrounds the subject site to the south, west, and east. Pua Melia Street and undeveloped property bounds the subject site to the north. The subject Site and surrounding property are overgrown with vegetation. None of the neighboring properties are anticipated to affect the environmental condition of the subject Site. Interviews with persons familiar with the Site history and uses were conducted to ascertain any information that may be indicative of

potential RECs in connection with the Site. According to the information obtained in past interviews, the Site was likely used for cattle grazing and has never been developed.

The subject Site has been identified as a part of a Formerly Used Defense Site (FUDS). The FUDS site was known as the former Waikoloa Maneuver Area and encompasses most of the South Kohala district of the Big Island of Hawaii. The land was used in the early and mid-1940's as an artillery firing range and for conducting troop maneuver activities. The land was returned to Parker Ranch in 1946. Munitions clearances were conducted in the areas in 1946 and in 1954. Additional site investigations and cleanup activities have been conducted in multiple phases between 1999 to the present and is currently ongoing. According to an interview with State Department of Health personnel, the subject Site had been investigated in 2011 and no unexploded ordnance (UXO) or munitions and explosives of concern (MEC) were discovered. An interview questionnaire dated June 15, 2018, and completed by the property owner, James Rock of K00674 Waikoloa L.P., stated that under the direction of the U.S. Army Corps of Engineers (USACE), an unexploded ordinance survey and cleanup was conducted and no munitions of concern were located. USACE will be submitting their Remedial Action Report (RAR) to the Hawaii Department of Health in July or August 2018. No ASTM defined RECs were noted from review of the historical use of the Site.

The Site is unpaved and undeveloped with overgrown vegetation covering the majority of the parcel. No chemicals or hazardous materials were observed on the subject property. No noticeable spills or evidence of oil contamination was noted during the site reconnaissance. Vegetation on the Site and surrounding property was found to be dry and withered, most likely associated with the arid condition of the area. No unusual odors or staining were noticed indicating a potential environmental condition.

Large rocks were observed at the center of the Site. Portions of the Site have been bulldozed and an unpaved road transects the northern portion of the property. Various items including trash, a tire, a washing machine, metal debris, concrete debris, scrap wood, and asphalt were noted on the Site, primarily in the vicinity of the unpaved road on the north side of the Site. On the north site of the site, adjacent to Pua Melia Street, GPS survey equipment was observed. ERA did not observe any RECs during the site reconnaissance.

The subject Site was not listed in any of the databases searched by EDR. The Environmental Database Resource, Inc. (EDR) database provides a review of federal, state, and local lists and

available files of reported hazardous waste sites and hazardous substance/petroleum product sources and releases.

There are no underground storage tanks (USTs) located on the Site, or on properties adjacent to the Site. No leaking underground storage tank (LUST) sites were located directly adjacent to the Site. A search of the HDOH UST Branch database records (dated 03/16/2018) indicated that one (1) site reported UST releases within a ½-mile radius of the Site. According to the HDOH LUST database, cleanup activities have been completed (NFA) for the site. It is located about ½-mile down-gradient from the subject Site and would not impact the subject Site. The LUST site does not pose an environmental threat to the subject Site.

ERA observed one (1) electrical transformer along Pua Melia Street to the west of the subject Site during the site reconnaissance. HELCO was queried regarding the polychlorinated biphenyl (PCB) status of the transformers. HELCO confirmed that the electrical transformer was non-PCB containing.

<b>Table ES-1 Phase I ESA Summary</b>	
<b>Assessment Component</b>	<b>TMK (3) 6-8-3-28</b>
<b>Historic Land Use (Section 2)</b>	
Historical Aerial Photos/Maps	-
Land Lease/Ownership	E <sup>1</sup>
Interviews	-
Regulatory Records Review	-
<b>Site Reconnaissance (Section 4)</b>	
Operations	-
Hazardous Materials Storage	-
Underground Storage Tanks	-
Aboveground Storage Tanks	-
Solid Waste	E <sup>2</sup>
Wells	-
Asbestos	E <sup>3</sup>
Lead Based Paint	E <sup>3</sup>
PCBs	-
<b>Regulatory Database Review (Section 5)</b>	
Target Property	-
Surrounding Sites	-

**SUMMARY AND RECOMMENDATIONS**

*RECs - Site*

- No RECS were identified from the review of historical records or the site investigations.

*List of Additional Environmental Issues*

- **E<sup>1</sup>**: The property is located in the former Waikoloa Maneuver Area which is undergoing an unexploded ordinance survey and cleanup exercise under the direction

of the USACE. As of this report date, USACE has completed their survey of our property and no munitions of concern were located. USACE is finalizing their RAR which will be submitted to the Hawaii Department of Health, with an anticipated delivery date of their RAR by July or August 2018. No munitions were observed and contamination from munitions items is unlikely.

- **E<sup>2</sup>**: Debris items observed on the site did not constitute a REC, however removal and proper disposal of these items is recommended.
- **E<sup>3</sup>**: On the debris items observed, there is the potential for lead, asbestos, and arsenic containing materials to be present at the Site. These items may require testing for proper handling, prior to removal and disposal.

## **SECTION 1: INTRODUCTION**

This Phase I Environmental Site Assessment (ESA) Update report was prepared by Environmental Risk Analysis LLC (ERA) for K00674 Waikoloa L.P. The subject of this Phase I ESA is a single parcel designated by Tax Map Key (TMK) (3) 6-8-3-28, located on Pua Melia Street, Waikoloa, South Kohala, Hawaii.

### **1.1 PURPOSE**

This Phase I ESA was requested to determine the current environmental status of the Site to satisfy due diligence requirements mandated by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The purpose of this investigation was to identify and evaluate evidence that may indicate any Recognized Environmental Conditions (REC) at the Site due to past or current management of chemicals or other materials that, if released or not properly controlled, could present a risk to human health or the environment.

Under CERCLA, owners and operators of real estate with hazardous substance contamination may be held strictly liable for the costs of cleaning up contamination found on their property. No evidence linking the owner/operator with the placement of the hazardous substances on the property is required.

Congress, in response to pressure from business and academic groups, established the “innocent landowner defense” in the 1986 amendments to CERCLA known as the Superfund Amendments and Reauthorization Act (SARA). To establish innocent landowner status, the landowner “must have undertaken, at the time of acquisition, all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial and customary practice in an effort to minimize liability.”

In an effort to clarify what constitutes “all appropriate inquiry,” the American Society for Testing and Materials (ASTM) has developed a standard that provides specific definition of the steps one should take when conducting a “due diligence” Phase I ESA for commercial real estate. The site assessment documented herein complies with the current ASTM E1527-13 Standard Practice for Environmental Site Assessments.

ASTM E-1527-13 defines three categories of RECs which may impact the project site.

- A REC is defined as the presence of any hazardous substance or petroleum product in, on, or at the property: 1) due to any release to the environment, 2) under

conditions indicative of a release to the environment, or 3) under conditions that pose a material threat of a future release to the environment

- Historical RECs (H-RECs) are defined as a past release of any hazardous substance or petroleum product that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authorities or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls
- Controlled RECs (C-RECs) are defined as a REC resulting from a past release that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place, subject to the implementation of required controls, such as property use restrictions, activity and use limitations, institutional controls, or engineering controls

Additionally, the United States Environmental Protection Agency (USEPA) has also published its final rule setting federal standards for the conduct of all appropriate inquiries. This rule establishes specific regulatory requirements for conducting all appropriate inquiries into previous ownership, uses, and environmental conditions of a property. As of November 1, 2006, parties must comply with either the requirements of the All Appropriate Inquiries Final Rule or the standards set forth in the ASTM E1527-13 Phase I Environmental Site Assessment Process. All appropriate inquiries must be conducted in compliance with either of these standards in order to obtain protection from potential liability under CERCLA as an innocent landowner, a contiguous property owner, or a bona fide prospective purchaser. This site assessment complies with both the current ASTM E1527-13 Standard Practice for Environmental Site Assessments and the USEPA All Appropriate Inquiries Rule.

## **1.2 SCOPE**

The scope of services for this Phase I ESA consisted of the following tasks:

- Reviewing historical aerial photographs, information of past ownership, and conducting discussions with knowledgeable persons to evaluate historical land use.
- Assessing general conditions at the Site including a general geology and hydrogeology evaluation.
- A reconnaissance visit to the Site to evaluate visual evidence of past or current practices that may have impacted the Site.
- Reviewing local, state, and federal agency lists and available files of reported hazardous waste sites and hazardous substance/petroleum sources and releases. ERA queried the



Environmental Data Resources, Inc. (EDR) database which provides comprehensive federal and state environmental release listings. The EDR database provides results in proximity to the Site following ASTM search distance guidelines.

- Providing a summary of findings and recommendations for the Site.
- Providing a summary of the limitations of this assessment.

### **1.3 SITE LOCATION**

The Site is comprised of a single parcel totaling 4.6-acres (200,375 square feet) and designated on the County of Hawaii Tax maps as TMK (3) 6-8-3-28. The Site is located in Waikoloa, South Kohala, Hawaii. A map displaying the location of the Site is included as Figure 1. Figure 2 depicts the TMK boundaries.

### **1.4 CURRENT USE OF THE SUBJECT PROPERTY**


The Site is currently unpaved and undeveloped.

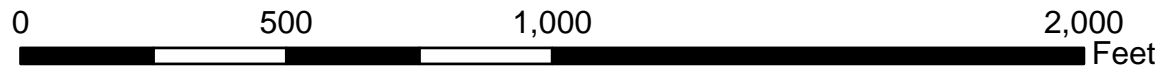
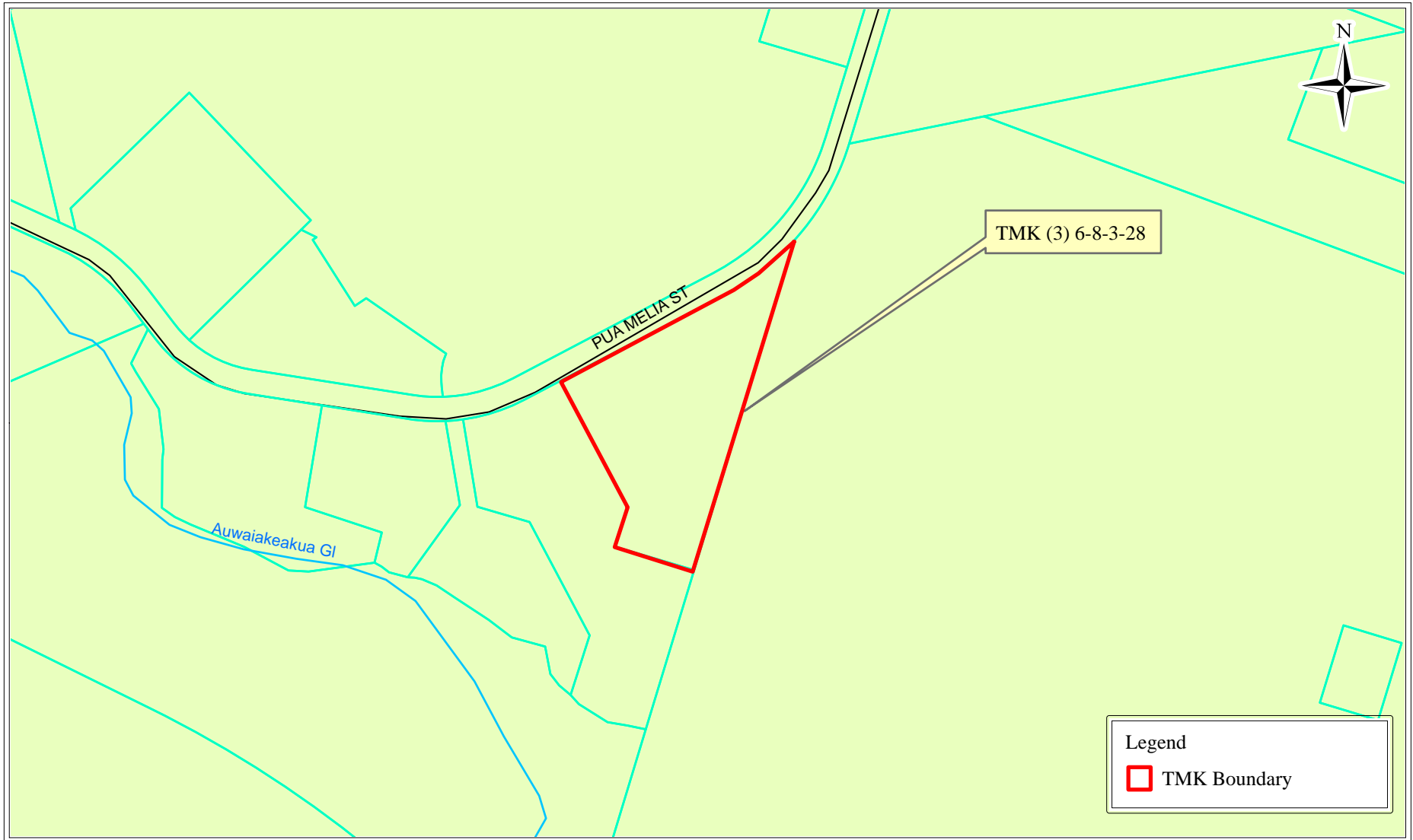
### **1.5 CURRENT USE OF ADJACENT PROPERTIES**


Adjoining properties were observed from public access areas for signs of RECs for their potential to pose an environmental risk to the subject property. The uses and features of adjoining properties are provided below:

<b>North:</b>	Undeveloped Land, Pua Melia Street
<b>South:</b>	Undeveloped Land
<b>East:</b>	Undeveloped Land
<b>West:</b>	Undeveloped Land, Pua Melia Street



	<p>PROJECT NAME:  Phase I Environmental Site Assessment  Pua Melia Street  Waikoloa, Hawaii 96738  TMK (3) 6-8-3-28</p>	<p>FIGURE TITLE:  Site Location Map</p>
	<p>FIGURE NUMBER:  1</p>	



	<b>PROJECT NAME:</b> Phase I Environmental Site Assessment Pua Melia Street Waikoloa, Hawaii 96738 TMK (3) 6-8-3-28	<b>FIGURE TITLE:</b> TMK Map
		<b>FIGURE NUMBER:</b> 2

## **SECTION 2: HISTORICAL LAND USE**

Research regarding historical land use was conducted to determine, to the extent practicable, if past or current practices involving the use, storage, treatment, generation, and/or disposal of hazardous substances or petroleum products may have taken place at the Site or if releases on properties in the surrounding area may have impacted the Site. Research on historical land use was accomplished by examining the following sources: historical information sources, historical aerial photographs, land lease and land ownership records, and reports from previous investigations that may have been conducted at the Site. In addition, first hand interviews were conducted with persons who are knowledgeable about the Site.

### **2.1 HISTORICAL INFORMATION SOURCES**

ERA queried the EDR database to obtain information about federal and state environmental release listings. The EDR database provides results in proximity to the Site following ASTM search distance guidelines (indicated in Section 5) and is continually updated. EDR provided the Sanborn Fire Insurance maps, historical city records, and historical topographic maps reviewed in this Section. Results of the EDR database search are provided in Section 5 of this report. Other historical information sources queried included: aerial photographs and environmental records reviewed through the State of Hawai‘i, Department of Health (HDOH).

### **2.2 HISTORICAL AERIAL PHOTOGRAPHS**

Historical aerial photographs were reviewed to help determine the past use of the Site, as well as adjacent properties. Aerial photographs for the years 1954, 1974, 1985, 1995, and 2001 were obtained from EDR historical aerial maps (EDR, 2018a). Aerial views from 2013, 2014, and 2018 were obtained from Google Maps.

Based on a review of the historical aerial photographs spanning 1954 to 2018, the Site appeared to have been never developed. The 1985 photo depicts a three (3) large structures located on a property west of the Site, a small structure at the west end of Pua Melia Street, and a few structures located at the north end of Pua Melia Street. The 2001 view show the previously existing structures as well as a large structure at the west end of Pua Melia Street and another large structure at the north end of Pua Melia Street. The 2013, 2014, and 2018 views depict the area as it appears today with a fire station occupying the west end of Pua Melia Street. ASTM defined RECs were not noted from review of the historical aerial photographs.

Copies of the aerial photographs are available in Appendix B. Brief descriptions of these photographs are presented below:

1954

Site: The 1954 aerial photograph showed the TMK (3) 6-8-3-28 as undeveloped.

Adjacent Properties: The property in the vicinity of the Site do not appear to be developed. Pua Melia Street does not appear in the photo.

1974

Site: The 1974 aerial photograph showed the Site as undeveloped.

Adjacent Properties: The property in the immediate vicinity of the Site do not appear to be developed. Pua Melia Street is present. Additional development is observed to the north of Waikoloa Road.

1985

Site: The Site in the 1985 aerial photograph again appeared undeveloped similar to the previous photos.

Adjacent Properties: Adjacent properties in the aerial photograph continue to appear undeveloped. Three (3) large structures appear on a property located to the west of the subject Site. Additional structures appear to be present at the north end of Pua Melia Street. A small structure is also present at the west end of Pua Melia Street.

1995

Site: The Site in the 1995 continues to appear undeveloped.

Adjacent Properties: Adjacent properties in the vicinity of the property were similar to the 1985 photo and use was not discernable.

2001

Site: The Site in the 2001 aerial photograph shows the Site as undeveloped.

Adjacent Properties: Adjacent properties in the vicinity of the property appeared developed similar to as exists today. A large structure is also present at the west end of Pua Melia Street.

### 2013-2018

Site: The 2013, 2014, and 2018 views depict the site as undeveloped and as it exists today.

Adjacent Properties: Adjacent properties in the vicinity of the property appeared developed similar to as exists today with a fire station occupying the west end of Pua Melia Street.

### **2.3 EDR SUPPLEMENTAL SEARCH OF SANBORN FIRE INSURANCE MAPS**

The EDR database was queried for Sanborn Fire Insurance Maps which document historical property use. The EDR database indicates that Sanborn maps are not available, as the Site is an unmapped property. (EDR, 2018b)

### **2.4 EDR CITY DIRECTORY ABSTRACT**

EDR City Directory Abstracts identify historic usage of subject and adjoining properties. The City Directory Abstract is presented in Appendix C. Listings for the address Pua Melia Street were found for the years 2000, 2005, 2010, and 2014 (EDR, 2018c). Pua Melia Street was not listed in City Directories searched for 1995 and 1992. The subject Site was not listed in these City Directories. Businesses listed are described below.

- The 2014 City Directory listed Waikoloa Automotive and Dorkels Snorkel at 68-1897 Pua Melia Street.
- The 2010 City Directory listed Jack Hall Kona Memorial Corp at 68-1820 Pua Melia Street. Waikaloa Automotive and Dorkels Snorkel were listed at 68-1897 Pua Melia Street.
- The 2005 City Directory listed All World Inc, Dorkels Snorkel, Maunakea Coffee Company, and Waikoloa Automotive at 68-1897 Pua Melia Street.
- The 2000 City Directory listed All World Inc, Dorkels Snorkel, and Waikoloa Automotive at 68-1897 Pua Melia Street.

No specific ASTM defined RECs were identified from the review of the City Directory.

## **2.5 EDR HISTORICAL TOPOGRAPHIC MAPS**

EDR Historical Topographic Maps track changing land use and development patterns of subject and adjoining properties. Historical Topographic Maps are presented in Appendix C (EDR, 2016d). Following are the observations made of listings provided for the years 1923, 1956, 1982, 1997, and 2013 (most current year available). No ASTM defined RECs were noted from the review of the historic topographic maps.

1923 (7.5 Minute): The area of the site was undeveloped, and no streets or structures were visible on and in the vicinity of the subject site.

1928 (7.5 Minute): The area of the site was undeveloped, and no streets or structures were visible on and in the vicinity of the subject site.

1956 (7.5 Minute): No structures were displayed on or in the vicinity of the Site. The topography of the Site remained unchanged.

1982 (7.5 Minute): Pua Melia Street is depicted. Structures are visible to the west of the subject Site and at the north end of Pua Melia Street. The topography of the Site remained unchanged.

1997 (7.5 Minute): Additional structures are visible in the vicinity to the west of the subject Site along Pua Melia Street. Structures are still visible to the west of the subject Site and at the north end of Pua Melia Street. The topography of the Site remained unchanged.

2013 (7.5 Minute): Structures were not depicted on this map. The fire station located to the west of the Site is noted at the corner of Waikoloa Road and Pua Melia Street. The topography of the Site remained unchanged.

## **2.6 LAND LEASES AND OWNERSHIP**

The County of Hawaii's Real Property Assessment and Tax Billing Information website indicates the Fee Owners of the Site parcel as K00674 Waikoloa LP. According to the County of Hawaii records, TMK (3) 6-8-3-28 comprises approximately 4.6-acres (200,376 square feet). The Site is zoned Multi-Family Dwelling Units (RM 1.5) and its current assessed land value is \$1,352,500. The Site is not located in a Special District or a Special Management Area.

Past ownership and lease history of the Site was obtained through a records search of the Bureau of Conveyances archives and from available historical references and reports. According to the results of our investigation, The Waikoloa area was owned by Parker Ranch and historically used to graze cattle. During World War II, the area was used for live munitions training. The subject Site (3) 6-8-3-28 was created in 1974 from parcel (3) 6-8-03-17 and owned by Boise Cascade Home & Corp Trust. Ownership was transferred to American Trust Co of Hawaii Inc in 1985. In 2005, ownership of the subject Site was transferred from AMI Properties LLC to D.R. Horton – Schuler Homes. In 2015, the Site was conveyed to K00674 Waikoloa LP.

## **2.7 PREVIOUS INVESTIGATIONS**

The subject Site has been identified as a part of a Formerly Used Defense Site (FUDS). The FUDS site was known as the former Waikoloa Maneuver Area and encompasses most of the South Kohala district of the Big Island of Hawaii. The land was used in the early and mid-1940's as an artillery firing range and for conducting troop maneuver activities. The land was returned to Parker Ranch in 1946. Munitions clearances were conducted in the areas in 1946 and in 1954. Additional site investigations and cleanup activities have been conducted in multiple phases between 1999 to the present and is currently ongoing under the direction of the U.S. Army Corps of Engineers (USACE). A site sweep of the subject Site for unexploded ordnance (UXO) was conducted by an Army Corp of Engineers contractor in 2011. James Rock of Waikaloa L.P. reported that USACE has completed a recent survey and no munitions of concern were located. USACE is finalizing their Remedial Action Report (RAR) which will be submitted to the Hawaii Department of Health, with an anticipated delivery date of July or August 2018.

A biological survey for plants and wildlife was conducted in 2016 to determine if any threatened or endangered species exist on the parcel. No threatened or endangered flora or fauna species were observed. Some native grasses were noted during the survey. Though they are deemed rare, they are not listed on any federal or state protected species list.

A Phase I ESA was conducted for the property in 2016. The 2016 Phase I ESA did not identify any RECs or other environmental issues with the subject property.

## **2.8 INTERVIEWS**

ERA conducted interviews with persons who are knowledgeable about the Site. The objective of these interviews was to ascertain any information that may be indicative of potential RECs in



connection with the Site. According to ASTM Standard E1527-13 Section 3.2.43, questions should be addressed to *past and present* owners, operators, and occupants of the Site, as well as local government officials.

### **Summary of Interviews**

The following individuals were contacted to complete this Phase I ESA. A summary of each interview (including business and contact name) is presented below. Interview documentation is provided in Appendix D.

- Mr. Paul Chong, DOH HEER Office, via email on May 4 and May 6, 2015.
- Mr. Chris Chun-Hoon of Hawaiian Electric Light Company (HELCO), via telecom on May 13, 2016.
- Mr. James Rock of Waikoloa L.P., via email questionnaire on June 15, 2018.

#### Mr. Paul Chong, DOH HEER Office

Mr. Paul Chong, DOH HEER Office, was interviewed on May 04 and 06, 2015. Mr. Chong was able to provide current site specific information regarding UXO surveys of the subject site. According to Mr. Chong, the Site was swept for UXO in 2011 by the US Army Corp of Engineers. No UXO or MECs were found.

#### Mr. Chris Chun-Hoon, HELCO

RECs were not identified in the interview with Mr. Chris Chun-Hoon of HELCO. ERA observed one (1) electrical transformer along Pua Melia Street across from the subject Site during the site reconnaissance. Mr. Chun-Hoon had been contacted via email in May 2015 to determine if HELCO had any record of transformers located at the property and adjacent to the property. HELCO determined that the electrical transformer was non-polychlorinated biphenyl (PCB) containing. On May 13, 2016, ERA contacted Mr. Chun-Hoon via tele-con to confirm that the information regarding the transformer was still current. Mr. Chun-Hoon verified that the transformer was Non-PCB containing and that HELCO did not have any records of any PCB-containing transformers at that location. In 2018, during the site-reconnaissance, the same transformer along Pua Melia Street was observed. No additional transformers were observed in

the vicinity of the subject Site. All untested mineral oil transformers purchased prior to July 1, 1979, must be considered PCB-contaminated. The HELCO response is provided in Appendix E.

Mr. James Rock, K00674 Waikoloa, L.P., Current Owner

An interview questionnaire dated June 15, 2018 was completed by the current property owner, Mr. James Rock. Mr. Rock reported that USACE completed a recent survey of the subject Site and no munitions of concern were located. Furthermore, USACE will submit their RAR to the Hawaii Department of Health in July or August 2018. Mr. Rock advised that there are no environmental cleanup liens against the property, no land use restrictions, no conditions related to the release of hazardous chemicals, or any other studies performed for the property that he is aware of. Mr. Rock noted that the land is has been vacant with no prior business use.

**2.9 RECORDS REVIEW**

No RECs were identified from the review of the public records. Details for the site are presented below:

The site and nearby properties have historically been used for cattle grazing. The Waikoloa area was used as a live fire training area by the U.S. Marine Corps during World War II. The U.S. Army Corps of Engineers conducted sweeps for UXO on the subject Site in 2011. MEC was not found during the sweeps and MEC does not constitute a REC for the subject Site.

**2.10 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS**

An interview with the current owners indicated that there are no environmental liens or activity associated with the property.

**2.11 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES**

The County of Hawaii, Real Property Assessment and Tax Billing Information website lists the assessed value of TMK (3) 6-8-3-28 as \$1,352,500. Publicly available information lists the purchase price of the property at \$1,000,000 on April 24, 2015 (Realtor.com, 2018). Fair market value information was not available.

### **SECTION 3: SITE CONDITIONS**

The subject property is situated in Waikoloa, South Kohala on the island of Hawaii. The following section describes the Site with regards to soil classifications, groundwater hydrology, topography and land cover and local zoning.

#### **3.1 SOIL CLASSIFICATIONS**

The United States Department of Agriculture (USDA) Soil Conservation Service classifies the soil within the Site as Hapuna-Waikui-Lalamilo complex (373), 0-20 percent slopes. Elevations range from 0 to 2,000 feet. The soil is sourced from alluvium over basic volcanic ash. The soil is well drained with more than 80 inches to the water table (USDA, 2018). The soil comprises Hapuna, Waikui, and Lalamilo soils. Hapuna soils are well drained with high runoff potential. Waikui soils are well drained with low runoff potential. Lalamilo soils are well drained with low runoff potential.

#### **3.2 GROUNDWATER HYDROLOGY**

The Site overlies the Waimea aquifer system of the West Mauna Kea aquifer sector. The Waimea aquifer system is described as a Basal (fresh water in contact with sea water), unconfined (where water table is upper surface of saturated aquifer), flank (horizontally extensive lavas) aquifer (Mink and Lau, 1990). It is classified as a currently used low salinity drinking water source (250-1000 milligrams per liter [mg/l] chloride [Cl<sup>-</sup>], irreplaceable, and highly vulnerable to contamination (Mink and Lau, 1990).

According to the EDR report, there is one (1) United States Geological Survey (USGS) well within a 1-mile radius of the Site. No water wells are listed on the Federal Public Water Supply System Information database and two (2) water wells identified in the State Database Well Information are located within a 1-mile radius of the subject property (EDR, 2018e). The Site is up-gradient of the Underground Injection Control (UIC) line (Figure 3) as such; the underlying aquifer is considered a drinking water source and permit limitations governing the use of these waters may be imposed.

### **3.3 TOPOGRAPHY AND LAND COVER**

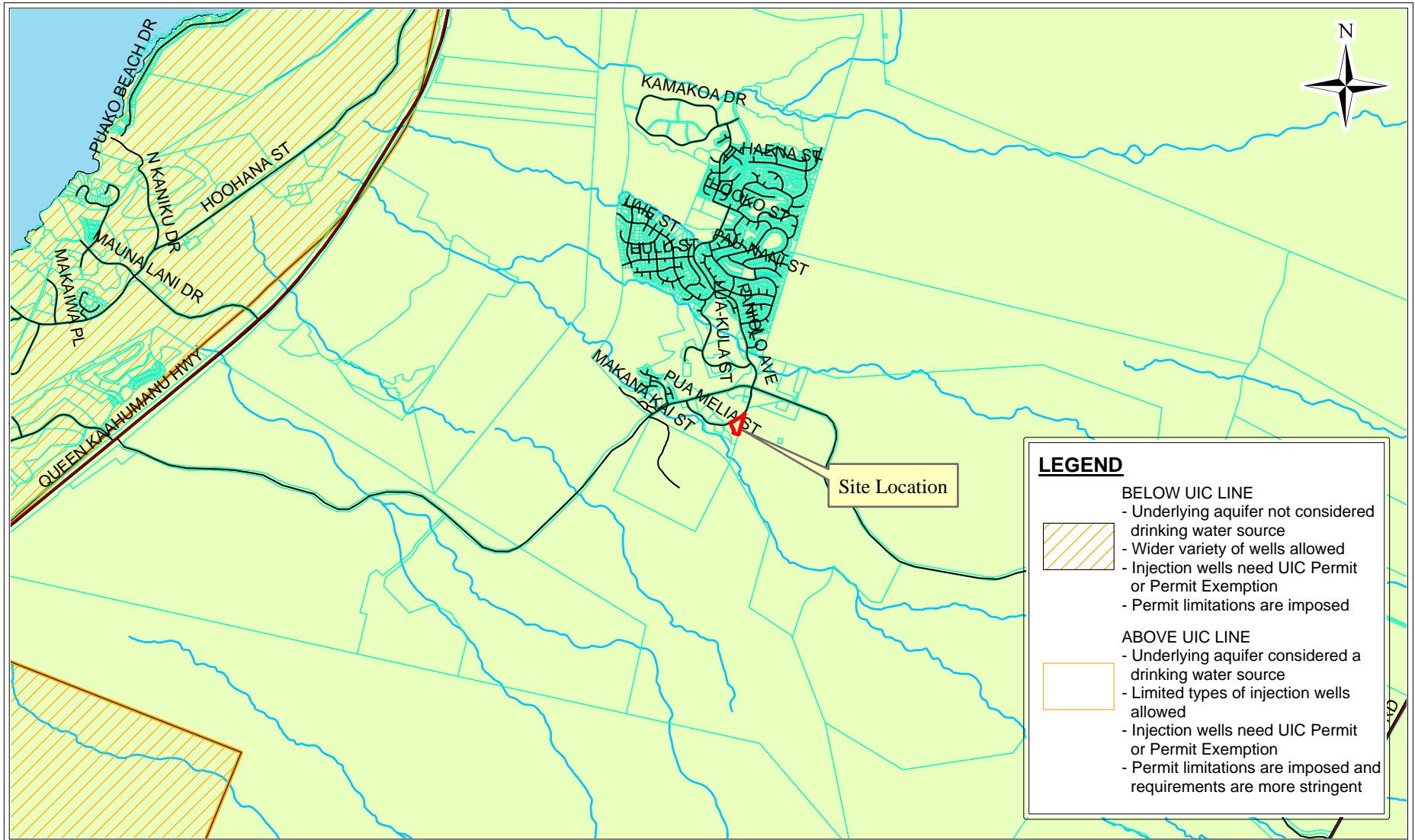
According to the USGS, Honolulu, Hawaii, 7.5 minute topographic map, the subject property elevation is 995 feet above sea level (EDR, 2018). The Site is undeveloped.

### **3.4 LOCAL ZONING**

The County of Hawaii, Planning Division, indicates the Site Land Use Ordinance Zoning Designation is Multi-Family Dwelling Units (RM 1.5). The Site is not located in a Special District or Special Management Area.

### **3.5 FLOOD ZONE DETERMINATION**

The Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM Map No. 1551660291C is a Non-printed Flood Map Boundary. Upon consultation with the County of Hawaii Engineering division, it was determined that the Site lies within Flood Zone X, beyond the 500-year flood plain.



0 0.5 1 2 3 4 5 Miles



PROJECT NAME:

Phase I Environmental Site Assessment  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:

Underground Injection Control Map

FIGURE NUMBER:

3

## **SECTION 4: SITE RECONNAISSANCE**

The purpose of the site reconnaissance was to visually assess for evidence of the use, storage, generation and disposal of potentially hazardous substances and petroleum products, and/or indicators of possible releases of hazardous substances and/or petroleum products at the Site. Evidence of possible releases of hazardous substances or petroleum products include discolored soil, flooring, or paving; visible leaks; odors; and apparent stressed vegetation. A visual survey of adjacent properties from public thoroughfares is also conducted. Mr. Vincent Yanagita of ERA conducted the site reconnaissance on June 25, 2018. Previous site reconnaissance was performed on May 4, 2015, and May 11, 2016. The following sections present general observations of the Site and the surrounding area.

### **4.1 GENERAL OBSERVATIONS OF THE SITE**

No visual evidence of oil spills, hazardous substance storage or release was noted during the site reconnaissance. Photos of the Site as it appeared on June 25, 2018 are provided in Appendix F.

#### General

The subject Site is undeveloped and unpaved. TMK (3) 6-8-3-28 contains grasses and small brush throughout the subject property. Large rock formation was observed at the center of the Site. Portions of the Site have been bulldozed and an unpaved road transects the northern portion of the property. Various items including trash, a tire, a washing machine, metal debris, concrete debris, scrap wood, and asphalt were noted on the Site, primarily in the vicinity of the unpaved road on the north side of the Site. On the north side of the site, adjacent to Pua Melia Street, GPS survey equipment was observed. No unusual odors were detected that would suggest a source of contamination and no obvious signs of petroleum or chemical staining on the on the ground was observed.

### **4.2 GENERAL OBSERVATIONS OF THE SURROUNDING AREA**

ERA visually assessed areas adjacent to the Site from public thoroughfares. Pua Melia Street borders the Site to the north. Vacant land bound the Site to the south, west, and east. The adjacent vacant sites are not anticipated to affect the environmental condition of the subject Site. Additional debris items were observed on the surrounding vacant land including a car, water heater, refrigerator, various wood, concrete, and metal debris.

### **4.3 PCB-CONTAINING EQUIPMENT**

RECs were not identified during the assessment of electrical transformers. Electrical transformers may contain PCBs and all untested mineral oil transformers purchased prior to July 1, 1979, must be considered PCB-contaminated. One (1) electrical transformer was noted across Pua Melia Street from the Site. HELCO determined that the electrical transformer was non-PCB containing. HELCO indicated that there are no records of any other electrical transformers in or about the Sites. The HELCO response is provided in Appendix E.

No fluorescent light fixtures were observed throughout the subject property.

### **4.4 ASBESTOS-CONTAINING MATERIAL AND LEAD PAINT**

ACBM and LCP are not considered to be RECs as defined by ASTM but can pose potential health hazards. There is the potential for very small quantities of ACBM and LCP on the debris items observed throughout the site including concrete debris (potential ACBM) and painted items (potential LCP). These materials may require testing prior to disposal.

### **4.5 ARSENIC**

From the review of historic site use, the Site was historically used for cattle grazing. Arsenic is not considered a REC for the Site.

## **SECTION 5: REVIEW OF FEDERAL, STATE, AND LOCAL LISTS AND AVAILABLE FILES OF REPORTED HAZARDOUS SUBSTANCE/PETROLEUM PRODUCT SOURCES AND RELEASES**

This section includes results of a review of federal, state, and local lists and available files of reported hazardous waste sites and hazardous substance/petroleum product sources and releases. The EDR database provided the federal and state environmental release listings (EDR, 2018e). This information is provided in Appendix C and is summarized below.

### **5.1 DATABASES AND REGULATORY FILES REVIEWED**

A list of the Federal Sources and Hawai'i State Regional databases reviewed is provided below. These databases were reviewed to document the location of federal and state listed sites, or other known hazardous waste sites, following ASTM search distance guidelines. The ASTM search distance guidelines are provided in parenthesis. There were findings in the following databases reviewed:

#### *Standard Environmental Record Sources*

- HDOH LUST Database (½-mile)

The following standard environmental record sources were reviewed by EDR, however there were no findings within the ASTM specified search distances. The following databases are provided for reference, but not further discussed in this report:

- Federal National Priorities List (NPL) (1-mile)
- Federal Delisted NPL List (½-mile)
- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) (½-mile)
- Federal CERCLIS No Further Remedial Action Planned (CERC-NFRAP) (½-mile)
- Federal Corrective Action Report (CORRACTS) (1-mile)
- Federal Resource Conservation and Recovery Act (RCRA) non-CORRACTS – treatment, storage, and disposal facilities (RCRA-TSDF) (½-mile)
- Federal RCRA – large quantity generators (RCRA-LQG) (property and adjoining properties)



- Federal RCRA – small quantity generators (RCRA-SQG) (¼-mile)
- Federal RCRA – conditionally exempt small quantity generators (RCRA-CESQG) (property and adjoining properties) (¼-mile)
- Federal Engineering Controls Sites (property only)
- Federal Sites with Institutional Controls (property only)
- Federal Emergency Response Notification System (property only)
- State Hazardous Waste Sites List (SHWS) (1-mile)
- Permitted Landfills in the State of Hawai‘i (½-mile)
- HDOH Registered UST Database (property and adjoining properties) (¼-mile)
- State Voluntary Response Program Sites (½-mile)
- State Sites with Institutional Controls (INST CONTROL) (property only) (½-mile)
- Voluntary Remediation Program and Brownfields Sites with Institutional Controls (½-mile)
- State Brownfields Sites (½-mile)

The following additional environmental records sources were reviewed by EDR, however there were no findings within the ASTM specified search distances. The following databases are provided for reference, but not further discussed in this report:

- State facilities permitted as solid waste landfills, incinerators, or transfer stations (½-mile)
- Department of Defense Sites (DOD)
- Formerly Used Defense Sites (FUDS)
- EPA Listing of Brownfields Properties
- Leaking Underground Storage on Indian Land (½-mile)
- Underground Storage on Indian Land (½-mile)
- RCRA Non-Generator List
- Mines Master Index File
- Facility Index System/Facility Identification Initiative Program Summary Report (FINDS)
- Biennial Reporting System
- Superfund CERCLA Consent Decrees
- CERCLA Lien Information
- Records of Decision
- Uranium Mill Tailing Sites

- Hazardous Materials Information Reporting System
- Material Licensing Tracking System
- PCB Activity Database System
- Storm Water General Permits
- RCRA Administrative Action Tracking System
- Toxic Chemical Release Inventory System
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act /Toxic Substances Control Act
- Section 7 Tracking Systems
- Open Dump Inventory
- Clandestine Drug Labs
- Incident and Accident Data
- Radiation Information Database
- Federal Insecticide, Fungicide, and Rodenticide Act/ Toxic Substances Control Act Tracking System Administrative Case Listing
- Land Use Control Information System
- Integrated Compliance Information System State List of Permitted Facilities Permitted Drycleaner Facility Listing
- Indian Reservations
- Historical Auto Stations (¼-mile)
- EDR Proprietary Manufactured Gas Plants \
- Underground Injection Wells Listing (UIC) (½-mile)
- Financial Assurance Listing (½-mile)

## **5.2 RESULTS OF DATABASE REVIEW AND REGULATORY AGENCY CONTACTS**

This section provides a summary of results for all database searches conducted during this assessment. ERA does not consider any of the EDR results discussed below as RECs for the Site.

Section 5.2.1 provides results specifically for the Site and Section 5.2.2 provides results found for properties within the vicinity of the Site.

### **5.2.1 RESULTS FOR SUBJECT SITE**

The target property address submitted to EDR was not listed in any reviewed databases searched by EDR.

### **5.2.2 RESULTS FOR PROPERTIES WITHIN THE VICINITY OF THE SUBJECT SITE**

ASTM proximity search guidelines were used to designate properties for evaluation and review. Properties were listed in the vicinity of the Site in the following databases and reviewed for potential impacts which could contribute to a REC at the Site:

#### *Standard Environmental Record Sources*

- HDOH LUST Database
- HDOH Registered UST Database

Potential environmental conditions at adjacent properties located within the vicinity of the Site are summarized below.

#### *Standard Environmental Record Sources*

##### HDOH Leaking UST (LUST) Database

A search of the HDOH LUST Branch database records (dated 03/16/2018) indicated that one (1) site has had a UST release within a ½-mile radius of the Site. According to the HDOH LUST database, cleanup activities have been completed for the Waikoloa Sewer Pump Station site located at 150 Waikoloa Beach Drive and the release has been issued an NFA.

The facility listed on the HDOH LUST database is located 0.50-miles cross-gradient from the Site and does not pose a significant environmental threat to the subject Site.

HDOH Registered UST Database

A search of the HDOH UST Branch database records indicated that there is one (1) registered UST sites within a ½-mile radius of the Site. The Waikoloa Sewer Pump Station site located at 150 Waikoloa Beach Drive contains two (2) permanently out of use diesel UST.

The facility listed on the HDOH UST database is located 0.50-miles cross-gradient from the Site and does not pose a significant environmental threat to the subject Site.

Unmapped Sites due to Poor or Inadequate Address Information

There are no unmapped sites listed in EDR as having poor or inadequate address information in relation to the subject property.

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## **SECTION 6: FINDINGS & RECOMMENDATIONS**

At the request of K00674 Waikoloa L.P., Environmental Risk Analysis LLC (ERA) has performed a Phase I ESA for a single parcel located on Pua Melia Street in Waikoloa, South Kohala, Hawaii. The Site is designated on County of Hawaii Tax Maps as TMK (3) 6-8-3-28. The purpose of this ESA was to identify, to the extent feasible, RECs associated with the Site. The investigation included a physical inspection of the property; review of current regulatory environmental database information; interviews of persons knowledgeable about the property, review of historical records; and preparation of this Phase I ESA Report. This ESA report conforms to the format outlined in the *ASTM Document E1527-13* and the USEPA's All Appropriate Inquiries Rule. The site reconnaissance for the was conducted by Mr. Vincent Yanagita on June 25, 2018. ERA conducted previous site reconnaissance visits on May 4, 2015 and May 11, 2016.

### **FINDINGS**

The Site is comprised of a single parcel totaling 4.6-acre (200,375 square feet). The subject Site was not listed on any of the databases searched by EDR (federal, state, and local lists and available files of reported hazardous waste sites and hazardous substance/petroleum product sources and releases). The subject Site is undeveloped and unpaved. TMK (3) 6-8-3-28 contains grasses and small brush throughout the subject property. Large rocks were observed at the center of the Site. Portions of the Site have been bulldozed and an unpaved road transects the northern portion of the property. Various items including trash, a tire, a washing machine, metal debris, concrete debris, scrap wood, and asphalt were noted on the Site, primarily in the vicinity of the unpaved road on the north side of the Site. On the north side of the site, adjacent to Pua Melia Street, GPS survey equipment was observed. No unusual odors were detected that would suggest a source of contamination and no obvious signs of petroleum or chemical staining on the ground was observed. Vegetation growing on the Site was found to be dry and withered, but no unusual odors were noticed. ERA did not observe any RECs during the site reconnaissance.

Undeveloped property surrounds the subject site to the south and east. The Pua Melia Street and undeveloped property bounds the subject site to the north and west. Additional debris items were observed on the surrounding vacant land including a car, water heater, refrigerator, various wood, concrete, and metal debris. No evidence of chemical release was observed from any of the debris

items observed on the adjacent properties. None of the neighboring properties are anticipated to affect the environmental condition of the subject Site.

Aerial photographs for the years 1954, 1974, 1985, 1995, and 2001 were obtained from EDR historical aerial maps (EDR, 2018). Aerial views for 2013, 2014, and 2018 were obtained from the Google Maps website. Based on a review of the historical aerial photographs spanning 1954 to 2018, the Site appeared to have been undeveloped. No RECs were identified in the review of the historic aerial photographs.

No LUST sites were located directly adjacent to the Site. One (1) site has reported UST releases within a ½-mile radius of the Site. According to the HDOH LUST database, cleanup activities have been completed (NFA) for the listed site. Based on review of State of Hawaii, Department of Health (HDOH) records for this site, the releases from this site appear to be adequately characterized and would not impact the subject Site. The LUST site was not determined to pose an environmental threat to the subject Site.

This LUST site is also in the HDOH Registered UST database and contains two (2) permanently out of use diesel USTs. ERA opines that they do not pose an environmental threat to the subject Site.

ERA observed one (1) electrical transformer on Pua Melia Street across from the subject Site during the site reconnaissance. HELCO was previously queried regarding the polychlorinated biphenyl (PCB) status of the transformer in 2016. HELCO determined that the electrical transformer was non-PCB containing.

## **SUMMARY AND RECOMMENDATIONS**

### *RECs - Site*

This ESA did not identify any ASTM defined RECs for the subject Site.

### *List of Additional Environmental Issues*

- The property is located in the former Waikoloa Maneuver Area which is undergoing an unexploded ordinance survey and cleanup exercise under the direction of the USACE. As of this report date, USACE has completed their survey of our property and no munitions of concern were located. USACE is finalizing a RAR which will be submitted to the Hawaii Department of Health, with an anticipated delivery date

of July or August 2018. No munitions were observed and contamination from munitions items is unlikely.

- Debris items observed on the site did not constitute a REC, however removal and proper disposal of these items is recommended.
- On the debris items observed, there is the potential for lead, asbestos, and arsenic containing materials to be present at the Site. These items may require testing for proper handling, prior to removal and disposal.

**SECTION 7: DEVIATIONS AND DATA GAPS**

The following are data gaps encountered during the assessment:

- Valuation assessment information comparing fair market value of the property was not available.
- Historical data of past uses of the subject Site was limited to information obtained through interviews. Aerial photos were not available prior to 1954.

These data gaps are not considered significant.



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## **SECTION 8: REPORT LIMITATIONS**

The findings, observations, conclusions, and recommendations of this report are limited by the technical requirements specified in the contract between K00674 Waikoloa L.P. and ERA. The findings, observations, conclusions, and recommendations presented herein solely identify and evaluate evidence that may indicate that environmental hazards exist at the Site due to past or current management of chemicals or other materials that, if released or not properly controlled, could present a risk to human health or the environment.

The Phase I ESA provides a “snap shot” of Site conditions at the time of the investigation. The assessment does not cover site changes that ERA could not reasonably ascertain. Additionally, it must be noted that no investigation can completely rule out the existence of any regulated or hazardous materials at a given Site.

ERA queried the HDOH regarding the potential presence of UXO at the Site. The HDOH received records from the U.S. Army Corp of Engineers, Hawaii District. Records indicate that the Site was investigated for UXO, and none were found. ERA did not perform an independent UXO investigation and makes no representation or claim of UXO or MEC presence.

In preparing this report, ERA relied on information derived from visual reconnaissance, governmental agencies, computer databases, and personal interviews. Except as set forth in this report, ERA made no independent investigations as to the accuracy and completeness of the information derived from the listed sources. ERA assumed that all information obtained during the course of the investigation is accurate and complete.

Although ERA did evaluate (to the extent reasonable) the historical use of adjacent properties (e.g., City Directory Search), ERA cannot guarantee that neighboring industries have not impacted the subject Site. ERA did not perform a complete environmental assessment of adjacent properties and it is possible that groundwater migration, overland flow or transport of contaminated particles via wind may have contaminated the Site.

All findings, observations, conclusions, and recommendations stated in this report are based on facts; circumstances; applicable federal, state and local laws, rules, and regulations; and generally accepted national standards for such services in existence at the time that the report was prepared.

Topics not explicitly discussed within this report should not be assumed to have been investigated or tested.

ERA has prepared this document for the use and benefit of K00674 Waikoloa L.P. Any use of this document or information herein by persons or entities other than those named above without the express written consent of ERA will be at the sole risk and liability of said person or entity, and ERA will not be liable to such persons or entities for any damages resulting therefrom.

**SECTION 9: REFERENCES**

American Society for Testing and Materials (ASTM), 2013, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, E1527-13.

County Hawaii Real Property Tax Office, 2018. Accessed July 2018.

[www.hawaiipropertytax.com](http://www.hawaiipropertytax.com).

Environmental Data Resources, Inc. (EDR), 2018a. Aerial Photo Decade Package, Pua Melia Street, Waikoloa, HI 96738, Inquiry Number 5333628.8, June 15, 2018.

EDR, 2018b. Certified Sanborn® Map Report, Pua Melia Street, Waikoloa, HI 96738, Inquiry Number 5333628.3, June 15, 2018.

EDR, 2018c. City Directory Image Report Pua Melia Street, Waikoloa, HI 96738, Inquiry Number 5333628.5, June 19, 2018.

EDR, 2018d. Historical Topographic Map Report, Pua Melia Street, Waikoloa, HI 96738, Inquiry Number 5333628.4, June 15, 2018.

EDR, 2018e. Radius Map with GeoCheck®, Pua Melia Street, Waikoloa, HI 96738, Inquiry Number 5333628.2s, June 15, 2018.

Google Earth, 2018. Aerial photograph, image dates 1/16/2013, 8/21/2014, and 5/15/2018. Accessed July 2018.

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

Kilo Aina, Archeological and Historical Features Report, November 29, 1980.

International Archeological Research Institute, Inc., Summary Letter Report: Results of Inventory Survey at a Waikoloa Village Parcel, (3) 6-8-03:28, South Kohala, Hawaii, September 06, 2005.

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United States Department of Agriculture (USDA), Natural Resources Conservation Service.

Accessed July 2018. [www.websoilsurvey.nrcs.usda.gov](http://www.websoilsurvey.nrcs.usda.gov).

*Appendix* **A**

**ENVIRONMENTAL PROFESSIONAL QUALIFICATIONS**

## Russell S. Okoji, Ph.D.

### Principal

#### Professional Summary:

Dr. Russell S. Okoji is Principal and Senior Technical Advisor for Environmental Risk Analysis. Dr. Okoji received his BS in Applied Ecology from the University of California, Irvine, and his doctorate in Environmental Toxicology from the University of California, Los Angeles. Previously, he was the Environmental Division Manager for AMEC Earth and Environmental's Pacific Region and oversaw a team of 10 environmental scientists, engineers, geologists and biologists. He has been associated with ERA since its inception in 2006 and has more than 17 years of environmental professional consulting experience. Dr. Okoji's current responsibilities at ERA include Program and Project Management for a variety of project types including environmental impact statements, toxicological assessments, human health and ecological risk assessments, industrial hygiene projects, air studies, both small and large scale Phase 1, 2 and 3 Assessments, and public relations support. Dr. Okoji has extensive knowledge in both federal and state environmental regulations. Between 2006 and 2010, Dr. Okoji was the Program Manager for an environmental IDIQ contract through Kamehameha Schools Commercial Assets Division, the largest private landowner in Hawaii. Between 2004 and 2008, Dr. Okoji served as Program Manager for the Hawaii Department of Health Environmental Services IDIQ Contract. Dr. Okoji is currently Program Manager for ERA Federal Programs which includes contracts with the USNavy, USArmy and USACE. He has received commendation from the State of Hawaii, City and County of Honolulu, the U.S. Navy and ATSDR.

<b>Past Employment History</b>	AMEC Earth and Environmental Inc.
<b>Position:</b>	Environmental Division Manager, Pacific Region
<b>Dates of Employment:</b>	2000 to 2010
<b>Other Firms:</b>	University of California, Los Angeles
<b>Position:</b>	Laboratory Manager and Researcher
<b>Dates of Employment:</b>	1994 to 2000
<b>Education:</b>	2000, Ph.D., Environmental Toxicology, University of California, Los Angeles 1994, B.S., Applied Ecology, University of California, Irvine
<b>Professional Qualifications:</b>	OSHA 40-Hour Hazardous Material Operations and Emergency Response Training (29 CFR 1910.120), initial certification 2000, annual refreshers Asbestos Building Inspector, initial certification 2005 Asbestos Management Planner, initial certification 2005
<b>Professional Registration:</b>	None Available

## *Detailed Core Skills by Project*

### **Environmental Due Diligence (Phase 1, 2 and 3 Assessments)**

**Island Recycling Inc, Campbell Industrial Park, 2015-2106 – Contract Value \$100,000.** Principal in Charge: Provide expert witness support regarding potential site and navigable waters contamination at the CIP site. Performed a comprehensive soil and groundwater investigation to support litigation and DOH Notice of Violation (NOV) for the drainage canal on the north and east side of the property. Authored work plans, negotiated scopes of work with the DOH and completed the Final Investigation Report.

**Kamehameha Schools, Confidential Site, 2008-2009 – Contract Value \$500,000.** Program Manager: This confidential Site was used for over a hundred years as a truck fleet repair and maintenance facility, for warehousing and other heavy industrial activities. Previous investigations at the Site identified TPH contamination in soil/rock, groundwater, and in free product form. Studies also identified the presence of elevated lead levels in Site surface soils. Dr. Okoji assembled and managed a highly qualified team of environmental professionals to identify existing data gaps, provide services to fully characterize and delineate the Site and provide detailed recommendations for further investigation and site cleanup. Specifically, Dr. Okoji's team was tasked with the following:

- Provide expert witness support and opinion
- Delineate the lateral and vertical extent of free product contamination in groundwater.
- Provide fingerprinting analyses for free product source identification.
- Provide a free product recovery pilot test to evaluate the implementability, cost, and effectiveness of traditional remedial technologies.
- Determine true groundwater gradient at the Site (correcting for tidal influences) to provide information regarding free product and contaminant fate and transport conditions.
- Provide baseline chemical conditions for future determination of the status of the free product plume (stable, shrinking, migrating).
- Delineate lateral and vertical extent of hydrocarbon-related contaminants in soil/rock and groundwater at concentrations exceeding regulatory levels of concern.
- Determine if shallow soil vapor in plume areas contain site contaminants at levels that would pose a human health risk.
- Determine the nature and extent of possible chlorinated solvent contamination several areas on Site.
- Determine the nature of possible chlorinated pesticides and herbicide contamination in surface soil and groundwater near Building 8's refrigerator truck wash area.
- Perform a geophysical investigation to identify the presence and relative locations of physical features (i.e., lava tubes, bedrock fractures, utilities) and potentially the extent of the free product plume.

**Kamehameha Schools, Confidential Site, 2009 – Contract Value \$150,000.** Program Manager: Performed an evaluation of surface soil, surface water and groundwater at a confidential Quarry Site assumed to be the location of illegal dumping of C&D debris, metal, asphalt and unknown solvents. Dr. Okoji and his team planned and initiated an environmental investigation which included a geophysical survey to identify location and magnitude of debris as well as nature and extent of soil and groundwater contamination. The results of Dr. Okoji's study was used by the client to recover costs associated with the investigation and to facilitate further investigative activities.

**Kamehameha Schools, Confidential Site, 2008-2009 – Contract Value \$20,000.** Program Manager: Dr. Okoji provided a third party review of various Remedial Alternatives Analysis & Response Action reports for ongoing litigation related to environmental investigations at a confidential agricultural Site that included a Herbicide Mixing area and Heavy machinery Storage area. Dr. Okoji determined that there were significant deficiencies and bias in the site characterization, evaluation and recommendations for the Site. Dr. Okoji provided detailed recommendations to address the deficiencies. As part of his scope, Dr. Okoji also performed a comprehensive Administrative Records Review.

**Sun Edison Inc: Phase II Environmental Site Assessment, 87-2018 Farrington Highway and 87-2019 Farrington Highway, Waianae, HI, 2012 – Contract Value \$20,000.** Principal in Charge: Performed a limited Phase II Environmental Site Assessment for 2 sites previously used for farming, salvage and a former firing range. The Site was assessed as 4 independent decision units and sampled accordingly based on suspected historical chemical usage. Multi-incremental sampling methodology utilized per HDOH guidelines.

**Hawai'i State Department of Health, Kea'au, HI, 2005-2006 – Contract Value \$150,000.** Program Manager: Performed the initial Phase 2 site characterization of arsenic in former sugar cane land over a several hundred acre area in Kea'au. To accomplish this task, the investigation focused sampling on areas with known or potential human exposure. The sampled areas included school playgrounds, community gardens and areas adjacent to residential areas. A main concern for the DOH was how to limit the uncertainty associated with conventional environmental sampling techniques. To limit the heterogeneity inherent to the method, the investigation implemented (for the first time in Hawaii) a multi increment composite sampling (MICS) methodology. MICSs can drive a skewed distribution (commonly found in environmental sampling) towards normality. For the Kea'au investigation a total of 40 increments (i.e. mini composite sample) was taken for each decision unit or area to be evaluated. The totality of the increments was composited and a larger 10-gram subsample sent for arsenic analysis. The laboratory arsenic results were deemed to better represent average site concentrations than concentrations achieved by simple traditional compositing methods or by averaging discreet sample points across a site. Additional subsamples for the physical and chemical properties of the soil were also obtained using multi increment compositing methods. Provided community relations support for the DOH. The MICS approach has been adopted by the State of Hawai'i Department of Health and is currently undergoing review for adoption by the USEPA.

**Architects Hawaii Ltd, Lahaina, HI, 2012 – Contract Value \$20,000.** Principal in Charge: Performed a limited Phase II Environmental Site Assessment at the Lahaina Fire Department located at 1860 Honoapiilani Highway, Lahaina, HI. The Limited Phase II ESA was conducted to determine the presence or absence of total petroleum hydrocarbon-diesel (TPH-D) in Site surface soils in the immediate vicinity of a currently used diesel Aboveground Storage Tank (AST) proposed for removal. The assessment was also conducted to determine if an onsite shed proposed for demolition requires special disposal considerations based on leachable lead concentrations.

**Agribusiness Development Corporation, Ewa, HI, 2009 – Contract Value \$5,000.** Principal in Charge: Performed a Phase I Environmental Site Assessment (ESA) for an agricultural easement encumbering a parcel situated at Honouliuli, District of Ewa, City and County of Honolulu, State of Hawai'i. The subject site covered an area of 108.221 acres. AMEC provided the following services in accordance with ASTM E1527-05: conducted an historic aerial photograph review; conducted a database search for property and adjacent properties; conducted an historic property use review of property; executed a site walk; and prepared a Phase I Report. Based on the Phase I Investigation, it was determined the environmental concerns for the Site are minimal. As the land is intended to remain under agricultural use in perpetuity, further investigation was not warranted.

**State of Hawaii, Department of Education, HI, 2010 – Contract Value \$10,000.** Project Manager: Phase I Environmental Site Assessment, Phase II Sampling and Analysis Plan and Title Documents for Kalaheo Elementary School Land Acquisition, Kalaheo, Hawaii.

**Hawai'i State Department of Health, Kakaako Brownfield Unit 8 Site, HI, 2008 – Contract Value \$25,000.** Project Manager: Performed a preliminary site-specific Phase 2 assessment and screening level risk assessment of a former incinerator site slated for redevelopment. Contaminants of concern included heavy metals, dioxins and polyaromatic hydrocarbons. Recommendations were made to conduct a site-specific baseline risk assessment that considers site-specific exposure assumptions, partitioning of data based on future land use and partitioning of data based on lateral and vertical dispersion of contaminants.

**County of Maui, Waiale Landfill, HI, 2008-2009 – Contract Value \$175,000.** Project Manager: Contracted by the County of Maui to perform a Phase II Site Investigation to evaluate existing site conditions at the Waiale Landfill. Previous environmental site assessments and investigations conducted for the adjacent roadway indicated that landfill waste was found in several locations along the roadway alignment during excavation activities for road construction. The Phase II delineated the limits of waste placement and property boundaries, by performing analysis of surface and trenched soils. Determined the thickness of the surface soil layer above the top waste layer within the landfill. Currently providing the County of Maui with an Engineering Evaluation and Cost Analysis (EECA) detailing closure options of the landfill.

**Native Hawaiian Veterans, USACE HED, Munitions Response Site Prioritization Protocol (MRSPP) for Defense Environmental Restoration Program, Formerly Used Defense Site (FUDS) of Opana Point Bombing Range, Opana Point, Island of Maui, Site No.H09HI027200 and Papohaku Target Range, Kaluakoi, Island of Molokai, Site No. H09HI0032, 2014- 2017 – Contract Value \$500,000.** Principal in Charge: Executed MRSPP to determine the relative risks posed at each of the sites; assistance with data gathering from state and local repositories; collecting appropriate information necessary to eliminate from further consideration those releases that pose no significant threat to public health or the environment; determining potential need for removal action and collecting or developing additional data to complete the MRSPP. Prepared project documents (UFP-QAPP, SAP) for a remedial investigation. COCs included metals, explosives and semivolatile organic compounds. Risk to human health and ecological receptors are evaluated.



**Long-Term Maintenance & Monitoring/ Remedial Action Operations for IRP Sites CF023, CG110, LF01, LF14, SS01, SS06, SS11, SS15 and Consolidation Unit at Joint Base Pearl Harbor – Hickam, HI, 2012-2017 – Contract Value \$500,000.** Principal in Charge: Performed annual inspections/maintain, and optimized long-term maintenance and monitoring (LTM) / Remedial Action Operations (RAO) (groundwater sampling) at eight Installation Restoration Program sites. The project consisted of inspecting, maintaining, and providing recommendations to optimize the existing remedies based on evaluation of all existing reports and recommendations for each site. Prepared all project documents including results of groundwater, soil vapor, landfill gas and apparent product thickness measurements.

**Institutional Controls for Safety Awareness, Defense Environmental Restoration Program, Formerly Used Defense Sites at Various Windward Oahu Projects, Island of Oahu, HI, 2014-2017 – Contract Value \$500,000.** Principal in Charge: Provided planning and producing institutional controls educational material for ensuring public safety from potential unexploded ordnance (UXO) at these sites. The institutional controls consist of materials oriented towards educating the public about the potential hazards from UXO found at these sites. Provided presentations to schools of affected areas and general public events.

**Coca Cola Bottling Enterprises, Oahu, HI, 2000-2010 – Contract Value \$750,000.** Project Manager: Conducted a Phase 2 and Phase 3 site investigation of soils and groundwater and site-specific risk assessment for the Coca Cola Bottling Facility. The site had undergone substantial remediation including removal of impacted soil, application of Oxygen Reaction Compounds (ORC) to groundwater and implementation of a Soil Vapor Extraction (SVE) System. Environmental Hazard Evaluation (Risk assessment) performed to determine the suitability of the property for future residential use. Chemicals of concern and pathways of concern include BTEX and fuel related compounds. Pathways of concern include direct contact with site media as well as vapor intrusion into buildings and ambient air.

**Sun Edison Inc., Mililani, HI, 2010-2011 – Contract Value \$15,000.** Principal in Charge: Multiple Phase I Environmental Site Investigations:

- Phase I Environmental Site Assessment for three (3) parcels of land located at 87-2018 Farrington Highway, 87-2019 Farrington Highway, and 87-1233 Hakimo Road, in Waianae, Hawaii (hereafter referred to as the Site). The Site was designated on Tax Maps as Tax Map Key (TMK) (1) 8-7-009-002, (1) 8-7-010-006, and (1) 8-7-010-010. TMK (1) 8-7-009-002 consisted of 236 acres of land, tmk (1) 8-7-010-006 consisted of 21.138 acres of land and tmk (1) 8-7-010-010 consisted of 2.755 acres of land. Additional soil investigation was recommended for 4 areas of the Site including soil near a large AST, a former salvage lot area, former pesticide mixing area and former firing range.
- Phase I Environmental Site Investigation for 91-399 Kauahi Street, Kapolei, Hawaii. The Site was designated on Tax Maps as TMK (1) 9-1-032-001. The 51-acre site was bordered by industrial property to the north, automobile storage to the west, Kalaeloa Airport to the East, and the continuation of the parcel to the south.
- Phase I Environmental Site Assessment for a 34.76-acre portion of lot within parcel TMK (1) 9-4-005:048 in Mililani, Hawaii. The Site was bordered by other agricultural lots in all directions.

**Kamehameha Schools, HI, 2008-2010 – Contract Value \$25,000.** Principal in Charge: Multiple Phase I Environmental Site Investigations:

- Phase I Environmental Site Assessment at the Jackson Volvo location, situated at 704 Ala Moana Boulevard in Honolulu, Hawai'i. The property evaluated was identified by Tax Map Keys (1) 2-1-055:002 (lot consisting of 0.8699 acres) and (1) 2-1-055:018 (lot consisting of 0.2789 acres).
- Phase I Environmental Site Assessment at multiple addresses located on Cooke Street, Auahi Street, and Pohukaina Street, Honolulu, Hawai'i. The property evaluated was identified by current Tax Map Key (1) 2-1-053:032 (lot consisting of 4.187 acres).
- Phase I Environmental Site Assessment at multiple addresses located on Ala Moana Boulevard, Coral Street, Keawe Street, and Auahi Street, Honolulu, Hawai'i. The property evaluated was identified by Tax Map Keys (1) 2-1-055:003 (lot consisting of 0.5306 acres), (1) 2-1-055:021 (lot consisting of 0.9256 acres), (1) 2-1-055:006 (lot consisting of 0.4904 acres), (1) 2-1-055:026 (lot consisting of 0.1148 acres), and (1) 2-1-055:038 (lot consisting of 0.8135 acres).
- Phase I Environmental Site Assessment at multiple addresses located on Kekuanaoa Street, Iolani Street, and Mililani Street in Hilo, Hawai'i. The property evaluated was identified by Tax Map Keys (3) 2-2-030:004 (lot consisting of 0.4171 acres), (3) 2-2-030:006 (lot consisting of 0.8245 acres), (3) 2-2-030:008 (lot consisting of 0.2686 acres), (3) 2-2-030:009 (lot consisting of 0.5165 acres), (3) 2-2-030:0010 (lot consisting of 0.2479 acres), (3) 2-2-030:0011 (lot consisting of 0.2365 acres), (3) 2-2-030:0012 (lot consisting of 0.8617 acres), and (3) 2-2-030:014 (lot consisting of 0.4018 acres).

**Hawaii Commercial Real Estate, 233 Merchant Street, Honolulu, HI, 2012-2014 – Contract Value \$15,000.** Principal in Charge: Performed a Phase 1 ESA in support of property transfer of a 5 story building located in downtown Honolulu. Results of the Phase 1 indicated potential subsurface soil contamination from TPH and PCB hydraulic fluids related to a decommissioned elevator and its associated equipment. ERA performed a Phase 2 Site assessment to determine extent of impacts.

**Crocodile Partners, 537 Ala Moana Blvd Phase 1 Environmental Site Assessment and Hazardous Materials Assessment, HI, 2013 – Contract Value \$10,000.** Principal in Charge: At the request of Crocodile Partners LLC, ERA performed a Phase I Environmental Site Assessment (ESA) for a single parcel of land located at 537 Ala Moana Blvd in Honolulu, Hawaii (hereafter referred to as the Site). The purpose of the ESA was to identify, to the extent feasible, Recognized Environmental Conditions (REC) associated with the Site. The investigation included a physical inspection of the property; review of current regulatory environmental database information; interviews of persons knowledgeable about the property, review of historical records; and preparation of a Phase I ESA Report. The ESA report conformed to the format outlined in the American Society for Testing and Materials (ASTM) Document E1527-05 and the USEPA All Appropriate Inquiries Rule. ERA was subsequently requested to perform a comprehensive hazardous materials assessment for the onsite structures. The survey consisted of lead and asbestos sampling and the production of a hazardous materials assessment report.

**Autopark USA, 771 Amana Street, Honolulu, HI, 2013 – Contract Value \$4,000.** Principal in Charge: Performed a Phase I Environmental Site Assessment (ESA) for the single parcel of land located at 771 Amana Street in Honolulu, Hawaii. The Phase 1 was used to establish innocent landowner status for the purchaser of the property prior to sale. The Site is designated on Tax Maps as TMK (1) 2-3-021-023 and consisted of 16,149 square feet of land. One (1) structure occupied the Site at the time of the assessment.

**USBank, HI, 2012-2013 – Contract Value \$25,000.** Principal in Charge: Multiple Phase I Site Assessments (various locations): At the request of USBank Dr. Okoji performed 6 Phase I Environmental Site Assessments (ESA) for multiple parcels of land in Honolulu, Hawaii. The purpose of the ESA was to identify, to the extent feasible, Recognized Environmental Conditions (REC) associated with the Site. The investigation included a physical inspection of the property; review of current regulatory environmental database information; interviews of persons knowledgeable about the property, review of historical records; and preparation of a Phase I ESA Report. The ESA report conformed to the format outlined in the American Society for Testing and Materials (ASTM) Document E1527-05 and the USEPA All Appropriate Inquiries Rule.

**USBank, HI, 2013 – Contract Value \$5,000.** Principal in Charge: Phase I ESA: Hawaiian Cement Warehouse located at 91-055 Kaomi Loop in Kapolei, Hawai'i. The property evaluated is identified by Tax Map Key (1) 9-1-026-06, lot consisting of 7.433 acres and three (3) buildings totaling 23,301 square feet.

**Maui Land and Pineapple, HI, 2008-2009 – Contract Value \$5,000.** Project Manager: Phase I ESA for the Maui Pineapple Company (MPC) Kahului Seed Site, located off Haleakala Highway, in Kahului, Maui. The subject site was a 2-acre portion of TMK (2) 3-8-79:13 (formerly TMK (2) 3-8-01:16).

**Marcus and Associates Inc. Kobe Steak House Phase I Environmental Site Assessment, HI, 2011 – Contract Value \$4,000.** Principal in Charge: At the request of Yamada Pacific Inc. and Marcus and Associates Inc., Environmental Risk Analysis LLC (ERA) performed a Phase I Environmental Site Assessment (ESA) for a single parcel of land located at 1841 Ala Moana Blvd in Honolulu, Hawaii. The Site is designated on Tax Maps as TMK (1) 2-6-009-006. The purpose of the ESA was to identify, to the extent feasible, Recognized Environmental Conditions (REC) associated with the Site. The investigation included a physical inspection of the property; review of current regulatory environmental database information; interviews of persons knowledgeable about the property, review of historical records; and preparation of a Phase I ESA Report. The ESA report conformed to the format outlined in the American Society for Testing and Materials (ASTM) Document E1527-05 and the USEPA All Appropriate Inquiries Rule.

### **Environmental Planning and Permitting**

**Bellavita, Inc., Napule Restaurant, Honolulu, HI, 2014-2015 – Contract Value \$20,000.** Principal Scientist: Prepared an Environmental Assessment for a proposed restaurant at the current charter boat building located between Kewalo Basin Harbor and Ala Moana Blvd. The existing structure was slated to be renovated and/or redeveloped to accommodate the needs of the proposed restaurant's operations, including the installation of a wood fired oven. Planned renovations also included site work for the construction of the outdoor seating patio. The proposed project was planned to encompass approximately 6,000 square feet within Kewalo Basin and will be occupied by an Italian Restaurant, Napule.

**Kewalo Waterfront Partners, Inc., Multi-use Facility, Honolulu, HI, 2014-2015 – Contract Value \$20,000.** Principal Scientist: Prepared an Environmental Assessment for a proposed multi-use facility encompassing approximately 2.1 acres within Kewalo Basin and located between Kewalo Basin Harbor and Ala Moana Beach Park in what is now a surface parking lot. The facility consists of four, two-level buildings with the majority on the second level equipped with an open deck and viewing spaces. Combined, the four buildings include almost 50,000 square feet of waterfront retail stores; small restaurants, cafes and bars; commercial office space; a live entertainment venue; and a large observation deck and signature multipurpose venue on the second floor. Additionally, the proposed project includes a 250-stall, multi-level parking structure.

**Confidential Client, Waimea Hawaii, 2016 – Contract Value \$30,000.** Principal Scientist: Performed a comprehensive biological survey of a 4.6 acre parcel in Waikalua, North Kona District, Island of Hawai'i. The survey focused on plants and wildlife listed under the Endangered Species Act (50 CFR 17.11 and 50 CFR 17.12), the Migratory Bird Treaty Act (50 CFR 10.13), and the state list of threatened or endangered wildlife (Exhibit 2 and 3 HAR 13-124). The biological survey consisted of a pedestrian survey for flora and terrestrial faunal resources and a point count survey for avian resources. A data inquiry for records of listed threatened or endangered species for the parcel was conducted at the University of Hawaii Mānoa Center for Conservation Research and Training prior to the field survey.

**Covanta Energy, EIS for 3rd Boiler, City and County of Honolulu H-Power Facility, HI, 2008-2009 – Contract Value \$1,000,000.** EIS and Permitting Task Manager: Performed an Environmental Impact Statement to address the impact of a third combustion unit at the City and County of Honolulu H-Power waste to energy facility. Potential impacts addressed include noise, traffic, historical resources, soil, groundwater and surface water. Air impacts addressed in a PSD permit that included extensive modeling of emissions using screening models and AERMOD. Additional permitting support required for operation and construction of the facility included the solid waste management permit, NPDES operation, Conditional Use Permit, Wastewater Discharge, Stormwater, water use permit, Air Navigation and Clearance for Work in Airport Hazard Area, grading and drainage, NPDES Construction, well construction and pump installation and a permit to operate a sewage treatment facility. Dr. Okoji was also tasked with performance of a comprehensive multimedia risk assessment according to USEPA Human Health Risk Assessment Guidance for Combustor Facilities to address the human and ecological health impacts of the proposed combustion unit on neighboring communities. Also produced a Material Separation Plan and collected data for use in a Lifecycle Analysis pertaining to the recycling waste stream for the City and County of Honolulu.

**Covanta Energy, Stormwater Monitoring Plans, H-Power Facility, HI, 2011-2012 – Contract Value \$30,000.** Principal in Charge: Produced stormwater management plans for the H-Power facility. Plans included the facility Stormwater Management Plan (SWMP), Stormwater Pollution Control Plan (SWPCP) and Spill Prevention, Control, and Countermeasure Plan (Oil And Petroleum Products). Represented Covanta Energy in meetings with the State Department of Health during site inspections.

**Department of Public Works, Sydney, Nova Scotia, 2002-2003,** Task Manager: Assisted in performance of an Environmental Impact Analysis for air emissions associated with the environmental remediation of the Tar Ponds and Coke Ovens sites, which comprise over 100 hectares of industrial property containing 560,000 tonnes of soil contaminated with petroleum hydrocarbons, PAHs, and metals, 1,300 tonnes of PAH-contaminated sediments, 25,000 tonnes of coal-tar contaminated soil, 700,000 tonnes of sediments contaminated with PAHs and metals, and 35,000 tonnes of PCBs in excess of 50 ppm. Airborne constituents of concern included SO<sub>x</sub>, NO<sub>x</sub>, CO, and particulate matter from construction vehicles, particulate matter from excavation and grading activities, and site-related VOCs from excavation and stabilization activities. Evaluated air monitoring program and health-based air criteria. Estimated emissions from a proposed PCB combustor, which included PCBs, dioxins/furans, PAHs, and selected metals as Constituents of Potential Concern. Performed a worker and off-site resident risk assessment of the remediation of pond sediments containing PCBs, PAHs, other organic constituents and metals as well as similar risk assessments for the remediation

**East West Center, University of Hawaii, Manoa Campus, Honolulu, HI, 2013-2014 – Contract Value \$20,000.** Principal in Charge: Completed the NPDES permit application (Appendix L) for the East West Center decorative Koi pond. Performed initial discharge sampling for inclusion in the application. Negotiated chemical of concern list with the HDOH Clean Water Branch and enforcement division.

**FOPCO, Fort Shafter Building 145, Honolulu, HI, 2015-2016 – Contract Value \$25,000.** Principal in Charge: Prepared the Spill Prevention, Control, and Countermeasure Plan (SPCCP) for the removal, decontamination and disposal of one 12,000 gallon UST at Fort Shafter Building 145. Petroleum releases from these tanks which may be discovered during construction are subject to regulation and Hawaii Department of Health oversight under Hawaii Revised Statutes Chapter 128D, Hawaii Environmental Response Law (HERL) and Hawaii Administrative Rules Title 11, Chapter 451, State Contingency Plan. Provided environmental professional (EP) services during tank removal. Authored closure report.

**FOPCO, Schofield Barracks, Wahiawa, HI, 2015-2016 – Contract Value \$25,000.** Currently preparing the Spill Prevention, Control, and Countermeasure Plan (SPCCP) for the removal, decontamination and disposal of one 3,000 gallon UST at Schofield Barracks Building 2072. Petroleum releases from these tanks which may be discovered during construction are subject to regulation and Hawaii Department of Health oversight under Hawaii Revised Statutes Chapter 128D, Hawaii Environmental Response Law (HERL) and Hawaii Administrative Rules Title 11, Chapter 451, State Contingency Plan. Provided environmental professional (EP) services during tank removal. Authored closure report.

**Cloudbreak Hawaii LLC, Kapolei, O'ahu HI, 2013-2014 – Contract Value \$35,000.** Principal Planner: Prepared a HEPA and NEPA compliant EA for Cloudbreak Hawaii, LLC. The EA discussed the addition of affordable housing units to Hale Uhiwai Nalu, an 80-unit veterans housing and services building at Barbers Point. The project consisted of constructing additional structures on an adjacent parcel of land, approximately 6,000 square feet. The Proposed Action would add up to 72 affordable housing units for very low to moderate income households and make support services such as outreach, substance abuse treatment, employment training and placement, and housing transition easily accessible. The project was partially funded through the State Rental Housing Trust Fund (RHTF) and was conducted in collaboration with the Hawaii Housing Finance and Development Corporation and U.S. Department of Veteran Affairs. Public and various federal, state and city agencies were consulted during the EA process. Evaluations conducted as part of the planning initiative concentrated on the following potentially affected environments: Soils, Topography, and Geology, Ground and Surface Water, Air Quality and Climate, Biological Resources, Historic/Archaeological Resources, Land Use, Hazardous/Toxic Wastes, Utilities and Noise. No significant impacts were determined for the proposed project. Specific supplemental studies included an archeological inventory survey and site-specific biological resources survey.

**American Piping and Boiler, Campbell Industrial Park, Kapolei, HI, 2012-2013 – Contract Value \$50,000.** Principal in Charge: Prepared a Grading and Drainage Permit Application to convert a vacant lot to a construction laydown parcel for use in the H-Power expansion project. Project site is located in the City and County of Honolulu, Special Management Area and Coastal Zone Management Area. Completed and submitted the SMA permit application which required that an environmental assessment be conducted for the project. ERA was successful in negotiations with the City and County Department of Environmental Services and the Land Use Approvals division to exempt the project from the Chapter 343 requirement. The exemption required consultation with multiple agencies including the State of Hawaii Historic Preservation Division, USFW, Land Use Approvals, DBEDT, DoA, OHA, etc. The exemption allowed the project to move forward without unnecessary delays due to the EA process. ERA also provided services for completion of a building permit for the construction of 2 driveways and an NPDES permit application for the Department of Health Clean Water Branch. NPDES permit application required completion of a Storm Water Pollution Prevention Plan.

**City and County of Honolulu, Department of Environmental Services, H-Power, HI, 2015-2016 – Contract Value \$25,000.** Principal in Charge: Prepared an Emergency Action Plan for the City and County facility for the H-Power facility located in Campbell Industrial Park. The plan was composed of a Level 1 plan and Level 2 conditions and requirements. The H-POWER Emergency Action Plan delineates the authorities, responsibilities and procedures to be followed by employees in effectively responding to a disaster within the facility. The primary function of the H-POWER Emergency Action Plan is to prepare the facility to respond effectively and quickly to emergencies that occur within the facility or within the community. The plan governs the facility and its employees in the event of an emergency or disaster.

**City and County of Honolulu, Waimanalo Gulch Sanitary Landfill, HI, 2008-2009 – Contract Value \$75,000.** Project Manager: Provided an operational and design review of the City and County operated Waimanalo Gulch Municipal Solid Waste Landfill. Tasks included the review of waste acceptance and screening procedures, as assessment of the geotechnical stability of the landfill including assessment of the use of waste to energy ash as structural fill, compliance with regulatory agencies, spill prevention and response and emergency operations. Report was presented to the City Council and appropriate State agencies to facilitate discussion regarding waste management options for the island of Oahu. Project add-ons included evaluating the cause of elevated landfill temperatures within the landfill and providing a third party review of a Waste Management request for additional funds to operate the landfill.

**85-443 Waianae Valley Road Grading, Waianae, HI, 2012-2013 – Contract Value \$14,000.** Principal in Charge: Prepared a NPDES general permit coverage application for the State of Hawaii, Department of Health Clean Water Branch. NPDES permit coverage was required to manage stormwater runoff during construction activities to remove existing manmade ponds from a former dairy farm. Completed and submitted the NPDES Notice of Intent and Site-Specific Construction Best Management Practices Plan. ERA provided quantity of stormwater discharge calculations and designed BMPs which would meet both client and regulatory requirements.

**Environmental Science Corporation, Environmental Report (ER) for 3 Projects, U.S. Army Engineer District, Japan District, Okinawa, Japan, 2015-2016 – Contract Value \$40,000.** Principal Environmental Planner: Conducted an Environmental Review for three separately planned projects co-located on Kadena Air Base (KAB). Typically, each of the projects would be individually evaluated in separate documents. However, because they were all scheduled to begin construction in 2012 and because they were all co-located on KAB, it was appropriate to streamline the environmental evaluation process and consequently the documentation format, which resulted in a three-project environmental review. The 3 projects were:

- **Replace Bullet Road Bridge** – The U.S. Air Force proposed to repair and reconstruct the Bullet Road Bridge to meet current and future load capacity requirements of the munitions squadron. The existing Bullet Road Bridge is located along an alternate munitions transportation route that connects the airport runway at KAB with the Munitions Storage Annex. Natural weathering and normal operational wear of the Bullet Road Bridge has resulted in the bridge's current degraded state, which has deteriorated to a load capacity approximately 50% of its original design.
- **Department of Defense Education Activity (DODEA) MILCON School Replacements** – The DODEA proposed to conduct a series of replacement construction school projects at multiple sites over a period of 2-5 years with planned designed start dates scheduled for November 2012. Phase I of the DODEA project involves demolition of 49 existing family housing units to provide space for new construction and consolidated co-location of the Amelia Earhart Intermediate School (AEIS) and Bob Hope Primary School (BHPS). Phase II of the DODEA project involves construction of the new Stearley Heights Elementary School (SHES) and demolition of the old SHES. Phase III is to construct a new Kadena Elementary School (KES) in green space northeast of the old SHES site. Phase IV is the construction of the new Kadena High School (KHS) at the former KES site. This four-phase program will create adequate academic facilities that meet Department of Defense Dependents Schools DoDDS initiatives to increase classroom space for various plans and programs, such as the Reduced Pupil-Teacher Ratio (RPTR) initiative and the Department of Defense Education Activity DoDEA Technology Plan, which calls for increased computer laboratories in schools.
- **Special Action Committee on Okinawa (SACO) Agreement of 1996 Navy Relocation** – The Department of Defense (DOD) proposed to construct a single parking lot to serve all Navy facilities being relocated under the SACO program. The project, when completed, provides convenient access to support activities in the vicinity of the northeastern end of Runway F. The project also reconstructs parking areas that will be demolished or taken out of service in order to provide a site for the relocated Navy aircraft operations facilities. The project will include construction of sidewalks, a traffic light or pedestrian bridge, and new utilities such as storm drains and security lighting. The proposed action is consistent with the planned Navy Relocation activities related to the SACO Agreement.

**Hawai'i State Army National Guard, Keaukaha Military Reservation Consolidation, HI, 2008-2009 – Contract Value \$90,000.** Project Manager: Performed a NEPA and HEPA compliant Environmental Assessment for the consolidation of several Hawai'i National Guard facilities and construction and redevelopment of an existing military facility. Evaluated cumulative environmental impacts from the proposed project. Specific project issues include addressing potentially significant impacts on archaeological resources, historical buildings, determination and mitigation of potential impacts on historically significant trails and addressing the substantial public inquiry and comment regarding the project.

**U.S. Air Force Center for Environmental Excellence, Environmental Assessment (EA) for Beddown of the 604th Air Support Operations Center (ASOC), Oahu, HI, 2009-2010 – Contract Value \$100,000.** Principal Environmental Planner: Performed a NEPA and Chapter 343 State of Hawaii HEPA compliant environmental assessment to facilitate the beddown of the 604th ASOC on O'ahu, Hawai'i. Two principal technical services were provided: an Environmental Baseline Survey (EBS) and a NEPA and HEPA compliant EA. The EBS tasks were intended to provide thorough research, investigation, evaluation, documentation, and decision findings of the environmental conditions of the subject real property under consideration for the proposed beddown. The EA was necessary to determine if a Finding of No Significant Impact (FONSI) or the preparation of an Environmental Impact Statement (EIS) was required for the beddown. The EA addressed potential environmental impacts related to implementation of the proposed action and its alternatives; principal impact assessment is anticipated to focus on cultural resources management, hazardous and regulated materials and wastes, safety, infrastructure, and land use compatibility. A FONSI was determined for the proposed beddown project.

**Environmental Impact Statement (EIS), EIS Technical Support for Pohakuloa Training Area, State of Hawai'i Department of Transportation, HI, 2008-2009 – Contract Value \$40,000.** Principal Environmental Planner: Subcontracted by Okahara and Associates to provide EIS technical support for the State of Hawai'i Department of Transportation expansion of Saddle Road on the Big Island of Hawai'i. Specifically tasked with

determining the impacts from potential depleted uranium originating from PTA during military training activities to receptors that may traverse the proposed roadway. Project involves depleted uranium surface soil sampling and air modeling to receptor locations.

**City and County of Honolulu, Environmental Assessment for Expansion of Waianae Regional Park, Oahu, HI, 2008-2009 – Contract Value \$30,000.** Project Manager: Performed an Environmental Assessment for development and expansion of a regional park. Provided technical support regarding the unique geological fixtures that might pose developmental difficulties. Specific issues included, ancient Hawaiian archaeological burial grounds, the existence of multiple limestone sinkholes on site and unique endangered species.

**Environmental Science Corporation, Environmental Review (ER) for Proposed Kadena Industrial Park, U.S. Army Engineer District, Japan District, Okinawa, Japan, 2013-2014 – Contract Value \$40,000.** Principal Environmental Planner: Prepared an Environmental Review (ER) for a new industrial park at Kadena Air Base (KAB). Camp Kinser, located south of KAB, was proposed for closure as a result of mandates from the Special Action Committee on Okinawa (SACO) Agreement of 1996 and the Security Consultative Committee (SCC) Agreement of 2005. The mandates required the relocation of a number of industrial facilities. Two sites, Kadena Ammunition Storage Area (KASA) 1 and Chibana were identified as viable alternatives for construction of the new industrial park. The ER was in accordance with the following:

- Executive Order (EO) 12114, Environmental Effects Abroad of Major Federal Actions, dated January 4, 1979.
- DoDD 6050.7, Environmental Effects Abroad of Major Defense Actions, dated March 31, 1979.
- Japan Environmental Governing Standards (JEGS) September 2008
- Air Force Policy Directive 32-7006, Environmental Program in Foreign Countries, 29 April 1994
- Air Force Instruction 32-7061, The Environmental Impact Analysis Process, 12 March 2003
- National Historic Preservation Act of 1966, Section 402.

**Environmental Science Corporation, Environmental Review (ER) for Proposed Missile Storage Facility and Access Road, U.S. Army Engineer District, Japan District, Okinawa, Japan, 2013-2014 – Contract Value \$35,000.** Principal Environmental Planner: Currently preparing an ER for a proposed Missile Storage Facility in the Munitions Storage Area of KAB. The ER is being prepared for Kadena Air Base (KAB) through the US Army Corps of Engineers (USACE), Japan Engineer District (JED) to evaluate the potential environmental impacts that may occur as a result of the proposed actions at KAB. The Proposed Action is defined as the demolition of three (3) existing above ground magazines (AGM), construction and operation of two (2) consolidated MSF structures, and construction and maintenance of a new access road to accommodate munitions transport vehicles. The Proposed Action would be implemented under the authority of the FY14 Military Construction (MILCON), Army Patriot Missile Storage Facilities for the 1-1 Air Defense Artillery (ADA) Battalion.

**Environmental Science Corporation, USACE Japan District, Iwakuni, Japan, 2013-2014 – Contract Value \$40,000.** Principal Environmental Planner: Provided an Environmental Review (ER) to identify, document, and address potential environmental impacts associated with the construction and subsequent operation of a Type III Hydrant Fueling System and Supporting Structures. The action was proposed to improve safety, security, and logistics infrastructure at MCAS Iwakuni by providing a dependable, high volume and environmentally sound hydrant refueling system.

Effects of the Proposed Actions were analyzed as required by, and in accordance with:

- Executive Order (EO) 12114, Environmental Effects Abroad of Major Federal Actions, January 1979;
- Department of Defense (DoD) Directive 6050.7, Environmental Effects Abroad of Major Department of Defense Actions, March 1979; and
- Marine Corps Order (MCO) P5090.2A w/ch 2, Environmental Compliance and Protection Manual, May 2009.

Evaluations conducted as part of the planning initiative concentrated on the following potentially affected environments: Soils, Topography, and Geology; Ground and Surface Water; Air Quality and Climate; Biological Resources; Historic/Archaeological Resources; Hazardous/Toxic Wastes; Land Use; Utilities; and Noise.

**Environmental Science Corporation, USACE Japan District, Marine Corps Base Camp Butler, 2012-2013 – Contract Value \$40,000.** Principal Environmental Planner: Provided an Environmental Review (ER) to identify, document, and address potential environmental impacts associated with the construction a new elementary school. The proposed action included the demolition of an existing school and residential neighborhood. The ER was performed in accordance with:

- Executive Order (EO) 12114, Environmental Effects Abroad of Major Federal Actions, January 1979;

- Department of Defense (DoD) Directive 6050.7, Environmental Effects Abroad of Major Department of Defense Actions, March 1979; and
- Marine Corps Order (MCO) P5090.2A w/ch 2, Environmental Compliance and Protection Manual, May 2009.

**Enviroquest Inc, Environmental Assessment (EA) Iwakuni Marine Corp Air Station Golf Course, U.S. Army Corp Engineers (USACE), Iwakuni, Japan, 2008-2009 – Contract Value \$30,000.** Principal Environmental Planner: Subcontracted by EnviroQuest Inc. to perform an Environmental Report on behalf of the U.S. Army Corp of Engineers (USACE) Japan Environmental District and U.S. Marine Corp Air Station, Iwakuni. The Environmental Report was prepared to identify, document, and address potential environmental impacts associated with the construction and subsequent operation of a golf course and supporting structures on a former unregulated landfill. Specialty impact assessments required for the EA included geotechnical and human health risk assessments. Also required was an impacts assessment for biological resources, specifically the proposed action's impacts on the endangered white snake. Additional evaluations conducted as part of the planning initiative concentrated on the following potentially affected environments: Soils, Topography, and Geology, Ground and Surface Water, Air Quality and Climate, Biological Resources, Historic/Archaeological Resources, Land Use, Hazardous/Toxic Wastes, Utilities and Noise.

**Engineering/Remediation Resources Group Inc (ERRG), U.S. Army Corps of Engineers, Hawaii District, Haleiwa Landing Field, Oahu, HI, 2001 – Contract Value \$6,000.** Principal Scientist: Performed principal level review of a biological resources assessment for a formerly used defense site in Kawaihoa, Oahu, Hawaii. The scope of the assessment included a biological resources reconnaissance survey and consultation with appropriate federal and state agencies including the State of Hawaii Department of Land and Natural Resources Land Division, Hawaii State Office of Conservation and Coastal Lands, Hawaii National Heritage Program and the United States Fish and Wildlife. The assessment report provide a detailed analysis of potential biological impacts due to planned construction activities within the boundaries of the site and mitigation measures required to prevent significant adverse impact.

**Micon Real Estate, Environmental Assessment for Hale Ohana Affordable Housing Project, Koloa, Kauai and Maui, HI, 2008-2009 – Contract Value \$30,000.** Principal Environmental Planner: Assisted a real estate developer, Micon Real Estate, with the environmental review process of their proposed Hale Ohana affordable housing project, located in Koloa, Kauai and proposed Honokawai Villa Apartments affordable housing project, located in Lahaina, Maui. The existing 48-unit Hale Ohana Apartment complex and 56-unit Honokawai Villa Apartments is proposed to undergo a significant renovation in order to meet current health and safety codes, and to provide a higher quality of housing for those in need. After evaluation of the project description and applicable environmental and social factors, these projects were determined to be of minimal impact to the environment and would be of great benefit to the community. Dr. Okoji and his team were able to seek exemptions from the environmental review process for these projects and secure Letters of Negative Determination. This saved the client valuable time and funds.

**Project Manager, Aston Waikiki Beachside Hotel Renovation, Environmental Assessment (EA), Royal Kai Lani, O'ahu, HI, 2008-2009 – Contract Value \$35,000.** Conducted an Environmental Assessment EA for a \$7 million dollar renovation project in Honolulu, Hawai'i. The proposed project would renovate the Aston Waikiki Beachside Hotel into a luxury condominium, the Royal Kai Lani. A complete interior renovation would transform the structure from its existing 8-unit per floor hotel into a single unit per floor luxury suite. Public and various federal, state and city agencies were consulted during the EA process. The Final Environmental Assessment was accepted by the Department of Planning and Permitting and a Finding of No Significant Impact was designated. Dr. Okoji and his staff were also successful in obtaining the necessary Special Management Area Use Permit, Major (SMA) for the project.

**Belt Collins, Island of Hawai'i. Kawaihae-Mamalahoa Connector Road EIS Technical Support, HI, 2008-2009 – Contract Value \$40,000.** Project Manager: Provided EIS technical support for the construction and operation of a bypass road in the Mamalahoa, Waimea area of the Island of Hawai'i. Specifically subcontracted by Belt Collins to determine the environmental impacts of the proposed roadway on adjacent organic and conventional farm lands. Impacts assessed included the change in surface water potential and productivity of the land. Conversely, the assessment also evaluated the impact of farming practices on potential future users of the proposed road.

## Risk Assessment and Toxicology

**Engineering Remediation Resources Group (ERRG), Military Munitions Response Program, Remedial Investigation at Bellows Air Force Base, Waimanalo, HI, 2012-2014 – Contract Value \$60,000.** Principal in Charge: Assisted in preparing project documents (UFP-QAPP, APP, SHSP, WP, IDW Management Plan, Explosives Safety Plan) for a remedial investigation. The subjects of the RI are three MRA (MRA39, MRA40 and MRA43). The MRAs were recommended for further investigation under a Comprehensive Site Evaluation (CSE) Phase II. The objective of the RI was to further characterize the nature and extent of munitions constituents (MC)-related contamination in soil and determine if MEC is still present. The suspected MC consisted primarily of lead and small amounts antimony, arsenic, cadmium, copper, and zinc. As part of the RI, human health and ecological risk assessments were performed to characterize the risk from site metals to humans and wildlife.

**Environet Inc. Military Munitions Response Program, USACE Omaha District, RI/FS at Bellows Air Force Base, Waimanalo, HI, 2014-2017 – Contract Value \$100,000.** Principal in Charge: Provided work plan and feasibility study support from RI/FS through Decision Document in conjunction with the technical team and federal regulatory bodies. Currently preparing a supplemental ERA for the Feasibility Study. The Feasibility Study is a follow on study to the Remedial Investigation performed in 2012 and addressed datagaps identified in the RI and potential future use of the mangroves area as constituted wetland.

**Environet Inc. for U.S. Department of the Interior, National Park Service, Screening Level Human Health Risk Assessment, Asan Beach Unit, War in the Pacific National Park, Asan, Guam, 2013-2014 – Contract Value \$15,000.** Principal in Charge: Prepared a screening level human health risk assessment for munitions related chemicals. Risk assessment evaluated potential for health effects from the consumption metals and other COPCs in seafood.

**Engineering Remediation Resources Group (ERRG), Military Munitions Response Program, Remedial Investigation at Wake Island Airfield, Wake Island Atoll, 2012-2014 – Contract Value \$60,000.** Principal in Charge: Assisted in preparing project documents (UFP-QAPP, APP, SHSP, WP, IDW Management Plan) for a remedial investigation. The subject of the RI is a single MRA (MRA101, MRS SR001 – Small Arms Range). The MRA was recommended for further investigation under a Comprehensive Site Evaluation (CSE) Phase II. The objective of the RI was to further characterize the nature and extent of munitions constituents (MC)-related contamination in soil at MRA101. The suspected MC consists primarily of lead and small amounts antimony, arsenic, cadmium, copper, and zinc. As part of the RI, human health and ecological risk assessments are currently being performed to characterize the risk from site metals to humans and wildlife.

**US Army Garrison, Hawaii, Hawaii Makua Military Reservation, HI, 2014-2015 – Contract Value \$45,000.** Principal Risk Assessor. Produced a baseline HHRA in support of the Makua Military Reservation Live-Fire Training Area Supplemental Marine Resources Study of nearshore waters of Makua Beach, Kaena Point and Mokuleia Beach. The United States Army performed the Marine Resources Study to supplement an earlier 2009 Study. Biota samples for the analyses of constituents of concern were collected for two consecutive seasons at three locations from within the nearshore waters off Makua Beach, Ka'ena Point, and Mokule'ia Beach. The two analytical datasets were evaluated for human health risk from consumption of the seafood biota. Supported client at a public meeting by providing a presentation of risk results.

**Engineering Remediation Resources Group (ERRG), Military Munitions Response Program, Remedial Investigation at Hickam Air Force Base, Joint Base Pearl Harbor Hickam, HI, 2013-2014 – Contract Value \$45,000.** Assisted in preparing project documents (UFP-QAPP, APP, SHSP, WP, IDW Management Plan, Explosives Safety Plan) for a remedial investigation. Performed baseline human health and ecological risk assessments for munitions constituents (MC)-related contamination in soil, groundwater and sediment.

**Army National Guard, Fort Ruger, HI, 2006-2007 – Contract Value \$3,000,000.** Project Toxicologist: Conducted a site-specific lead risk assessment for a former rifle and pistol range. Receptors included children and adult visitors to the monument and onsite workers. Evaluated lead from several particle size fractions. Provided extensive technical support in developing field sampling plan and data objectives. Extensively involved in determining options for site cleanup and remediation. Risk assessment compared results from USEPA IEUBK and the California Department of Toxic Substance Control lead models.

**Environet Inc., Hawaii Undersea Military Munitions Assessment, HI, 2009-2010 – Contract Value \$40,000.** Principal Scientist: Dr. Okoji performed a human health risk assessment to support the U.S. Department of Defense's efforts to assess the potential risk to human health and the environment of an historic munitions disposal site located about 5 miles south of Pearl Harbor. Risk assessment was performed assuming recreational divers, adult and child subsistence fishermen, adult and child recreational fishermen and adult and child residents may be exposed to seafood contaminated with munitions-related compounds.



**Environet Inc. Waikane Valley HHRA, Waianae, HI, 2008-2009 – Contract Value \$45,000.** Principal Toxicologist: Hawaii has a number of active and transferred military training areas that have been contaminated by unexploded ordnance (UXO). The government has continued the complex task of remediating these lands of the explosives hazards, but the process is slow and expensive. There are public concerns about the status of the water and soils on and near these lands, and questions about how they are affected by both the chemicals present inside the remaining UXO as well as large pieces of explosives (energetics) which can remain in or around an area following low order detonations. Very little emphasis has been given to the assessment of area groundwater, soil contamination, and the resulting risk to humans and the environment from these munitions constituents (MC), especially in sub-tropical volcanic soils. Provided a Tier IA and Tier II HHRA for this UXO site. The site was approximately 20 acres and partitioned into 5 independent DUs. Risk assessment was performed assuming receptors would be exposed to average surface soil concentrations as determined by MI sampling techniques. A supplemental assessment was also conducted which included biased discreet sampling data collected from the immediate area around identified lead bullets as well as the MI data. Biased samples were area-weighted to ensure those locations did not disproportionately represent the concentrations on site.

**PVT Land Company, PVT Landfill, Nanakuli, HI, 2010-2012 – Contract Value \$50,000.** Principal in Charge: Produced a work plan and baseline human health risk assessment to evaluate recycling of construction and demolition (C&D) materials for use as fuel in a liquid gas manufacturing plant. The investigation was prepared to address Hawaii Department of Health (HDOH) concerns regarding the environmental and human health safety of recycling, including the use of a crushing/processing plant at the PVT Landfill Site. The proposed plant is part of a larger recycling initiative that when implemented will significantly reduce the volume of material going to landfill, provide the State with an additional renewable source of natural gas and align PVT operations with the State's Clean Energy Initiative and Integrated Solid Waste Management Plan. Specifically, the HDOH is concerned with the following potential impacts associated with the proposed recycling program: air/dust impacts during delivery of bulk material, air/dust impacts during mining of closed portions of the landfill for feedstock (bulk material), air/dust impacts during crushing and shredding of bulk material, air/dust impacts from onsite storage of processed material, leaching potential of stored feedstock or processed material.

**Insight Environmental, Former Lowry AFB, Aurora, CO, 2013-2014 – Contract Value \$40,000.** Principal Toxicologist. Produced a human health risk assessment for the Former Lowry Titan I, Missile Site 1, Complex 1C site located on the Former Lowry Bombing Range, in Arapahoe County, Colorado. The HHRA evaluated potential chemical releases identified in two (2) distinct areas or Decision Units (DUs). The first DU was defined as the former Incinerator Area. The second DU was defined as the former Chemical Waste Clarifier Area. The goal of the HHRA was to determine if concentrations of chemical constituents at each DU presented an unacceptable risk to human health. The relevant data sets for the Incinerator and Waste Clarifier Areas were reviewed to ensure that all applicable data were included in the HHRA. The following previous investigations have been conducted at Titan 1C: 1998 Site Inspection (SI), 2000 Remedial Investigation (RI), and a 2014 Data Gaps Investigation (DGI) and Pilot Study Activities Report. The chemical boundaries for this HHRA were limited to polycyclic aromatic hydrocarbons (PAHs) at the former Incinerator Area and polychlorinated biphenyls (PCBs) at the former Chemical Waste Clarifier Area. Other chemicals such as metals, volatile organic compounds (VOCs), and total petroleum hydrocarbons (TPH) were characterized in previous investigations and determined to not be of concern at the Site.

**Insynergy, USACE, JED, Sasebo, Japan, 2013-2014 – Contract Value \$40,000.** Principal Scientist. Conducted an air modeling study to evaluate ambient air quality concerns associated with an existing diesel boiler located adjacent to the proposed new E.J. King High School and Sasebo Elementary School at U.S. Fleet Activities Sasebo located in Sasebo, Nagasaki, Japan. This air modeling study was conducted to assess if the existing boiler plant poses a human health risk above regulatory levels of concern to students, teachers and workers at the proposed new high school and elementary school or if mitigation measures are required. In order to assess the air concentrations from the boiler, air dispersion modeling was conducted utilizing the United States Environmental Protection Agency regulatory model AERMOD Version 14134 (EPA, 2014a). Modeling input parameters, which consisted of nearby building dimensions, emission source parameters, meteorological data, and property boundary locations, were configured to run with the AERMOD dispersion model to estimate air pollution concentrations at various locations surrounding the existing boiler. In addition to the existing diesel fueled boiler, an assessment was conducted assuming the conversion from diesel fuel to natural gas. Projected natural gas consumption was calculated assuming the natural gas boiler would require the same heat input as the existing diesel fuel boiler.

**Insight Environmental, Vandenberg Air Force Base, CA, 2013-2015 – Contract Value \$75,000.** Produced a Human Health Risk Assessment (HHRA) as part of the revised Feasibility Study (FS) for Vandenberg Air Force Base (VAFB) Installation Restoration Program (IRP) Site ST042 (Component Decontamination Facility). The purpose of the HHRA was to assess risk to human health from soil and soil gas and to identify whether further evaluation is warranted if these media present unacceptable risks to current and potential future receptors. Site ST042 consists of a square, 10,000 square foot (ft<sup>2</sup>), single-story, cement-block structure (Building 7501),

surrounded by a 157,500 ft<sup>2</sup> asphalt-paved yard. The Site ST042 facility was used for testing Titan II rocket engines. Missile parts and missile service equipment contaminated with hypergolic fuels were also cleaned inside Building 7501 using trichloroethene (TCE), detergents, and water. After use, the spent solvent and water were directed to two USTs located beneath the paved area southeast of Building 7501. The two USTs were investigated and removed in 1992. Building 7501 is currently used to maintain tanker trucks that store and transport Jet Propellant No. 8 (JP-8). Site soil and soil gas were evaluated in the HHRA. Environmental data collected from 2007 to 2010 were deemed representative of current site conditions and were included in the data set. Maximum site soil concentrations were compared to residential U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) (EPA, 2015a). Indoor air screening levels were sourced from the EPA RSL Table (EPA, 2014a) and DTSC Note 3 revised RSLs (DTSC, 2014a) and used to calculate subslab soil gas and contaminant source soil gas screening levels by applying the default attenuation factors of 0.05 for existing residential subslab soil gas and 0.001 for future residential contaminant source soil gas (DTSC, 2011). Developed Risk-Based Cleanup Goals for the Site.

**SDV Engineering and Construction, NAVFAC Southwest, Marine Corps Air Station, Yuma, AZ, 2015 – Contract Value \$20,000.** Produced a Tier IA screening level human health risk assessment (HHRA) for the KMFP Fuel Site, located at MCAS, Yuma, Arizona. This Tier IA HHRA was prepared as part of this investigation to determine the potential for risk to hypothetical future residents using the groundwater for drinking water purposes, or associated with vapor intrusion from groundwater to indoor air.

**Environmental Science Corporation, Camp Zama Fuel Spill Characterization and Risk Assessment, Camp Zama, Japan, 2009-2010 – Contract Value \$45,000.** Principal Scientist: Prepared a site-specific human health and ecological risk assessment for the Camp Zama underground FJ-1 fuel pipeline leak. The leak was associated with a 52,000 gallon capacity FJ-1 fuel tank (1024-n) which supplies fuel to an incinerator day tank (106 gallons) and boiler tank. The amount leaked was estimated at 2,000 gallons. Immediately following the identification of the leak, emergency remedial activities were undertaken to clean up visible oil at the leak site, the surface of the Camp Zama retention pond and downstream creeks and outfalls. The purpose of the human health risk evaluation was to estimate potential risks to human and ecological health, if any, that may be posed by residual FJ-1 fuel following emergency remedial activities. The site-specific human health risk assessment also included a qualitative uncertainty analysis. AMEC provided significant input into the sampling and analysis plan. Two deliverables were produced including a comprehensive baseline human health and ecological risk assessment and a “concise” public version. The site-specific risk assessment has undergone regulatory review and has been accepted.

**Environmental Science International, US Navy, US Naval Base Yokosuka, Japan, 2011-2012 – Contract Value \$40,000.** Principal Toxicologist: Produced a Tier I, (Risk Based Screening) and Tier II (Baseline Human Health Risk Assessment) for A Tier IA Risk-Based Screening and Tier II Site-specific Baseline Human Health Risk Assessment (BHHRA) were prepared for two separate sites proposed for the new Kinnick High School at Naval Base Yokosuka, Japan. The assessment was conducted using all available data collected during Site investigations by ESI in 2010 and from relevant previous investigations. Receptors evaluated in this HHRA included current and future industrial Site workers, future construction workers, future high school students and hypothetical residents. Exposure pathways considered in the Tier I screening level assessment included: ingestion of soil, dermal contact and absorption of chemicals in soils, leaching potential, inhalation of chemicals via fugitive dust and inhalation of volatiles emanating from soil. Media evaluated included surface and subsurface soil only. Data was provided for multi-increment samples. Chemicals evaluated in the risk assessment included heavy metals, PCBs, dioxins, SVOCs, VOCs, chlorinated pesticides and organophosphate herbicides. Childhood risks calculated using Age-Dependent Adjustment Factors for mutagenic compounds.

**Element Environmental, US Navy, Sand Blast Grit Disposal Sites, Joint Base Pearl Harbor-Hickam, HI, 2012-2012 – Contract Value \$40,000.** Principal Toxicologist: Performed a Tier IA and Tier II human health risk assessment (HHRA) as part of the remedial investigation (RI) at the Sandblast Grit Disposal Sites located on the Waipio Peninsula, Joint Base Pearl Harbor-Hickam (JBPHH), Hawaii. The HHRA evaluated potential cancer risks and noncancer hazards to hypothetical future onsite residents (to provide baseline risk information only), current and future industrial site workers, future construction workers, and current and future trespassers/visitors. Based on the historical chemical data available for the Site, Site details and current and anticipated future Site use, the exposure routes evaluated included incidental ingestion, dermal contact with soil, and inhalation of fugitive dust from soil. The HHRA assumed that future soil removal or construction activities at the Site could bring subsurface soil to the surface. Each soil horizon was evaluated separately and assumed present at the surface available for exposure to all identified receptors.

**Enviroquest Inc., USACE Japan Environmental District, Iwakuni Japan, 2010 – Contract Value \$30,000.** Principal Scientist: Provided a human health risk assessment for an existing Solid Waste Landfill site located at U.S. Marine Corps Air Station (MCAS), Iwakuni, Japan. The landfill was defined by four (4) distinct zones, three (3) of which are similar in size and one (1) that was slightly larger than the others. A total of fifteen (15) soil vapor

samples were collected from the landfill. Three (3) soil vapor samples were collected from a medial transect of each of the (3) smaller zones, resulting in a total of nine (9) samples from the smaller zones, and six (6) were collected in the larger zone. In addition, nine (9) surface water samples were collected along various locations on the perimeter of the landfill.

The specific scenarios evaluated included hypothetical construction workers, golf course attendants and future users of the golf course. The human health risk assessment included a Tier IA: Risk Based Screening and Tier II: Baseline Human Health Risk Assessment and was performed in accordance with standard principles and approaches identified in the U.S. Navy Human Health Risk Assessment Guidance (Pioneer Technologies Corporation 2008) and the Department of Defense Vapor Intrusion Handbook (Tri-Service Environmental Risk Assessment Workgroup 2009), as well as the United States Environmental Protection Agency's (USEPA) Risk Assessment Guidance for Superfund (RAGS): Human Health Evaluation Manual, Part A (USEPA 1989) and other USEPA guidance documents. Risk assessment guidelines established by other federal agencies and state agencies were also considered when appropriate.

**US Navy, Marine Corp Base Hawaii (MCBH), Kaneohe, HI, 2008-2009 – Contract Value \$25,000.** Project Toxicologist: Performed a Tier IB site-specific human health risk assessment for property located in the vicinity of Mokapu Mall, between MacLachlan Street and McLennon Drive, at Marine Corps Base Hawai'i (MCBH) in Kane'ohe, Hawai'i. Specifically, the assessment evaluated health risks to human receptors that may work at or frequent a future Child Development Center proposed to be located at the Site.

**US Navy, NAF Atsugi, Japan, 2004-2005 – Contract Value \$30,000.** Project Toxicologist: Conducted a preliminary risk evaluation and site-specific assessment of surface and subsurface soils at a U.S. Naval facility in Atsugi, Japan. Contaminants of concern include PCBs, dioxin, arsenic, chlordane and DDD. Obtained regulatory site closure on a Naval base located outside the U.S. Risk assessment used to obtain No Further Action status.

**US Navy, Pearl Harbor HI, 2004-2006 – Contract Value \$50,000.** Project Manager: Provided extensive review and consulting on a previously conducted screening human health risk assessment for the site. Recalculated quantitative risk estimates using current and accepted EPA protocols and methodology. Provided technical support on the Site-specific Baseline Human Health Risk Assessment. Toxicological and risk assessment issues addressed include validity of modeling chemical concentrations in fish tissue from sediment concentrations, scientifically justifiable methodologies for estimating exposure point concentrations and the relevance of the TEF approach for estimating PCB risk. Risk assessment was used to make risk management decisions regarding the recreational use of the site.

**RMA Insight JV for USAF, Malmstrom Air Force Base, Mt, 2013-2014 – Contract Value \$25,000.** Principal in Charge: Produced a screening level ecological risk assessment (SLERA) as part of the Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) for storm drainage ditch site SD010 located on Malmstrom Air Force Base (MAFB), Great Falls, Montana. Previous ecological risk assessments (ERAs) conducted for this Site have indicated that the potential for risk to benthic macroinvertebrates may exist due to residual contaminants (i.e., chlorinated pesticides and polychlorinated biphenyls [PCBs]) in the sediment of the Site. The SLERA provided an update to the previous ERAs and assessed the current potential for risk to ecological receptors at the Site as well as the potential for future risk due to the transport of contaminants by water erosion into the ditch from the adjacent upland soils.

**PCR Environmental, Former Naval Station Agana, Guam, 2006-2007 – Contract Value \$30,000.** Principal in Charge: A site-specific Tier II (Baseline Human Health Risk Assessment) was prepared for the POI-3 and POI-18 sites located at the Former Naval Air Station Agana, Tiyan, Guam. Human health risks were estimated for future construction workers if construction work were conducted at the Site. Although exposure pathways were considered incomplete for future industrial/commercial workers and hypothetical residents, risk were estimated for these receptors assuming impacted soils are brought to the surface. The risk assessment provided further characterization of human health risks from Site soils resulting from past activities associated with the operation and maintenance of the facilities. Risk assessment has lifted all land use restrictions from both Sites.

**Okahara and Associates, Pohakuloa Training Area, HI, 2009-2010 – Contract Value \$60,000.** Project Manager: Contracted by Okahara and Associates to provide EIS technical support for the State of Hawai'i Department of Transportation expansion of Saddle Road on the Big Island of Hawai'i. Dr. Okoji was specifically tasked with determining the human health risk from potential depleted uranium originating from PTA during military training activities to receptors that may traverse the proposed roadway. Project involved depleted uranium surface soil sampling and air modeling to receptor locations. Project deliverables included a Sampling and Analysis Plan, the results of the surface soil sampling event, a source determination and background evaluation and Human Health Risk Assessment (HHRA) for uranium (U) isotopes. The assessment addressed the public's concern that depleted uranium originating from military operations at PTA may impact the health of those that may be involved in the construction of the proposed alignment as well as those that may use the road in the future. The risk assessment

considered both chemical and radiological toxicity from uranium. Assisted Okahara in responding to community comments in the EIS at 2 public meetings.

**US Navy, Orote Landfill, Guam, 2002-2006 – Contract Value >5,000,000.** Senior Toxicologist: Performed a preliminary human health risk evaluation and baseline human health risk evaluation for seafood sourced from the Marine DU of the Orote Landfill Site. Chemicals of concern included PCBs, dioxins/furans, metals, chlorinated pesticides, PAHs and Ordnance compounds. Provided extensive technical support on PCB and Dioxin risk assessment on behalf of Navy clients in numerous face-to-face conferences with the EPA, Guam EPA, ATSDR and the public. Successful in negotiations with EPA Region 9 to make risk management decisions based on more realistic data supported by site-specific conditions rather than overly conservative default assumptions. Provided the Navy with technical arguments on the complexities of interpreting information from biomarker data as well as extensive toxicological support regarding the carcinogenic evaluation of PCBs. Significant participation in developing and evaluating data from a seafood consumption survey in the Agat Bay area on the island of Guam. Extensive involvement in development and implementation of a more comprehensive study to evaluate human health risks associated with the Orote Landfill site. Developed site conceptual models and exposure routes. Represented Navy client in numerous interactions with the people of Guam. Received commendations from the Navy and ATSDR for public support efforts. Risk assessments have released the Navy from potential liability along approximately three miles of coastline on the Orote Peninsula.

**Environet Inc., Ordnance Reef, HI, 2008-2010 – Contract Value \$150,000.** Principal Scientist: Provided human health and ecological risk assessment support for an underwater munitions site off the Waianae Coast of Oahu, HI. Dr. Okoji was specifically tasked with reviewing and providing input on the project Sampling and Analysis Plan, development of the Conceptual Site Model and providing a human health and ecological risk assessment. The human health risk assessment addressed carcinogenic and noncarcinogenic risks to recreational divers, adult and child subsistence fishermen and adult and child recreational fishermen. Media evaluated included: sediment, water, fish and invertebrate tissues. Dr. Okoji and his staff designed and implemented a program to assess seafood consumption habits of the Waianae community. This data was accepted by regulatory agencies and used in the HHRA. Dr. Okoji also attended and present results of the risk assessment at various regulator and public meetings on behalf of Environet and the USACE.

**AMEC Earth and Environmental Inc, US Navy, Pearl City Fuel Annex, 2010-2011 – Contract Value \$48,000.** Principal Toxicologist: Conducted a limited Tier II site-specific human health risk assessment for the Pearl City Fuel Annex site (PCFA), located in the Pearl Harbor Naval Complex (PHNC), Hawaii. Human health risks were estimated for a potential trespasser and maintenance worker scenario exposed to surficial soils. This risk assessment provided further characterization of human health risks from surface soil impacts resulting from past site activities associated with the operation and maintenance of the facility. Potential sources of contamination include: product releases, the sandblasting and painting of above-ground storage tanks (ASTs) and associated pipelines, and past tank sludge and condensate disposal practices. Currently conducting a Tier I, (Risky Based Screening) and Tier II (Baseline Human Health Risk Assessment) for the PCFA Site. Exposure pathways evaluated included dermal contact and oral ingestion of contaminated soils and inhalation of ambient air. 649 surface and subsurface soil samples from 9 total investigations are included in the analysis. Receptors include current and future industrial workers, construction workers, offsite residents and trespassers.

**Environmental Science International, US Navy, Pearl Harbor Naval Complex, Building 35, HI, 2011-2012 – Contract Value \$40,000.** Principal Toxicologist: Performed a Tier I, (Risky Based Screening) and Tier II (Baseline Human Health Risk Assessment) for an area north of Paint Shop Building 35 located in the Public Works Center (PWC) Geographic Study Area (GSA) within the Pearl Harbor Naval Complex (PHNC) on the island of Oahu, Hawaii. The risk assessment provided further characterization of human health risks from surface and subsurface soil impacts resulting from past site activities associated with the operation and maintenance of the Site. The assessment was conducted using all available data collected during Site investigations by ESI in December of 2009 and from relevant previous investigations. Receptors evaluated in this HHRA included current and future industrial Site workers, future construction workers and hypothetical residents. Exposure pathways considered in the Tier I screening level assessment included: ingestion of soil, dermal contact and absorption of chemicals in soils, leaching potential, inhalation of chemicals via fugitive dust and inhalation of volatiles emanating from soil. Media evaluated included surface and subsurface soil only. The Site was treated as a single Decision Unit (i.e., receptors were assumed to be exposed to all areas of the Site and not just specific areas). Chemicals evaluated in the risk assessment included heavy metals, PCBs, acetone, ethylbenzene and toluene.

**Environmental Science International, US Navy, Abandoned Small Arms Firing Range, Lualualei, HI, 2011-2012 – Contract Value \$40,000.** Principal Toxicologist: Provided human health and ecological risk assessment support for a former abandoned small arms firing range. Risk assessment included a Tier IA and Tier II HHRA and

ERA. Chemicals of potential concern included lead only. Child lead exposures were evaluated with USEPA's IEUBK Child Lead Model. Adult lead exposures were evaluated with USEPA's Adult Lead Model.

**US Navy, Red Hill, HI, 2004-2006 – Contract Value \$50,000.** Task Manager: Performed a comprehensive Exposure Assessment and Multimedia Preliminary Human Health Risk Evaluation for past and potential releases of petroleum compounds, including PAHs from the Navy's Red Hill Storage Tanks in the mountainside adjacent to and above Pearl Harbor. Tasks included the evaluation of risk from historical or accidental releases of hazardous substances and its impact to human and ecological health. Both site-specific concentrations as well as possible catastrophic release scenarios were evaluated. Modeling of potential releases required multidisciplinary input from toxicologists, geologist, GIS specialists, groundwater modelers, and remedial engineers. Pivotal in developing site conceptual models and exposure routes.

**Rocketdyne Propulsion and Power, Santa Susana Field Laboratory (SSFL), CA, 2004-2006 – Contract Value \$150,000.** Project Manager: Provided site-specific human health risk assessments for The Boeing Company, Rocketdyne Propulsion and Power, NASA and the DOE as part of the RCRA Corrective Action Program at the SSFL. The risk assessments were conducted in response to requirements specified in three Hazardous Waste Permits issued to Rocketdyne by DTSC. Chemicals of concern include Total Petroleum Hydrocarbons, PCBs, PAHs, benzene, toluene, ethylbenzene, xylene, naphthalene, volatile organic compounds, semivolatile organic compounds and metals.

**U.S. Army Corp of Engineers, Fort Irwin, CA, 2008-2009 – Contract Value \$45,000.** Project Toxicologist: Performed site-specific human health risk assessments at 14 Hazardous Waste Management Units at the U.S. Army National Training Center at Fort Irwin, California. Responsibilities include risk assessment approach negotiations with the Department of Toxic Substances Control Human and Ecological Risk Division and performance, standardization of methodology and performance of the risk assessments.

**AMTRAK: Redondo Junction Site-Wide and Location Specific HHRA, Los Angeles, CA, 2006-2009 – Contract Value \$125,000.** Principal Toxicologist. Assisted in the development of work plans and field sampling plans. Prepared site-specific human health risk assessments for the Amtrak Redondo Junction located in Los Angeles, California. Risk assessments were prepared to determine if chlorinated solvents and other volatile chemicals were posing an unacceptable indoor air human health risk to Amtrak workers at the facility as a whole as well as specifically in Building 18. Workers within various structures at the Site were evaluated for exposures to volatile chemicals resulting from subsurface vapor intrusion. Data assessed in the quantitative analysis included soil vapor data collected in a February 15, 2010 soil vapor investigation. In total, 9 soil vapor samples (8 primary samples and 1 duplicate) were collected at the perimeter of Building 18 and analyzed for the EPA TO-15 Super suite of compounds and Gasoline Range Total Petroleum Hydrocarbons (TPH). 80 other SV samples were collected from other areas of the Site. 19 constituents were detected in soil vapor at the Site. These chemicals include, TPH-Gasoline, BTEX, 1,1,1-Trichloroethane, PCE, and TCE.

**Hawai'i Department of Health, Lead in Drinking Water Study at all DHS Licensed Child Care Centers, State of HI, 2007-2009 – Contract Value \$1,000,000.** Program Manager: Provided technical and public relations support to the State of Hawai'i Department of Health's Safe Drinking Water Branch regarding a State-wide testing program of all drinking water sources at registered child care facilities. The federally-funded program was intended to help safeguard young children who are considered to be more vulnerable to lead exposure. With over 1,000 registered facilities this project is one of the largest drinking water sampling tasks of its kind in the State of Hawai'i. Produced a state of the art information technology resources database to manage everything from scheduling and routing, to correspondence management and results analysis and reporting. In coordination with the laboratory undertaking the analysis, Dr. Okoji implemented a highly automated system to manage the receipt and analysis of results. All results were automatically imported into an electronic database system and analyzed. If lead was found at levels above the acceptable limit, Dr. Okoji implemented a range of notification procedures to prevent further potential exposure of children to the lead and also provided in-depth lead abatement strategies to the facility owners and/or managers. As part of this process, a series of informational packets were prepared to update the multiple government entities, including the Safe Drinking Water Branch and the Department of Human Services. During this process, Dr. Okoji also served as the HDOH and DHS public media representative in a KHON news story.

**Hawai'i State Department of Health, Keaukaha, HI, 2004-2005 – Contract Value \$30,000.** Project Manager: Conducted an ambient air characterization study and baseline human health risk assessment of a light industrial district and airport. Industries present and areas of concern include airline industries, harbor facilities, diesel fueling station and truck yard, auto paint shops, wood treatment plants, fiberglass shops, compressed gas industries, petroleum storage tanks, naphthalene storage tanks, propane storage tanks and an old sewage treatment facility. Ambient air monitoring utilized passive GoreSorber sampling devices as well as active Hi-vol samplers. GoreSorbors allowed evaluation of air impacts over a 7-day period. Traditional active samplers capture significantly

shorter periods of time. Receptors evaluated include residents living in the nearby Hawaiian Homelands residential district. Assisted the Department of Health in communicating potential risks to residents at several public meetings.

**W.H. Shipman Ltd, Kea'au, HI, 2002-2004 – Contract Value \$50,000.** Project Manager: Performed a Phase 2 soil characterization and Phase 3 risk assessment of former sugar cane lands contaminated with arsenic, lead, pesticides and herbicides. Supporting client's efforts to develop land under a future residential use scenario. Using bioaccessibility data gathered for the site in arguments to the HDOH. Providing extensive community relations and regulatory agency support.

**CSV Hospitality LLC, Kea'au, HI, 2004-2005 – Contract Value \$40,000.** Project Manager: Performed site investigation and a site-specific risk assessment for a 5-acre site in Kea'au, HI. Site was formally used for agriculture and was heavily contaminated with high levels of arsenic. Provided extensive community relations and regulatory agency support over a 2 year period. Held public meetings in collaboration with the HDOH. Produced engineering cost analysis, mitigation and implementation plans. Successful in obtaining regulatory support for construction of a hotel and commercial facility at the site without soil removal.

**Matsubara, Lee and Kotake, HI, 2004-2005 – Contract Value \$90,000.** Project Manager: Provided litigation support regarding a property that was the site of an automobile dealership, a warehouse and a former wood treatment site. Chemicals of concern include pesticides used in wood preservation: arsenic, chromium, dioxins/furans, and pentachlorophenol as well as other heavy metals. Evaluated soil and groundwater data and attended meetings with plaintiffs' consultants. Risk assessment used to define the cleanup level goals and areas of remediation.

**Hawai'i State Department of Health, PVT Landfill, HI, 2008-2009 – Contract Value \$60,000.** Project Manager: Performed an air monitoring and human health risk assessment of a municipal solid waste and construction and demolition landfill. Chemicals evaluated include landfill gases and heavy metals. Receptors evaluated include nearby residents. Assisted Department of Health in communicating potential risks to the community.

**City and County of Honolulu, Waimanalo Landfill, HI, 2008-2009 – Contract Value \$150,000.** Project Manager: Prepared human health risk assessment of the beneficial use of municipal solid waste incinerator ash from the City and County of Honolulu's H-Power facility. The project considered the proposed use of the ash *in lieu* of clay as part of the final cover in the closure of a city-owned landfill. The risk assessment considered risks from lead, other heavy metals, and dioxin and furan congeners. Risks during and after the closure were evaluated under several potential scenarios. Receptors included workers, on-site trespassing children, and off-site children. Affected media included the ash, ash leachate, ash-derived dust, surface water and sediment in Pearl Harbor, and fish. Dust generation and dispersion modeling was performed as well as modeling of surface runoff of ash into nearby surface water and sediment. Ash-specific absorption adjustment factors were derived. On-going projects include risk evaluation of other beneficial uses of the ash, including use as daily cover at an operating municipal landfill and use as aggregate in the road materials.

**City and County of Honolulu, Waipahu Incinerator, HI, 2004-2010 – Contract Value \$55,000.** Project Manager: Performed a human health risk assessment of soil, municipal waste combustion ash, and debris present at the site of the former Waipahu Incinerator Complex and the adjacent Waipahu Ash Landfill. Receptors included City workers from who currently occupy the old incinerator building, nearby residents, and children who frequent the nearby Waipio Peninsula Soccer Complex. Designed and executed real-time monitoring of ambient airborne respirable dust levels indoor and outdoors. Prepared technical memorandums regarding penalties assessed by the State Department of Health. Developed supplemental environmental programs for the city for use in penalty negotiations. Completed work plans required for the closure of the Waipahu Incinerator Complex.

**Costco Wholesale Corporation, HI, 2002-2003 – Contract Value \$40,000.** Project Manager: Performed a site-specific human health risk assessment for a commercial property undergoing a site evaluation for property transfer. The former MGP site had a history of petroleum product releases. Contaminants of concern included Total Petroleum Hydrocarbons, PCBs, PAHs, benzene, toluene, ethylbenzene, xylene, naphthalene and heavy metals. Evaluated the potential carcinogenic and noncarcinogenic risks from contact with site soil and groundwater via ingestion and dermal absorption via TPH Working Group and State of Massachusetts methodologies. Assessed the health hazards of inhaling soil vapor in both ambient surroundings and within the warehouse store using laboratory-specific data as well as data obtained from mathematical modeling from free product, groundwater and soil concentrations. Derived chemical specific absorption factors for site chemicals including arsenic and several PAHs. Evaluated soil, soil vapor and groundwater data and advised Brewer Environmental consultants, Costco attorneys and parties involved in the land transfer on appropriate cleanup goals. Risk assessment successfully used by Costco to obtain letter of completion within the Hawai'i State Department of Health's Voluntary Response Program.

**Honolulu Resource Recovery Venture, HI, 2004-2005 – Contract Value \$150,000.** Evaluated the potential use of municipal solid waste incinerator ash as an aggregate in roadway materials. Performed data collection, summary and analysis of total and respirable particulates in air due to road demolition activities of ash-amended asphalt. Ambient air monitoring data and air-modeling techniques were used to estimate COPC concentrations in soil and

air. Particulate deposition data was used to model COPC uptake into plants that could potentially be consumed by humans. Health risks were evaluated for potential receptors using estimated heavy metal content of site-specific media.

**Sprint Lot Risk Assessment, HI, 2003-2004 – Contract Value \$40,000.** Project Manager: Performed a site-specific human health risk assessment for a commercial property and office building. The former MGP site had a history of petroleum product releases, an onsite fuel pipeline and free product releases under the office building. Contaminants of concern included Total Petroleum Hydrocarbons, PAHs, benzene, toluene, ethylbenzene, xylene, naphthalene etc. Evaluated the potential carcinogenic and noncarcinogenic risks from contact with site soil, groundwater, soil vapor and weathered kerosene-like free product. Assessed the health hazards of inhaling soil vapor in both ambient surroundings and within the Sprint Office Building using laboratory-specific data as well as data obtained from mathematical modeling from free product, groundwater and soil concentrations. Derived chemical specific absorption factors for site chemicals including arsenic and several PAHs. Advised Brewer Environmental consultants and the owners of the property of potential health risks and remedial alternatives.

**Native Hawaiian Veterans, USACE HED, Munitions Response Site Prioritization Protocol (MRSP) for Defense Environmental Restoration Program, Formerly Used Defense Site (FUDS) of Opana Point Bombing Range, Opana Point, Island of Maui, Site No.H09HI027200 and Papohaku Target Range, Kaluakoi, Island of Molokai, Site No. H09HI0032, 2014- 2017 – Contract Value \$500,000.** Principal in Charge: Executed MRSP to determine the relative risks posed at each of the sites; assistance with data gathering from state and local repositories; collecting appropriate information necessary to eliminate from further consideration those releases that pose no significant threat to public health or the environment; determining potential need for removal action and collecting or developing additional data to complete the MRSP. Prepared project documents (UFP-QAPP, SAP) for a remedial investigation. COCs included metals, explosives and semivolatile organic compounds. Risk to human health and ecological receptors are evaluated.

**Long-Term Maintenance & Monitoring/ Remedial Action Operations for IRP Sites CF023, CG110, LF01, LF14, SS01, SS06, SS11, SS15 and Consolidation Unit at Joint Base Pearl Harbor – Hickam, HI, 2012-2017 – Contract Value \$500,000.** Principal in Charge: Performed annual inspections/maintain, and optimized long-term maintenance and monitoring (LTM) / Remedial Action Operations (RAO) (groundwater sampling) at eight Installation Restoration Program sites. The project consisted of inspecting, maintaining, and providing recommendations to optimize the existing remedies based on evaluation of all existing reports and recommendations for each site. Prepared all project documents including results of groundwater, soil vapor, landfill gas and apparent product thickness measurements.

**Institutional Controls for Safety Awareness, Defense Environmental Restoration Program, Formerly Used Defense Sites at Various Windward Oahu Projects, Island of Oahu, HI, 2014-2017 – Contract Value \$500,000.** Principal in Charge: Provided planning and producing institutional controls educational material for ensuring public safety from potential unexploded ordnance (UXO) at these sites. The institutional controls consist of materials oriented towards educating the public about the potential hazards from UXO found at these sites. Provided presentations to schools of affected areas and general public events.

**Coca Cola Bottling Enterprises, Oahu, HI, 2000-2010 – Contract Value \$750,000.** Project Manager: Conducted a Phase 2 and Phase 3 site investigation of soils and groundwater and site-specific risk assessment for the Coca Cola Bottling Facility. The site had undergone substantial remediation including removal of impacted soil, application of Oxygen Reaction Compounds (ORC) to groundwater and implementation of a Soil Vapor Extraction (SVE) System. Environmental Hazard Evaluation (Risk assessment) performed to determine the suitability of the property for future residential use. Chemicals of concern and pathways of concern include BTEX and fuel related compounds. Pathways of concern include direct contact with site media as well as vapor intrusion into buildings and ambient air.

- Phase I Environmental Site Assessment at multiple addresses located on Cooke Street, Auahi Street, and Pohukaina Street, Honolulu, Hawai'i. The property evaluated was identified by current Tax Map Key (1) 2-1-053:032 (lot consisting of 4.187 acres).
- Phase I Environmental Site Assessment at multiple addresses located on Ala Moana Boulevard, Coral Street, Keawe Street, and Auahi Street, Honolulu, Hawai'i. The property evaluated was identified by Tax Map Keys (1) 2-1-055:003 (lot consisting of 0.5306 acres), (1) 2-1-055:021 (lot consisting of 0.9256 acres), (1) 2-1-055:006 (lot consisting of 0.4904 acres), (1) 2-1-055:026 (lot consisting of 0.1148 acres), and (1) 2-1-055:038 (lot consisting of 0.8135 acres).
- Phase I Environmental Site Assessment at multiple addresses located on Kekuanaoa Street, Iolani Street, and Mililani Street in Hilo, Hawai'i. The property evaluated was identified by Tax Map Keys (3) 2-2-030:004 (lot consisting of 0.4171 acres), (3) 2-2-030:006 (lot consisting of 0.8245 acres), (3) 2-2-030:008 (lot consisting of 0.2686 acres), (3) 2-2-030:009 (lot consisting of 0.5165 acres), (3) 2-2-030:0010 (lot

consisting of 0.2479 acres), (3) 2-2-030:0011 (lot consisting of 0.2365 acres), (3) 2-2-030:0012 (lot consisting of 0.8617 acres), and (3) 2-2-030:014 (lot consisting of 0.4018 acres).

**Covanta Energy, EIS for 3rd Boiler, City and County of Honolulu H-Power Facility, HI, 2008-2009 – Contract Value \$1,000,000.** EIS and Permitting Task Manager: Performed an Environmental Impact Statement to address the impact of a third combustion unit at the City and County of Honolulu H-Power waste to energy facility. Potential impacts addressed include noise, traffic, historical resources, soil, groundwater and surface water. Air impacts also addressed in a PSD permit. Additional permitting support required for operation and construction of the facility included the solid waste management permit, NPDES operation, Conditional Use Permit, Wastewater Discharge, Stormwater, water use permit, Air Navigation and Clearance for Work in Airport Hazard Area, grading and drainage, NPDES Construction, well construction and pump installation and a permit to operate a sewage treatment facility. Dr. Okoji was also tasked with performance of a comprehensive multimedia risk assessment according to USEPA Human Health Risk Assessment Guidance for Combustor Facilities to address the human and ecological health impacts of the proposed combustion unit on neighboring communities. Also produced a Material Separation Plan and collected data for use in a Lifecycle Analysis pertaining to the recycling waste stream for the City and County of Honolulu.

**Covanta Energy, Stormwater Monitoring Plans, H-Power Facility, HI, 2011-2012 – Contract Value \$30,000.** Principal in Charge: Produced stormwater management plans for the H-Power facility. Plans included the facility Stormwater Management Plan (SWMP), Stormwater Pollution Control Plan (SWPCP) and Spill Prevention, Control, and Countermeasure Plan (Oil And Petroleum Products). Represented Covanta Energy in meetings with the State Department of Health during site inspections.

**East West Center, University of Hawaii, Manoa Campus, Honolulu, HI, 2013-2014 – Contract Value \$20,000.** Principal in Charge: Completed the NPDES permit application (Appendix L) for the East West Center decorative Koi pond. Performed initial discharge sampling for inclusion in the application. Negotiated chemical of concern list with the HDOH Clean Water Branch and enforcement division.

**FOPCO, Fort Shafter Building 145, Honolulu, HI, 2015-2016 – Contract Value \$25,000.** Principal in Charge: Prepared the Spill Prevention, Control, and Countermeasure Plan (SPCCP) for the removal, decontamination and disposal of one 12,000 gallon UST at Fort Shafter Building 145. Petroleum releases from these tanks which may be discovered during construction are subject to regulation and Hawaii Department of Health oversight under Hawaii Revised Statutes Chapter 128D, Hawaii Environmental Response Law (HERL) and Hawaii Administrative Rules Title 11, Chapter 451, State Contingency Plan. Provided environmental professional (EP) services during tank removal. Authored closure report.

**FOPCO, Schofield Barracks, Wahiawa, HI, 2015-2016 – Contract Value \$25,000.** Currently preparing the Spill Prevention, Control, and Countermeasure Plan (SPCCP) for the removal, decontamination and disposal of one 3,000 gallon UST at Schofield Barracks Building 2072. Petroleum releases from these tanks which may be discovered during construction are subject to regulation and Hawaii Department of Health oversight under Hawaii Revised Statutes Chapter 128D, Hawaii Environmental Response Law (HERL) and Hawaii Administrative Rules Title 11, Chapter 451, State Contingency Plan. Provided environmental professional (EP) services during tank removal. Authored closure report.

**Cloudbreak Hawaii LLC, Kapolei, O'ahu HI, 2013-2014 – Contract Value \$35,000.** Principal Planner: Prepared a HEPA and NEPA compliant EA for Cloudbreak Hawaii, LLC. The EA discussed the addition of affordable housing units to Hale Uhiwai Nalu, an 80-unit veterans housing and services building at Barbers Point. The project consisted of constructing additional structures on an adjacent parcel of land, approximately 6,000 square feet. The Proposed Action would add up to 72 affordable housing units for very low to moderate income households and make support services such as outreach, substance abuse treatment, employment training and placement, and housing transition easily accessible. The project was partially funded through the State Rental Housing Trust Fund (RHTF) and was conducted in collaboration with the Hawaii Housing Finance and Development Corporation and U.S. Department of Veteran Affairs. Public and various federal, state and city agencies were consulted during the EA process. Evaluations conducted as part of the planning initiative concentrated on the following potentially affected environments: Soils, Topography, and Geology, Ground and Surface Water, Air Quality and Climate, Biological Resources, Historic/Archaeological Resources, Land Use, Hazardous/Toxic Wastes, Utilities and Noise. No significant impacts were determined for the proposed project. Specific supplemental studies included an archeological inventory survey and site-specific biological resources survey.

**American Piping and Boiler, Campbell Industrial Park, Kapolei, HI, 2012-2013 – Contract Value \$50,000.** Principal in Charge: Prepared a Grading and Drainage Permit Application to convert a vacant lot to a construction laydown parcel for use in the H-Power expansion project. Project site is located in the City and County of



Honolulu, Special Management Area and Coastal Zone Management Area. Completed and submitted the SMA permit application which required that an environmental assessment be conducted for the project. ERA was successful in negotiations with the City and County Department of Environmental Services and the Land Use Approvals division to exempt the project from the Chapter 343 requirement. The exemption required consultation with multiple agencies including the State of Hawaii Historic Preservation Division, USFW, Land Use Approvals, DBEDT, DoA, OHA, etc. The exemption allowed the project to move forward without unnecessary delays due to the EA process. ERA also provided services for completion of a building permit for the construction of 2 driveways and an NPDES permit application for the Department of Health Clean Water Branch. NPDES permit application required completion of a Storm Water Pollution Prevention Plan.

**City and County of Honolulu, Department of Environmental Services, H-Power, HI, 2015-2016 – Contract Value \$25,000.** Principal in Charge: Prepared an Emergency Action Plan for the City and County facility for the H-Power facility located in Campbell Industrial Park. The plan was composed of a Level 1 plan and Level 2 conditions and requirements. The H-POWER Emergency Action Plan delineates the authorities, responsibilities and procedures to be followed by employees in effectively responding to a disaster within the facility. The primary function of the H-POWER Emergency Action Plan is to prepare the facility to respond effectively and quickly to emergencies that occur within the facility or within the community. The plan governs the facility and its employees in the event of an emergency or disaster.

**Belt Collins, Island of Hawai'i, Kawaihae-Mamalahoa Connector Road EIS Technical Support, HI, 2008-2009 – Contract Value \$40,000.** Project Manager: Provided EIS technical support for the construction and operation of a bypass road in the Mamalahoa, Waimea area of the Island of Hawai'i. Specifically subcontracted by Belt Collins to determine the environmental impacts of the proposed roadway on adjacent organic and conventional farm lands. Impacts assessed included the change in surface water potential and productivity of the land. Conversely, the assessment also evaluated the impact of farming practices on potential future users of the proposed road.

**Kerr Mill, MA, 2000-2001 – Contract Value \$100,000.** Task Manager: Performed data summary and risk assessment calculations on a historical petroleum product spill site. Contaminants of concern included volatile and semivolatile petroleum hydrocarbons including naphthalene, 2-methylnaphthalene, benzo(a)pyrene and anthracene. Risk assessment used to help define the cleanup level goals and areas of remediation.

**Jan Chatten-Brown and Associates, CA, 2000-2001 – Contract Value \$10,000.** Project Manager: Provided litigation support regarding a class action lawsuit claiming adverse health effects from exposure to organophosphate pesticides. Comprehensively evaluated and summarized toxicological data involving neurotoxicity, hepatotoxicity, renal toxicity and carcinogenesis.

**Alston, Hunt, Floyd & Ing, HI, 2001-2002 – Contract Value \$25,000.** Project Manager: Provided litigation support for a residential property that was contaminated with arsenic. Advised attorneys on the toxicity of arsenic compounds, reliable biomarkers of exposure, sampling methods and potential exposure to other toxic compounds or biological agents.

**Confidential Client, GA, 2002-2003 – Contract Value \$20,000.** Project Manager: Prepared toxicological summaries on creosote and related mixtures in support of litigation.

**Confidential Client, AZ, 2002-2003 – Contract Value \$80,000.** Project Manager: Performed a comprehensive review of a Monte-Carlo Based Risk assessment on a former MGP site in Arizona. Chemicals identified in samples from the Site include the semi-volatile organic chemicals called polynuclear aromatic hydrocarbons (PAHs) found in lampblack and volatile organic chemicals: benzene, toluene, ethylbenzene, and xylenes (BTEX) found in fuels.

**California EPA, CA, 2002-2003 – Contract Value \$100,000.** Project Manager: Performed comprehensive literature review and analysis on the toxic properties of ethyl chloride. Conclusions used for the quantitative estimation of risk for regulatory purposes.

**Graduate Student Researcher for Dr. John Froines, Professor of Environmental Toxicology and Director of the Center for Occupational and Environmental Health, UCLA:** Project Manager: Examined the toxicokinetic and molecular events involved in arsenic induced carcinogenesis. Collaborated with the National Institute of Environmental Health Sciences (NIEHS) and the National Toxicology Program (NTP) in designing and conducting subchronic and chronic NTP animal bioassays, pharmacokinetic analysis, pre-clinical, GLP pharmacology, toxicology and safety studies in animals with the goal of regulating arsenic in drinking water.

**Undergraduate Researcher for Dr. Jonathon E. Ericson, Professor of Environmental Analysis & Design, University of California, Irvine:** Project Manager: Performed comprehensive literature review and analysis on the toxic effects of lead. Identified potential health implications and possible initiatives for soil remediation.

**Graduate Student Researcher for Dr. Michael Collins, Professor of Environmental Toxicology, UCLA:** Project Manager: Researched the impact of nutritional deficiencies (i.e. folate, methionine, choline and vitamin B12)

on the occurrence of neural tube defects in rats and mice. Participated in the development of an animal model for abnormal neural tube closure using a combination of in vivo and in vitro cell culture techniques. Performed gross necropsies, folate measurements via the bacterial growth assay, choline measurements via GC-Mass Spectroscopy and homocysteine measurements via HPLC in serum and other bodily tissues.

**Clinical Research Assistant for Dr. Marian Swendseid, Professor of Nutrition, UCLA:** Project Manager: Provided scientific and laboratory support for a clinical nutrition study conducted by the Western Human Nutrition Research Center and UCLA on choline status dependence on folate nutriture.

**Researcher: Dr. Ricardo De Leon, Professor of Environmental Analysis and Design, University of California, Irvine:** Project Manager: Assisted in developing a PCR based assay for analyzing environmental water and soil samples containing infectious microorganisms. Compared the newly developed PCR method with the standard plaque assay.

**Research: Dr. Roger Fujioka, Professor of Microbiology & Head of the Water Resources Research Center, University of Hawai'i at Manoa:** Project Manager: Quantified E. Coli levels in soil samples. Quantified nitrogen, phosphorous, coliform and E.coli levels in environmental water samples.

### Industrial Hygiene

**MMI Realty Services Inc (Kahala Mall Flood), Honolulu, HI,** Project Manager: Provided 24- hour/day on call support to MMI Realty Inc. following a significant flooding event in which the entire indoor mall was flooded to approximately 1-2 feet of storm water. Provided remedial workplans and specifications for immediate water removal and drying of the interior space. Instructed and oversaw mall representatives and their contractors during remedial efforts. Due to Dr. Okoji's disaster management efforts, the mall was reopened 4 days after the water intrusion event. Following emergency actions, MMI Realty retained Dr. Okoji's team to manage all non-emergency remediation at the mall. Non-emergency work included drying of internal wall spaces in mall common areas and later removal of significantly flood impacted building materials. Flood and mold assessments were conducted for all mall responsible areas as well as separately for tenant responsible areas. Work plans were provided to MMI Realty Inc, Kahala Mall tenants and their contractors detailing the specific protocols and precautions necessary during removal actions. Dr. Okoji created a database of every wall or building material affected by the flood. Data presented in tabular and graphic formats. Photodocumentation was also provided for all affected demising walls. Provided remedial oversight and post-remedial verification assessments during work activities. Ensured all contractors performed work to protocol and the appropriate standard of care. Periodically sampled building materials and air for mold to protect client from future claims. Provided hourly work logs and daily summaries to client ensuring they received maximum insurance reimbursement. Provided experts witness testimony during litigation proceedings including during appraisal hearings. Client received approximately 90% of their insurance claim in large part due to Dr, Okoji's testimonies. Project was one of the largest flood remediation jobs in the State of Hawaii.

**AIG Insurance Company, Grand Wailea, Maui, HI,** Principal Scientist:: Provided on call principal level consulting services for a large insurance carrier addressing a mold remediation claim. Verified the necessity for mold remediation and corroborated claim against actual remediation. Provided detailed reports including HVAC system design recommendations to prevent recurrence. Services were provided over a 1-year period.

**Confidential Client and Location, Honolulu, HI,** Principal Scientist: Provided litigation support for a property transfer. Evaluated for the presence of residual methamphetamine and chemicals related to its manufacturing. Collected wipe samples of left in place building material and belongings in the structure. Collected air samples for volatile constituents. Provided expert witness reports to validate the requirement for additional remediation.

**Goodsill Anderson Quinn & Stifel, Confidential Site, Wailea, HI,** Principal Scientist: At the request of counsel, Environmental Risk Analysis LLC (ERA) performed a comprehensive review of the available mold assessments and relevant home-inspector documents relating to the plaintiff's claims that the defendant intentionally or negligently misrepresented the water or mold condition of the property prior to sale. The plaintiffs alleged that undisclosed leaks in the shower areas of the condo caused mold/moisture issues which required remediation. ERA's review focuses on the validity of claims associated with water intrusion and mold noted in the various reports and the potential effect on health. ERA identified falsehoods or misleading claims of plaintiff experts reports and assessments.

**Bays Lung Rose & Holma, Attorneys at Law, Confidential Site, Honolulu, HI,** Principal Scientist: At the request of counsel, Dr. Okoji performed a comprehensive review of relevant medical documents related to the defendant's claim of significant health effects from a neighbors willful and illegal application of fipronil and bifenthrin. Reviewed relevant scientific literature and provided an expert witness report.

**Monkeypod Kitchen, Ko Olina Station, Kapolei, HI**, Principal Scientist: ERA was engaged to provide a water intrusion assessment and remediation work plan for the Monkeypod Kitchen located at 92-1048 Olani Street, Suite 4-107, Kapolei, HI 96707. According to Monkeypod Kitchen there have been multiple water intrusion events over the last year that are related to faulty construction. ERA used an Infrared camera, a Delmhorst pin-type moisture meter and visual assessment to evaluate the extent of water intrusion at the Site. Evidence of significant water intrusion was observed throughout the space. While water did not originate from a sewer line backup, the water intrusion event as observed and described was determined to be Category 3. Category 3 waters are defined by the Institute of Inspection, Cleaning and Restoration Certification (IICRC) as grossly contaminated and may contain pathogenic, toxigenic or other harmful agents. Wood flooring throughout the lower level of the restaurant was observed to be severely water impacted and was noted with elevated moisture, water staining and buckling. Significantly damaged wood flooring was removed and replaced with plywood in a several areas. These impacts are assumed to be the results of water infiltration from the center island bar area that houses multiple sources of water including sinks, dishwashers and ice makers. Water is believed to exit the island bar area via infiltration through or over the cove base of the perimeter tiles. Additional areas of water impacts were noted in the kitchen area and upstairs bar and wine cellar. The wine cellar interstitial wall spaces were determined to be severely mold-impacted and due to inadequate insulation. ERA recommended immediate remedial actions at the Site. Following remedial actions, a through post-remedial verification assessment was conducted of each impacted space that included a moisture assessment of left-in place building materials, bacterial swab sampling and air testing for mold.

**The Beall Corporation, Waikiki Pavillion, 1925 Kalakaua Ave, Honolulu, HI**, Principal Scientist: On May 2, 2014 Environmental Risk Analysis LLC (ERA) was contacted to provide a water intrusion assessment and remediation work plan for the Waikiki Pavilion retail stores located at 1925 Kalakaua Ave, in Waikiki, Honolulu, Hawaii. Dr. Russell Okoji was onsite at approximately 9:15pm approximately 45 minutes following notification. According to the Beall Corporation, the origin of the water intrusion was a sewer line backup. Waiialua Plumbing was observed in the loading area attempting to unclog the waste line. Four tenants occupied the retail area of the Waikiki Pavilion (ABC Store, Vitamin and Supplement, Subway and Vapor. According to tenant accounts, wastewater entered into the retail areas via plumbing lines connected to the main waste line shared with the Waikiki Pavilions Condominium. ERA used an Infrared camera, a Delmhorst pin-type moisture meter and visual assessment to evaluate the extent of water intrusion at the Site. Evidence of significant water intrusion in each of the four spaces were noted. The water intrusion event as observed and described was determined to be Category 3. Category 3 waters are defined by the Institute of Inspection, Cleaning and Restoration Certification (IICRC) as grossly contaminated and may contain pathogenic, toxigenic or other harmful agents. ERA recommended immediate implementation of remedial actions at the Site and provided detailed work plans for each space. Provided on-call remedial oversight and a post-remedial Category 3 water intrusion assessment

**William Scottsman, Pearl City, HI**, Principal Scientist: Performed a comprehensive moisture and mold assessment for 2 double wide modular trailers used by HECO at their modular trailer lot in Pearl City, Hawaii. HECO mold consultants were called to determine source of water and mold with no success. No overt sources of water intrusion were noted. ERA evaluated the space and determined that mold growth was a result of inappropriate temperature and humidity control. ERA provided work plans and specifications for remediation, remedial oversight and post-remedial verification. Dr. Okoji attended meetings on behalf of William Scottsman with HECO facility maintenance personnel. Provided recommendations to prevent recurrence including materials for build back and HVAC system controls.

**John Bansemer Construction, Asbestos Survey, Kealakekua, HI**, Principal in Charge: Environmental Risk Analysis, LLC (ERA) was retained by John Bansemer Construction Inc. to conduct an asbestos assessment of the space occupied by the University of Hawaii, West-Hawaii campus located at 81-964 Haleki'i Street in Kealakekua, Hawai'i. This survey was performed in accordance with federal, state, and local regulatory requirements.

**Limberg Trust, Asbestos Survey, Kealakekua, HI**, Principal in Charge: Environmental Risk Analysis, LLC (ERA) was retained by the Limberg Trust to conduct an asbestos assessment of the space occupied by the University of Hawaii, West-Hawaii campus located at 81-970 Haleki'i Street in Kealakekua, Hawai'i. This survey was performed in accordance with federal, state, and local regulatory requirements.

**Occidental Insurance, Hazardous Materials Survey and Remediation, Honolulu, HI**, Principal in Charge: Performed a comprehensive hazardous materials survey and asbestos remediation at a 10,000 square foot facility located at the current Occidental Insurance building. Provided air monitoring for the duration of the remediation process to verify that the remedial containment and High Efficiency Particulate Air (HEPA) exhaust filter were working efficiently. Asbestos results were within acceptable limits (less than or equal to 0.01 fibers per cubic centimeter of air sampled via Phase Contrast Microscopy (PCM)) for all air monitoring locations. Air monitoring locations were located at the containment entrance and at the exhaust output. Additional air samples collected from an adjacent office space (per tenant request) did indicate an elevated number of particulate fibers as analyzed using

PCM. PCM does not differentiate between fiber types (asbestos, dust, cotton, fiber glass, etc.). Confirmation Transmission Electron Microscopy (TEM) analysis of these samples resulted in <0.0006 asbestos fibers per cubic centimeter of air, which is within acceptable limits. Clearance air samples collected at completion of the abatement activities were within acceptable limits (less than or equal to 0.01 fibers per cubic centimeter of air sampled). The abated space was cleared for reoccupancy. Post-remedial visual verification also confirmed that asbestos containing materials (as identified in the ERA March 2010, Asbestos Survey) were properly abated.

**Hawai'i State Department of Accounting and General Services (DAGS), Kaneohe, HI,** Project Manager: Interpreted lead and asbestos data collected at King Intermediate School classrooms and buildings. Worked closely with the DOH Asbestos Division to determine potential health risks and to determine a consistent health message for the public. Performed toxicological and environmental consulting in meetings with DAGS, the Department of Education (DOE) and King Intermediate staff. Presented a discussion of the health effects of lead and asbestos at a public meeting. Provide information fact sheets on the health effects of lead and asbestos. Provided justification letters required for reoccupation of King Intermediate. Also instrumental in quelling fears of neighboring residents who may also have been exposed to low levels of asbestos and lead.

**Department of Agriculture Lead-based Paint Survey, HI,** Principal in Charge: Performed a lead paint survey at nine (9) Department of Agriculture facilities located on five (5) islands. The survey included field investigation and sampling, testing and analysis, report of findings, recommendations and a cost estimate of corrective measures. The lead paint assessment consisted of the use of an x-ray fluorescence (XRF) analyzer and confirmation lead paint chip samples. The XRF analyzer was used as a screening device on all internal and external painted surfaces of the facilities. Lead paint chip samples will be collected randomly to corroborate XRF results.

**Whole Foods, Kahala Mall, Honolulu, HI,** Project Manager: Conducted a comprehensive hazard materials assessment that included assessment for mold, asbestos, lead, PCBs and arsenic. Provided specification documents for remediation as well as request for proposal offerings on behalf of the client. Performed site walk with prospective remedial contractors. Performed oversight and ambient and personal air monitoring during remediation activities.

**American Savings Bank, Kahului Branch,** Principal Scientist, Performed a facility wide hazardous materials survey for lead and asbestos containing materials. Provided remedial specifications for identified LBP and ACM. Procured remediation contractors and oversaw remedial efforts. Post-remedial verification report also provided.

**Loveland Academy, Honolulu, HI:** Principal in Charge: Environmental Risk Analysis LLC (ERA) was retained by Loveland Academy to conduct a Three-Year Asbestos Hazard Emergency Response Act (AHERA) asbestos re-inspection of the Loveland Academy campus buildings. The re-inspections were performed to comply with applicable Federal and State guidelines requiring that secondary schools (K-12) be re-inspected every three years for any changes in the condition of assumed and confirmed asbestos-containing building materials (ACBMs). ERA re-inspected accessible areas within each building and noted ACBM conditions using the seven AHERA assessment categories. ERA was then re-contracted by Loveland to perform third-party oversight of remedial activities.

**O'Connor Playdon & Guben LLP, Kailua Kona, HI,** Principal Toxicologist: ERA was hired to provide expert witness and consulting services in support of litigation. ERA was requested to review defendant expert witness reports and provide rebuttal. ERA provided multiple declarations to support plaintiff argument. Also provided sampling and analysis services for mold and sewage related organisms. Designed studies to determine source of water intrusion and was a resource to plaintiff medical experts regarding use of medical tests to help support the case. Project is Ongoing.

**American Savings Bank, Kahului Branch,** Principal Scientist: Performed a facility wide mold and water intrusion assessment at the American Savings Bank, Kahului Branch. Assessment included over 30 distinct spaces within the structure including a separate loan office and former doctor's office space. Indoor air samples were collected from approximately 10 spaces presumed mold impacted. The assessment revealed significant and excess mold spores in a single area historically impacted by water intrusion. Provided mold remediation protocols and facilitated remedial efforts.

**American Savings Bank, Lahaina, HI,** Principal Scientist: Performed a facility-wide mold assessment of the American Savings Bank, Lahaina Branch. Provided an assessment report and mold remediation protocols. Provided third party oversight of remedial activities.

**American Savings Bank, Kailua, HI,** Principal Scientist: Performed a comprehensive moisture and mold assessment which included the HVAC system. Utilized bore scope cameras, infrared thermal imaging cameras, and direct handheld moisture meters to identify moisture impacted areas. Performed air sampling to identify potential health risks. Conducted Post-remedial verification assessments.

**American Savings Bank, Kealahou Branch,** Principal Scientist: Performed a facility wide mold and water intrusion assessment. Indoor air samples were collected from 8 areas presumed mold impacted. The assessment

revealed significant and excess mold spores in multiple areas. Provided mold remediation protocols and facilitated remedial efforts.

**Li & Tsukazaki, Attorneys at Law, LLC**, Principal Scientist: Environmental Risk Analysis, LLC (ERA) was retained by Mr. William McCohnell through Philip Li, Esq. to conduct a limited moisture and mold assessment of the condominium unit designated by Unit # 1302 at 19 Pohina Street, Wailuku, Maui, Hawaii. ERA provided a third party independent post-remedial verification assessment of the unit, visually assessed for the presence or absence of suspect visible mold growth (SVMG) collected tape lift samples for laboratory confirmation. Data was collected for potential litigation.

**Kincaids (Restaurants Unlimited Inc.), Honolulu, HI**, Project Manager: Provided initial sewage intrusion assessment and remediation protocol following a significant sewage backflow event of Kincaid's neighboring tenants at the Ward Warehouse Center. Protocol included standard of care procedures to remediate the area, protect public health and limit client's liability. Provided on-call 24-hr support during the critical first days of the sewage backup.

**Hawai'i State Department of Accounting and General Services (DAGS), Records Warehouse, Honolulu, HI**, Project Manager: Provided emergency on-call consulting services for the DAGs records warehouse in Mapunapuna, HI. Provided mold investigation and air sampling protocols, mold survey and remedial plan. Discussed potential risks with warehouse staff.

**Hawai'i State Public Library System, HI**, Project Manager: Currently providing the Hawai'i State Library System with open ended support for HVAC system evaluations, indoor air quality and mold assessments. Performed HVAC system evaluations and indoor air quality assessments. Provided detailed recommendations regarding HVAC system efficiency and upgrades, remediation protocols, and remediation oversight.

**Hawai'i State Public Library System, HI**, Project Manager: Performed a water intrusion and mold assessment at the Ewa Beach Public Library. Provided mold remediation work plans for books and building materials impacted by mold. Provided third party oversight during remedial activities and post-remedial verification following clean up.

**Honolulu Sports Medical Center**: Project Manager: Provided on-call 24-hour support to hospital staff after a "black" water flooding event at the facility. Provide a comprehensive moisture assessment to determine extent of impacts using handheld moisture meters and infrared cameras. Provided work plans for remediation and reviewed plans provided by the building manager's consultants. Oversaw remedial efforts and conducted air sampling. Ensured that remediation was performed according to the standard of care at the time the assessment was conducted

**A&B Properties Inc., Stangenwald Building, 119 Merchant Street, HI**, Principal Scientist: Provided a Category 3 Water Intrusion Initial Assessment, Remediation Work Plan and Post-remedial Assessment. ERA used an Infrared camera, a Delmhorst pin-type moisture meter and visual assessment to evaluate the extent of water intrusion at the Site. The Site consisted of the entire basement of the building as well as a large portion of the 1<sup>st</sup> floor ground level.

**Aloha Petroleum, Kaneohe HI**, Project Manager: First responder to a "black" water backflow event at an Aloha Petroleum MiniMart. Provided an impact assessment report and workplans for remediation. Provided remedial oversight and fecal coliform indicator post-remedial verification testing in air and on surfaces. Ensured cleanup and remediation were performed according to the proper stand of care in an effort to obtain maximum insurance reimbursement and to limit future liabilities. Provided expert witness deposition in case against the party responsible for the flood.

**Confidential Client, Koloa, HI**, Project Manager: Provided litigation support for a potential carbon monoxide exposure event. Provided and implemented workplans to simulate and/or mathematically model exposures to a gasoline powered concrete cutter.

**Kona Sea Villas, Kailua-Kona, Hawai'i and Fairway Villas, Waikoloa, Hawai'i**, Project Manager: Provided mold-sampling services to determine limited speciation of fungi found on site and recommended remedial actions. Confirmation sampling and consultation services continued through completion of construction activities. Provided detailed remediation plans, oversight and post-remedial verification.

**Hospice of Kona, Kailua-Kona, Hawai'i**: Project Manager: Performed mold-sampling services to determine limited speciation of fungi found on site. Provided informational training to employees and recommended remedial actions. Conducted HVAC system evaluation and provided specifications to prevent mold growth and recommendations to increase HVAC efficiency.

**Kohala Coast Mold Assessment**: Project Manager: Provided mold-sampling services for multiple structures to determine limited speciation of fungi found on site and recommended remedial actions. Provided detailed remediation plans and scopes of work. Evaluated HVAC system and quality of indoor air via spore trap analyses.

**Lerma and Goya:** Project Manager: Provided mold sampling and consulting services for a law office in Hilo, Hawai'i. Findings and Recommendations successfully used in claim against insurance company for damages related to a leaky toilet and substantial mold infestation in subfloors and adjoining walls.

### **Presentations/Publications**

**Okoji, R.S.** & Froines, J.R. Sodium arsenite administration via drinking water increases genome-wide and Ha-ras DNA methylation in methyl deficient C57Bl/6J mice. *Carcinogenesis*, **23**, 777-785.

**Okoji, R.S.**, Hernandez, A., Leininger, J.R., Maronpot, R.R. & Froines, J.R. Subchronic animal bioassay of sodium arsenite in methyl-deficient male C57Bl/6J mice. Submitted to Environmental Research.

**Okoji, R.S.**, Maronpot, R. & Froines, J.R. Chronic animal bioassay for sodium arsenite in methyl deficient C57Bl/6 mice. Submitted to *Environmental Health Perspectives*.

**Okoji, R.S.**, Leininger, J. & Froines, J.R. Subchronic Toxicity Study of Sodium Arsenite in Methyl-Deficient Male C57Bl/6 Mice. In: Arsenic Exposure and Health Effects. 1999. (eds. Chappel, W.R., Abernathy, C.O. & Calderon, R.L.) Elsevier Science Ltd, Oxford, UK, pp. 225-232.

Froines, J., Collins, M., Fanning, E., McConnell, R., Robbins, W., Silver, K., Kun, H., Mutialu, R., **Okoji, R.**, Taber, R., Tareen, N. & Zandonella, C. 1998. Health and Environmental Assessment of MTBE. Report to the Governor and Legislature of the State of California as sponsored by SB 521. 1999: Volume II: Human Health Effects. An evaluation of the Scientific Peer-Reviewed Research and Literature on the Human Health Effects of MTBE, its Metabolites, Combustion Products and Substitute Compounds. University of California: available at <http://tsrtp.ucdavis.edu/>

**Okoji, R.S.**, Hernandez, A., Cebrian, M. & Froines, J.R. Toxicokinetic profile of arsenic metabolites in C57Bl/6 mice maintained on methyl-deficient diets. In Progress.

**Makua Military Reservation Community Meetings:** Supported the USARMY Garrison in multiple public meeting venues specifically providing human health risk information to the public. (2014-2015).

**Keaukaha Community Meeting:** Air sampling in a residential neighborhood (2005).

**Lead In Drinking Water KHON 2 News Story:** Hawai'i Department of Health (2008).

**King Intermediate School,** Hawai'i State Department of Accounting and General Services/ Department of Education. Health effects of Lead and Asbestos (December 2004).

**Orote Community Meeting, Guam:** Health risks associated with the ingestion of seafood from Agat Bay (2003).

**Ordnance Reef Community Meetings:** Health risks from ingestion of seafood sourced from Ordnance Reef. (2010-2012).

**University of Hawai'i: Guest Lecturer: Metal Toxicology (2000).**

**Lorman Education Services:** Solving Water Intrusion and Mold problems in Hawai'i. Water Intrusion: The Standard Of Care, Health effects of Molds (2006).

**Lorman Education Services,** Solving Water Intrusion and Mold problems in Hawai'i. Health effects of Molds. 2005.

**USEPA, San Francisco, CA:** Health risks associated with recreational activities in Agat bay and the ingestion of seafood from Agat Bay, Guam.

**Fourth International Conference on the Health Effects of Arsenic:** Sodium arsenite administered in drinking water reduces DNA methylation in methyl-deficient C57Bl/6 mice, 2000.

**Toxic Substances Research and Teaching Program (TSR&TP): 12<sup>th</sup> Annual Research Symposium.** Presentation: Arsenic Induced Carcinogenesis: Perturbations in p53 and Ha-ras methylation patterns.

**Toxic Substances Research and Teaching Program (TSR&TP): 11<sup>th</sup> Annual Research Symposium.** Presentation: Arsenic Induced Carcinogenesis: A murine model for the induction of cancer in methyl-deficient C57Bl/6J mice.

**Third International Conference on the Health Effects of Arsenic:** Arsenic Induced Carcinogenesis: A murine model for the induction of cancer in methyl-deficient C57Bl/6J mice, 1999.

### **Commendations**

5/06 Commendation Letter from the Operations Director at Kahala Mall for services performed during a severe flooding event.

- 12/04 Commendation letter from the Department of Accounting and General Services for risk communication support regarding asbestos and lead at King Intermediate School, Kaneohe, Hawai'i.
- 8/00 – 9/04 Multiple commendations from U.S. Navy and ATSDR for technical support in human health toxicological consulting and community relations
- 5/99 Recipient of the UCLA School of Public Health Raymond Goodman Scholarship for academic excellence
- 6/95 Recipient of the Gladys Emerson Award (UCLA) for research in toxicology and nutrition

***References***

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*Appendix* **B**

**AERIAL PHOTOGRAPHS**





PROJECT NAME:  
Phase I Environmental Site Assessment  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

FIGURE TITLE:  
2018 Aerial Photograph

FIGURE NUMBER:  
Appendix B



PROJECT NAME:  
Phase I Environmental Site Assessment  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

FIGURE TITLE:  
2014 Aerial Photograph

FIGURE NUMBER:  
Appendix B



PROJECT NAME:  
Phase I Environmental Site Assessment  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

FIGURE TITLE:  
2013 Aerial Photograph

FIGURE NUMBER:  
Appendix B



INQUIRY #: 5333628.8

YEAR: 2001

 = 500'





INQUIRY #: 5333628.8

YEAR: 1995

— = 500'



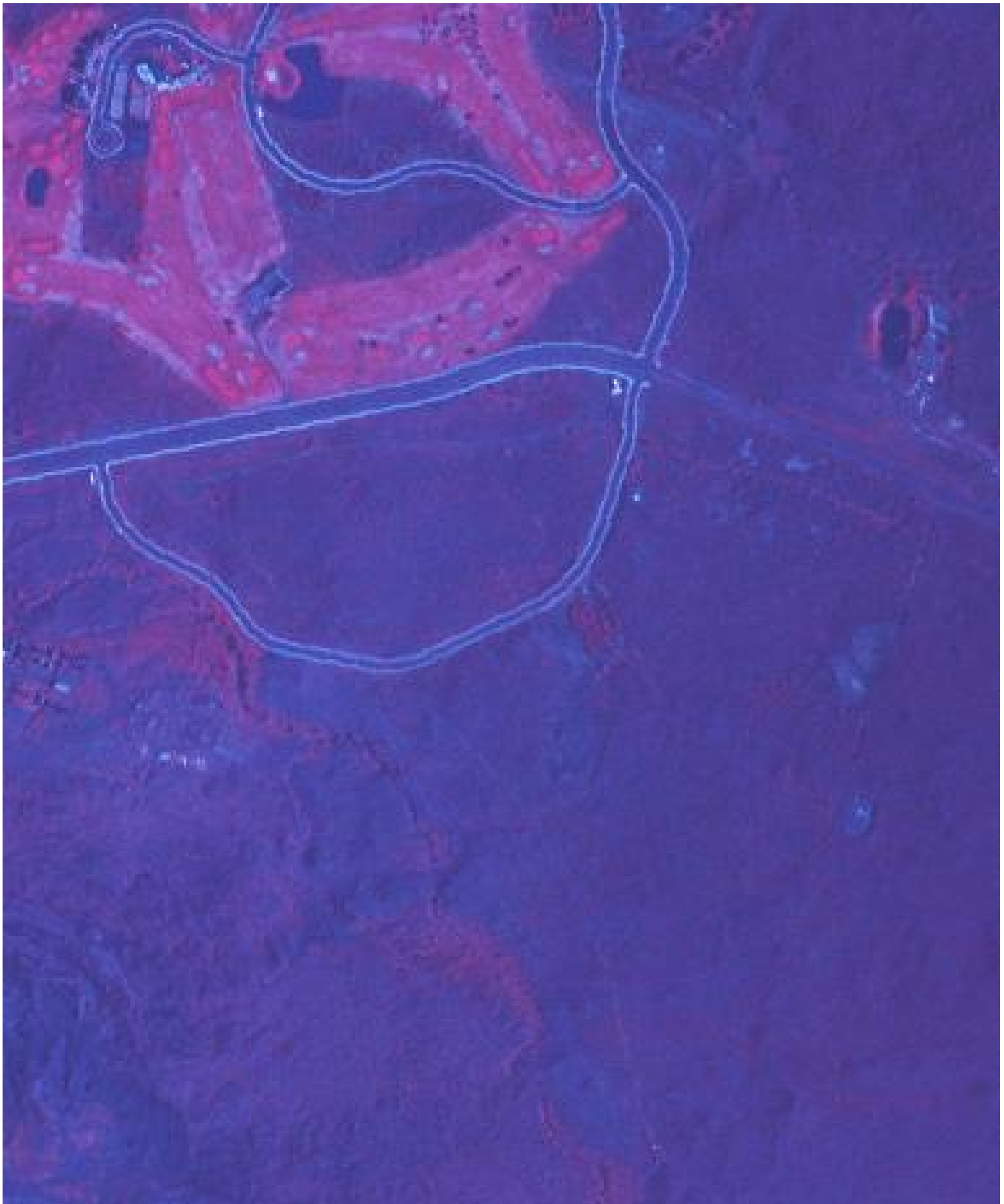


INQUIRY #: 5333628.8

YEAR: 1985

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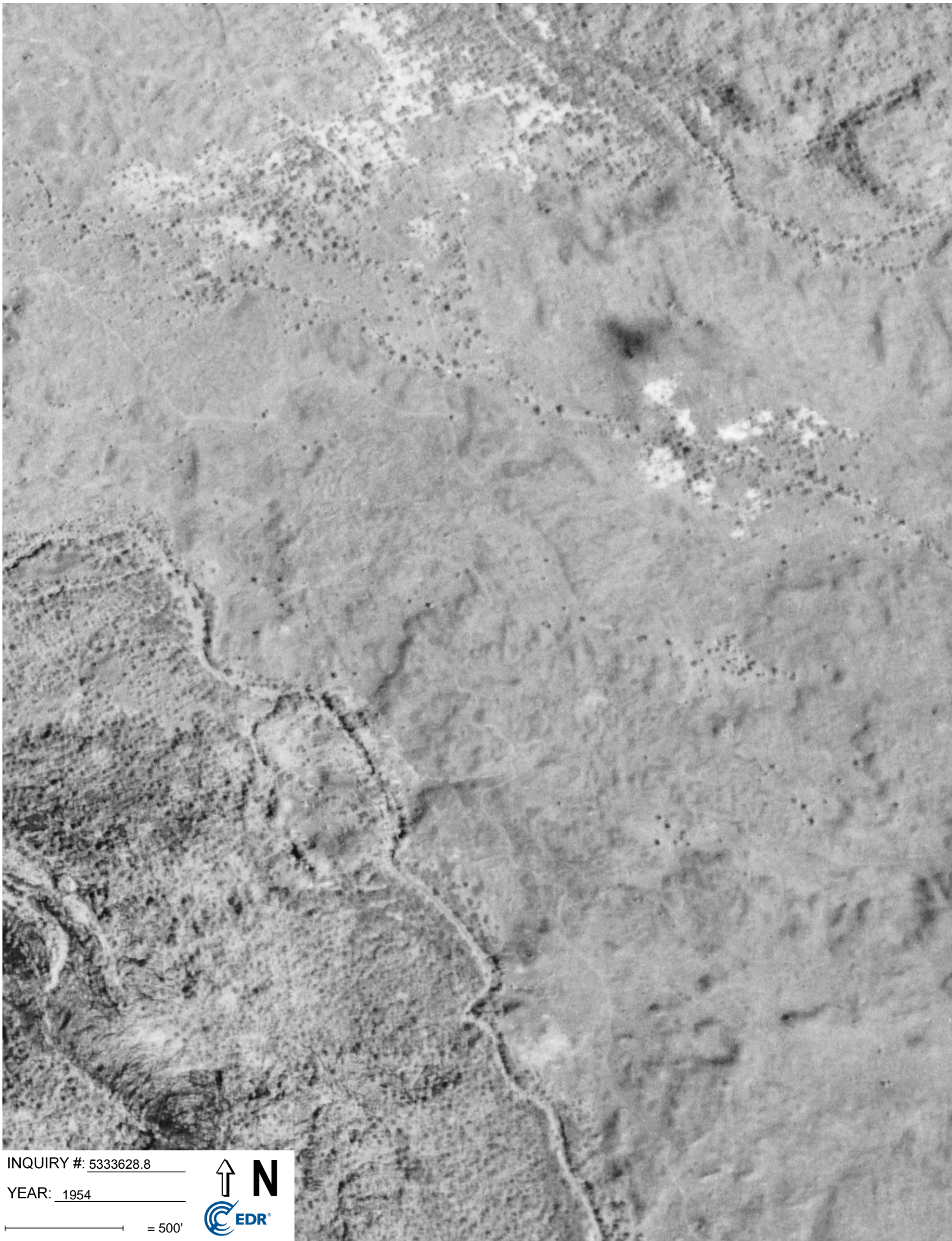


INQUIRY #: 5333628.8

YEAR: 1974

 = 500'





INQUIRY #: 5333628.8

YEAR: 1954

— = 500'





*Appendix* **C**

**EDR REPORT,  
SANBORN FIRE INSURANCE MAPS,  
HISTORICAL TOPOGRAPHIC MAPS,  
HISTORICAL AERIAL PHOTOGRAPHS AND  
CITY DIRECTORY**

**Pua Melia Street**

Pua Melia Street  
Waikoloa, HI 96738

Inquiry Number: 5333628.2s  
June 15, 2018

# The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

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***Thank you for your business.***  
 Please contact EDR at 1-800-352-0050  
 with any questions or comments.

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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

PUA MELIA STREET  
WAIKOLOA, HI 96738

#### COORDINATES

Latitude (North):	19.9225230 - 19° 55' 21.08"
Longitude (West):	155.7887150 - 155° 47' 19.37"
Universal Tranverse Mercator:	Zone 5
UTM X (Meters):	208049.8
UTM Y (Meters):	2205199.0
Elevation:	995 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5949286 PUU HINAI, HI
Version Date:	2013

MAPPED SITES SUMMARY

Target Property Address:  
PUA MELIA STREET  
WAIKOLOA, HI 96738

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
<a href="#">1</a>	WAIKOLOA SEWER PUMP	150 WAIKOLOA BEACH D	LUST, UST, Financial Assurance, UIC	Lower	2640, 0.500, North

# EXECUTIVE SUMMARY

## TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

## DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

NPL..... National Priority List  
Proposed NPL..... Proposed National Priority List Sites  
NPL LIENS..... Federal Superfund Liens

### ***Federal Delisted NPL site list***

Delisted NPL..... National Priority List Deletions

### ***Federal CERCLIS list***

FEDERAL FACILITY..... Federal Facility Site Information listing  
SEMS..... Superfund Enterprise Management System

### ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

### ***Federal RCRA CORRACTS facilities list***

CORRACTS..... Corrective Action Report

### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

### ***Federal RCRA generators list***

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators  
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

### ***Federal institutional controls / engineering controls registries***

LUCIS..... Land Use Control Information System  
US ENG CONTROLS..... Engineering Controls Sites List

## EXECUTIVE SUMMARY

US INST CONTROL..... Sites with Institutional Controls

### ***Federal ERNS list***

ERNS..... Emergency Response Notification System

### ***State- and tribal - equivalent CERCLIS***

SHWS..... Sites List

### ***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF..... Permitted Landfills in the State of Hawaii

### ***State and tribal leaking storage tank lists***

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

### ***State and tribal registered storage tank lists***

FEMA UST..... Underground Storage Tank Listing

UST..... Underground Storage Tank Database

INDIAN UST..... Underground Storage Tanks on Indian Land

### ***State and tribal institutional control / engineering control registries***

ENG CONTROLS..... Engineering Control Sites

INST CONTROL..... Sites with Institutional Controls

### ***State and tribal voluntary cleanup sites***

VCP..... Voluntary Response Program Sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

### ***State and tribal Brownfields sites***

BROWNFIELDS..... Brownfields Sites

### **ADDITIONAL ENVIRONMENTAL RECORDS**

#### ***Local Brownfield lists***

US BROWNFIELDS..... A Listing of Brownfields Sites

#### ***Local Lists of Landfill / Solid Waste Disposal Sites***

INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

ODI..... Open Dump Inventory

IHS OPEN DUMPS..... Open Dumps on Indian Land

#### ***Local Lists of Hazardous waste / Contaminated Sites***

US HIST CDL..... Delisted National Clandestine Laboratory Register

## EXECUTIVE SUMMARY

CDL..... Clandestine Drug Lab Listing  
US CDL..... National Clandestine Laboratory Register

### **Local Land Records**

LIENS 2..... CERCLA Lien Information

### **Records of Emergency Release Reports**

HMIRS..... Hazardous Materials Information Reporting System  
SPILLS..... Release Notifications  
SPILLS 90..... SPILLS 90 data from FirstSearch

### **Other Ascertainable Records**

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated  
FUDS..... Formerly Used Defense Sites  
DOD..... Department of Defense Sites  
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing  
US FIN ASSUR..... Financial Assurance Information  
EPA WATCH LIST..... EPA WATCH LIST  
2020 COR ACTION..... 2020 Corrective Action Program List  
TSCA..... Toxic Substances Control Act  
TRIS..... Toxic Chemical Release Inventory System  
SSTS..... Section 7 Tracking Systems  
ROD..... Records Of Decision  
RMP..... Risk Management Plans  
RAATS..... RCRA Administrative Action Tracking System  
PRP..... Potentially Responsible Parties  
PADS..... PCB Activity Database System  
ICIS..... Integrated Compliance Information System  
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
MLTS..... Material Licensing Tracking System  
COAL ASH DOE..... Steam-Electric Plant Operation Data  
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List  
PCB TRANSFORMER..... PCB Transformer Registration Database  
RADINFO..... Radiation Information Database  
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing  
DOT OPS..... Incident and Accident Data  
CONSENT..... Superfund (CERCLA) Consent Decrees  
INDIAN RESERV..... Indian Reservations  
FUSRAP..... Formerly Utilized Sites Remedial Action Program  
UMTRA..... Uranium Mill Tailings Sites  
LEAD SMELTERS..... Lead Smelter Sites  
US AIRS..... Aerometric Information Retrieval System Facility Subsystem  
US MINES..... Mines Master Index File  
ABANDONED MINES..... Abandoned Mines  
FINDS..... Facility Index System/Facility Registry System  
ECHO..... Enforcement & Compliance History Information  
UXO..... Unexploded Ordnance Sites  
DOCKET HWC..... Hazardous Waste Compliance Docket Listing  
FUELS PROGRAM..... EPA Fuels Program Registered Listing  
AIRS..... List of Permitted Facilities  
DRYCLEANERS..... Permitted Drycleaner Facility Listing



## EXECUTIVE SUMMARY

Financial Assurance..... Financial Assurance Information Listing  
LEAD..... LEAD  
UIC..... Underground Injection Wells Listing

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP..... EDR Proprietary Manufactured Gas Plants  
EDR Hist Auto..... EDR Exclusive Historical Auto Stations  
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List  
RGA LF..... Recovered Government Archive Solid Waste Facilities List  
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

### STANDARD ENVIRONMENTAL RECORDS

#### ***State and tribal leaking storage tank lists***

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Active Leaking Underground Storage Tank Log Listing.

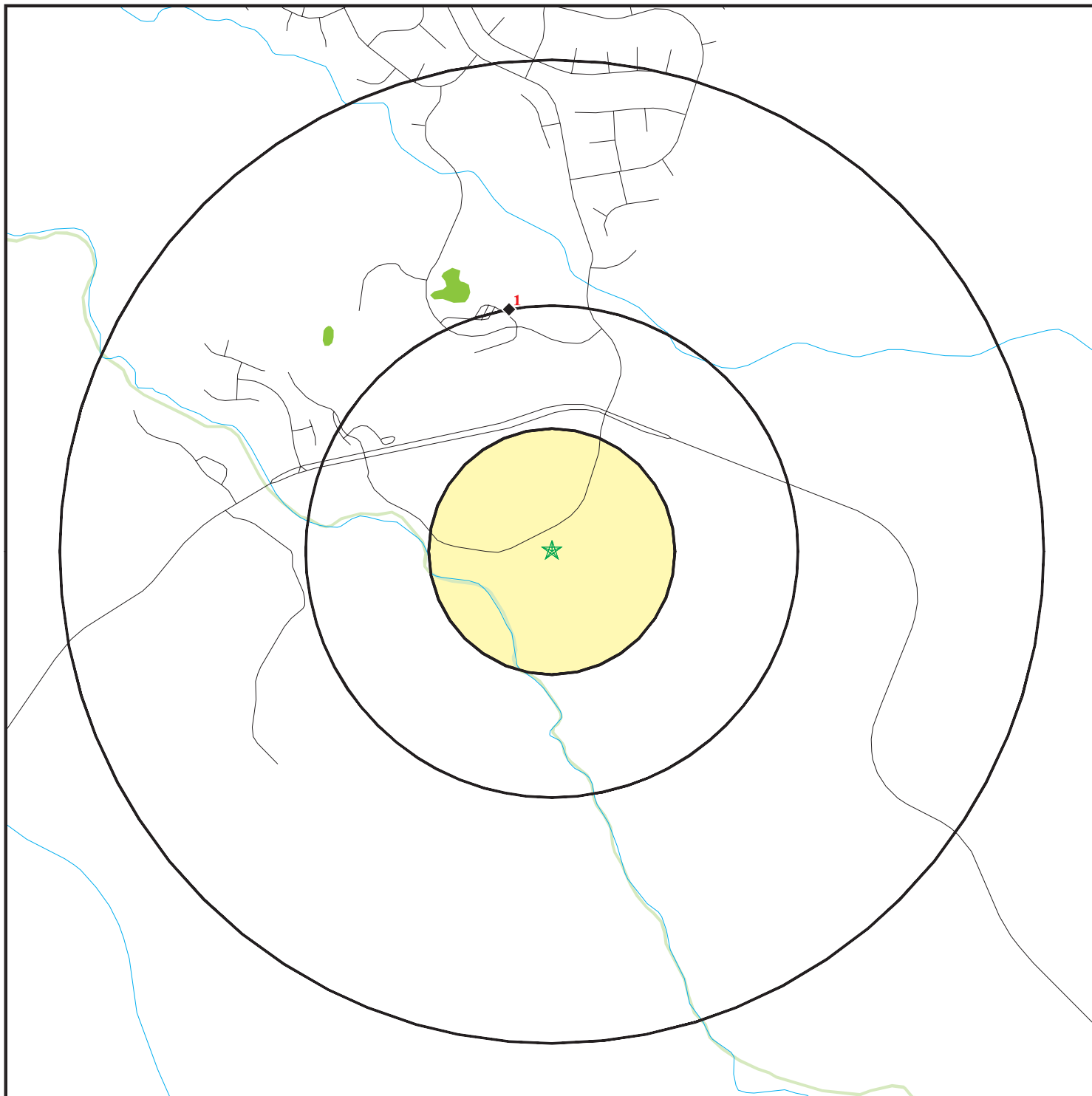
A review of the LUST list, as provided by EDR, and dated 03/16/2018 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>WAIKOLOA SEWER PUMP</i></b> Release ID: 990069 Facility Id: 9-601942 Facility Status: Site Cleanup Completed (NFA)	<b><i>150 WAIKOLOA BEACH D</i></b>	<b><i>N 1/4 - 1/2 (0.500 mi.)</i></b>	<b><i>1</i></b>	<b><i>8</i></b>

## EXECUTIVE SUMMARY

There were no unmapped sites in this report.

# OVERVIEW MAP - 5333628.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ▨ Indian Reservations BIA
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Upgradient Area

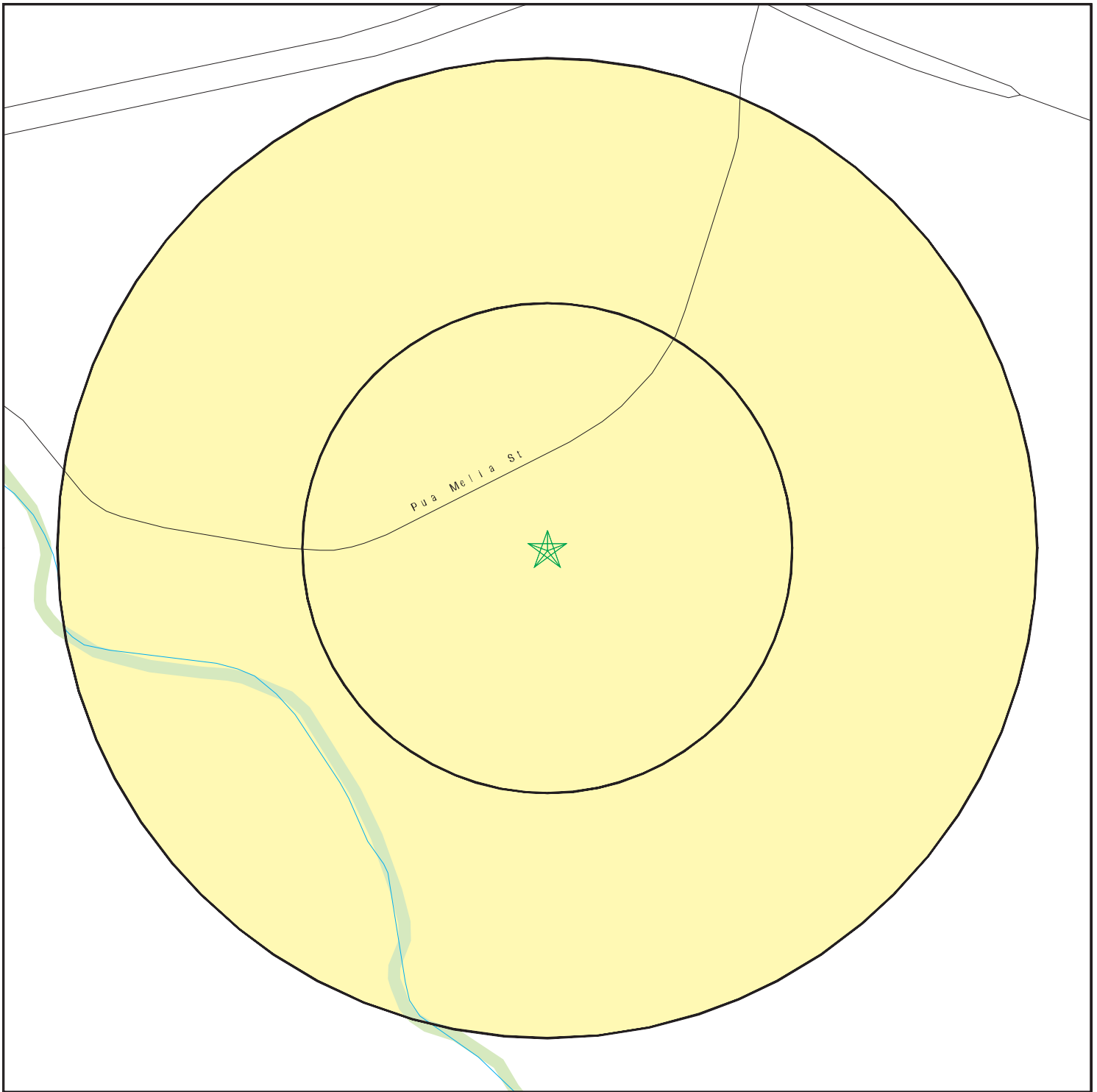


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Pua Melia Street  
 ADDRESS: Pua Melia Street  
 Waikoloa HI 96738  
 LAT/LONG: 19.922523 / 155.788715

CLIENT: Environmental Risk Analysis, LLC  
 CONTACT: Vincent Yanagita  
 INQUIRY #: 5333628.2s  
 DATE: June 15, 2018 12:43 pm

# DETAIL MAP - 5333628.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚒 National Priority List Sites
- 🏠 Dept. Defense Sites

- 🏠 Indian Reservations BIA
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Pua Melia Street  
 ADDRESS: Pua Melia Street  
 Waikoloa HI 96738  
 LAT/LONG: 19.922523 / 155.788715

CLIENT: Environmental Risk Analysis, LLC  
 CONTACT: Vincent Yanagita  
 INQUIRY #: 5333628.2s  
 DATE: June 15, 2018 12:43 pm

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Federal NPL site list</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<b><i>Federal Delisted NPL site list</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS list</i></b>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<b><i>Federal CERCLIS NFRAP site list</i></b>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA CORRACTS facilities list</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Federal RCRA non-CORRACTS TSD facilities list</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA generators list</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<b><i>Federal institutional controls / engineering controls registries</i></b>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	TP		NR	NR	NR	NR	NR	0
<b><i>State- and tribal - equivalent CERCLIS</i></b>								
SHWS	1.000		0	0	0	0	NR	0
<b><i>State and tribal landfill and/or solid waste disposal site lists</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0
<b><i>State and tribal leaking storage tank lists</i></b>								
LUST	0.500		0	0	1	NR	NR	1
INDIAN LUST	0.500		0	0	0	NR	NR	0
<b><i>State and tribal registered storage tank lists</i></b>								
FEMA UST	0.250		0	0	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
<b>State and tribal institutional control / engineering control registries</b>								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
<b>State and tribal voluntary cleanup sites</b>								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
<b>State and tribal Brownfields sites</b>								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>ADDITIONAL ENVIRONMENTAL RECORDS</b>								
<b>Local Brownfield lists</b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Landfill / Solid Waste Disposal Sites</b>								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Hazardous waste / Contaminated Sites</b>								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
<b>Local Land Records</b>								
LIENS 2	TP		NR	NR	NR	NR	NR	0
<b>Records of Emergency Release Reports</b>								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0

- Totals -- 0 0 0 1 0 0 1

## MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>&lt; 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>&gt; 1</u>	<u>Total Plotted</u>
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NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database



MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Site

Database(s)

EDR ID Number  
 EPA ID Number

**1**  
 North  
 1/4-1/2  
 0.500 mi.  
 2640 ft.

**WAIKOLOA SEWER PUMP STATION**  
**150 WAIKOLOA BEACH DR**  
**WAIKOLOA, HI 96738**

**Financial Assurance**  
**LUST**  
**UST**  
**UIC**

**U003222369**  
**N/A**

**Relative:**  
**Lower**  
**Actual:**  
**950 ft.**

**LUST:**  
 Facility ID: 9-601942  
 Facility Status: Site Cleanup Completed (NFA)  
 Facility Status Date: 02/03/1999  
 Release ID: 990069  
 Project Officer: Jeffrey Ung

**UST:**  
 Facility ID: 9-601942  
 Owner: WEST HAWAII UTILITIES DBA WAIKOLOA RESORT UTILITIE  
 Owner Address: HCO2 BOX 5050 150 WAIKOLOA BEACH ROAD  
 Owner City,St,Zip: Waikoloa, 96738 96738  
 Latitude: 19.913350  
 Longitude: -155.876221  
 Horizontal Reference Datum Name: NAD83  
 Horizontal Collection Method Name: Address Matching

Tank ID: R-1  
 Date Installed: 01/15/1980  
**Tank Status: Permanently Out of Use**  
 Date Closed: 11/10/1998  
 Tank Capacity: 1000  
 Substance: Diesel

Tank ID: R-2  
 Date Installed: 01/15/1988  
**Tank Status: Permanently Out of Use**  
 Date Closed: 11/09/1998  
 Tank Capacity: 300  
 Substance: Diesel

**HI Financial Assurance:**  
 Alt Facility ID: 9-601942  
 Tank Id: R-1  
 Tank Status: Permanently Out of Use  
 FRTYPE: Insurance  
 Expiration Date: Not reported

Alt Facility ID: 9-601942  
 Tank Id: R-2  
 Tank Status: Permanently Out of Use  
 FRTYPE: Insurance  
 Expiration Date: Not reported

**UIC:**  
 UIC Permit Number: UH-2334  
 Facility Id/Lat Long Minute Coordinates: 8-5552.02.1  
 Central Latitude Of The Site: N  
 Central Longitude Of The Site: W  
 Flow In Gallons Per Day: 1000 gpd  
 Total Number Of Inj. Well(S) On Permit: 1

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**WAIKOLOA SEWER PUMP STATION (Continued)**

**U003222369**

Island: Hawaii  
Location In Relation To UIC Line: below  
Facility Type: Not reported  
Subclass: AB  
Facility Operator, Not Contract Opr: Waikoloa Development Co.  
Operator Address: Not reported  
Facility Owner: Not reported  
Owner Address: Not reported  
Tax Map Key Number: 3:6-9-8:11  
Owner Of Land Property On Leasehold: Not reported  
Consultant Serving The Application: Brown & Caldwell  
Receipt Of Initial Application: 11/22/2004  
Public Notice Date: Not reported  
Approval-To-Construct Issuance Date: Not reported  
Exemption Issuance Date: Not reported  
1st Issuance Of Permit: 8/31/2005  
Last Issuance Of Permit: 10/31/2011  
Type: Not reported  
Permit Expiration Date: 10/30/2016  
Date When File Is Closed: Not reported  
UIC Project Geologist: NU  
Remarks: Not reported

Count: 0 records.

ORPHAN SUMMARY

<u>City</u>	<u>EDR ID</u>	<u>Site Name</u>	<u>Site Address</u>	<u>Zip</u>	<u>Database(s)</u>
NO SITES FOUND					

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/11/2017	Source: EPA
Date Data Arrived at EDR: 12/22/2017	Telephone: N/A
Date Made Active in Reports: 01/05/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 14	Next Scheduled EDR Contact: 07/16/2018
	Data Release Frequency: Quarterly

#### **NPL Site Boundaries**

##### **Sources:**

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/11/2017	Source: EPA
Date Data Arrived at EDR: 12/22/2017	Telephone: N/A
Date Made Active in Reports: 01/05/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 14	Next Scheduled EDR Contact: 07/16/2018
	Data Release Frequency: Quarterly

#### **NPL LIENS: Federal Superfund Liens**

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal Delisted NPL site list***

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/11/2017	Source: EPA
Date Data Arrived at EDR: 12/22/2017	Telephone: N/A
Date Made Active in Reports: 01/05/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 14	Next Scheduled EDR Contact: 07/16/2018
	Data Release Frequency: Quarterly

## ***Federal CERCLIS list***

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2017	Telephone: 703-603-8704
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 04/06/2018
Number of Days to Update: 92	Next Scheduled EDR Contact: 07/16/2018
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/09/2018	Source: EPA
Date Data Arrived at EDR: 02/06/2018	Telephone: 800-424-9346
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 66	Next Scheduled EDR Contact: 07/30/2018
	Data Release Frequency: Quarterly

## ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 01/09/2018	Source: EPA
Date Data Arrived at EDR: 02/06/2018	Telephone: 800-424-9346
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 66	Next Scheduled EDR Contact: 07/30/2018
	Data Release Frequency: Quarterly

## ***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/11/2017	Source: EPA
Date Data Arrived at EDR: 12/26/2017	Telephone: 800-424-9346
Date Made Active in Reports: 02/09/2018	Last EDR Contact: 03/28/2018
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

## ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/11/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 02/09/2018	Last EDR Contact: 03/28/2018
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

## ***Federal RCRA generators list***

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/11/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 02/09/2018	Last EDR Contact: 03/28/2018
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/11/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 02/09/2018	Last EDR Contact: 03/28/2018
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

## RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/11/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 02/09/2018	Last EDR Contact: 03/28/2018
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

## ***Federal institutional controls / engineering controls registries***

### LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/16/2018	Source: Department of the Navy
Date Data Arrived at EDR: 02/22/2018	Telephone: 843-820-7326
Date Made Active in Reports: 05/11/2018	Last EDR Contact: 05/09/2018
Number of Days to Update: 78	Next Scheduled EDR Contact: 08/27/2018
	Data Release Frequency: Varies

### US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/27/2018	Telephone: 703-603-0695
Date Made Active in Reports: 05/11/2018	Last EDR Contact: 05/29/2018
Number of Days to Update: 73	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Varies

### US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/27/2018	Telephone: 703-603-0695
Date Made Active in Reports: 05/11/2018	Last EDR Contact: 05/29/2018
Number of Days to Update: 73	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **Federal ERNS list**

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/19/2018  
Date Data Arrived at EDR: 03/27/2018  
Date Made Active in Reports: 06/08/2018  
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard  
Telephone: 202-267-2180  
Last EDR Contact: 03/27/2018  
Next Scheduled EDR Contact: 07/09/2018  
Data Release Frequency: Quarterly

## **State- and tribal - equivalent CERCLIS**

SHWS: Sites List

Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 01/23/2018  
Date Data Arrived at EDR: 02/21/2018  
Date Made Active in Reports: 02/26/2018  
Number of Days to Update: 5

Source: Department of Health  
Telephone: 808-586-4249  
Last EDR Contact: 02/21/2018  
Next Scheduled EDR Contact: 06/04/2018  
Data Release Frequency: Semi-Annually

## **State and tribal landfill and/or solid waste disposal site lists**

SWF/LF: Permitted Landfills in the State of Hawaii

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/17/2012  
Date Data Arrived at EDR: 04/03/2013  
Date Made Active in Reports: 05/10/2013  
Number of Days to Update: 37

Source: Department of Health  
Telephone: 808-586-4245  
Last EDR Contact: 03/30/2018  
Next Scheduled EDR Contact: 07/09/2018  
Data Release Frequency: Varies

## **State and tribal leaking storage tank lists**

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/16/2018  
Date Data Arrived at EDR: 03/21/2018  
Date Made Active in Reports: 04/10/2018  
Number of Days to Update: 20

Source: Department of Health  
Telephone: 808-586-4228  
Last EDR Contact: 06/01/2018  
Next Scheduled EDR Contact: 09/10/2018  
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/24/2017  
Date Data Arrived at EDR: 01/23/2018  
Date Made Active in Reports: 04/13/2018  
Number of Days to Update: 80

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 05/18/2018  
Next Scheduled EDR Contact: 08/06/2018  
Data Release Frequency: Varies



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/12/2017	Source: EPA Region 8
Date Data Arrived at EDR: 01/23/2018	Telephone: 303-312-6271
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/12/2017	Source: EPA Region 7
Date Data Arrived at EDR: 01/23/2018	Telephone: 913-551-7003
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/06/2018	Source: EPA Region 6
Date Data Arrived at EDR: 01/23/2018	Telephone: 214-665-6597
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2017	Source: EPA Region 4
Date Data Arrived at EDR: 01/23/2018	Telephone: 404-562-8677
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/16/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/14/2017	Source: EPA Region 1
Date Data Arrived at EDR: 01/23/2018	Telephone: 617-918-1313
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/16/2017	Source: EPA, Region 5
Date Data Arrived at EDR: 01/23/2018	Telephone: 312-886-7439
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 09/30/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/23/2018	Telephone: 415-972-3372
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***State and tribal registered storage tank lists***

### **FEMA UST: Underground Storage Tank Listing**

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017	Source: FEMA
Date Data Arrived at EDR: 05/30/2017	Telephone: 202-646-5797
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 04/13/2018
Number of Days to Update: 136	Next Scheduled EDR Contact: 07/23/2018
	Data Release Frequency: Varies

### **UST: Underground Storage Tank Database**

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/16/2018	Source: Department of Health
Date Data Arrived at EDR: 03/21/2018	Telephone: 808-586-4228
Date Made Active in Reports: 04/10/2018	Last EDR Contact: 06/01/2018
Number of Days to Update: 20	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Semi-Annually

### **INDIAN UST R6: Underground Storage Tanks on Indian Land**

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/24/2017	Source: EPA Region 6
Date Data Arrived at EDR: 07/27/2017	Telephone: 214-665-7591
Date Made Active in Reports: 12/08/2017	Last EDR Contact: 05/18/2018
Number of Days to Update: 134	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### **INDIAN UST R5: Underground Storage Tanks on Indian Land**

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/16/2017	Source: EPA Region 5
Date Data Arrived at EDR: 01/23/2018	Telephone: 312-886-6136
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### **INDIAN UST R1: Underground Storage Tanks on Indian Land**

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/14/2017	Source: EPA, Region 1
Date Data Arrived at EDR: 01/23/2018	Telephone: 617-918-1313
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

### **INDIAN UST R4: Underground Storage Tanks on Indian Land**

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2017	Source: EPA Region 4
Date Data Arrived at EDR: 01/23/2018	Telephone: 404-562-9424
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/16/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/24/2017	Source: EPA Region 10
Date Data Arrived at EDR: 01/23/2018	Telephone: 206-553-2857
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

## INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 09/30/2017	Source: EPA Region 9
Date Data Arrived at EDR: 01/23/2018	Telephone: 415-972-3368
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

## INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/12/2017	Source: EPA Region 8
Date Data Arrived at EDR: 01/23/2018	Telephone: 303-312-6137
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

## INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 01/13/2018	Source: EPA Region 7
Date Data Arrived at EDR: 01/23/2018	Telephone: 913-551-7003
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 05/18/2018
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Varies

## ***State and tribal institutional control / engineering control registries***

### ENG CONTROLS: Engineering Control Sites

A listing of sites with engineering controls in place.

Date of Government Version: 01/23/2018	Source: Department of Health
Date Data Arrived at EDR: 02/21/2018	Telephone: 404-586-4249
Date Made Active in Reports: 02/26/2018	Last EDR Contact: 02/21/2018
Number of Days to Update: 5	Next Scheduled EDR Contact: 06/04/2018
	Data Release Frequency: Varies

### INST CONTROL: Sites with Institutional Controls

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 01/23/2018	Source: Department of Health
Date Data Arrived at EDR: 02/21/2018	Telephone: 808-586-4249
Date Made Active in Reports: 02/26/2018	Last EDR Contact: 02/21/2018
Number of Days to Update: 5	Next Scheduled EDR Contact: 06/04/2018
	Data Release Frequency: Varies

## ***State and tribal voluntary cleanup sites***

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 03/21/2018
Number of Days to Update: 142	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Varies

## VCP: Voluntary Response Program Sites

Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 01/23/2018	Source: Department of Health
Date Data Arrived at EDR: 02/21/2018	Telephone: 808-586-4249
Date Made Active in Reports: 02/26/2018	Last EDR Contact: 02/21/2018
Number of Days to Update: 5	Next Scheduled EDR Contact: 06/04/2018
	Data Release Frequency: Varies

## INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

## **State and tribal Brownfields sites**

### BROWNFIELDS: Brownfields Sites

With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 01/23/2018	Source: Department of Health
Date Data Arrived at EDR: 02/21/2018	Telephone: 808-586-4249
Date Made Active in Reports: 02/26/2018	Last EDR Contact: 02/21/2018
Number of Days to Update: 5	Next Scheduled EDR Contact: 06/04/2018
	Data Release Frequency: Varies

## **ADDITIONAL ENVIRONMENTAL RECORDS**

### **Local Brownfield lists**

#### US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/19/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2018	Telephone: 202-566-2777
Date Made Active in Reports: 06/08/2018	Last EDR Contact: 03/21/2018
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/02/2018
	Data Release Frequency: Semi-Annually

### **Local Lists of Landfill / Solid Waste Disposal Sites**

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 01/30/2018  
Next Scheduled EDR Contact: 05/14/2018  
Data Release Frequency: Varies

## DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009  
Date Data Arrived at EDR: 05/07/2009  
Date Made Active in Reports: 09/21/2009  
Number of Days to Update: 137

Source: EPA, Region 9  
Telephone: 415-947-4219  
Last EDR Contact: 04/18/2018  
Next Scheduled EDR Contact: 08/06/2018  
Data Release Frequency: No Update Planned

## ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014  
Date Data Arrived at EDR: 08/06/2014  
Date Made Active in Reports: 01/29/2015  
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service  
Telephone: 301-443-1452  
Last EDR Contact: 05/04/2018  
Next Scheduled EDR Contact: 08/13/2018  
Data Release Frequency: Varies

## **Local Lists of Hazardous waste / Contaminated Sites**

### US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/22/2018  
Date Data Arrived at EDR: 03/01/2018  
Date Made Active in Reports: 05/11/2018  
Number of Days to Update: 71

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 05/30/2018  
Next Scheduled EDR Contact: 09/10/2018  
Data Release Frequency: No Update Planned

### CDL: Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010  
Date Data Arrived at EDR: 09/10/2010  
Date Made Active in Reports: 10/22/2010  
Number of Days to Update: 42

Source: Department of Health  
Telephone: 808-586-4249  
Last EDR Contact: 06/06/2018  
Next Scheduled EDR Contact: 09/10/2018  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/22/2018	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/01/2018	Telephone: 202-307-1000
Date Made Active in Reports: 05/11/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Quarterly

## Local Land Records

### LIENS 2: CERCLA Lien Information

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 01/09/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/06/2018	Telephone: 202-564-6023
Date Made Active in Reports: 05/11/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 94	Next Scheduled EDR Contact: 08/06/2018
	Data Release Frequency: Semi-Annually

## Records of Emergency Release Reports

### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 03/27/2018	Telephone: 202-366-4555
Date Made Active in Reports: 06/08/2018	Last EDR Contact: 03/27/2018
Number of Days to Update: 73	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

### SPILLS: Release Notifications

Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 02/16/2018	Source: Department of Health
Date Data Arrived at EDR: 02/21/2018	Telephone: 808-586-4249
Date Made Active in Reports: 02/27/2018	Last EDR Contact: 05/23/2018
Number of Days to Update: 6	Next Scheduled EDR Contact: 09/03/2018
	Data Release Frequency: Varies

### SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/11/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## Other Ascertainable Records

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/11/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 02/09/2018	Last EDR Contact: 03/28/2018
Number of Days to Update: 45	Next Scheduled EDR Contact: 07/09/2018
	Data Release Frequency: Quarterly

## FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 07/08/2015	Telephone: 202-528-4285
Date Made Active in Reports: 10/13/2015	Last EDR Contact: 05/25/2018
Number of Days to Update: 97	Next Scheduled EDR Contact: 09/03/2018
	Data Release Frequency: Varies

## DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/13/2018
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/23/2018
	Data Release Frequency: Semi-Annually

## FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/11/2018
Number of Days to Update: 339	Next Scheduled EDR Contact: 07/23/2018
	Data Release Frequency: N/A

## SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/03/2017	Telephone: 615-532-8599
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 05/15/2018
Number of Days to Update: 63	Next Scheduled EDR Contact: 08/27/2018
	Data Release Frequency: Varies

## US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/11/2018  
Date Data Arrived at EDR: 01/19/2018  
Date Made Active in Reports: 03/02/2018  
Number of Days to Update: 42

Source: Environmental Protection Agency  
Telephone: 202-566-1917  
Last EDR Contact: 03/27/2018  
Next Scheduled EDR Contact: 07/09/2018  
Data Release Frequency: Quarterly

## EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013  
Date Data Arrived at EDR: 03/21/2014  
Date Made Active in Reports: 06/17/2014  
Number of Days to Update: 88

Source: Environmental Protection Agency  
Telephone: 617-520-3000  
Last EDR Contact: 05/07/2018  
Next Scheduled EDR Contact: 08/20/2018  
Data Release Frequency: Quarterly

## 2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013  
Date Data Arrived at EDR: 03/03/2015  
Date Made Active in Reports: 03/09/2015  
Number of Days to Update: 6

Source: Environmental Protection Agency  
Telephone: 703-308-4044  
Last EDR Contact: 05/08/2018  
Next Scheduled EDR Contact: 08/20/2018  
Data Release Frequency: Varies

## TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016  
Date Data Arrived at EDR: 06/21/2017  
Date Made Active in Reports: 01/05/2018  
Number of Days to Update: 198

Source: EPA  
Telephone: 202-260-5521  
Last EDR Contact: 03/23/2018  
Next Scheduled EDR Contact: 07/02/2018  
Data Release Frequency: Every 4 Years

## TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016  
Date Data Arrived at EDR: 01/10/2018  
Date Made Active in Reports: 01/12/2018  
Number of Days to Update: 2

Source: EPA  
Telephone: 202-566-0250  
Last EDR Contact: 05/25/2018  
Next Scheduled EDR Contact: 09/03/2018  
Data Release Frequency: Annually

## SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2009  
Date Data Arrived at EDR: 12/10/2010  
Date Made Active in Reports: 02/25/2011  
Number of Days to Update: 77

Source: EPA  
Telephone: 202-564-4203  
Last EDR Contact: 04/09/2018  
Next Scheduled EDR Contact: 08/06/2018  
Data Release Frequency: Annually

## ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/09/2018  
Date Data Arrived at EDR: 02/06/2018  
Date Made Active in Reports: 05/11/2018  
Number of Days to Update: 94

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 05/30/2018  
Next Scheduled EDR Contact: 09/17/2018  
Data Release Frequency: Annually

## RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2017  
Date Data Arrived at EDR: 11/17/2017  
Date Made Active in Reports: 12/08/2017  
Number of Days to Update: 21

Source: Environmental Protection Agency  
Telephone: 202-564-8600  
Last EDR Contact: 04/20/2018  
Next Scheduled EDR Contact: 08/06/2018  
Data Release Frequency: Varies

## RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995  
Date Data Arrived at EDR: 07/03/1995  
Date Made Active in Reports: 08/07/1995  
Number of Days to Update: 35

Source: EPA  
Telephone: 202-564-4104  
Last EDR Contact: 06/02/2008  
Next Scheduled EDR Contact: 09/01/2008  
Data Release Frequency: No Update Planned

## PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013  
Date Data Arrived at EDR: 10/17/2014  
Date Made Active in Reports: 10/20/2014  
Number of Days to Update: 3

Source: EPA  
Telephone: 202-564-6023  
Last EDR Contact: 05/30/2018  
Next Scheduled EDR Contact: 08/20/2018  
Data Release Frequency: Quarterly

## PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/01/2017  
Date Data Arrived at EDR: 06/09/2017  
Date Made Active in Reports: 10/13/2017  
Number of Days to Update: 126

Source: EPA  
Telephone: 202-566-0500  
Last EDR Contact: 04/13/2018  
Next Scheduled EDR Contact: 07/23/2018  
Data Release Frequency: Annually

## ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016  
Date Data Arrived at EDR: 11/23/2016  
Date Made Active in Reports: 02/10/2017  
Number of Days to Update: 79

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 04/09/2018  
Next Scheduled EDR Contact: 07/23/2018  
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009  
Date Data Arrived at EDR: 04/16/2009  
Date Made Active in Reports: 05/11/2009  
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances  
Telephone: 202-566-1667  
Last EDR Contact: 08/18/2017  
Next Scheduled EDR Contact: 12/04/2017  
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009  
Date Data Arrived at EDR: 04/16/2009  
Date Made Active in Reports: 05/11/2009  
Number of Days to Update: 25

Source: EPA  
Telephone: 202-566-1667  
Last EDR Contact: 08/18/2017  
Next Scheduled EDR Contact: 12/04/2017  
Data Release Frequency: Quarterly

## MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016  
Date Data Arrived at EDR: 09/08/2016  
Date Made Active in Reports: 10/21/2016  
Number of Days to Update: 43

Source: Nuclear Regulatory Commission  
Telephone: 301-415-7169  
Last EDR Contact: 05/03/2018  
Next Scheduled EDR Contact: 08/20/2018  
Data Release Frequency: Quarterly

## COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 08/07/2009  
Date Made Active in Reports: 10/22/2009  
Number of Days to Update: 76

Source: Department of Energy  
Telephone: 202-586-8719  
Last EDR Contact: 06/07/2018  
Next Scheduled EDR Contact: 09/17/2018  
Data Release Frequency: Varies

## COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2014  
Date Data Arrived at EDR: 09/10/2014  
Date Made Active in Reports: 10/20/2014  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: N/A  
Last EDR Contact: 06/04/2018  
Next Scheduled EDR Contact: 09/17/2018  
Data Release Frequency: Varies

## PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017  
Date Data Arrived at EDR: 11/30/2017  
Date Made Active in Reports: 12/15/2017  
Number of Days to Update: 15

Source: Environmental Protection Agency  
Telephone: 202-566-0517  
Last EDR Contact: 04/27/2018  
Next Scheduled EDR Contact: 08/06/2018  
Data Release Frequency: Varies

## RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/03/2018  
Date Data Arrived at EDR: 01/04/2018  
Date Made Active in Reports: 04/13/2018  
Number of Days to Update: 99

Source: Environmental Protection Agency  
Telephone: 202-343-9775  
Last EDR Contact: 04/05/2018  
Next Scheduled EDR Contact: 07/16/2018  
Data Release Frequency: Quarterly

## HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2007  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

## HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2008  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

## DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012  
Date Data Arrived at EDR: 08/07/2012  
Date Made Active in Reports: 09/18/2012  
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety  
Telephone: 202-366-4595  
Last EDR Contact: 05/03/2018  
Next Scheduled EDR Contact: 08/13/2018  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2017	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 01/24/2018	Telephone: Varies
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 04/06/2018
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/02/2018
	Data Release Frequency: Varies

## BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015	Source: EPA/NTIS
Date Data Arrived at EDR: 02/22/2017	Telephone: 800-424-9346
Date Made Active in Reports: 09/28/2017	Last EDR Contact: 05/25/2018
Number of Days to Update: 218	Next Scheduled EDR Contact: 09/03/2018
	Data Release Frequency: Biennially

## INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014	Source: USGS
Date Data Arrived at EDR: 07/14/2015	Telephone: 202-208-3710
Date Made Active in Reports: 01/10/2017	Last EDR Contact: 04/11/2018
Number of Days to Update: 546	Next Scheduled EDR Contact: 07/23/2018
	Data Release Frequency: Semi-Annually

## FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016	Source: Department of Energy
Date Data Arrived at EDR: 12/27/2016	Telephone: 202-586-3559
Date Made Active in Reports: 02/17/2017	Last EDR Contact: 05/07/2018
Number of Days to Update: 52	Next Scheduled EDR Contact: 08/20/2018
	Data Release Frequency: Varies

## UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017	Source: Department of Energy
Date Data Arrived at EDR: 10/11/2017	Telephone: 505-845-0011
Date Made Active in Reports: 11/03/2017	Last EDR Contact: 05/18/2018
Number of Days to Update: 23	Next Scheduled EDR Contact: 09/03/2018
	Data Release Frequency: Varies

## LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/09/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/06/2018	Telephone: 703-603-8787
Date Made Active in Reports: 03/02/2018	Last EDR Contact: 05/30/2018
Number of Days to Update: 24	Next Scheduled EDR Contact: 07/16/2018
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001	Source: American Journal of Public Health
Date Data Arrived at EDR: 10/27/2010	Telephone: 703-305-6451
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 12/02/2009
Number of Days to Update: 36	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016	Source: EPA
Date Data Arrived at EDR: 10/26/2016	Telephone: 202-564-2496
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 100	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Annually

## US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016	Source: EPA
Date Data Arrived at EDR: 10/26/2016	Telephone: 202-564-2496
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 100	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Annually

## US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 01/25/2018	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 02/28/2018	Telephone: 303-231-5959
Date Made Active in Reports: 05/11/2018	Last EDR Contact: 05/31/2018
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Semi-Annually

## US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005	Source: USGS
Date Data Arrived at EDR: 02/29/2008	Telephone: 703-648-7709
Date Made Active in Reports: 04/18/2008	Last EDR Contact: 05/30/2018
Number of Days to Update: 49	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Varies

## US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011	Source: USGS
Date Data Arrived at EDR: 06/08/2011	Telephone: 703-648-7709
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 05/30/2018
Number of Days to Update: 97	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/08/2018	Source: Department of Interior
Date Data Arrived at EDR: 03/13/2018	Telephone: 202-208-2609
Date Made Active in Reports: 06/08/2018	Last EDR Contact: 06/06/2018
Number of Days to Update: 87	Next Scheduled EDR Contact: 09/24/2018
	Data Release Frequency: Quarterly

## FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/21/2018	Source: EPA
Date Data Arrived at EDR: 02/23/2018	Telephone: (415) 947-8000
Date Made Active in Reports: 03/23/2018	Last EDR Contact: 06/06/2018
Number of Days to Update: 28	Next Scheduled EDR Contact: 09/17/2018
	Data Release Frequency: Quarterly

## UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2016	Source: Department of Defense
Date Data Arrived at EDR: 10/31/2017	Telephone: 703-704-1564
Date Made Active in Reports: 01/12/2018	Last EDR Contact: 04/13/2018
Number of Days to Update: 73	Next Scheduled EDR Contact: 07/30/2018
	Data Release Frequency: Varies

## DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 01/04/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/19/2018	Telephone: 202-564-0527
Date Made Active in Reports: 04/13/2018	Last EDR Contact: 06/01/2018
Number of Days to Update: 84	Next Scheduled EDR Contact: 09/10/2018
	Data Release Frequency: Varies

## ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 02/25/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/17/2018	Telephone: 202-564-2280
Date Made Active in Reports: 06/08/2018	Last EDR Contact: 06/06/2018
Number of Days to Update: 83	Next Scheduled EDR Contact: 09/17/2018
	Data Release Frequency: Quarterly

## FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/20/2018  
Date Data Arrived at EDR: 02/21/2018  
Date Made Active in Reports: 03/23/2018  
Number of Days to Update: 30

Source: EPA  
Telephone: 800-385-6164  
Last EDR Contact: 05/23/2018  
Next Scheduled EDR Contact: 09/03/2018  
Data Release Frequency: Quarterly

## AIRS: List of Permitted Facilities

A listing of permitted facilities in the state.

Date of Government Version: 01/02/2018  
Date Data Arrived at EDR: 01/04/2018  
Date Made Active in Reports: 01/17/2018  
Number of Days to Update: 13

Source: Department of Health  
Telephone: 808-586-4200  
Last EDR Contact: 03/29/2018  
Next Scheduled EDR Contact: 07/16/2018  
Data Release Frequency: Varies

## DRYCLEANERS: Permitted Drycleaner Facility Listing

A listing of permitted drycleaner facilities in the state.

Date of Government Version: 01/02/2018  
Date Data Arrived at EDR: 01/04/2018  
Date Made Active in Reports: 01/17/2018  
Number of Days to Update: 13

Source: Department of Health  
Telephone: 808-586-4200  
Last EDR Contact: 03/29/2018  
Next Scheduled EDR Contact: 07/16/2018  
Data Release Frequency: Varies

## Financial Assurance: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/18/2017  
Date Data Arrived at EDR: 12/26/2017  
Date Made Active in Reports: 01/16/2018  
Number of Days to Update: 21

Source: Department of Health  
Telephone: 808-586-4226  
Last EDR Contact: 07/09/2018  
Next Scheduled EDR Contact: 09/24/2018  
Data Release Frequency: Varies

## LEAD: Lead Inspection Listing

Lead inspections

Date of Government Version: 03/01/2018  
Date Data Arrived at EDR: 03/13/2018  
Date Made Active in Reports: 05/15/2018  
Number of Days to Update: 63

Source: Department of Health  
Telephone: 808-586-5800  
Last EDR Contact: 06/07/2018  
Next Scheduled EDR Contact: 09/24/2018  
Data Release Frequency: Varies

## UIC: Underground Injection Wells Listing

A listing of underground injection well locations.

Date of Government Version: 02/07/2013  
Date Data Arrived at EDR: 02/12/2013  
Date Made Active in Reports: 04/09/2013  
Number of Days to Update: 56

Source: Department of Health  
Telephone: 808-586-4258  
Last EDR Contact: 05/23/2018  
Next Scheduled EDR Contact: 09/10/2018  
Data Release Frequency: Varies

## **EDR HIGH RISK HISTORICAL RECORDS**

### ***EDR Exclusive Records***

#### EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR RECOVERED GOVERNMENT ARCHIVES

### *Exclusive Recovered Govt. Archives*

#### RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/08/2014  
Number of Days to Update: 191

Source: Department of Health  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/17/2014  
Number of Days to Update: 200

Source: Department of Health  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A

Date Data Arrived at EDR: 07/01/2013

Date Made Active in Reports: 01/03/2014

Number of Days to Update: 186

Source: Department of Health

Telephone: N/A

Last EDR Contact: 06/01/2012

Next Scheduled EDR Contact: N/A

Data Release Frequency: Varies

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

### Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

### Electric Power Transmission Line Data

Source: PennWell Corporation

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

### AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

### Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

### Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

### Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

### Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory

Source: Office of Planning

Telephone: 808-587-2895

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

### **STREET AND ADDRESS INFORMATION**

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## GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM

### TARGET PROPERTY ADDRESS

PUA MELIA STREET  
PUA MELIA STREET  
WAIKOLOA, HI 96738

### TARGET PROPERTY COORDINATES

Latitude (North):	19.922523 - 19° 55' 21.08"
Longitude (West):	155.788715 - 155° 47' 19.37"
Universal Tranverse Mercator:	Zone 5
UTM X (Meters):	208049.8
UTM Y (Meters):	2205199.0
Elevation:	995 ft. above sea level

### USGS TOPOGRAPHIC MAP

Target Property Map:	5949286 PUU HINAI, HI
Version Date:	2013

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

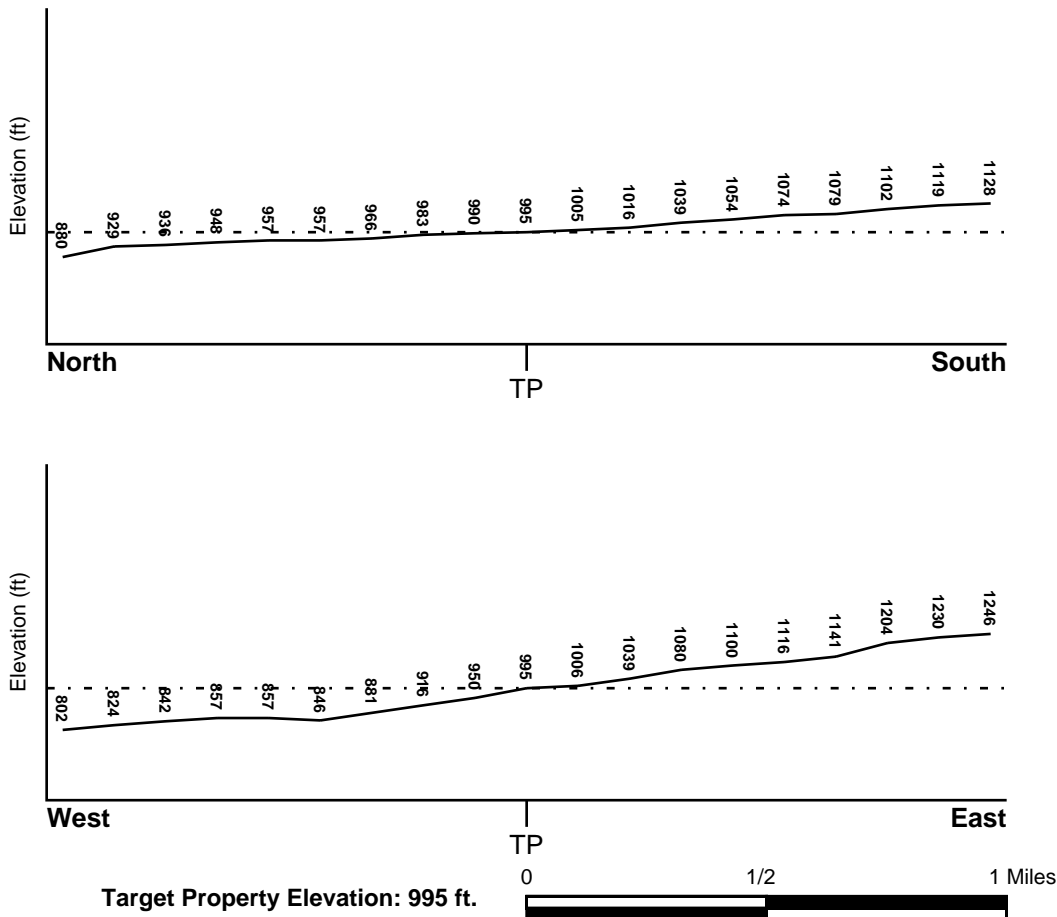
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
1551660291C	FEMA Q3 Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
1551660283C	FEMA Q3 Flood data
1551660292C	FEMA Q3 Flood data

## **NATIONAL WETLAND INVENTORY**

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
PUU HINAI	YES - refer to the Overview Map and Detail Map

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### ROCK STRATIGRAPHIC UNIT

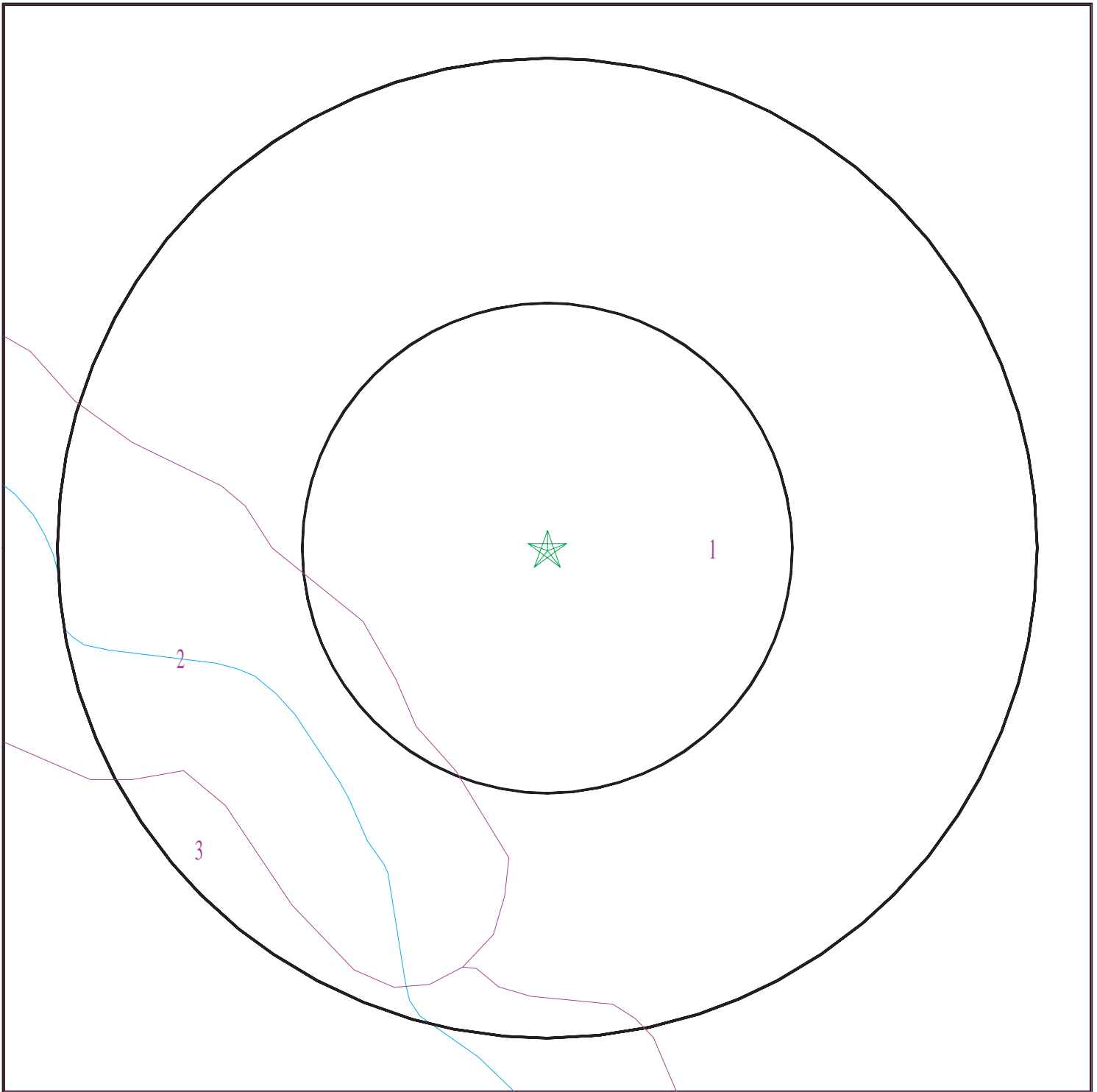
Era: -  
System: -  
Series: -  
Code: N/A (*decoded above as Era, System & Series*)

#### GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 5333628.2s



- ★ Target Property
- SSURGO Soil
- Water

0 1/16 1/8 1/4 Miles



SITE NAME: Pua Melia Street  
ADDRESS: Pua Melia Street  
Waikoloa HI 96738  
LAT/LONG: 19.922523 / 155.788715

CLIENT: Environmental Risk Analysis, LLC  
CONTACT: Vincent Yanagita  
INQUIRY #: 5333628.2s  
DATE: June 15, 2018 12:44 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

### Soil Map ID: 1

Soil Component Name: Kawaihae

Soil Surface Texture: extremely stony very fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 84 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	1 inches	extremely stony very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	ML-A (proposed)	Max: 141.14 Min: 14.11	Max: 7.3 Min: 6.6
2	1 inches	33 inches	stony loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	ML-A (proposed)	Max: 42.34 Min: 5	Max: 7.3 Min: 6.6
3	33 inches	42 inches	bedrock	Not reported	Not reported	Max: 0.42 Min: 0.02	Max: Min:



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 2**

Soil Component Name: Puu Pa

Soil Surface Texture: extremely stony very fine sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 127 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	extremely stony very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-A (proposed)	Max: 141.14 Min: 14.11	Max: 6.5 Min: 5.6
2	5 inches	40 inches	very stony very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-A (proposed)	Max: 141.14 Min: 15	Max: 7.3 Min: 6.1
3	40 inches	50 inches	extremely cobbly material	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 700 Min: 50	Max: 7.3 Min: 6.6
4	50 inches	59 inches	bedrock	Not reported	Not reported	Max: 0.42 Min: 0.02	Max: Min:

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 3**

Soil Component Name: Very stony land

Soil Surface Texture: extremely stony fine sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 152 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	extremely stony fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
2	9 inches	59 inches	extremely cobbly material	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

**LOCAL / REGIONAL WATER AGENCY RECORDS**

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

## **FEDERAL USGS WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A3	USGS40000268629	1/2 - 1 Mile WNW

## **FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

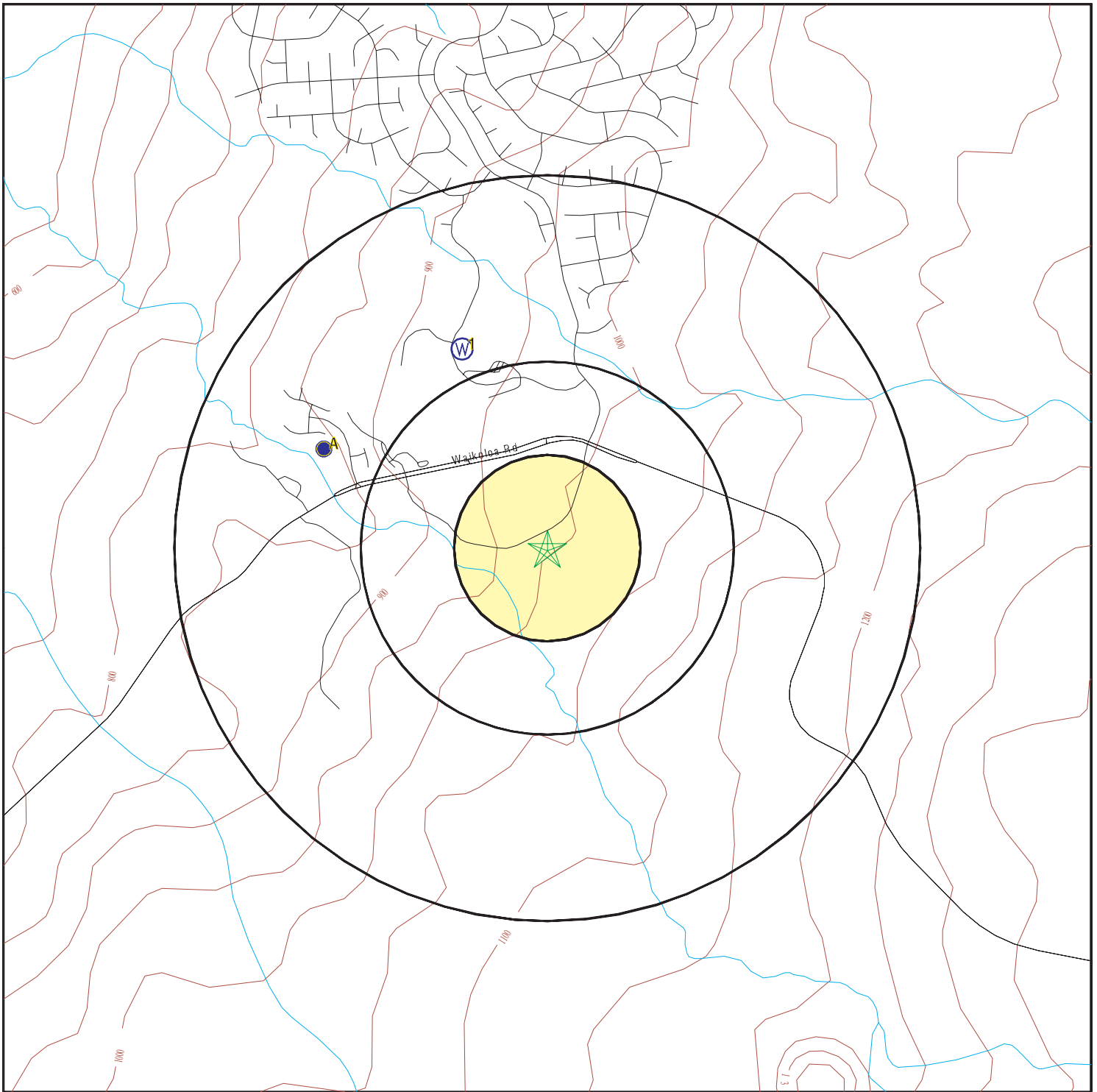
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		








Note: PWS System location is not always the same as well location.




## **STATE DATABASE WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	HI9000000004490	1/2 - 1 Mile NNW
A2	HI9000000004491	1/2 - 1 Mile WNW

# PHYSICAL SETTING SOURCE MAP - 5333628.2s



-  County Boundary
-  Major Roads
-  Contour Lines
-  Earthquake epicenter, Richter 5 or greater
-  Water Wells
-  Public Water Supply Wells
-  Cluster of Multiple Icons

-  Groundwater Flow Direction
-  Indeterminate Groundwater Flow at Location
-  Groundwater Flow Varies at Location

SITE NAME: Pua Melia Street  
 ADDRESS: Pua Melia Street  
 Waikoloa HI 96738  
 LAT/LONG: 19.922523 / 155.788715

CLIENT: Environmental Risk Analysis, LLC  
 CONTACT: Vincent Yanagita  
 INQUIRY #: 5333628.2s  
 DATE: June 15, 2018 12:44 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**1**  
**NNW**  
**1/2 - 1 Mile**  
**Lower**

**HI WELLS      HI9000000004490**

Wid:	8-5547-001	Island:	Hawaii
Well name:	WVA 1	Old name:	Not Reported
Yr drilled:	2007		
Driller:	Beylik Drilling & Pump Service Inc.		
Quad map:	15		
Long83dd:	-155.792222		
Lat83dd:	19.930278		
Gps:	-1	Utm:	0
Owner user:	Waikoloa Village Association		
Land owner:	Waikoloa Village Association		
Pump insta:	Beylik Drilling & Pump Service Inc.		
Old number:	Not Reported	Well type:	ROT
Casing dia:	14	Ground el:	935
Well depth:	975		
Solid case:	935	Perf case:	975
Use:	IRR - Golf Course		
Use year:	Not Reported		
Init head:	5.77	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	400		
Test date:	5/29/2007	Test gpm:	800
Test ddown:	0.77	Test chlor:	500
Test temp:	83.1	Test unit:	F
Pump gpm:	700		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	QHM		
Pump yr:	2007		
Draft yr:	Not Reported	Bot hole:	-40
Bot solid:	0	Bot perf:	-40
Spec capac:	23000		
Pump mgd:	1.008		
Draft mgd:	Not Reported	Pump elev:	-19
Pump depth:	954	Tmk:	(3) 6-8-003:005
Aqui code:	80301		
Latest hd:	Not Reported	Wcr:	15-JUN-07
Pir:	12/18/2008		
Surveyor:	Robert Lee (Towill, Shigeoka & Associates, Inc)		
T:	1039	Site id:	HI9000000004490

**A2**  
**WNW**  
**1/2 - 1 Mile**  
**Lower**

**HI WELLS      HI9000000004491**

Wid:	8-5548-001	Island:	Hawaii
Well name:	Parker 1	Old name:	Not Reported
Yr drilled:	1968		
Driller:	Roscoe Moss Hawaii Inc		
Quad map:	15		
Long83dd:	-155.797778		
Lat83dd:	19.926389		
Gps:	0	Utm:	-1
Owner user:	Hawaii Water Service Company Inc.		
Land owner:	Castle & Cooke Waikoloa, LLC		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pump insta:	Not Reported	Well type:	PER
Old number:	Not Reported	Ground el:	813
Casing dia:	10		
Well depth:	865		
Solid case:	822	Perf case:	832
Use:	IRR - Golf Course		
Use year:	Not Reported		
Init head:	6.1	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	400
Test ddown:	1.8	Test chlor:	518
Test temp:	27.8	Test unit:	C
Pump gpm:	400		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	PML		
Pump yr:	2006		
Draft yr:	Not Reported	Bot hole:	-52
Bot solid:	-9	Bot perf:	-19
Spec capac:	222		
Pump mgd:	.576		
Draft mgd:	Not Reported	Pump elev:	-15
Pump depth:	828	Tmk:	(3) 6-8-002:027
Aqui code:	80701		
Latest hd:	Not Reported	Wcr:	01-JAN-68
Pir:	4/26/2012		
Surveyor:	Not Reported		
T:	Not Reported	Site id:	HI9000000004491

**A3  
WNW  
1/2 - 1 Mile  
Lower**

**FED USGS**

**USGS40000268629**

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-195546155480301		
Monloc name:	8-5548-01 Parker W-1, HI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20010000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	19.9263924
Longitude:	-155.7980519	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	814.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Hawaii volcanic-rock aquifers		
Formation type:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	849
Construction date:	19680301	Wellholedepth:	849
Welldepth units:	ft		
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

Federal EPA Radon Zone for HAWAII County: 3

- Note: Zone 1 indoor average level > 4 pCi/L.  
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.  
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for HAWAII COUNTY, HI

Number of sites tested: 97

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.054 pCi/L	99%	1%	0%
Living Area - 2nd Floor	1.100 pCi/L	100%	0%	0%
Basement	-0.247 pCi/L	100%	0%	0%



# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

### State Wetlands Data: Wetlands Inventory

Source: Office of Planning

Telephone: 808-587-2895

## HYDROGEOLOGIC INFORMATION

### AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### Well Index Database

Source: Commission on Water Resource Management

Telephone: 808-587-0214

CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii

## OTHER STATE DATABASE INFORMATION

### RADON

#### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

### OTHER

#### Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

#### Epicenters: World earthquake epicenters, Richter 5 or greater


Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## STREET AND ADDRESS INFORMATION

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Pua Melia Street  
Pua Melia Street  
Waikoloa, HI 96738

Inquiry Number: 5333628.3

June 15, 2018

## Certified Sanborn® Map Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# Certified Sanborn® Map Report

06/15/18

**Site Name:**

Pua Melia Street  
Pua Melia Street  
Waikoloa, HI 96738  
EDR Inquiry # 5333628.3

**Client Name:**

Environmental Risk Analysis. LLC  
905A Makahiki Way  
HONOLULU, HI 96826  
Contact: Vincent Yanagita



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Environmental Risk Analysis. LLC were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn).

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## Certified Sanborn Results:

**Certification #** 906C-426F-85E4  
**PO #** NA  
**Project** NA

### UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.



Sanborn® Library search results

Certification #: 906C-426F-85E4

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

*The Sanborn Library LLC Since 1866™*

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Pua Melia Street  
Pua Melia Street  
Waikoloa, HI 96738

Inquiry Number: 5333628.4

June 15, 2018

# EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topo Map Report

06/15/18

**Site Name:**

Pua Melia Street  
Pua Melia Street  
Waikoloa, HI 96738  
EDR Inquiry # 5333628.4

**Client Name:**

Environmental Risk Analysis. LLC  
905A Makahiki Way  
HONOLULU, HI 96826  
Contact: Vincent Yanagita



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Environmental Risk Analysis. LLC were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:****Coordinates:**

**P.O.#** NA  
**Project:** NA

**Latitude:** 19.922523 19° 55' 21" North  
**Longitude:** -155.788715 -155° 47' 19" West  
**UTM Zone:** Zone 5 North  
**UTM X Meters:** 208054.27  
**UTM Y Meters:** 2205330.05  
**Elevation:** 997.21' above sea level

**Maps Provided:**

2013  
1997  
1982  
1956  
1928  
1923

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## **Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **2013 Source Sheets**



Puu Hinai  
2013  
7.5-minute, 24000

### **1997 Source Sheets**



Puu Hinai  
1997  
7.5-minute, 24000  
Aerial Photo Revised 1997

### **1982 Source Sheets**



Puu Hinai  
1982  
7.5-minute, 24000  
Aerial Photo Revised 1977

### **1956 Source Sheets**



Puu Hinai  
1956  
7.5-minute, 24000  
Aerial Photo Revised 1954



## **Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **1928 Source Sheets**

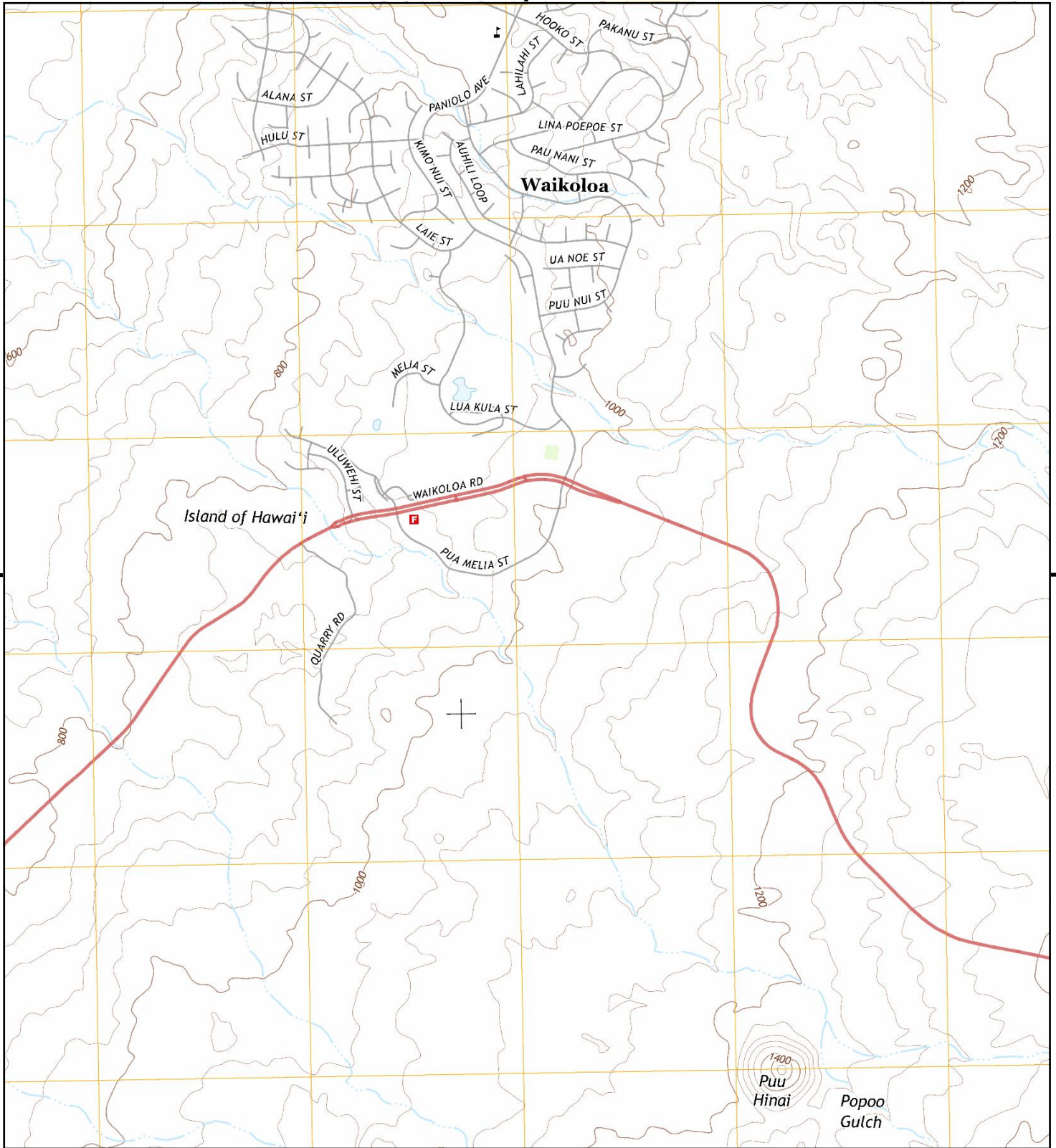


Puako  
1928  
15-minute, 62500

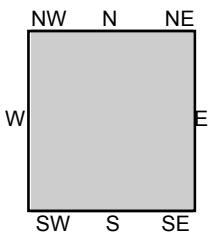
### **1923 Source Sheets**



PUUHINAI  
1923  
7.5-minute, 31680



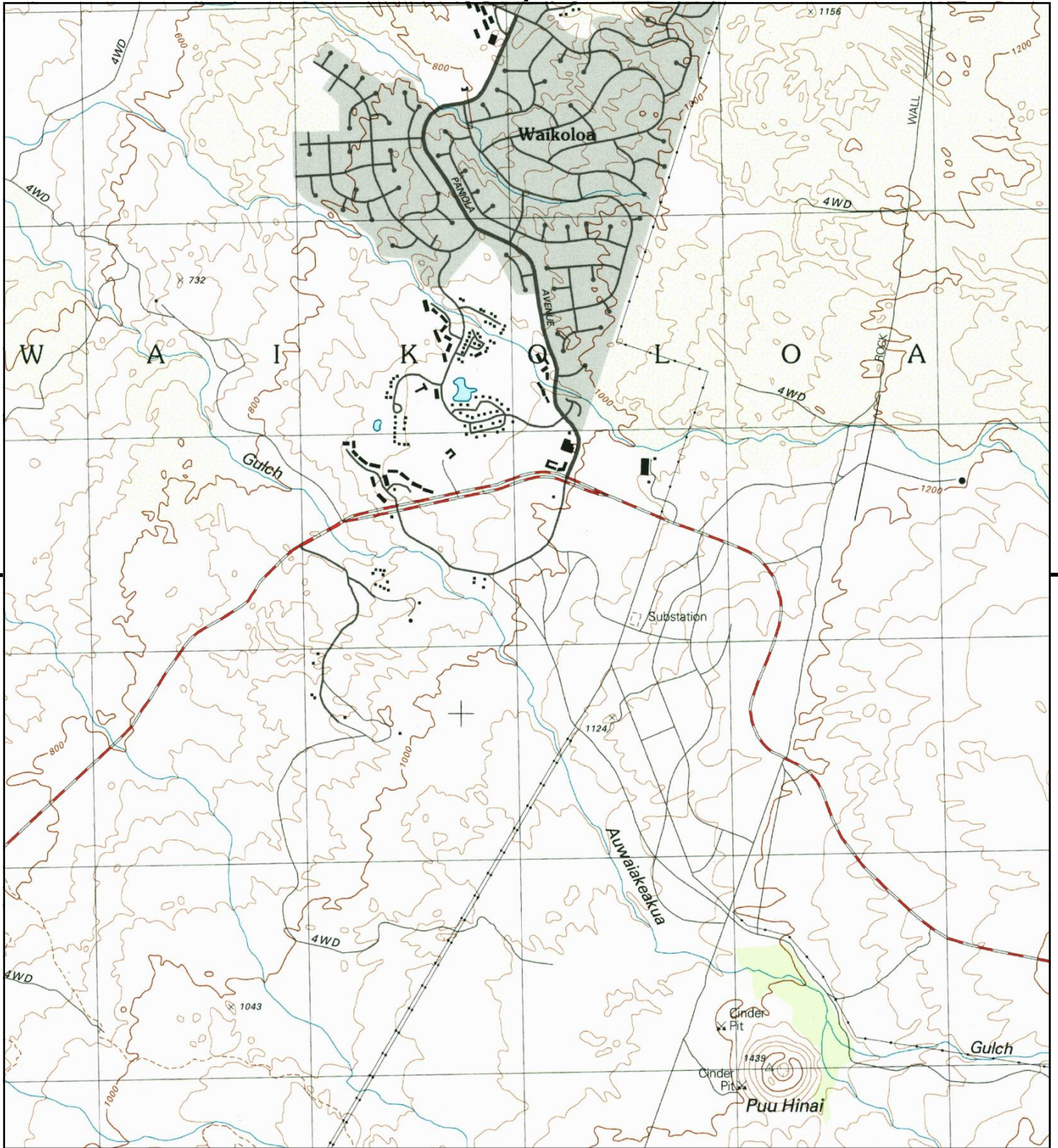
This report includes information from the following map sheet(s).



TP, Puu Hinai, 2013, 7.5-minute

**SITE NAME:** Pua Melia Street  
**ADDRESS:** Pua Melia Street  
 Waikoloa, HI 96738  
**CLIENT:** Environmental Risk Analysis. LLC





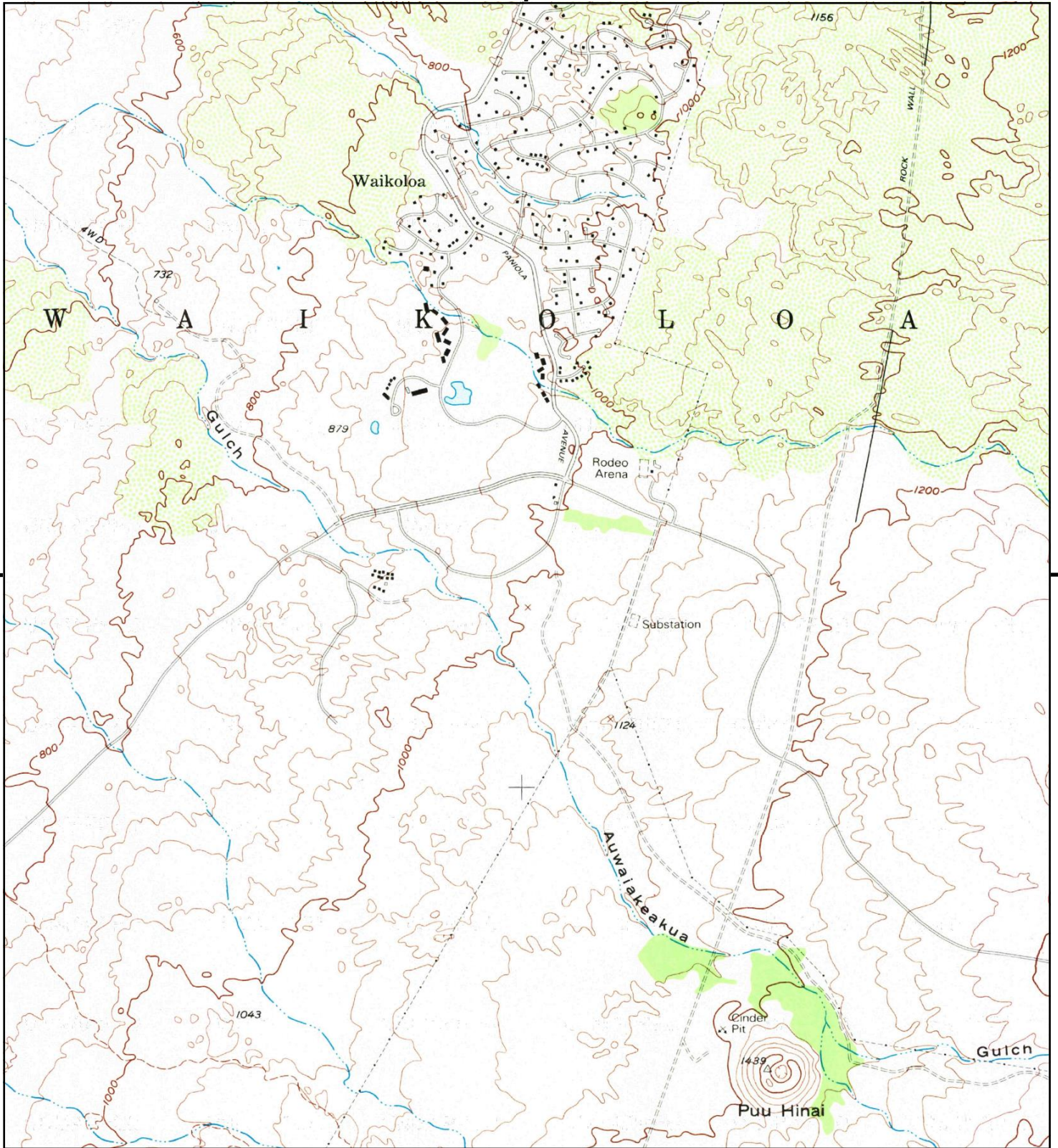
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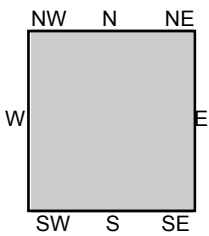
TP, Puu Hinai, 1997, 7.5-minute

**SITE NAME:** Pua Melia Street  
**ADDRESS:** Pua Melia Street  
 Waikoloa, HI 96738  
**CLIENT:** Environmental Risk Analysis, LLC





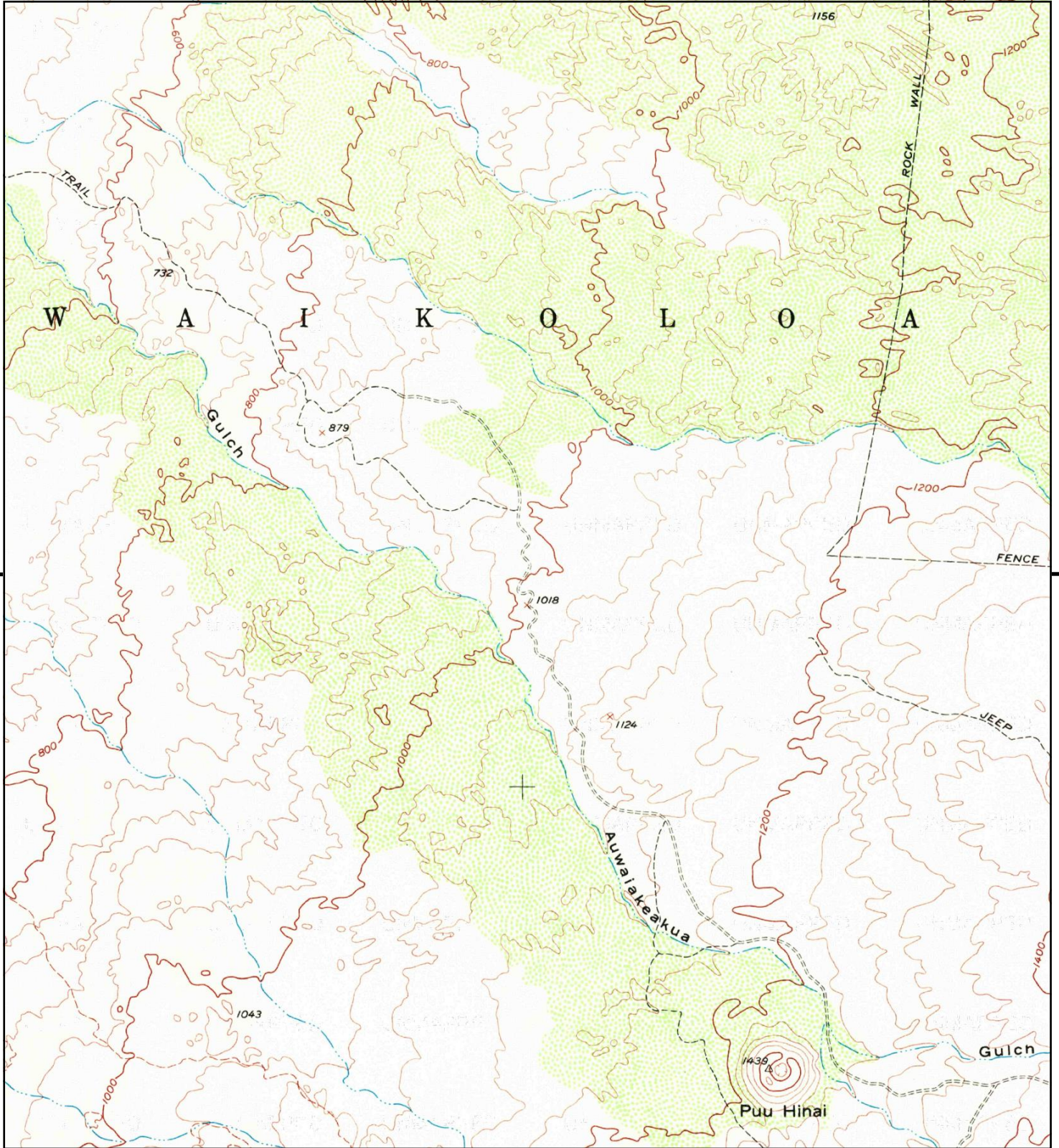
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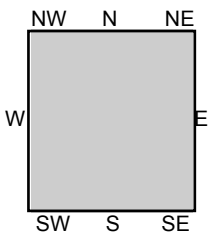
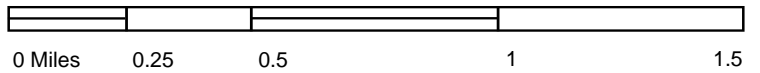
TP, Puu Hinai, 1982, 7.5-minute

**SITE NAME:** Pua Melia Street  
**ADDRESS:** Pua Melia Street  
 Waikoloa, HI 96738  
**CLIENT:** Environmental Risk Analysis, LLC





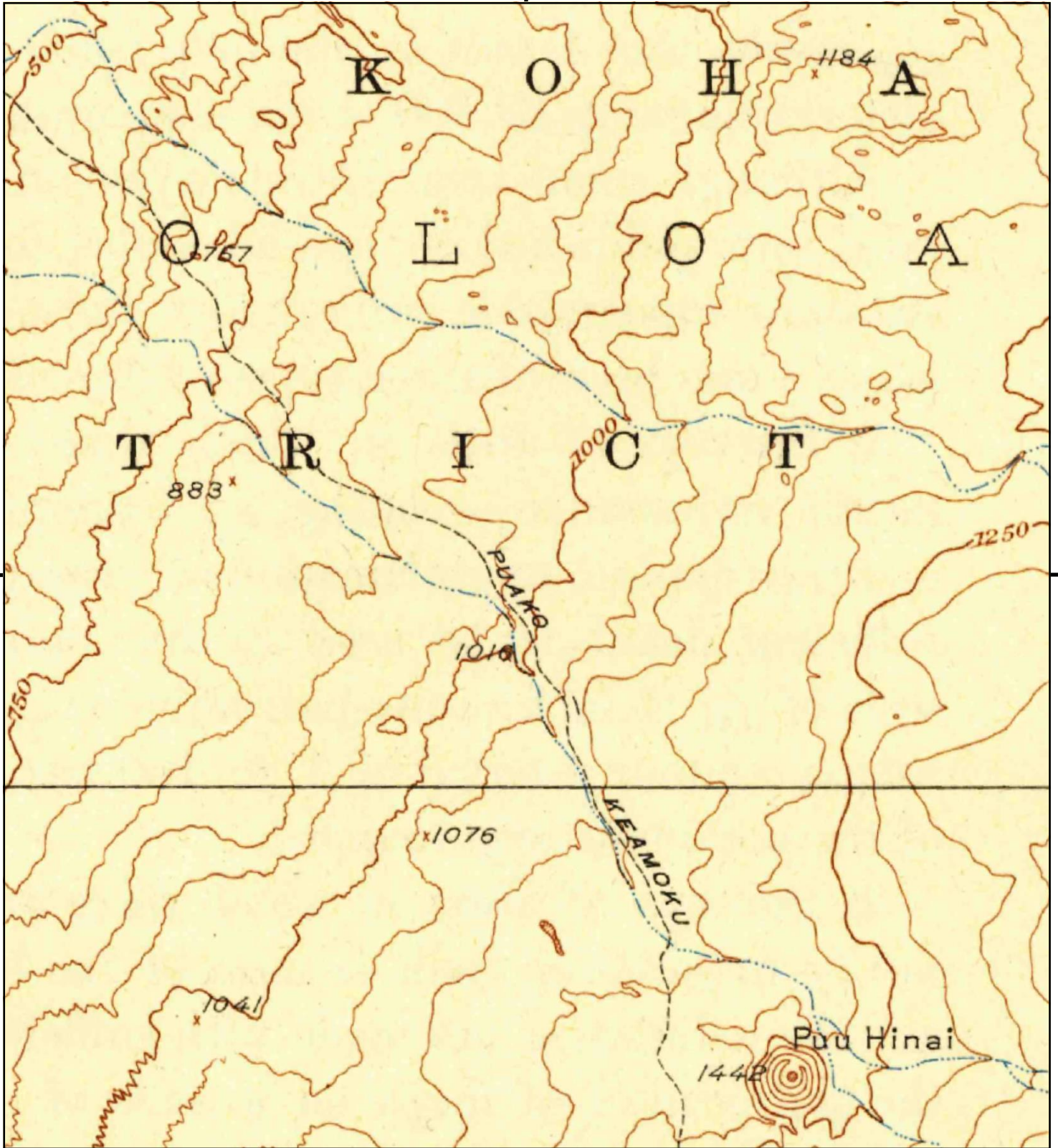
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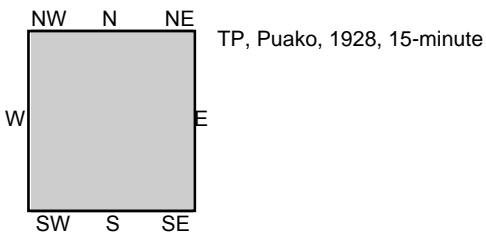
TP, Puu Hinai, 1956, 7.5-minute

SITE NAME: Pua Melia Street  
 ADDRESS: Pua Melia Street  
 Waikoloa, HI 96738  
 CLIENT: Environmental Risk Analysis. LLC





This report includes information from the following map sheet(s).

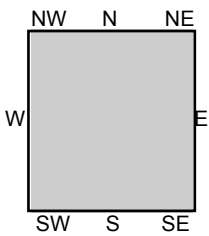


SITE NAME: Pua Melia Street  
 ADDRESS: Pua Melia Street  
 Waikoloa, HI 96738  
 CLIENT: Environmental Risk Analysis. LLC





This report includes information from the following map sheet(s).



TP, PUUHINAI, 1923, 7.5-minute

SITE NAME: Pua Melia Street  
ADDRESS: Pua Melia Street  
Waikoloa, HI 96738  
CLIENT: Environmental Risk Analysis. LLC





**Pua Melia Street**

Pua Melia Street

Waikoloa, HI 96738

Inquiry Number: 5333628.8

June 15, 2018

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# EDR Aerial Photo Decade Package

06/15/18

**Site Name:**

Pua Melia Street  
Pua Melia Street  
Waikoloa, HI 96738  
EDR Inquiry # 5333628.8

**Client Name:**

Environmental Risk Analysis. LLC  
905A Makahiki Way  
HONOLULU, HI 96826  
Contact: Vincent Yanagita



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

## Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2001	1"=500'	Acquisition Date: April 17, 2001	USGS/DOQQ
1995	1"=500'	Flight Date: September 11, 1995	USGS
1985	1"=500'	Flight Date: April 24, 1985	USGS
1974	1"=500'	Flight Date: October 19, 1974	USGS
1954	1"=500'	Flight Date: October 15, 1954	USGS

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INQUIRY #: 5333628.8

YEAR: 2001

 = 500'



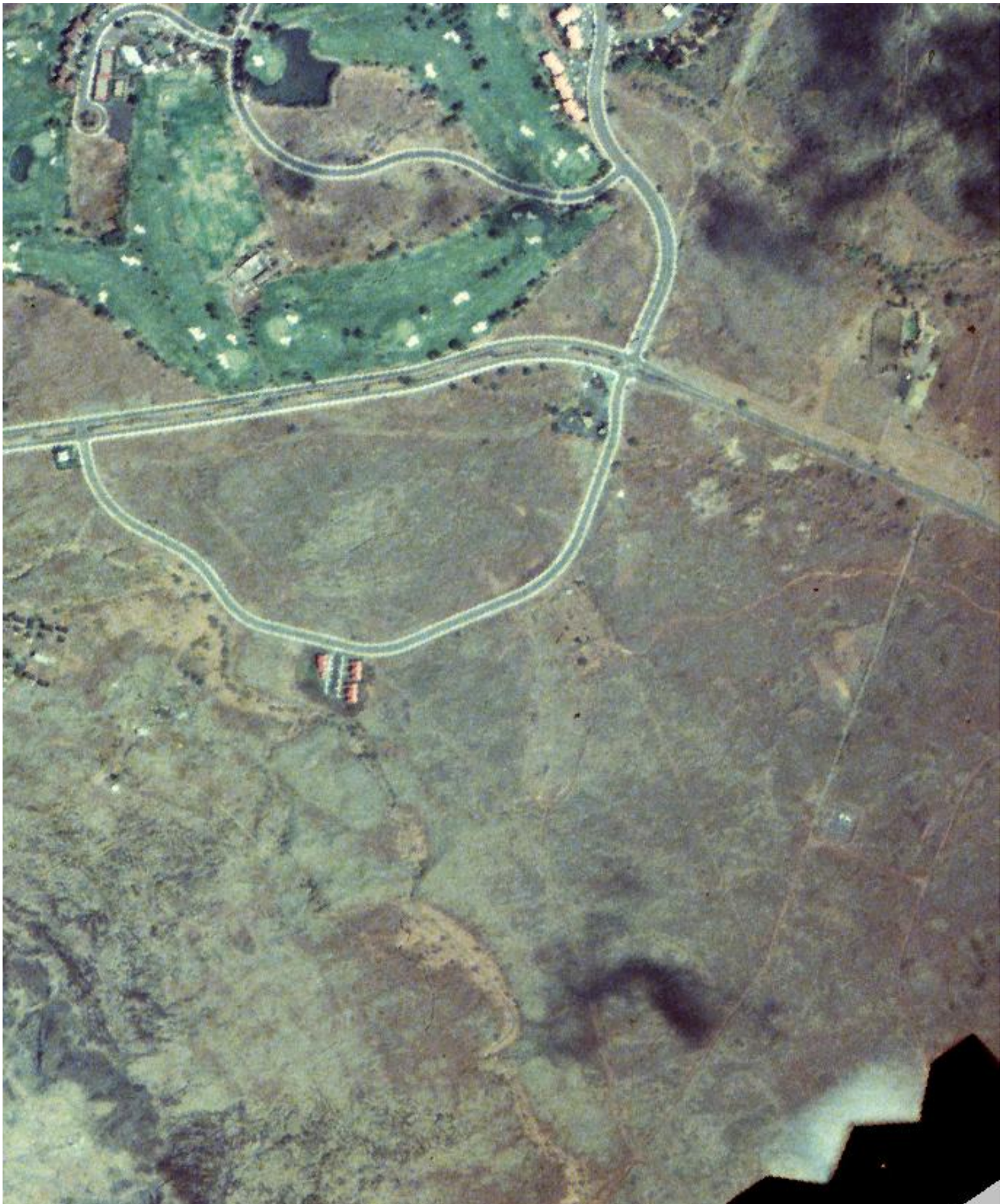


INQUIRY #: 5333628.8

YEAR: 1995

— = 500'



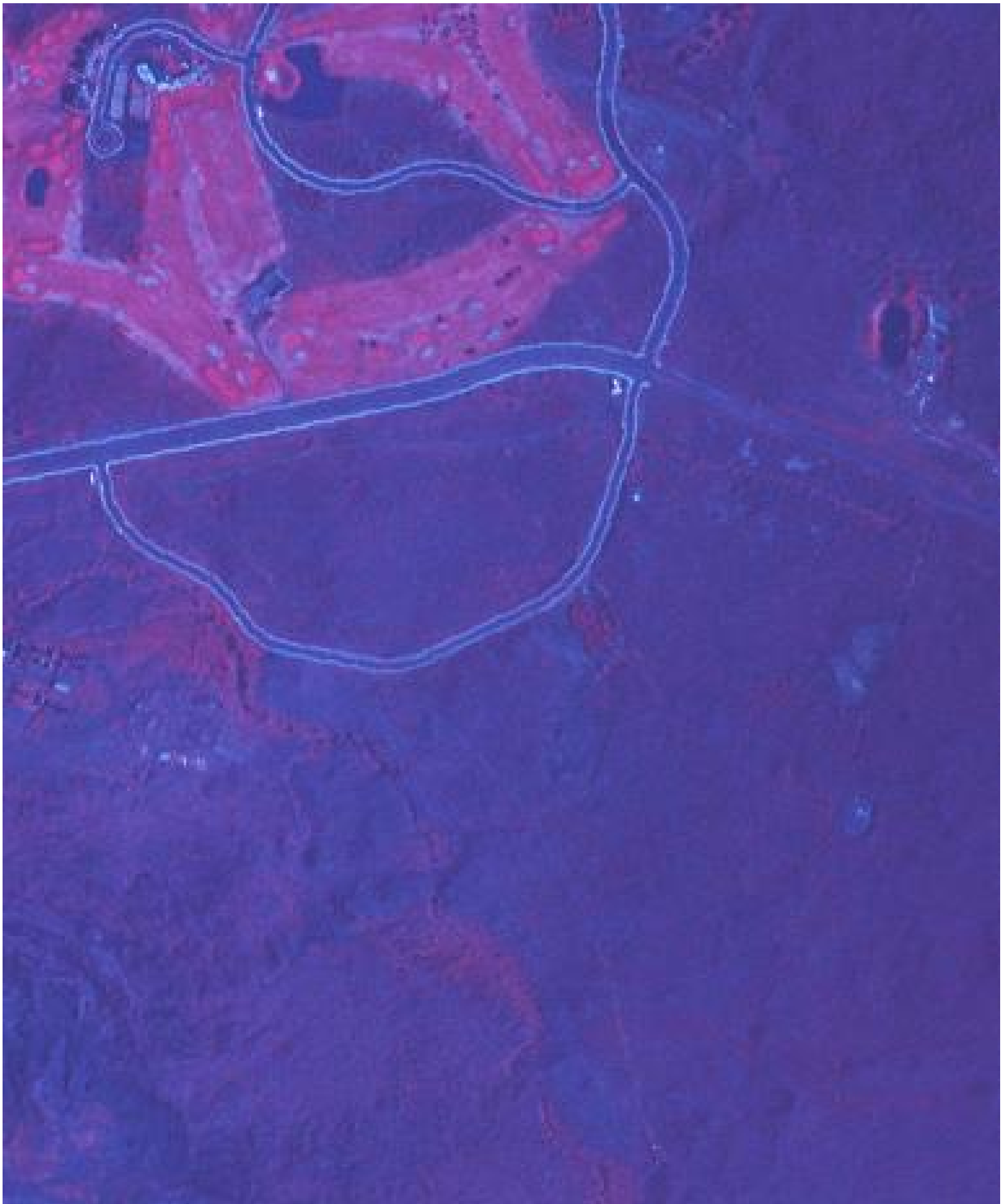


INQUIRY #: 5333628.8

YEAR: 1985

— = 500'



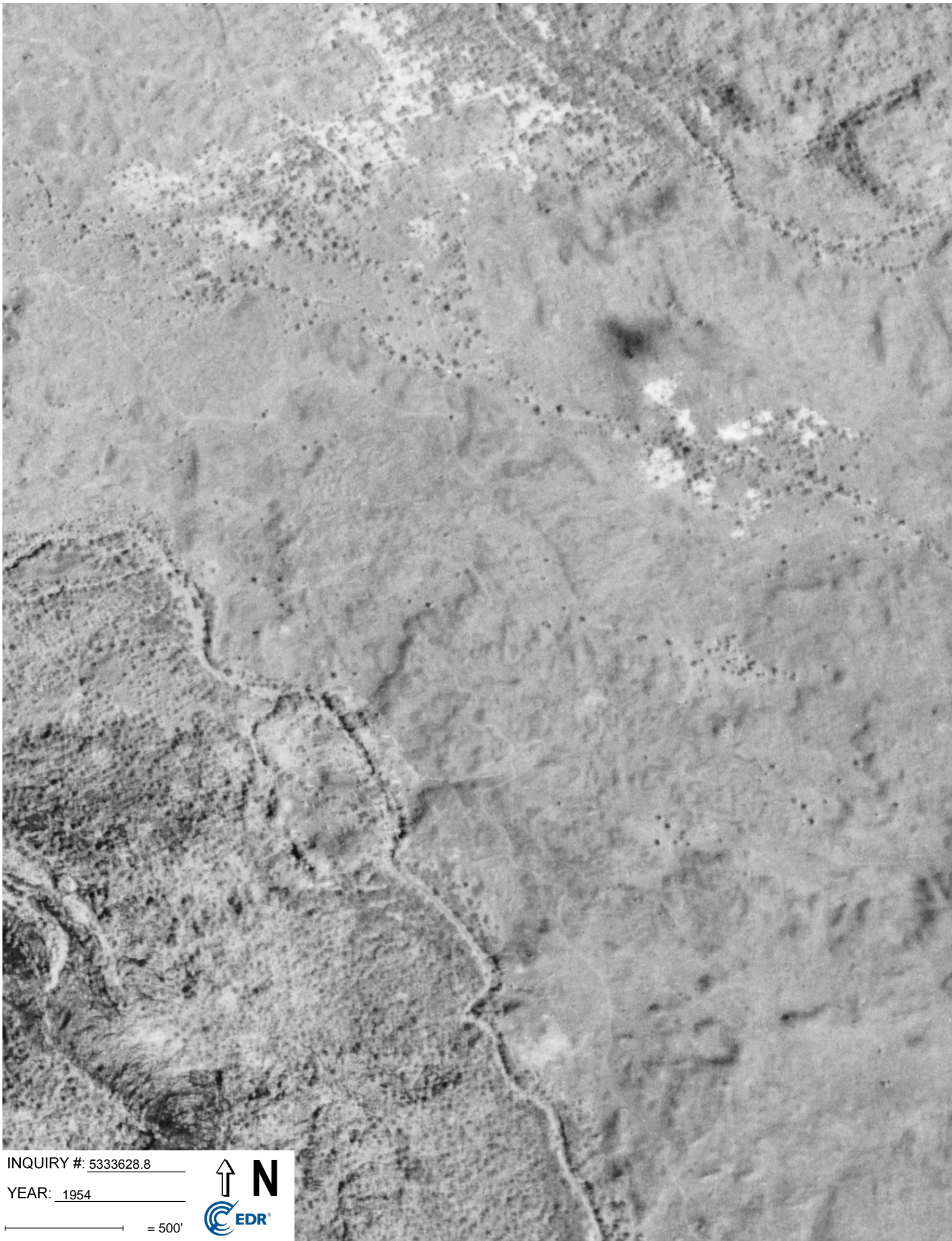


INQUIRY #: 5333628.8

YEAR: 1974

 = 500'





INQUIRY #: 5333628.8

YEAR: 1954

500'



**Pua Melia Street**

Pua Melia Street  
Waikoloa, HI 96738

Inquiry Number: 5333628.5  
June 19, 2018

# The EDR-City Directory Image Report

## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

City Directory Images

*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by

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### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1995	<input type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1992	<input type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive

## FINDINGS

### TARGET PROPERTY STREET

Pua Melia Street  
Waikoloa, HI 96738

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

### PUA MELIA ST

2014	pg A1	EDR Digital Archive	
2010	pg A2	EDR Digital Archive	
2005	pg A3	EDR Digital Archive	
2000	pg A4	EDR Digital Archive	
1995	-	EDR Digital Archive	Target and Adjoining not listed in Source
1992	-	EDR Digital Archive	Target and Adjoining not listed in Source

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

## **City Directory Images**

**PUA MELIA ST 2014**

681897 DORKELS SNORKEL  
REEVES, ANNA  
WAIKOLOA AUTOMOTIVE



-

**PUA MELIA ST 2010**

681820 JACK HALL KONA MEMORIAL CORP  
ORNELLAS, LILLIAN C  
SOUZA, ROSARY D  
681897 DORKELS SNORKEL  
WAIKOLOA AUTOMOTIVE

**PUA MELIA ST 2005**

681820 ALVIAR, LORETO  
681897 ALL WORLD INC  
DORKELS SNORKEL  
MAUNAKEA COFFEE COMPANY  
WAIKOLOA AUTOMOTIVE

**PUA MELIA ST 2000**

681820 ALVIAR, LORETO  
BIRCH, LAURIE  
JACKSON, RHONDA  
KAAUKAI, HERBERT  
MACION, MELISSA  
ORNELLAS, L C  
WAKEFIELD, ERICA  
WOLFE, PETER  
681897 ALL WORLD INC  
DORKELS SNORKEL  
WAIKOLOA AUTOMOTIVE



*Appendix* **D**

**INTERVIEW DOCUMENTATION**



Name: James Rock  
Company: K00674 Waikoloa,  
Relation to the Property: Owner  
Date: 6/15/2018

### Phase I Environmental Site Assessment Questionnaire

1. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law? If yes, please elaborate.

No, there are no environmental cleanup liens on the property.

2. Are you aware of any Activity Use Limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? If yes, please elaborate.

No, there are no land use restrictions currently in place.

3. Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? If yes, please elaborate.

No, land is vacant/raw with no prior business use. The property is located in the former Waikoloa Maneuver Area which is undergoing an unexploded ordinance survey and cleanup exercise under the direction of the U.S. Army Corps of Engineers (USACE). As of this report date, USACE has completed their survey of our property and no munitions of concern were located. USACE is finalizing their Remedial Action Report (RAR) which will be submitted to the Hawaii Department of Health, with an anticipated delivery date of their RAR by July or August 2018.

4. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

Yes, the price paid for the property is fair.

5. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? If yes, please elaborate.

No, there are no conditions related to the release or potential release of hazardous chemicals.

- a. Do you know the past uses of the property?

The land is vacant/raw with no prior business use. See Item #3 above for more details.

- b. Do you know of specific chemicals that are present or once were present at the property?

To the best of our knowledge no hazardous chemicals are present.

- c. Do you know of spills or other chemical releases that have taken place at the property?

To the best of our knowledge no spills or chemical releases are present.

- d. Do you know of any environmental cleanups that have taken place at the property?

USACE remedial survey as described in Item #3 above. No other environmental cleanups have taken place.

- e. Are or were there any above or below ground storage tanks at the property?

Not to our knowledge.

- f. Are there any previous environmental site assessments (Phase I ESAs), environmental studies, hazardous materials surveys, etc. that have been performed for the property?

To our knowledge the only environmental studies have been performed by ERA.

6. Are you aware of commonly known or reasonably ascertainable information about surrounding properties that would help the environmental professional to identify conditions indicative of releases or threatened releases? If yes, please elaborate.

Surrounding properties are primarily vacant/raw land, there is no indication of releases or threatened releases.

- a. Do you know the past uses of surrounding properties?

The surrounding properties are vacant/raw land, and they were also included in the former Waikoloa Maneuver Area described in Item #3 above.

- b. Do you know of specific chemicals that are present or once were present at surrounding properties?

None to our knowledge.

- c. Do you know of spills or other chemical releases that have taken place at surrounding properties?

None to our knowledge.

- d. Do you know of any environmental cleanups that have taken place at surrounding properties?

None to our knowledge.

- e. Are or were there any above or below ground storage tanks at surrounding properties?

None to our knowledge.

7. Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property (i.e., distressed vegetation, staining of soil, discarded chemical/oil drums, chemical odors, etc.)? If yes, please elaborate.

None to our knowledge.

8. Current/Past Owners and Contact Information:

Name	Company	Contact Information
James Rock	K00674 Waikoloa, L.P.	714-835-3955 x108

9. Surrounding Properties - Current/Past Tenants and Contact Information:

Name	Company	Contact Information
Unknown		

10. Additional Information/Comments:

None

*Appendix* **E**

**HAWAIIAN ELECTRIC COMPANY  
TRANSFORMER DOCUMENTATION**



May 7, 2015

Steven Okoji  
Environmental Risk Analysis LLC  
820 West Hind Drive #240606  
Honolulu, HI 96824

Re: PCB Information on Hawaii Electric Light Equipment along Pua Melia Street,  
Waikoloa, Hawaii

Mr. Steven Okoji:

In response to your request received May 7, 2015, regarding information on Hawaii Electric Light equipment located along Pua Melia Street, we provide the following information:

Equipment Information		Structure ID	Location	Date Purchased	Date Installed	PCB Status
25 KVA	CO # 37565	T307	T307, Pua Melia Street TMK# (3) 6-8-003:015	7/27/2005	2/22/2006	Non-PCB

Our records indicate that there is one non-PCB oil filled pad-mount transformer located on or in the vicinity of the subject property. Additionally, there has been no oil release reported by Hawaii Electric Light at this location.

If you have further questions, please contact me at 808-969-0266.

Sincerely,

Chris Chun-Hoon  
Environmental Compliance Coordinator

*Appendix* **F**

**SITE RECONNAISSANCE PHOTOGRAPHS**

**Photograph #1**

**Description of Photograph:**

View of subject Site from north boundary at Pua Melia Street towards the south.

**Photograph Date:**

June 25, 2018



**Photograph #2**

**Description of Photograph:**

View of subject Site from south to the north. Rocks observed at the center of the Site.

**Photograph Date:**

June 25, 2018





**Photograph #3**



**Description of Photograph:**

Rocks with metal and concrete debris.

**Photograph Date:**

June 25, 2018

**Photograph #4**



**Description of Photograph:**

Metal and concrete debris observed onsite.

**Photograph Date:**

June 25, 2018

**Photograph #5**

**Description of Photograph:**

Concrete debris observed.

**Photograph Date:**

June 25, 2018



**Photograph #6**

**Description of Photograph:**

Asphalt pile observed onsite.

**Photograph Date:**

June 25, 2018



**Photograph #7**

**Description of Photograph:**

Concrete and piping observed.

**Photograph Date:**

June 25, 2018



**Photograph #8**

**Description of Photograph:**

Washing machine observed.

**Photograph Date:**

June 25, 2018



**Photograph #9**

**Description of Photograph:**

GPS equipment observed on the north side of the Site.

**Photograph Date:**

June 25, 2018



**Photograph #10**

**Description of Photograph:**

View of the adjacent area to the west.

**Photograph Date:**

June 25, 2018



**Photograph #11**

**Description of Photograph:**

Apartment complex to the west of the Site.

**Photograph Date:**

June 25, 2018



**Photograph #12**

**Description of Photograph:**

View of the adjacent properties to the north. Pua Melia Street observed.

**Photograph Date:**

June 25, 2018



**Photograph #13**



**Description of Photograph:**

View of the adjacent property to the east. Additional vacant land observed.

**Photograph Date:**

June 25, 2018

**Photograph #14**



**Description of Photograph:**

Adjacent property to the south. Additional vacant land observed. Unpaved roads were observed traversing the property to the south.

**Photograph Date:**

June 25, 2018

**Photograph #15**



**Description of Photograph:**

Car shell observed on the adjacent property.

**Photograph Date:**

June 25, 2018

**Photograph #16**



**Description of Photograph:**

View of transformer on Pua Melia Street across from the subject Site.

**Photograph Date:**

June 25, 2018

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## Exhibit 7: Endangered Species

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## Endangered Species Act (CEST and EA)

General requirements	ESA Legislation	Regulations
Section 7 of the Endangered Species Act (ESA) mandates that federal agencies ensure that actions that they authorize, fund, or carry out shall not jeopardize the continued existence of federally listed plants and animals or result in the adverse modification or destruction of designated critical habitat. Where their actions may affect resources protected by the ESA, agencies must consult with the Fish and Wildlife Service and/or the National Marine Fisheries Service (“FWS” and “NMFS” or “the Services”).	The Endangered Species Act of 1973 (16 U.S.C. 1531 <i>et seq.</i> ); particularly section 7 (16 USC 1536).	50 CFR Part 402
References		
<a href="https://www.hudexchange.info/environmental-review/endangered-species">https://www.hudexchange.info/environmental-review/endangered-species</a>		

### 1. Does the project involve any activities that have the potential to affect species or habitats?

No, the project will have No Effect due to the nature of the activities involved in the project.  
 → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office.  
 Explain your determination:

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

Yes, the activities involved in the project have the potential to affect species and/or habitats. → *Continue to Question 2.*

### 2. Are federally listed species or designated critical habitats present in the action area?

Obtain a list of protected species from the Services. This information is available on the [FWS Website](#) or you may contact your [local FWS](#) and/or [NMFS](#) offices directly.

No, the project will have No Effect due to the absence of federally listed species and designated critical habitat.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation*

*may include letters from the Services, species lists from the Services' websites, surveys or other documents and analysis showing that there are no species in the action area.*

- Yes, there are federally listed species or designated critical habitats present in the action area. → *Continue to Question 3.*

**3. What effects, if any, will your project have on federally listed species or designated critical habitat?**

- No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat.  
→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate.*

- May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.  
→ *Continue to Question 4, Informal Consultation.*

- Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.  
→ *Continue to Question 5, Formal Consultation.*

**4. Informal Consultation is required**

Section 7 of ESA (16 USC. 1536) mandates consultation to resolve potential impacts to endangered and threatened species and critical habitats. If a HUD-assisted project may affect any federally listed endangered or threatened species or critical habitat, then compliance is required with Section 7. See 50 CFR Part 402 Subpart B Consultation Procedures.

**Did the Service(s) concur with the finding that the project is Not Likely to Adversely Affect?**

- Yes, the Service(s) concurred with the finding.  
→ *Based on the response, the review is in compliance with this section. Continue to Question 6 and provide the following:*
- (1) A biological evaluation or equivalent document*
  - (2) Concurrence(s) from FWS and/or NMFS*
  - (3) Any other documentation of informal consultation*

*Exception: If finding was made based on procedures provided by a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office, provide whatever documentation is mandated by that agreement.*

No, the Service(s) did not concur with the finding. → Continue to Question 5.

**5. Formal consultation is required**

Section 7 of ESA (16 USC 1536) mandates consultation to resolve potential impacts to federally listed endangered and threatened species and critical habitats. If a HUD assisted project may affect any endangered or threatened species or critical habitat, then compliance is required with Section 7. See 50 CFR Part 402 Subpart B Consultation Procedures.

→ Once consultation is complete, the review is in compliance with this section. Continue to Question 6 and provide the following:

- (1) A biological assessment, evaluation, or equivalent document
- (2) Biological opinion(s) issued by FWS and/or NMFS
- (3) Any other documentation of formal consultation

**6. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the proposed measures that will be implemented to mitigate for the impact or effect, including the timeline for implementation.**

Mitigation as follows will be implemented:

Mitigation measures will be employed to avoid or minimize project impacts to listed species during project construction and occupancy, as applicable. These mitigation measures include, but are not limited to, avoidance, biological monitoring, and training of construction employees to recognize protected species that may potentially be in the vicinity of the project site.

No mitigation is necessary.

**Explain why mitigation will not be made here:**

**Worksheet Summary**

**Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

**Are formal compliance steps or mitigation required?**

Yes

No



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122, Box 50088  
Honolulu, Hawaii 96850

In Reply Refer To:  
01EPIF00-2018-TA-0082

JAN 0 8 2018

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

**Subject:** Technical Assistance for the Environmental Assessment to Evaluate Potential Environmental Impacts Associated with the Construction and Operation of a Proposed Affordable Housing Development in Waikoloa, Island and County of Hawaii

Dear Ms. Okoji:

The U.S. Fish and Wildlife Service (Service) received your correspondence on December 7, 2017, requesting technical assistance for conducting an environmental assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on TMK (3) 6-8-003:028 in Waikoloa. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana and grant funding from the State's Rental Housing Revolving Fund. Due to the overwhelming demand for affordable housing for very low income to moderate income households, and the low potential for adverse environmental impacts, Environmental Risk Analysis, LLC. anticipates a Finding of No Significant Impact.

Based on information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, five listed species have the potential to either be in or fly through the vicinity of the project area: the federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Nene (Hawaiian goose, *Branta (=Nesochen) sandvicensis*), Hawaiian petrel (*Pterodroma sandwichensis*), Band-rumped storm-petrel (*Oceanodroma castro*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*).

The Service offers the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation, construction, and operation. Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

## **Avoidance and Minimization Measures**

### **Hawaiian hoary bat**

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 three 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 we recommend you incorporate the following applicable measures into your 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 goose**

Nene are found on the islands of Hawaii, Maui, Molokai, and Kauai predominately, with a small population on Oahu. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

To avoid and minimize potential project impacts to Nene we recommend you incorporate the following applicable measures into your project description:

- Do not approach, feed, or disturb Nene.
- If Nene are observed loafing or foraging within the project area during the Nene breeding season (September through April), have a biologist familiar with the nesting behavior of Nene survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of three or more days (during which the birds may attempt to nest).
  - Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed work, or a previously undiscovered nest is found within said radius after work begins.
- In areas where Nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

### **Hawaiian petrel, Band-rumped storm-petrel, and Newell's shearwater**

Hawaiian seabirds may traverse the project area at night during the breeding season (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.



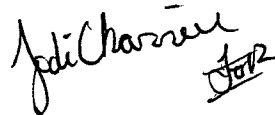
To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following applicable measures into your project description:

- 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 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.

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.

Thank you for participating with us in the protection of our endangered species. If you have any further questions or concerns regarding this consultation, please contact Eldridge Naboa, Fish and Wildlife Biologist, 808-284-0037, e-mail: [eldridge\\_naboa@fws.gov](mailto:eldridge_naboa@fws.gov). When referring to this project, please include this reference number: **01EPIF00-2018-TA-0082**.

Sincerely,

A handwritten signature in black ink that reads "Michelle Bogardus" with a date "1/12" written below it.

Michelle Bogardus  
Island Team Leader  
Maui Nui and Hawaii Island

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## Exhibit 8: Explosive and Flammable Hazards

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10 June 2016

Mr. Doug Bigley  
Urban Housing Communities LLC  
2000 E. Fourth Street, Suite 205  
Santa Ana, CA 92705

RE: Biological Survey for Parcel TMK: (3) 6-8-3:28, Waikoloa, Hawai'i Island, Hawai'i

Dear Mr. Bigley,

This letter report summarizes the results of a biological survey for plants and wildlife listed under the Endangered Species Act (50 CFR 17.11 and 50 CFR 17.12), the Migratory Bird Treaty Act (50 CFR 10.13), and the state list of threatened or endangered wildlife (Exhibit 2 and 3, HAR 13-124). The main objective of the investigation was to document these and other natural resources present on the project area. The project parcel (TMK: (3) 6-8-3:28) is located in Waikoloa, North Kona District, Island of Hawai'i. The 4.6 acre parcel is bordered by Pua Melia Street to the north and is surrounded by undeveloped parcels.

The biological survey was conducted on June 1, 2016 and consisted of a pedestrian survey for flora and terrestrial faunal resources and a point count survey for avian resources. A data inquiry for records of listed threatened or endangered species for the parcel was conducted at the University of Hawaii Mānoa Center for Conservation Research and Training prior to the field survey. The inquiry returned with no records for the parcel. The following describes survey methodology and findings for each major taxonomic group covered in the survey:

#### **Flora**

The botanical survey involved identifying the plant community and compiling a checklist of vascular plants that occur in the project area (Table 1). The botanical survey was performed by walking 11 transects spaced at 15 meter intervals to provide sufficient visual coverage of the area (Figure 1).

The botanical survey identified 21 species of vascular plants in 10 families (Attachment A). Seven of the plants identified are native, including four shrubs (*Chenopodium oahuense*, *Dodonaea viscosa*, *Sida fallax*, and *Waltheria indica*), a vine (*Ipomoea indica*), and two perennial bunch grasses (*Eragrostis variabilis* and *Heteropogon contortus*). No federal or state-listed threatened or endangered plants were observed.

Two lowland dry plant communities were identified in the project area and further described below:



**Buffelgrass Grassland:** The eastern part of the project area is dominated by buffelgrass (*Cenchrus ciliaris*) with sparsely distributed *koa haole* (*Leucaena leucocephala*) (Figure 2). Man-made disturbance is evident on this part of the parcel, including an old road and dumping of construction waste such as concrete blocks and building materials. Very few native plants remain in this plant community because the invasive buffelgrass tends to smother other species. There are exceptions, however, such as open areas where *uhaloa* (*Waltheria indica*) and sensitive partridge pea (*Chamaecrista nictitans*) can become abundant.

**Kāwelu Grassland:** The western part of the survey area is covered by the endemic *kāwelu* (*Eragrostis variabilis*) grass (Figures 1 and 3). This plant community is a “Lowland Mesic Grassland” under Gagne and Cuddihy’s (1999) classification. It is capable of extending downslope to coastal dry slopes. In contrast to the vast landscape on the leeward side of the island that has been overtaken by the invasive grasses, the Kāwelu Grassland represents a rare vegetation community that is still dominated by native species. The plant community has low species richness and consists of about 50% barren ground, 30–40% cover of *kāwelu*, 10–20% cover of buffelgrass, 10% cover of *uhaloa*, and 2–5% cover of *‘ilima* (*Sida fallax*). *Pili* (*Heteropogon contortus*) are patchily distributed and can have reach up to 10% area coverage.

## Fauna

The terrestrial wildlife survey documented all terrestrial animals observed in survey transects and identified them to the lowest taxa possible. A checklist of observed fauna is provide in Table 2.

**Mammals:** No mammals were observed during the pedestrian survey; however, signs of feral goats (*Capra aegagrus hircus*) including scads and bones were observed. The project area does not have trees taller than 15 feet, and therefore does not provide bat roosting habitat for the federally listed *‘ōpe‘ape‘a* (Hawaiian hoary bat, *Lasiurus cinereus semotus*). It is also unlikely that Hawaiian hoary bats would use the arid grassland for foraging because it does not support flying arthropod diversity.

**Birds:** Avian resources in the project area were surveyed using the timed point-count method. Both visual and audio detection methods were employed. Timed point-counting was performed in the early morning, during high bird activity. The point-count stations were at vantage points with excellent visual coverage of the entire parcel (Figure 1). Weather conditions were mostly sunny, with less than 10 % cloud cover and no rain. The temperature was 74 °F at 7:45 a.m. when the point count started. A moderate wind from the northeast averaged 10–15 miles per hour.

During the eight-minute count, 14 birds from six species were detected. Birds observed include four common myna (*Acridotheres tristis*), three Japanese white-eye (*Zosterops japonicus*), two saffron finch (*Sicalis flaveola*), two African silverbills (*Euodice cantans*), two Eurasian skylark (*Alauda arvensis*), and one northern mocking bird (*Mimus polyglottos*). The majority of the birds detected were flying over and did not use the project area. Additional avian species observed during the transect survey included mourning dove (*Zenaida macroura*) and chestnut-bellied sandgrouse (*Pterocles exustus*). All of detected birds were introduced species found near urban or open country environments.

A breeding population of the federally-listed endangered *nēnē* (Hawaiian goose, *Branta sandvicensis*) resides in close vicinity at the Waikoloa Golf Course. Although geese could occasionally transit through the area when moving between preferred habitats, the parcel however has very low habitat value (e.g., food or refuge) for the species.



The *pueo* (Hawaiian short-eared owl, *Asio flammeus sandwichensis*) is listed as endangered on O‘ahu and is protected under the Migratory Bird Treaty Act. *Pueo* can potentially use the project area for foraging or nesting. A bird nest search prior to construction will ensure no nesting owls will be impacted. Migratory shorebirds such as the Pacific golden plover (*Pluvialis fulva*) and ruddy turnstone (*Arenaria interpres*) may temporarily use the project area for foraging or resting while wintering or migrating. Since these shorebirds do not nest in Hawai‘i and can use a wide range of habitats, they are unlikely to be harmed by construction activities.

**Arthropods:** Arthropods in the survey area consists entirely of introduced species including Western honey bee (*Apis mellifera*), Sonoran carpenter bee (*Xylocopa sonorina*), and vagrant grasshopper (*Schistocerca nitens*). Arthropod survey, though not exhaustive, indicates very low abundance and diversity of arthropod resources.

### Conclusions

No federal or state-listed threatened or endangered plants or animals were observed during the survey. All identified animals are introduced species. The Kāwelu Grassland, however, represents a native plant community that has become less common due to impacts caused by invasive species and past land use. Except for the Kāwelu Grassland, the majority of the parcel is highly degraded habitat and in its current state provides little value for native fauna. Although none of the native plants found in the Kāwelu Grassland is threatened or endangered it is still advisable to minimize impact to the Kāwelu Grassland whenever possible.

Sincerely,

Huang-Chi Kuo, Ph.D.  
Garcia and Associates

### Literature Cited

Gagne, W.C. and L.W. Cuddihy

1999 Vegetation. In *Manual of the Flowering Plants of Hawai‘i*, Revised Edition, edited by W.L. Wagner, D.R. Herbst, and S.H. Sohmer, Volume 1, pp. 45–114. University of Hawai‘i Press, Honolulu.



**Figure 1. Parcel map showing the point count station (pink star), survey transects at 15 meters spacing (red lines), and the Kāwelu Grassland (light green shading).**





**Figure 2. Buffelgrass grassland with isolated *koa haole*. Facing southeast.**



**Figure 3. *Kawele* grassland. Facing north.**



**Table 1: Checklist of Vascular Plants Observed in the Project Area**

Family	Scientific name	Common Name	Nativity	Abundance*
<b>Dicotyledons</b>				
Asteraceae	<i>Senecio madagascariensis</i> Poir.	Madagascar ragwort	Naturalized	Uncommon
Chenopodiaceae	<i>Chenopodium oahuense</i> (Meyen) Aellen	Alaweo	Endemic	Rare
Convolvulaceae	<i>Ipomoea indica</i> (Burm. f.) Merr.	Oceanblue morning-glory	Indigenous	Rare
Euphorbiaceae	<i>Euphorbia hirta</i> L.	Pillpod sandmat	Naturalized	Rare
Euphorbiaceae	<i>Euphorbia hyssopifolia</i> L.	Hyssopleaf sandmat	Naturalized	Rare
Euphorbiaceae	<i>Ricinus communis</i> L.	Castorbean	Naturalized	Rare
Fabaceae	<i>Chamaecrista nictitans</i> (L.) Moench	Sensitive partridge pea	Naturalized	Abundant
Fabaceae	<i>Crotalaria pallida</i> Aiton	Smooth rattlebox	Naturalized	Uncommon
Fabaceae	<i>Desmanthus pernambucanus</i> (L.) Thell.	Pigeon bundleflower	Naturalized	Uncommon
Fabaceae	<i>Leucaena leucocephala</i> (Lam.) de Wit	Koa haole	Naturalized	Common
Fabaceae	<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	Kiawe	Naturalized	Rare
Malvaceae	<i>Sida fallax</i> Walp.	‘Ilima	Naturalized	Common
Malvaceae	<i>Waltheria indica</i> L.	Uhaloa	Indigenous	Abundant
Portulacaceae	<i>Portulaca pilosa</i> L.	Kiss me quick	Naturalized	Rare
Sapindaceae	<i>Dodonaea viscosa</i> (L.) Jacq.	A‘ali‘i	Indigenous	Rare
<b>Monocotyledons</b>				
Aloaceae	<i>Aloe vera</i> (L.) Burm. F.	Barbados aloe	Naturalized	Rare
Poaceae	<i>Aristida adscensionis</i> L.	Sixweeks threeawn	Naturalized	Uncommon
Poaceae	<i>Cenchrus ciliaris</i> L.	Buffelgrass	Naturalized	Common
Poaceae	<i>Eragrostis variabilis</i> (Gaudich.) Steud.	Kāwelu	Endemic	Dominant
Poaceae	<i>Heteropogon contortus</i> (L.) P. Beauv. ex Roem. & Schult.	Pili	Indigenous	Common
Poaceae	<i>Pennisetum setaceum</i> (Forssk.) Chiov.	Fountaingrass	Naturalized	Uncommon

\*Blank: not observed; Dominant: >25% area of coverage; Abundant: > 100 individuals per 100m transect surveyed but not dominant; Common: 5-100 individuals per 100m transect surveyed; Uncommon: 1-4 individuals per 100m transect surveyed ; Rare: <1 individual per 100m transect surveyed.



Table 2: Checklist of Fauna Observed in the Project Area

Scientific Name	Common Name	Family / Order	Nativity
<b>Birds</b>			
<i>Zenaida macroura</i>	Mourning dove	Columbidae / Columbiformes	Naturalized
<i>Alauda arvensis</i>	Eurasian skylark	Alaudidae / Passeriformes	Naturalized
<i>Euodice cantans</i>	African silverbill	Estrildidae / Passeriformes	Naturalized
<i>Mimus polyglottos</i>	Northern mockingbird	Mimidae / Passeriformes	Naturalized
<i>Acridotheres tristis</i>	Common myna	Sturnidae / Passeriformes	Naturalized
<i>Sicalis flaveola</i>	Saffron finch	Thraupidae / Passeriformes	Naturalized
<i>Zosterops japonicus</i>	Japanese white-eye	Zosteropidae / Passeriformes	Naturalized
<i>Pterocles exustus</i>	Chestnut-bellied sandgrouse	Pteroclididae / Pteroclidiformes	Naturalized
<b>Arthropods</b>			
<i>Apis mellifera</i>	Western honey bee	Apidae / Hymenoptera	Naturalized
<i>Xylocopa sonorina</i>	Sonoran carpenter bee	Apidae / Hymenoptera	Naturalized
<i>Schistocerca nitens</i>	Vagrant grasshopper	Acrididae / Orthoptera	Naturalized



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

In reply, please refer to  
File:  
2019-187 SL

April 26, 2019

K00674 Waikoloa, L.P.  
Attn: Dave Bigley,  
Manager of K00674 Waikoloa Holdings LLC,  
General Partner of K00674 Waikoloa, L.P  
2000 E. Fourth Street Suite 220  
Santa Ana, CA 92705

**Facility/Site:** FUDS Waikoloa Maneuver Area, Area P, Hawai'i

**Subject:** Conditional No Further Action with Institutional Controls  
Determination for Property Located at: Proposed Kaialulu O  
Waikoloa Development, Waikoloa Village, Hawai'i; TMK # (3) 6-8-  
003: Parcel 028

Dear Mr. Bigley:

Per your request, the State of Hawaii Department of Health (HDOH) has reviewed the Remedial Action Report (RAR) prepared by the United States Army Corps of Engineers (USACE), dated December 2018, and confirmed that the property located at Tax Map Key # (3) 6-8-003: Parcel 028 was included in the USACE's investigation and cleanup activities. Based on the conclusion of the RAR, the residual risk of unexploded ordnance (UXO) at the above-referenced property has been reduced to negligible, provided the USACE's Land Use Controls (LUCs) stated in the RAR remain in place. "Negligible" is defined by the USACE as "a reduction in the residual risk, through a combination of removal and LUCs, sufficient to result in acceptable site conditions."

The stated LUCs require the USACE to educate property owners and users within the Waikoloa Maneuver Area of the potential presence of undiscovered UXO at the property, how to recognize UXO, and the steps to take if a suspect UXO is encountered. The purpose of this letter is to inform you that, based on the completion of the RAR inclusive of the property and the agreement of the property owner to follow the Institutional Controls (ICs) described below, the HDOH has assigned a Conditional No Further Action with Institutional Controls (NFA w/ICs) status to the property located at:

**Address:** Proposed Kaialulu O Waikoloa Development, located at the eastern portion of Waikoloa Village on Pua Melia Street, Hawai'i; **TMK#** (3) 6-8-003: Parcel 028 (hereinafter referred to as "the PROPERTY").

The explanation and implications of this determination follow. The information below is very important and you should take the time to read it very carefully.

**What is the Former Waikoloa Maneuver Area?**

The PROPERTY is located within the former Department of Defense Waikoloa Maneuver Area (WMA). From 1943-1946, the WMA was used as a military maneuver area where armed forces used live explosive munitions to simulate realistic battle conditions. In some cases, the munitions did not explode resulting in UXO that were left behind. As a result, live munitions which are still capable of exploding if disturbed may be present within the WMA. For your safety, if you encounter an object that may be a munition, please do not touch or disturb it in any way. Keep your distance from the object and call 911 to report its location.

**What This “Conditional No Further Action (NFA) with ICs” Determination Means**

This Conditional NFA w/ICs determination means that the HDOH Hazard Evaluation and Emergency Response (HEER) Office has accepted the Remedial Action Report (RAR) that has been prepared by the USACE documenting the munitions clearance work performed on the PROPERTY. The HEER Office has reviewed the RAR and concurs that the risk of encountering UXO has been significantly reduced and that there is a low probability that UXO remain at the PROPERTY. However, during the cleanup process, some UXO may have gone undetected due to the limitations in the technologies employed. It is important to understand that this determination does not mean the PROPERTY is 100% free of residual risk from UXO.

Therefore, the HEER Office has determined that a **Conditional** No Further Action with Institutional Controls (NFA w/ICs) determination is appropriate for the PROPERTY. The four **Conditions** listed below constitute the ICs associated with this NFA status:

1. The use of the PROPERTY must be accompanied by an ongoing safety awareness program to assure that occupants and visitors are informed about the possible presence of UXO and the proper safety precautions to take should they encounter a suspicious object.
2. All future subsurface activities at the PROPERTY must be conducted following the guidance and conditions stated in the *Areawide Environmental Hazard Management Plan, Waikoloa Maneuver Area, Island of Hawaii* (AEHMP). The purpose of this AEHMP is to advise the public about the possible presence of UXO in the WMA and to present measures the landowner can take that will help mitigate the remaining residual risk related to UXO.
3. All subsurface activities at the PROPERTY must be conducted with UXO Construction Support provided by a Department of Defense Explosives Safety Board (DDESB) certified UXO Contractor, as described in the AEHMP.
4. For Large-scale developments (as described in the AEHMP), a Site-Specific Environmental Hazard Management Plan (SSEHMP) must be submitted by the landowner and approved by the HEER Office prior to construction.

**The AEHMP is a living document that was originally prepared by the HDOH in March 2019. The most current version of the AEHMP is available online at <http://eha-web.doh.hawaii.gov/eha-cma/Downloads/HEER/WMAAEHMP.pdf> or by calling 808-586-4249. Any HDOH-approved SSEHMP for the PROPERTY will also be on file with the HDOH and made available to the public upon request.**

It is important to note that at any former military training area the potential for exposure to UXO hazards will always remain. Due to technological and physical limitations, even sites that have received a “clearance” from the USACE will have a “residual” UXO risk. Therefore, the HEER Office has set forth the above *Conditions*/ICs as prudent and reasonable steps to further reduce the potential for exposure to UXO hazards during the development and use of the PROPERTY.

This Conditional NFA w/ICs determination is valid as long as the PROPERTY owner adheres to the *Conditions* stated above. Should the HEER Office determine that a violation of these *Conditions* has occurred, the Conditional NFA with ICs determination will be revoked immediately. Should new information become available regarding the contamination on site, the HEER Office and USACE must be notified immediately and a response action may be required to mitigate potential hazards.

Given the foregoing considerations, the HDOH believes it is unreasonable to interfere with the beneficial reuse of this PROPERTY. However, the recipients of this Conditional NFA w/ICs determination have been notified of, and confirmed that they acknowledge and agree to, the following statements:

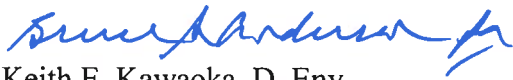
1. Have carefully read, understand, and agree to abide by the contents of the *Areawide Environmental Hazard Management Plan, Former Waikoloa Maneuver Area, Island of Hawaii* (AEHMP).
2. Agree that HDOH has disclosed and explained the residual risk from UXO remaining on the PROPERTY.
3. Fully accept the risk of harm related to UXO on the PROPERTY.
4. Will assure that anyone purchasing, leasing, or otherwise using the PROPERTY will be informed of the potential risk present and will be made aware of the Department of Defense’s “3Rs” Explosive Safety Program referenced in the AEHMP.
5. Agree to hold the HDOH completely harmless in the event of injury or property damage from any remaining UXO that results from the use and/or development of the property.
6. In the event of sale, lease, or transfer of the PROPERTY, the new owner(s) and/or lessee(s) must notify the HEER Office that they have been informed of the *Conditions* set forth in this Conditional NFA w/ICs and agree to follow the guidelines described in the AEHMP. Failure to notify the HEER Office of the sale, lease, or transfer of the PROPERTY may result in revocation of this Conditional NFA w/ICs status.

Mr. Dave Bigley  
April 26, 2019  
Page 4 of 4

Civil penalties for failure to comply with the requirements of the Hawaii Environmental Response Law as described in the Hawaii Revised Statutes Chapter 128D, Subsection 8, may apply. Failure to follow the **Conditions** set forth in this Conditional NFA w/ICs letter will result in the immediate revocation of this Conditional NFA w/ICs status and may result in additional penalties.

If you have any questions regarding the information in this letter, please contact the HEER Office at 808-586-4249.

Sincerely,



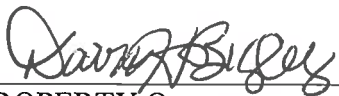
Keith E. Kawaoka, D. Env.  
Deputy Director for Environmental Health Administration

**ACKNOWLEDGEMENT OF RECEIPT**

By signing below, the PROPERTY owner:

1. agrees to abide by all terms and conditions of this Conditional NFA w/ICs as described above;
2. acknowledges receipt of a copy of the AEHMP;
3. understands that the AEHMP may be updated occasionally and that it is the PROPERTY owner's responsibility to abide by the guidance in the most current version of the AEHMP available by calling 808-586-4249 or available online at <http://eha-web.doh.hawaii.gov/eha-cma/Downloads/HEER/WMAAEHMP.pdf>;
4. agrees to notify the HEER Office in the event of sale, lease, or transfer of the PROPERTY; and,
5. in the event of sale, lease, or transfer of the PROPERTY, the PROPERTY owner agrees to notify the new owner(s) and/or lessee(s) of the conditions of this NFA w/ICs and the required guidance provided in the AEHMP.

I, David Bigley, hereby acknowledge the above statements and agree that failure to comply with any of the above statements may result in the immediate revocation of this Conditional NFA w/ICs.

  
\_\_\_\_\_  
PROPERTY Owner:  
K00674 Waikoloa, L.P.  
By: K00674 Waikoloa Holdings LLC  
Dave Bigley, Manager

5/3/2019  
\_\_\_\_\_  
Date

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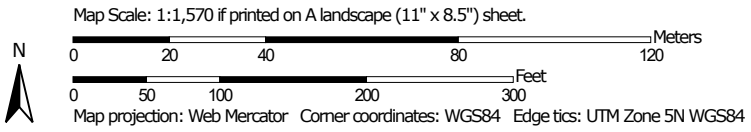
## Exhibit 9: Farmlands Protection

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Soil Map—Island of Hawaii Area, Hawaii




Soil Map may not be valid at this scale.



## 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 Hawaii Area, Hawaii  
 Survey Area Data: Version 11, Sep 11, 2018

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

Date(s) aerial images were photographed: Dec 31, 2009—Nov 28, 2016

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
373	Hapuna-Waikui-Lalamilo complex, 0 to 20 percent slopes	9.8	100.0%
<b>Totals for Area of Interest</b>		<b>9.8</b>	<b>100.0%</b>

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## Exhibit 10: Floodplain Management

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# National Flood Hazard Layer FIRMette



## Legend

SEE FIRM REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL L01011

- |                             |  |  |
|-----------------------------|--|--|
| SPECIAL FLOOD HAZARD AREAS  |  | Without Base Flood Elevation (BFE)<br><i>Zone A X, AD, D</i>   |
|                             |  | With BFE or Depth <i>Zone A E, AD, AM, VE, AR</i>  |
|                             |  | Regulatory Floodway  |
| OTHER AREAS OF FLOOD HAZARD |  | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> |
|                             |  | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>  |
|                             |  | Area with Reduced Flood Risk due to Levee. See Notes, <i>Zone X</i>  |
|                             |  | Area with Flood Risk due to Levee <i>Zone D</i>  |
| OTHER AREAS                 |  | Area of Minimal Flood Hazard <i>Zone X</i>   |
|                             |  | Effective LOMRs  |
| GENERAL STRUCTURES          |  | Channel, Culvert, or Storm Sewer   |
|                             |  | Levee, Dike, or Floodwall  |
| OTHER FEATURES              |  | Cross Sections with 1% Annual Chance Water Surface Elevation   |
|                             |  | Coastal Transsect  |
|                             |  | Base Flood Elevation Line (BFE)  |
|                             |  | Limit of Study   |
|                             |  | Jurisdiction Boundary  |
| MAP PANELS                  |  | Digital Data Available   |
|                             |  | No Digital Data Available  |
|                             |  | Unmapped   |
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



USGS The National Map. Orthorectified. Data released October, 2017. 19°56'40.70"N 155°47'37.47"W 19°56'40.70"N 155°47'02.24"W

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/28/2019 at 7:42:15 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Flood Insurance Rate Map

FIGURE NUMBER:

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## Exhibit 11: Historic Preservation

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# KILO 'AINA

RR1 BOX 581 • CAPTAIN COOK, HAWAII 96704 • (808) 328-2569  
29 November 1980

Highland Terrace  
Box 3035 Waikoloa Village Station  
Kamuela, HI 96743

Attn: Mr. Bob Pummill

Sir:

In accordance with our letter of agreement dated 14 November, 1980, I have searched for archaeological and historical features on the parcel identified by Tax Map Key 6-8-03,28, situated at Waikoloa, South Kohala, Hawaii.

At the Mahele of 1848, the land of Waikoloa was awarded to George Hueu Davis, son of Isaac Davis, the English companion and advisor to Kamehameha I. Although commonly regarded as an ahupuaa, Waikoloa is said to be an 'ili 'aina of Waimea. Its gargantuan size is in inverse proportion to its value to the ancient Hawaiian economy.

The portion examined lies between 960 and 1010 feet in elevation along the south side of Puu Melia Street. It is classified by the Soil Conservation Service as "Kawaihae extremely stony very fine sandy loam" underlain by pahoehoe but including 10 to 20 per cent underlain by aa. Average annual rainfall is about 10 inches, most of which falls during the winter. The area is subject to frequent strong easterly winds. Vegetation is predominantly grass with a few kiawe trees in hollows or along intermittent stream channels, such as Auwaiakeakua a short distance south of the parcel.

No archaeological features or other evidence of an aboriginal Hawaiian presence were found on the parcel. Such land was of no use to the Hawaiian gardner and there were more conveniently located sources of economic plants which could be gathered when needed. The possibility that refuge caves or burial places might be concealed here seems remote but cannot be ruled out.

If I can be of further assistance, please call. My invoice is enclosed.

Very truly yours,

*Lloyd J. Soehren*  
Lloyd J. Soehren  
Consulting Archaeologist

Encl.

cc: State Historic Preservation Officer  
B. P. Bishop Museum

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# International Archaeological Research Institute, Inc.

PREHISTORIC & HISTORIC INVESTIGATIONS • CULTURAL RESOURCES ASSESSMENTS & PLANNING • PALEOENVIRONMENTAL STUDIES

6 September 2005

Mr. Luke Estes  
D.R. Horton Inc., Schuler Division  
628 Fort Street Mall, 4th Floor  
Honolulu, Hawai'i 96813

SUBJECT: Summary Letter Report: Results of Inventory Survey at a Waikoloa Village Parcel, TMK (3) 6-8-03:28, South Kohala, Hawai'i.

Dear Mr. Estes,

International Archaeological Research Institute, Inc., has concluded a Phase I survey at a Waikoloa Village Parcel, TMK (3) 6-8-03:28, South Kohala, Hawai'i at the request of D.R. Horton, Inc., Schuler Division (Figs. 1, 2, Photo 1). The purpose of the survey was to identify archaeological features and sites that may be located on the parcel.

No evidence for prehistoric or historic sites or features was observed during the field survey of the parcel. Modern trash and evidence of bulldozing was apparent. Also, the presence of cow bones and a nearby bullock pen suggest cattle ranching activities formerly took place in the area.

## PROJECT LOCATION

The project area consists of a 4.6-acre parcel located on the south side of Pua Melia Street, which is a loop road intersecting with Waikoloa Road (the main thoroughfare into Waikoloa). A fire station is located at the western intersection of Waikoloa Road and Pua Melia Street and a post office is located near the eastern intersection.

## FIELD INVESTIGATIONS

An archaeological survey was carried out on 10 August 2005 by two archaeologists. Fieldwork involved walking transects parallel to Pua Melia Street about 5 m apart across the length of the project area. Observations concerning the ground surface and plant cover were recorded, as well as the existence of modern trash. The Principal Investigator of the project was J. Stephen Athens, Ph.D., the Project Director was Coral M. Rasmussen, M.A., and the Field Assistant was Patrick O'Day, M.A.

## NATURAL ENVIRONMENT

Waikoloa Village is located on the leeward coastal plain of Mauna Kea at an elevation of 1,000 feet above sea level. The ground surface consists of Kawaihae extremely stony very fine sandy loam (KNC), which is dark reddish brown. This type of area is mostly used for pasture (Sato et al. 1973:26). The project area itself is hilly with numerous exposed pahoehoe outcroppings and loose basalt boulders. Portions of the area have been graded or bulldozed and modern trash, such as aluminum cans and plastic, are scattered on the surface.

The region around Waikoloa is both dry and windy (Giumbelluca et al. 1986). Approximately 250 mm of rain falls annually in the Kohala area, making the area one of the driest in the state. This results “from the rain-shadow effects of Kohala Mountains and Mauna Kea” (Giumbelluca et al. 1986:15). There is also a well-developed sea breeze that blows across the region, caused from wind sheltering by Mauna Loa and Hualālai and afternoon heating of the slopes. The name ‘Waikoloa,’ may be derived from Waikōloa, which is the name for a cold northwest wind. The name itself means, “water pulling far” (Pukui et al. 1974:223). Waikoloa can also be interpreted to mean ‘duck water.’

Although no perennial streams are near the project area, Auwaiakeakua Gulch, having moist subsoils, is located to the west. Organic material and soft, permeable soils have accumulated in portions of the gulch. Waikoloa Stream, located north of the project area, currently supplies the town of Waikoloa with water.

The vegetation covering the project area is consists of dryland plants, such as kiawe, koa haole, ilima, grass, and weeds.

## BACKGROUND

The district of Kohala was one of the original six chiefdoms of Hawai‘i Island. These chiefdoms were retained as a districts when King Kamehameha I unified the island in 1790. Following the success of King Kamehameha, the *ahupua‘a* (traditional land division within a district) of Waikoloa, located within Kohala, was awarded to Isaac Davis for his assistance. Davis was the sole surviving crewmember of the captured *Fair America*.

The first European visitors to Kohala described the area as barren and treeless. Traditional use of the area by Hawaiians appears to have been infrequent or minimal due to its difficult terrain. Its dry, windy, and rocky nature would not easily support permanent habitation. Few archaeological sites are located within the upland portion of Waikoloa (Soehren 1980; Bonk 1988; Barrera 1990; Hurst and Sinoto 1991; Shiltz and Shun 1992; Kalima and Smith 1992; Nees and Williams 1995; Wolforth 2000; Rechtman 2001; Rechtman and Dougherty 2001). The sites that exist consist of temporary habitation shelters, burial caves, and trails and possibly dryland agriculture sites. People probably traveled through Waikoloa on their way to the upland region to gather natural resources.

As Hawai‘i Island entered into the mid 19th century, changes to traditional land divisions began to occur. In 1859, Kohala was divided into north and south districts. In 1867, Waikoloa was legally separated from the coastal strips of Puako, Kalahuipuaa, and Anaehoomalu. Supreme Court Justice G.M Robertson commented on the adjudication of the boundaries of Waikoloa, saying that

The land... was granted by King Kamehameha I to his faithful friend and follower, Isaac Davis., about the beginning of the present century. We consider it clear that in making the grant the King intended to give, and did give to Isaac Davis, a tract of land of very great extent, although not of proportionate value. There were no cattle or sheep in this country when the grant was made, and land given to Isaac Davis only yielded what revenue could be derived from wild birds and pili grass (Robertson 1867 in Kalima and Smith 1992:7).

The Waikoloa lands were deeded to Parker Ranch in 1886 (Hurst and Sinoto 1991:10). It appears that it was used for cattle grazing and related activities. The Puako-Keamuku Trail (between Puako and Keamuki) in Waikoloa, extended from the coast upland. It was used primarily for driving cattle (Shiltz and Shun 1992:10).



With the advent of World War II, the U.S. military used Waikoloa as an infantry and U.S. Marine Corps training area called Waikoloa Maneuver Area. Live fire training was conducted. Since that time, the Army Corps of Engineers has conducted clean-up activities within the boundaries of the former Waikoloa Maneuver Area (Earth Tech 2002).

As the population in on the island of Hawai'i has grown, the community of Waikoloa Village has been established. It consists of a residential community with a golf course and shopping center.

## **PREVIOUS ARCHAEOLOGY**

One previous archaeological survey was conducted within the project parcel by Soehren (1980). Although Soehren found no evidence of "archaeological features or other evidence of an aboriginal Hawaiian presence" he noted that "the possibility that refuge caves or burial places might be concealed here seems remote but cannot be ruled out" (Soehren 1980:1).

Other archaeological surveys located within Waikoloa, but outside the project area uncovered few, if any archaeological sites. Most of the sites related to ranching activities or military training (Bonk 1988; Barrera 1990; Hurst and Sinoto 1991; Shiltz and Shun 1992; Kalima and Smith 1992; Nees and Williams 1995; Wolforth 2000; Rechtman 2001; Rechtman and Dougherty 2001).

## **RESEARCH RESULTS**

During the archaeological survey conducted on 10 August 2005, no archaeological sites or features were observed within the project parcel. Modern trash and evidence of bulldozing was apparent around the edges of the parcel. Although the interior does not appear to have been bulldozed, it appears heavily eroded, possibly due to cattle grazing. A few cow bones were observed in this area, indicating the former presence of cattle.

## **CONCLUSIONS**

The lack of archaeological sites in the project area is consistent with the prior findings by Soehren (1980). The project area is located in a rocky area that was likely used infrequently used by traditional Hawaiians. If sites were once present, they were likely faint trails and temporary habitation sites that may have been erased by cattle grazing and later by bulldozing.

No further archaeological investigations are recommended for this parcel.

Sincerely,



Coral Rasmussen  
Project Director

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**APPENDIX A**



Photo 1. Overview of project parcel, view to east.

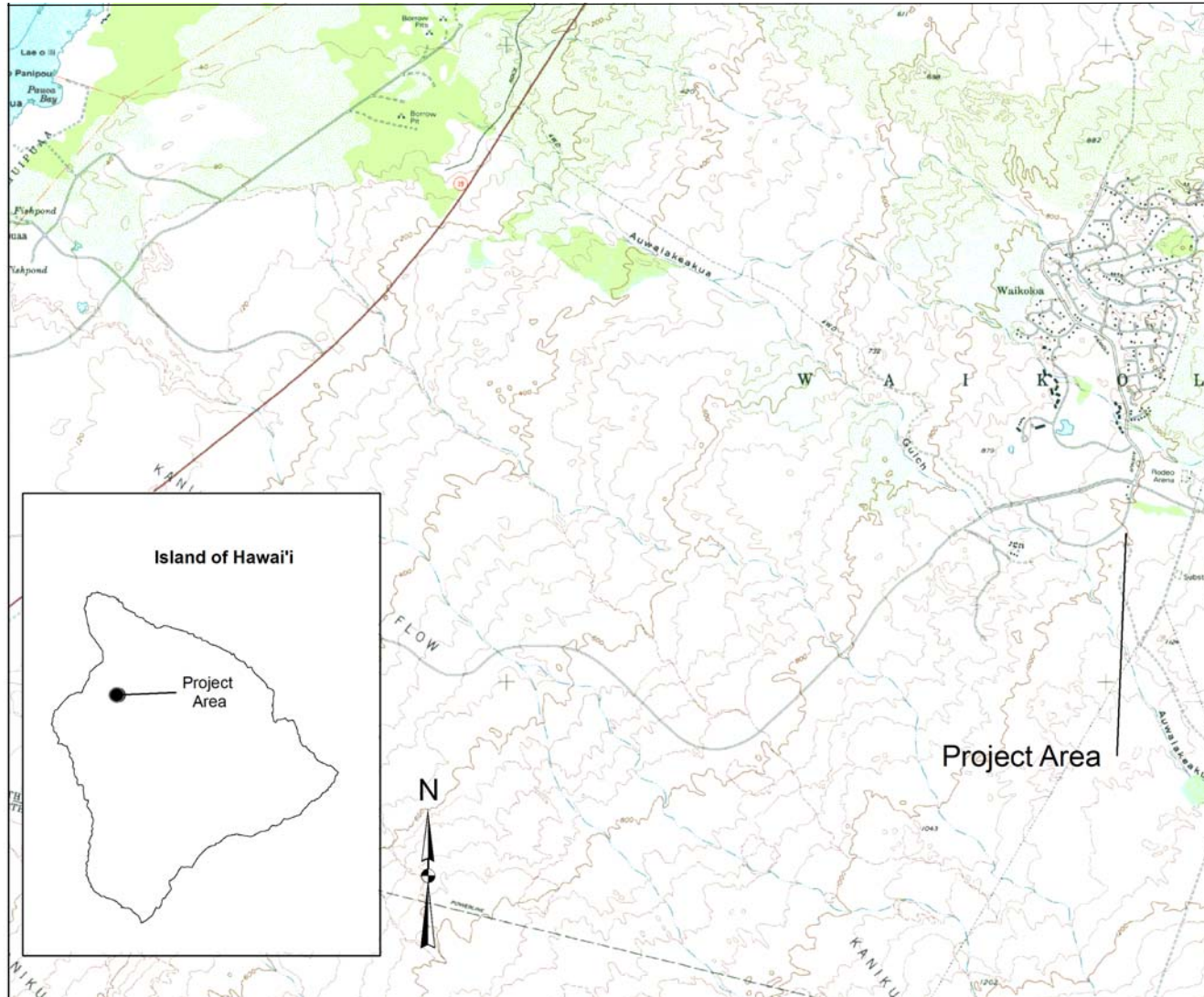


Figure 1. Location of Waikoloa Village Parcel, TMK (3) 6-8-03:28, South Kohala, Hawai'i.

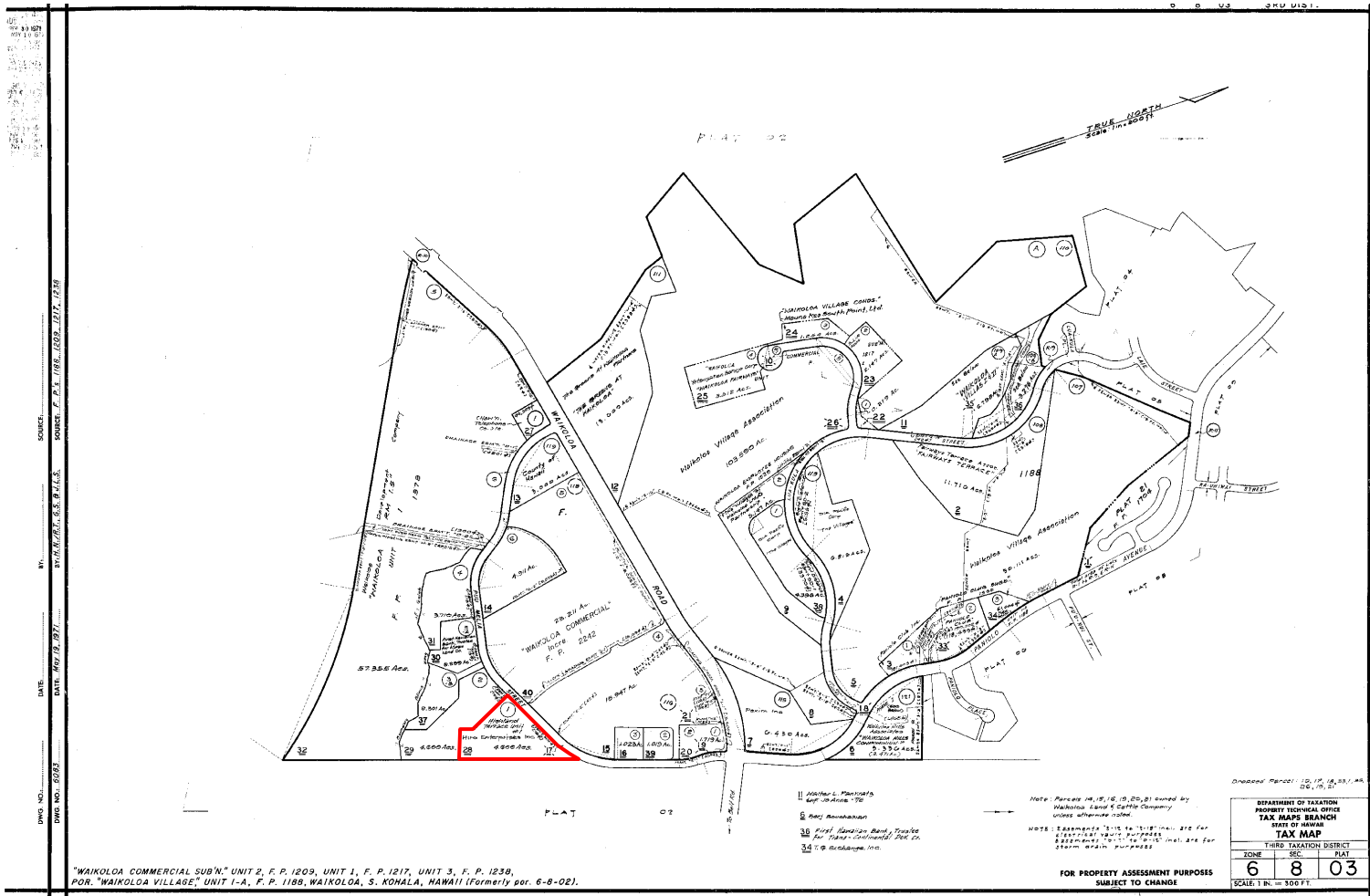


Figure 2. Project Area located on Tax Map.

## **FINAL REPORT**

# **Cultural Impact Assessment in Support of the Kaiaulu O Waikoloa Proposed Housing Development Project, Pu' u Melia Street, Waikoloa Ahupua'a, South Kohala District, Island of Hawai'i, State of Hawai'i TMKs: (3) 6-8-003: 028**

*Prepared for:*

**Environmental Risk Analysis, LLC**

905A Makahiki Way

Honolulu, Hawaii 96826

November 2018

**PACIFIC CONSULTING SERVICES, INC.**

720 Iwilei Road, Suite 424, Honolulu Hawaii 96817

FINAL REPORT  
Cultural Impact Assessment in Support of the Kaiulu O Waikoloa Proposed Housing  
Development Project, Pu'u Melia Street, Waikoloa Ahupua'a, South Kohala District,  
Island of Hawai'i, State of Hawai'i

TMKs: (3) 6-8-003:028

By  
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Honolulu, HI 96826

November 2018



## ABSTRACT

At the request of Environmental Risk Analysis LLC, Pacific Consulting Services, Inc., has prepared this Cultural Impact Assessment (CIA) in support of the Kaialu O Waikoloa Proposed Housing Development Project, Pua Melia Street, Waikoloa Ahupua'a, South Kohala District, Island of Hawai'i, State of Hawai'i. Ikaika Ohana is proposing to develop an affordable rental complex of 60 units, which will involve infrastructure improvements and residential development. The project area comprises 4.6 acres (1.86 hectares) on the south side of Pua Melia Street, which is a loop road extending south from Waikoloa Road. The lot (TMK [3] 6-8-003:028) is currently undeveloped and is zoned for apartment homes.

Consultation for this project was initiated with six community stakeholders, including community organizations, government agencies, and individuals. Formal letters sent via U.S. mail, or via email, were sent out on March 23, 2018 requesting information concerning their views on this project, including any effects it might have on historic or cultural sites that they might know about in the area. Likewise, they were asked to share any information about legends, historic properties, including traditional cultural places, and traditional cultural practices associated with the project area. Ms. Kaena Peterson, Pelekikena of the South Kohala Hawaiian Civic Club, responded to our letter via phone on April 23, 2018. She acknowledged receiving our letter and stated that she checked around and didn't find any chants or cultural practices associated with this portion of Waikoloa, and that it appears that this area is clear.

No other responses to our consultation letters were received by PCSI, and no ongoing traditional cultural practices were identified for the study area.

During a previous archaeological investigation at the project parcel in 2005, modern trash was observed and there was evidence of bulldozing along the perimeter; no archaeological sites were encountered. This previous finding was corroborated during a recent reconnaissance survey by PCSI. Based on the results of background research, previous surveys of the parcel, the recent reconnaissance survey of the property, and consultation, it is recommended that the effect determination for this project is "no historic properties affected."

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## INTRODUCTION

At the request of Environmental Risk Analysis LLC, Pacific Consulting Services, Inc., has prepared this Cultural Impact Assessment (CIA) in support of the Kaiaulu O Waikoloa Proposed Housing Development Project, Pua Melia Street, in Waikoloa on Hawai'i Island in the State of Hawai'i. The project is situated on a 4.6-acre parcel on Pua Melia Street (TMK [3] 6-8-003:028) owned by Waikoloa, L.P, as shown in Figure 1. The project proponent is Ikaika Ohana. The project is partially funded by the State's Rental Housing Revolving Fund, which was awarded by the Hawaii Housing Finance and Development Corporation (HHFDC). Additional funding is anticipated from Alden Torch and Tax Exempt Bonds.

This CIA has been prepared in compliance with Hawaii Revised Statutes Chapter 343, Act 50 (HRS), which requires consideration of a proposed project's effect on traditional cultural practices. The document is intended to support the project's environmental review through cultural consultation efforts (per the OEQC's Guidelines for Assessing Cultural Impacts). The report also supports the project's historic preservation review under HRS Chapter 6E-42 and the following chapters of Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules):

- Chapter 275: Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-8, HRS.
- Chapter 284, Rules Governing Procedures for Historic Preservation Review to comment on Section 6E-42, HRS, Projects

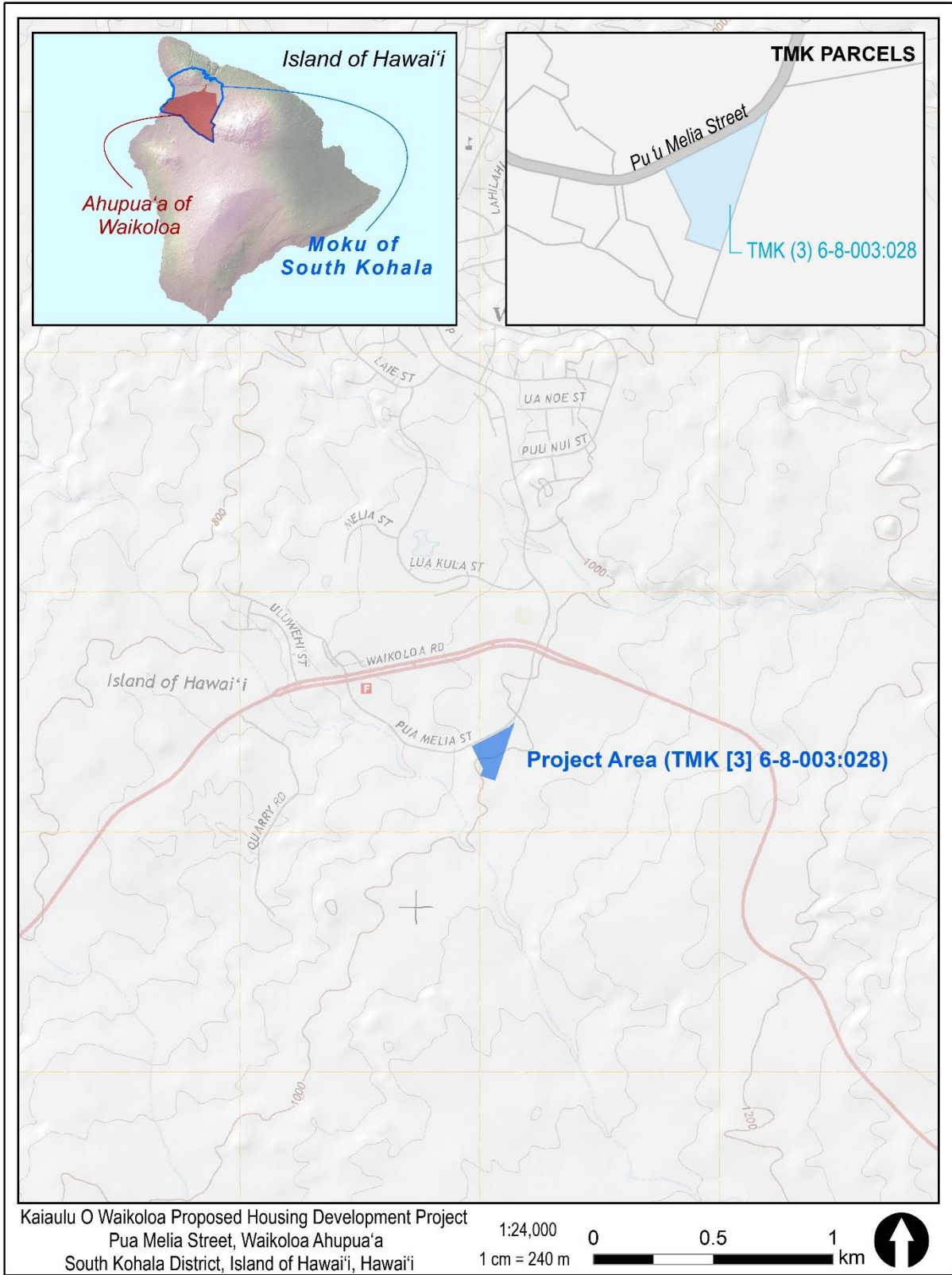
## PROJECT AREA LOCATION AND DESCRIPTION

The project area is in Waikoloa Ahupua'a (traditional Hawaiian land division), South Kohala District on the Island of Hawai'i, and comprises 4.6 acres (1.86 hectares) on the south side of Pua Melia Street, which is a loop road extending south from Waikoloa Road. The lot is identified as TMK (3) 6-8-003:028 (Figure 2), is currently undeveloped, and is zoned for apartments/homes. Ikaika Ohana is proposing to develop an affordable rental complex of 60 units, which will involve infrastructure improvements and residential development. Overall site plans are shown in Figure 3.

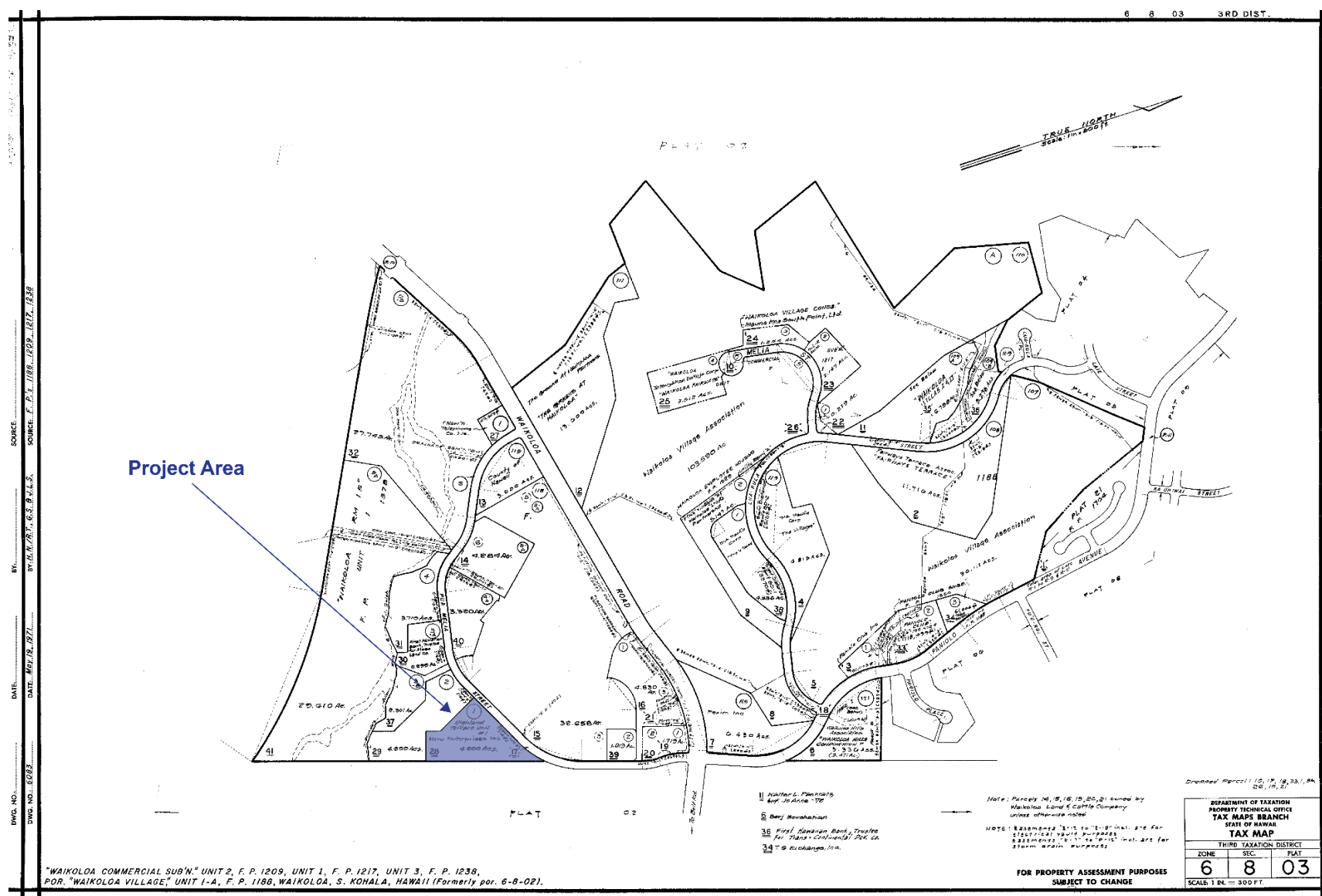
The current project area lies within the former Waikoloa Maneuver Area (WMA), an approximately 137,000 acre (55,442 hectares) portion of the South Kohala District. This land was used as an artillery firing range and for conducting troop maneuver activities in the early and mid-1940s. In 1946 the land was returned to Parker Ranch and munitions clearances were conducted in 1946 and in 1954. Since 1999, additional site investigations and cleanup activities have also been conducted and are ongoing. For the current project area parcel, a site sweep for unexploded ordnance (UXO) was conducted by an Army Corp of Engineers contractor in 2011, which resulted in no munitions of environmental concern (MEC) identified (Environmental Risk Analysis LLC 2017:3-3).

## METHODS AND PERSONNEL

Prior to contacting and consulting with interested parties, PCSI staff conducted a historical and archaeological literature review of the Kaiaulu O Waikoloa project area in order to assess any potential effect on historic properties or other cultural resources. Research was completed using various documentary and archival resources, including the State Historic Preservation Division's (SHPD) database of archaeological reports, the SHPD report library, a Land Commission Awards (LCA) review via the Bureau of Conveyances, and a review of



**Figure 1. Location of Proposed Kaiaulu O Waikoloa Housing Development Project on 2013 Puu Hinai U.S.G.S. Quadrangle Map.**



3

DWG. NO. 6082  
 DATE: 10/1/71  
 BY: B.N.R. / C.S.B. / S.S.  
 SOURCE: F.P. 1188, 1209, 1217, 1238  
 DATE: 10/1/71

"WAIKOLOA COMMERCIAL SUB'N," UNIT 2, F. P. 1209, UNIT 1, F. P. 1217, UNIT 3, F. P. 1238,  
 POR. "WAIKOLOA VILLAGE," UNIT 1-A, F. P. 1188, WAIKOLOA, S. KOHALA, HAWAII (Formerly por. 6-8-02).

- 11 Quarter L. Plan 1185
- 12 1/2" x 1/2" Scale - 12"
- 13 Best Hawaiian
- 14 First Hawaiian Bank, Trustee for Waikoloa Commercial Sub'ns
- 15 3/4" x 3/4" Scale - 15"

Note: Parcels 14, 15, 16, 17, 18, 19, 20, 21 owned by Waikoloa Land & Coffee Company unless otherwise noted.

Note: Statements 1, 10 to 12 original size for Districtal Title purposes. Statements 13 to 18 incl. art for stream drain purposes.

FOR PROPERTY ASSESSMENT PURPOSES  
 SUBJECT TO CHANGE

Dropped Parcels: 10, 17, 18, 23, 24, 25, 19, 22.

DEPARTMENT OF TAXATION PROPERTY TECHNICAL OFFICE TAX MAPS BRANCH STATE OF HAWAII		
TAX MAP		
THIRD TAXATION DISTRICT		
ZONE	SEC.	PLAT
6	8	03
SCALE: 1 IN. = 300 FT.		

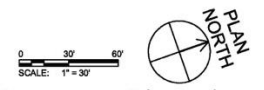
Figure 2. Location of Proposed Kaiulu O Waikoloa Housing Development Project Area Parcel, TMK (3) 6-8-003:028, on Plat Map 6-8-03 (State of Hawaii Department of Taxation 1971).



**Kaiulu O Waikoloa**  
 URBAN HOUSING COMMUNITIES, LLC  
 Design Partners Incorporated

**OPTION 1**

**Concept Site Plan**  
 JANUARY 8, 2018



**Figure 3. Site Plans for Proposed Kaiulu O Waikoloa Housing Development Project Site.**

historic maps. Sara Collins, Ph.D., served as Principal Investigator. Her familiarity with many of the archaeological studies on O‘ahu from 1995 to 2005 facilitated the research effort. Nicole I. Vernon, M.A., conducted the literature review and prepared this report. In the event that adverse impacts are possible because of this project, mitigation recommendations have been included.

Finally, letters of consultation for this CIA were sent to six organizations and individuals. Correspondence included requesting information concerning their views on the project. The letter included a project description, a summary of relevant background research, and previous archaeological finds, as well as a request for their views concerning any effects the project might have on historic or cultural sites they might be aware of in the immediate vicinity of the Kaiaulu O Waikoloa project area. They were also invited to share any information about legends, traditional cultural properties (TCP), or traditional cultural practices that may be associated with the project area.

## **ENVIRONMENTAL SETTING**

The Kaiaulu O Waikoloa project area is located on a flat expanse of land known as the Waimea Plain, or Waimea Saddle, situated between Mauna Kea and the Kohala Mountains. The Kohala Mountains are the remnants of the oldest of five volcanoes that formed the Island of Hawai‘i. The last eruption occurred approximately 60,000 years ago and since then the flanks of sloping shield dome have been eroded by wind and rain. The saddle terrain is formed from lava flows of Mauna Kea, which last erupted approximately 4,500 years ago, washing-up against the foothills of the older mountain, creating a saddle between the two peaks (Peterson and Moore 1987:150; Juvik and Juvik 1998:45, 75). The seat of the saddle is immediately east of Waimea town. From the saddle, the land rises steeply to the north toward the Kohala Mountains, and ascends gently south to the lower foothills of Mauna Kea. To the west of the saddle, the terrain slopes gradually to the coast.

### **TOPOGRAPHY AND SOILS**

The project area is situated on slightly to moderately sloping land of the Waimea Saddle at approximately 304.8 meters (m) (1000 feet [ft]) above mean sea level (amsl). The saddle terrain was created by the Hamakua Volcanic Series from Mauna Kea (Macdonald and Abbott 1983:350–351). Soils are dominated by the Hapuna-Waikui-Lalamilo complex with 0 to 20 percent slopes (Soil Unit 373), as shown in Figure 4 (Soil Survey Staff 2018). The Hapuna, Waikui, and Lalamilo series are deep to very deep, well-drained soils found on undulating to hilly ‘a‘a flows that are 65,000 to 250,000 years old. Variation between the series are minimal. Lalamilo soils are found on toeslope and footslope positions and formed in alluvium over basic volcanic ash over ‘a‘a lava, while Waikui and Hapuna soils are found on summit positions and formed in basic volcanic ash in ‘a‘a lava.

### **RAINFALL AND HYDROLOGY**

The project area falls within the dry grasslands of Waikoloa which experience periods of high gusts from the northeast (Rieth and Morrison 2010:13). Annual rainfall in the project area measures 335.8 millimeters (mm) (13.23 inches) (Giambelluca 2013), and temperatures average 64 to 88° F. Minor dust devils (or whirls) are common in the lower and more arid elevations during hot calm periods (Armstrong 1983:64).

The project area contains no streams or surface water features, though intermittent drainages are nearby. The Pacific Ocean is the nearest natural body of water, which lies approximately 7.0 kilometers (km) to the north at Puakō Bay. A reservoir and small ponds in the vicinity

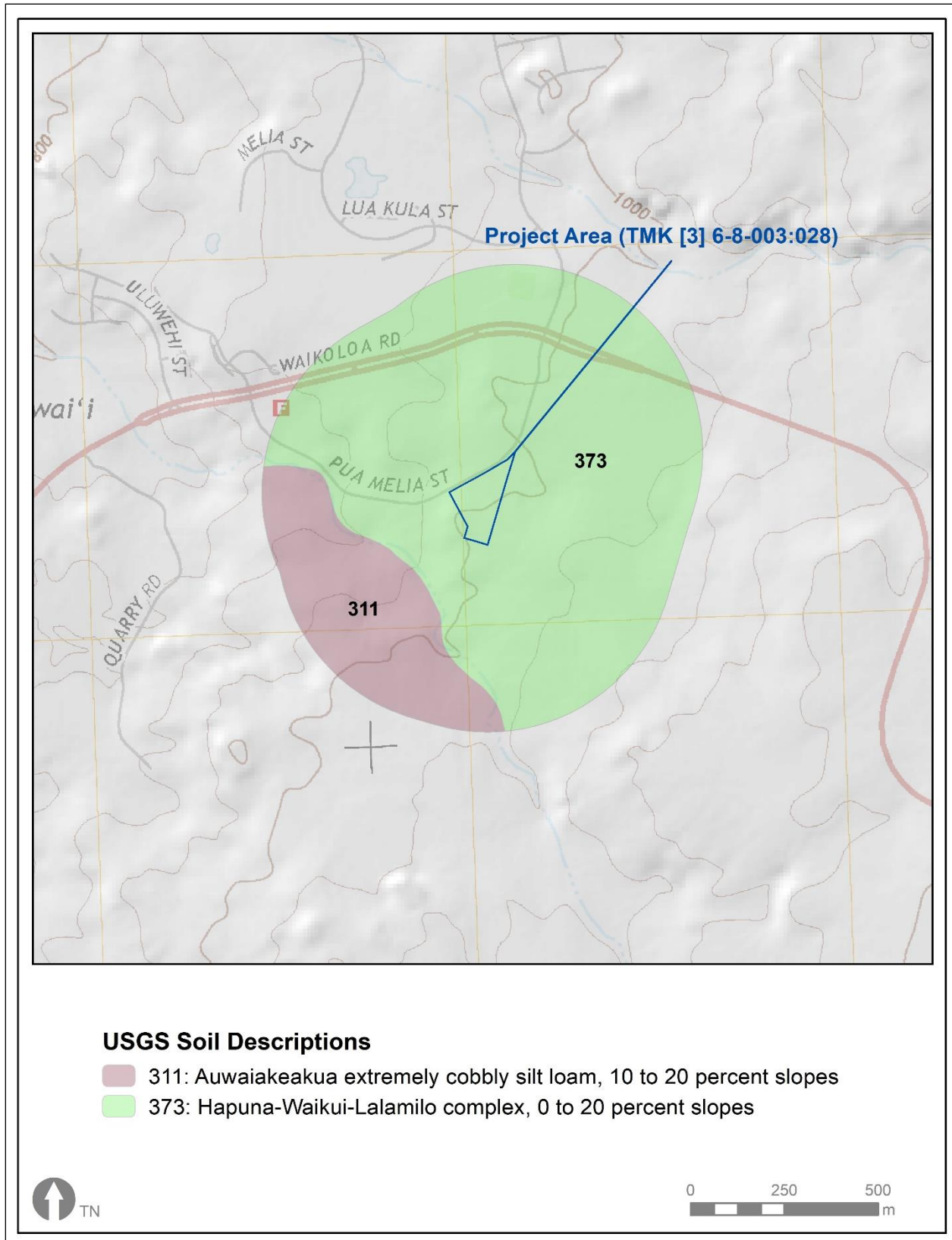


Figure 4. Soil Units in and near the Project Area.



provide recycled water for the private resorts; the water is mainly for irrigation of private golf courses (Environmental Risk Analysis LLC 2017:4-2).

## VEGETATION

Based on reconstructed vegetation patterns by McEldowney (1983:407–449), the project area is situated in former *pili* land (specifically, Pili Land 1). Such land was dominated by *pili* grass (*Heteropogon contorus*) (Wagner et al. 1990), which was traditionally used as thatching material for houses or other structures (Andrews and Parker 1922:546; McEldowney 1983:414–416; Pukui and Elbert 1986:329). Today the project area is dominated by invasive grasses, such as buffel grass (*Cenchrus ciliaris*) and fountain grass (*Pennisetum setaceum*), shrubs, *haole koa* (*Leucaena leucocephala*), and *kiawe* (*Prosopis pallida*) (McEldowney 1983:409; Rasmussen 2005:2).

## HISTORICAL BACKGROUND

Archival background research and literature review examined maps, historical and archival documents, and previous archaeological studies in the vicinity of the project area corridors. Historical maps relevant to the current project were georeferenced to determine where traditional Hawaiian or historic features may fall within the corridors. The information obtained from these sources was synthesized to present relevant data findings and to evaluate the potential for archaeological and cultural resources in the project area.

## TRADITIONAL HISTORY

The project area is situated approximately 7.1 km inland and southeast of Puako Bay in the *ahupua'a* of Waikoloa. Traditionally this land was an '*okana*'<sup>1</sup> of the *kalana*'<sup>2</sup> of Waimea, a subdistrict of Kohala. Testimony from a boundary dispute in 1865 describes the land as follows: "Waimea is a Kalana. – which is the same as an island divided in to districts. – there are eight Okana in Waimea" (Maly 1999:91). Waikoloa was one of the eight '*okana*' in Waimea. Waimea comprised the land south of Waikoloa Stream to the district's boundary. The following is a description of the *kalana* of Waimea from Bernice Judd, a former librarian at the Hawaiian Mission Children's society:

In the early days Waimea meant all the plateau between the Kohala Mountains and Mauna Kea, inland from Kawaihae. This area is from eight to ten miles long and from three to five miles wide. There was no running water on Mauna Kea, so the inhabitants lived at the base of the Kohala Mountains, where three streams touched the plain on their way towards the sea. The most easterly one entered the plain at Pu'ukapu and flowed through Hamakua. The middle stream, which was famous for wild ducks, was named Waikōloa, or Duckwater. This and the most westerly stream, called Kohakohau, went towards Kawaihae, but neither reached the sea, except in times of flood [Judd 1978:14].

According to Hawaiian historian Samuel Kamakau, Waikoloa (lit. "water-carried-far" [Maly 1999:25]) was one of several winds that came to Hawai'i from Kahiki. These winds were sent by Lonopele who tried to destroy the priest Pā'ao and his companions (Kamakau 1991:5 in Maly 1999:25).

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<sup>1</sup> District or subdistrict (Pukui and Elbert 1986:281).

<sup>2</sup> Division of a land smaller than a *moku* or *kala* (Pukui and Elbert 1986:221).

There is also a reference to the legend of the wind Waikōloa: “Kanakanaka was an expert *lawai-‘ahi-‘ahi* (deep sea tuna lure fisherman), and his sister was the wind goddess Waikōloa” (Wise and Kihe 1914–1917 translated in Maly 1999:27).

## TRADITIONAL LAND USE

Current archaeological research indicates that the western portion of the former WMA area was intermittently occupied by the mid-fourteenth century, or possibly the eleventh to thirteenth centuries (Burtchard and Tomanari-Tuggle 2005; Cordy 2000:133; Rieth and Morrison 2010; Rieth et al. 2011). The environmental conditions would have limited pre-Contact agricultural endeavors and permanent habitation in the *pili* lands; however, surrounding this area were settlements at Kawaihae and Puakō along the coast, and inland was the Waimea Agricultural System, situated on the saddle between the Kohala Mountains and Mauna Kea, which are discussed below.

Based on archaeological evidence, initial settlement along the coast of leeward Hawai‘i was intermittent and associated with marine resource exploitation (Rieth and Morrison 2010:33). Other activities that followed would have included aquaculture, salt production, and abrader production, in addition to fishing (Barrère 1983:30; Cordy 2000:46–47; Ellis 1917:299; Kirch 1985:170–171, 175; Menzies 1920:55; Rechtman 2014:10). Coastal Kawaihae was the location of ceremonial temples and a chiefly habitation complex during the pre-Contact period. In the 17<sup>th</sup> century when Lono-i-kamakahiki, the grandson of ‘Umi-a-Liloa, ruled the island of Hawai‘i, the island’s high chiefs established one of their residences at Kikiako‘i (now Pelekane) immediately south of Kawaihae village. Many battles took place throughout this region until Kamehameha I conquered western Hawai‘i Island in the late 1780s (Fornander 1916–1917 Vol. 4-2:342-344, 1919 Vol. 5-2:446-451, and 1996:120–121; Kamakau 1992:56–61; Kihe 1924 in Maly 1999; Tomanari-Tuggle and Tuggle 2006:49–57).

The Waimea Agricultural System, situated in what is called the Kula Zone (Clark 1987), was one of three late pre-Contact, major agriculture production centers on leeward Hawai‘i (Allen 2001; Burtchard and Tomonari-Tuggle 2004; Clark and Kirch 1983; Ladefoged et al. 1996:861; Ladefoged et al. 2003; McCoy and Graves 2010). This field system utilized intermittent irrigation from two non-perennial streams. Limited settlement is thought to have occurred between the early AD 1400s and AD 1600s (Burtchard and Tomonari-Tuggle 2004:62). Cultivated crops likely included sweet potatoes and irrigated taro (Kirch 1985:177). Data from archaeological investigations have indicated that a rapid expansion and intensification occurred around AD 1500 (Clark and Kirch 1983). Later, under Kamehameha I, this system was expanded into more marginal areas, which also corresponds with the population growth at Kawaihae (Burtchard and Tomonari-Tuggle 2004:16, 2005:23).

The current study area is within what is known as *pili* land, and is situated between the *kula* land of the upper elevations and the coast. Though not the site of permanent habitation, the land would have offered floral and faunal resources, such as *pili* grass, wild birds, medicinal plants, and lithic raw material, such as in the lava fields around ‘Auwaiakeakua Gulch (Barrère 1983:30; Kirch 1985:175; Moore and Kennedy 2005:24). In a Boundary Commission testimony, a Hawaiian named Ehu stated: “my father was not a bird catcher, he used to *mahi‘ai* [farm, in Puukapu]. Waikoloa was the land that had the birds (Boundary Commission Testimony 1865 in Maly and Maly 2005:354). Also referring to bird hunting is testimony by Pupuka: “I first knew the boundaries when I used to hunt birds upon Waikoloa from the time of Kamehameha I” (Boundary Commission Testimony 1866 in Maly and Maly 2005:365).

The many temporary shelters that have been documented throughout Waikoloa were likely constructed by those collecting resources or traveling between the coast and uplands. A

1830s map of the Waimea area shows trails connecting the coastal and inland settlements (Committee Report 1830 in Barrère 1983: Figure 2.1). In addition to resource procurement and bird hunting, the trails would have been utilized for transporting a variety of goods between the coastal and inland settlements (McEldowney 1983:428). Figure 5 illustrates the locations of trail locations and other historic land features compiled from several historical maps.

In northern Waikoloa, a path labeled “Alanui o ka wakahiko” (lit. “large path from ancient times”) on a map by Kaelemakule (1867) runs along the Lālāmilo and Waikoloa border. Temporary habitation sites previously documented during archaeological studies appear along this trail, such as Site 11-24316 (Clark and Rechtman 2005). Other evidence of use of this trail is in the form of small scatters of marine shell, such as Sites 11-19777 and 19778 (Spear and Chaffee 1994:22). Additional trails in the region led inland from Puakō and Kawaihae villages to the villages of Ke‘a‘ali‘i, Pu‘u Kapu, and Waikoloa (see Figure 5). The Puakō-Waimea trail is shown on a map by Donn (1901) dating to 1901 and appears to correspond to the earlier historical map from the 1830s. This trail runs through the central portion of Lālāmilo. The Puakō-Ke‘āmuku trail appears on a 1923 topographic map (USGS 1923), which ran near the current study area, as shown in Figure 5. It is possible that this trail was used prior to the historic period.

### EARLY HISTORIC LAND USE

In the few early historic period accounts of the project area region, the land is described as unpopulated and barren. A member of Captain Vancouver’s crew traveled inland from a coastal village during the late 18th century to an area north of Waikoloa, which likely resembled the general region where the current project corridors are located:

I traveled a few miles back . . . through the most barren, scorching country I have ever walked over, composed of scorious dregs and black porous rocks, interspersed with dreary caverns and deep ravines . . . The herbs and grasses which the soil produced in the rainy seasons were now mostly in the shriveled state, thinly scattered and by no means sufficient to cover the surface from the sun’s powerful heat, so that I met with very few plants in flower in this excursion [Menzies 1920:55].

In 1832, the missionary Reverend Lorenzo Lyons traveled from Waimea to Puakō, possibly along the Alanui o ka wakahiko, and gave a description of an uninhabited land:

On the way to Puakō, all is barren and still more desolate. After an hour’s walk from my house [in Waimea], not a human dwelling is to be seen till you reach the shore, which requires a walk of about five hours [Doyle 1945:111].

Lastly, an article from the *Sandwich Island Gazette* on September 10, 1836 also describes the landscape along a trail across Waimea:

[the trail] consists of a gradual descent of about 10 miles to the seaside. It is entirely composed of an uneven rocky waste, covered with long grass. This barren tract is untenanted and uncultivated. Rain seldom falls here and, besides the grass, nothing is seen to vary the monotony until you approach the coast, when the eye is relieved by the yellow blossoms of the Nohu [*Tribulus cistoides*]. (*Sandwich Island Gazette* September 10, 1836 in Clark et al. 2014:26)

In 1793, Captain George Vancouver gifted cattle, sheep, and goats to Kamehameha I at Kawaihae (and later at Kealahou) (Fornander 1996:336; Judd 1978:16; Kamakau 1991:164; Maly and Wilcox 2000:21). A ten-year *kapu* (taboo, in this case restricting hunting) was placed on the herds in order for them to reproduce, and consequently, much of the Waimea Plain became grazing land. This proved detrimental to agricultural fields (Burtchard and Tomonari-Tuggle 2005:29–30). Walls were built in order to limit the range of the wild animals:

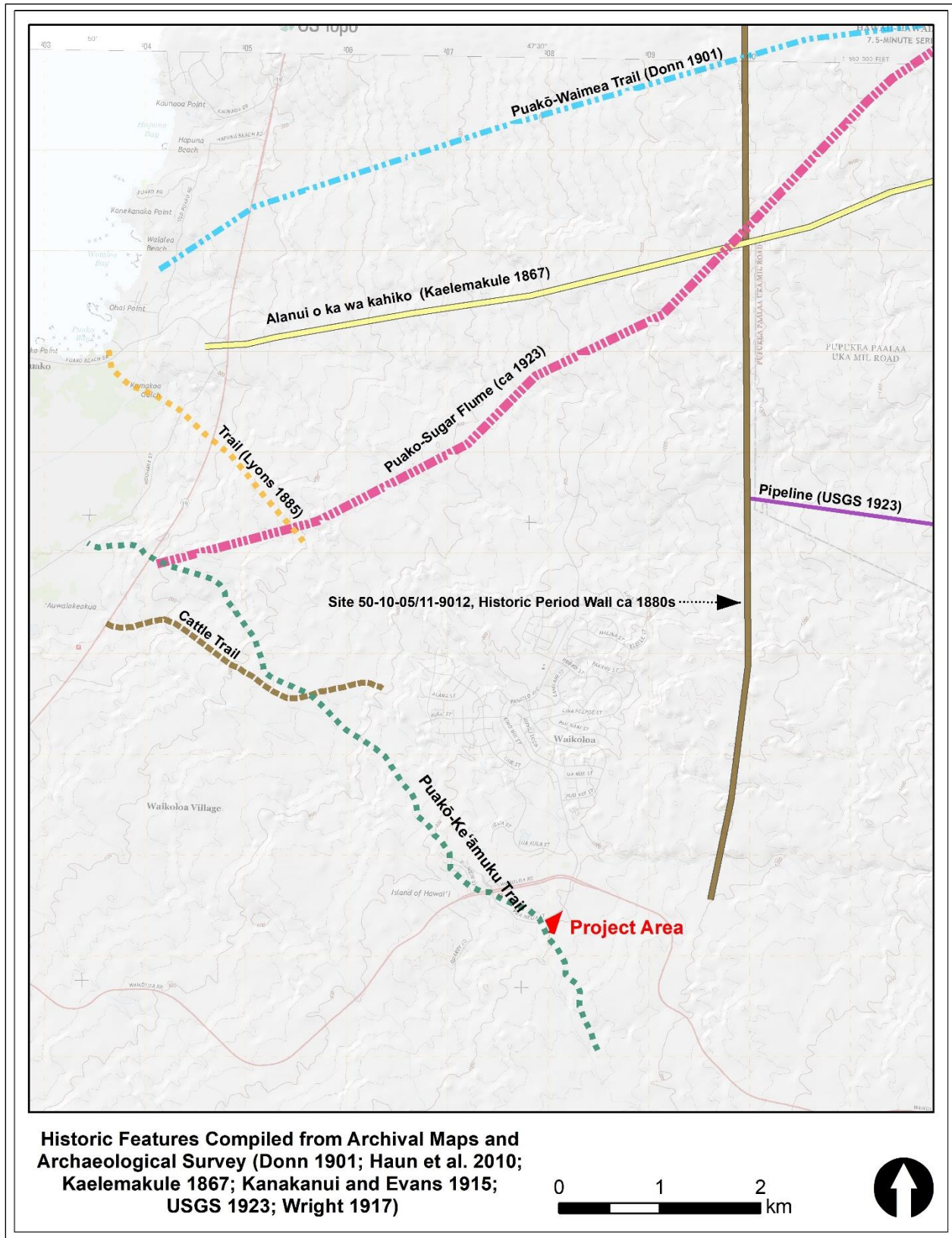


Figure 5. Historic Period Features Near the Project Area Compiled from Historical Maps.

before Kamehameha I died in 1819, the animals were so bold and numerous that the people needed protection from them. Under the direction of the old king, long stone walls, called *pa aina*, were built to exclude the cattle from the cultivated areas at the foot of the Kohala Mountains [Judd 1978:16].

In 1815, John Palmer Parker (founder of Parker Ranch) and other foreigners were commissioned to hunt the cattle in order to sell beef, tallow, hides, and other products to western ships (Judd 1978:16; Ellis 1917:301, 303; Rieth and Morrison 2010:21). The hunting was tightly controlled and the *kapu* was not lifted until 1830 (Clark 1983:48).

By 1836, Waimea village was enclosed with a cattle wall (Maly and Wilcox 2000:21). Stone walls were also constructed by residents to protect their fields, gardens, and thatched houses from wild cattle (Doyle 1945:47). Numerous accounts of cattle damaging homes and fields are described in Land Commission testimony from 1848–1850 (Maly 1999; Maly and Maly 2005; Maly and Maly 2006).

The cattle population had decline by the 1840s due to hunting and a *kapu* was once again instituted. The population or the herd climbed again and it was noted by Lyons in 1846 that two-thirds of the Waimea area was converted into government pasture land causing many people to leave the area (Clark 1983:49).

After the Mahele of 1848, the *'ili* (division of an ahupuaa) of Waikoloa was awarded to George Davis Hū'eu (LCA 8521), the son of Isaac Davis. His father had received his land from Kamehameha I (Maly 1999:57,84,91). At this time, Waikoloa was often referred to as Waikoloa Nui to distinguish it from Waikoloa Iki, the parcel to the north, later called Lālāmilo (Jensen 1990:6), which was retained as Crown Land. The following court decision by Judge Robertson concerning a boundary dispute gives insight to the value of Waikoloa during this period:

The land . . . was granted by King Kamehameha I to his faithful friend and follower, Isaac Davis, the father of the appellant [George Hueu Davis], about the beginning of the present century. We consider it clear that in making the grant the King intended to give, and did give to Isaac Davis, a tract of land of very great extent, although not of proportionate value. There were no cattle or sheep in this country when the grant was made, and the land given to Isaac Davis only yielded what revenue could be derived from wild birds and pili grass.

By terms of the grant . . . the land given to Isaac Davis was expressly deprived of any rights in the sea, i.e. of fishery, and was so bounded as to include scarcely any land fit for cultivation; and, as some of the witnesses expressed it, all the pili land extending out to the a'a on the boundary of Kona, was given to Isaac Davis.

There is one fact which we regard as clearly established ... and that is the fact that for upwards of sixty years, the appellant and his father before him, exercised undisturbed lordship over the large tract of land which we feel bound to include in the boundaries of Waikoloa Nui, as granted to Isaac Davis. No evidence has been given to contravene the fact of long and undisturbed control and occupancy" [Hawaiian Gazette, Feb. 27, 1867 in Jensen 1990:6].

A Boundary Commission testimony by a Hawaiian named Mi, describes what became of “the other Waikoloa,” which likely refers to the modern *ahupua'a* of Lālāmilo.

They [Kamehameha and the Waimea chiefs] kept all the valuable part of the lands, and gave the poor land outside to Isaac Davis. They kept Puukapu, Pukalani, Noho'aina, Kukui'ula (above the church) ['Imiola Church in Waimea town], and Paulama; and gave Waikoloa to Issac Davis. The other Waikoloa [today's Lālāmilo Ahupua'a], this side of the stream [Waikoloa Stream] dividing them, was the King's. It comes down along the stream [Waikoloa Stream] by Mr. Lyon's [Rev. Lorenzo Lyons' residence near 'Imiola Church], then

along the ditch, then along the wall of Pu'uloa, to Ahuli [Land Court Award 4885] on the King's land, to the round hill, Uleiokapihe, and is cut off here by Davis' Waikoloa. The wall [the wall of Kauliakamoa] was the boundary below, between Waikoloa of Isaac Davis and the land of the King Kamehameha I. The latter built it by Kauliakamoa to keep the cattle off from the King's land. The boundary runs to Liuliu, and the pili was all South, on Davis' land; then I know along an old road, Puupa, Waikoloa being South and Waimea North of the road, then to Kaniku. That is all I know" [Boundary Commission testimony 1865 in Maly and Maly 2005:355].

The "other Waikoloa" is often referred to in the Land Court records of the 1840s and 1850s as "the King's Waikoloa." In testimony before the Boundary Commission, a witness named Kalua stated that Davis' land was known as "Waikoloa Nui," while where he was born was "Waikoloa Iki," and "the King's land" (Boundary Commission Testimony 1865 in Maly and Maly 2005:357). Another witness, Wahahee, stated that, "I heard that Waikoloa was divided. There are two Waikōloas, they lie side by side . . . All the *pili* belonged to Waikoloa [Davis' Waikoloa]" (Boundary Commission Testimony 1865 in Maly and Maly 2005:355).

### **Late Historic Land Use**

Beginning in the 1850s, Waimea and surrounding lands were consolidated as Parker Ranch. Many historic period sites documented during archaeological investigations in the area are associated with ranching and include former barns, branding pens, blacksmith shops, and other associated structures. An extensive cattle wall, Site 50-10-05-9012 (Site 9012), constructed during the late 1800s by Parker Ranch runs north-south through 'Ōuli, Lālāmilo, Waikoloa Ahupua'a (Anderson and Eblé 2001). According to interviews conducted with local residents, construction of the wall was a major endeavor that required crews of labors slowly making their way across the landscape (Reeve et al. 2008:115). The purpose of the wall was cited as a means of keeping the cattle in better pasture land, and preventing them from straying into drier lands near the coast.

Another historic period endeavor in the region was the Puakō Sugar Plantation, which is documented in more detail in Maly (1999:119–124). Puakō literally translates as "sugarcane blossom" (Pukui et al. 1974). Around 1902, R. and J. Hind and W. Vredenburg established the plantation on about 647.5 ha (1,600.0 acres) of land east of today's Puakō Beach Drive and west of Queen Ka'ahumanu Highway (Dorrance 2000:90; Puakō Historical Society 2000). An eight-mile long wooden irrigation flume was built to transport water from the upcountry Keanu'i'omanō and Waikoloa Streams, which are situated at approximately 548.0 m elevation (1,800 ft), down to the Puakō cane fields near the coast (see Figure 4). This flume ran in a northeast-southwest direction approximately 4.0 km north of the current project area. The operation was short lived due to a shortage of water, high winds, and soil salinity, and the plantation closed in 1914 (Puako Historical Society 2000:66).

### **MILITARY AND MODERN LAND USE**

In 1943, approximately 91,000 acres were leased by the U.S. Navy from Parker Ranch. Portions of the land were used for troop maneuvers and for artillery firing ranges in forested areas, cane fields, and around the cinder hills (USA Environmental Inc. 2004:2). After World War II, the former WMA was returned to Parker Ranch, with the exception of the 3.6 ha Lālāmilo Firing Range. This area was retained for use as a camp site and training area by the U.S. Marines until 1953, when cattle were brought in to graze. In the 1960s, portions of Waikoloa were sold and developed for resorts and residential use. A majority of the resort hotels are on the coast, with the exception of the residential/golf course community of Waikoloa Village, which is near the location of the current project area.

## PREVIOUS ARCHAEOLOGICAL STUDIES

Since the 1970s, numerous archaeological investigations have been carried out in Waikoloa Ahupua'a. These investigations, which are summarized in Table 1 and illustrated in Figure 6, have primarily been related to ordinance removal monitoring or related mitigation projects (Reeve et al. 2008; Robins and Torres 2003), resort development along the coast, Queen Ka'ahumanu Highway (Ching 1971; Rosendahl 1972), and Waikōloa Village (Bevacqua 1972; Hurst et al. 1991). Only three of these projects have been located within 0.5 km of the current project area, two of which included TMK (3) 6-8-003:028. No archaeological sites were recorded within 0.5 km of the project area.

The first investigation in the project area was conducted by Soehren (1980). He stated in a letter report that there were no archaeological features present or other evidence of traditional Hawaiian use; however, he also stated: "the possibility that refuge caves or burial places might be concealed here seems remote but cannot be ruled out" (Soehren 1980:1 in Rasmussen 2005:3).

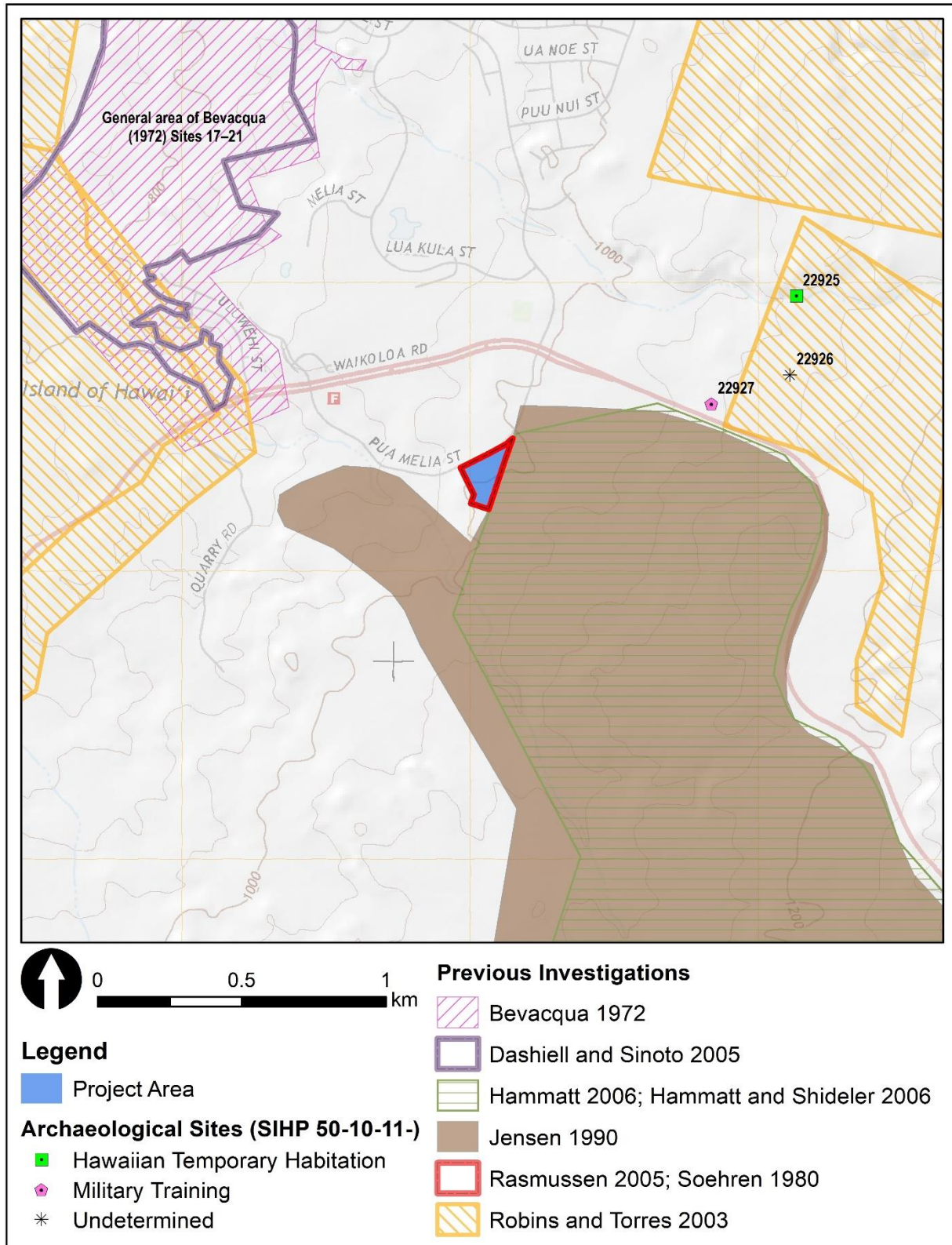
The current project area was surveyed by International Archaeological Research Institute, Inc., in 2005 (Rasmussen 2005). No archaeological sites were encountered. The parcel contained modern trash and there was evidence of bulldozing along the perimeter. The interior of the parcel appeared severely eroded, likely due to cattle grazing. Cow bones were also observed in the parcel.

Immediately east and south of the project area, Jensen (1990) conducted an archaeological inventory survey of a more than 700-acre project area. Finds were limited to a possible pre-Contact wall or ranch wall (designated Site T-1) situated on the slopes approximately 50.0 m north of 'Awaiakeakua Gulch (Jensen 1990:10). This site is approximately 2.5 km southeast of the current project area. This project area was revisited in by Cultural Surveys Hawaii (CSH) and an evaluation report was prepared, which concluded that no further archaeological study was warranted (Hammatt and Shideler 2006).

To the west of the current study area, approximately 2.0 km, human burials and traditional Hawaiian sites have been encountered (see Kennedy 1987; Moore and Kennedy 2005; Moore et al. 2002; O'Day 2015; Schilz and Shun 1992). Generally, however, results of archaeological investigations in this portion of Waikoloa have only recorded a low density of sites related historic cattle ranching and U.S. military use. These nearest studies are brief discussed below.

Approximately 1.0 km to the northwest of the study parcel is one of seven large areas surveyed by Bevacqua (1972) prior to planned developments in the early 1970s. This area, designated Area F in Bevacqua (1972), contained five sites (Sites 17–21), which consisted of a circular stone enclosure; an isolated C-shaped shelter; two cairns; and a complex of four C-shaped shelters that included a rectangular enclosure, four walls, and a cairn. Four subsequent studies in the northern portion of this project area reported no significant findings (Bonk 1988; Dashiell and Sinoto 2005; Hurst et al. 1991; Sinoto and Dashiell 2004).

Archaeological survey and monitoring were carried out in the early 2000s at six areas of the former WMA comprising 3,717 acres (Robins and Torres 2003). A total of 153 sites were recorded, which included 76 U.S. military sites, 44 traditional Hawaiian sites, and 16 possible land markers. Within 0.1 km of the current project area, three sites were recorded to the northeast: a traditional Hawaiian temporary habitation site (Site 22925), an ahu on an eroded knoll, of undetermined function and temporal use (Site 22926), and a complex of two mounds associated with U.S. military use (Site 22927).



**Figure 6. Previous Archaeological Investigations, Cultural Impact Assessments, and Known Sites Within 1.0 Km of the Project Area.**



**Table 1. Previous Archaeological Investigations and Cultural Impact Assessments Within 1.0 km of the Project Area.**

Reference	TMK(s) (3) or Location	Nature of Investigation	SIHP* 50-10-11-	Description
Bevacqua 1972	Portions of Waikoloa	Archaeological Reconnaissance Survey	[50-Ha-E02-017]	Walled enclosure
			[50-Ha-E02-018]	U-shape and <i>ahu</i>
			[50-Ha-E02-019]	Stone cairn
			[50-Ha-E02-020]	<i>Ahu</i>
			[50-Ha-E02-021]	Complex: Feature a, C-shape; b, wall; c, C-shape; d, rectangular enclosure; e, <i>ahu</i> ; f, L-shaped wall; g, C-shape; h, C-shape; i, wall
Soehren 1980	Portions of Waikoloa	Archaeological Reconnaissance Survey	-	No significant findings. Noted potential for refuge caves or burials.
Jensen 1990	Proposed Kamakoa Water Reclamation Plant Site	Archaeological Inventory Survey	-	Possible pre-Contact wall or ranch wall (designated Site T-1).
Robins and Torres 2003	Former Waikoloa Maneuver Area	Archaeological Inventory Survey and Monitoring	-	76 U.S. military sites, 44 traditional Hawaiian sites, and 16 possible land markers.
			22925	Hawaiian temporary habitation
			22926	Undetermined
			22927	Military training
Dashiell and Sinoto 2005	6-8-002:027	Archaeological Assessment	-	No significant findings.
Hammatt 2006	6-8-002:016	Cultural Impact Assessment	-	No significant findings.
Rasmussen 2005	6-8-003:028	Archaeological Inventory Survey	-	No significant findings. Noted modern trash and evidence of bulldozing.

**Table 1. Previous Archaeological Investigations and Cultural Impact Assessments Within 1.0 km of the Project Area.**

Reference	TMK(s) (3) or Location	Nature of Investigation	SIHP* 50-10-11-	Description
Hammatt and Shideler 2006	6-8-002:016	Archaeological Assessment	-	No significant findings.

\*State Inventory of Historic Places

Additionally, the previously recorded Site 50-10-11-9012, a historic period cattle wall was encountered, which is situated 1.5 km east of the current study parcel.

**PREVIOUS CULTURAL IMPACT ASSESSMENTS**

In 2006, Cultural Surveys Hawai'i (CSH) prepared a CIA in support of a proposed low-density, rural subdivision in the Waikoloa Village area of South Kohala (Hammatt 2006). This is the same property that was previously reported on by Jensen (1990) and Hammatt and Shideler (2006). Background research on previous archaeological studies indicated a low archaeological site density in the area. The few sites identified consisted of small traditional Hawaiian hard rock quarries on ridges, military sites related to army maneuvers between 1943 and 1945, or lava tubes. Cultural practitioner and *kama'āina* to Kukuiohiwai, Ms. Hannah Springer, was contacted concerning the proposed development. Her concerns were summarized as follows:

There is a need to understand that the whole landscape is a cultural landscape which is an impact. Just because nothing is found does not mean there is no cultural impact to a landscape. It is dependent on the cultural practitioners of the lands in question in order to see the depth of impact. It requires the people of the land. People who live and know lava lands look at the land with a different eye, therefore there is a deeper familiarity with body forms of the lava lands [Hammatt 2006:26].

The community contacts queried for the CIA did not identify any ongoing traditional cultural practices, cultural sites, or concerns specifically within the project area.

**RECONNAISSANCE SURVEY**

An archaeological reconnaissance survey was conducted in the project area parcel on February 7, 2018. It was conducted by PCSI Senior Archaeologist Dennis Gosser, M.A., R.P.A. Mr. Gosser walked transects back and forth over the project area to determine the presence and/or absence of surface archaeological sites and cultural material scatters.

No surface archaeological sites were encountered during the reconnaissance survey of the project area. Figures 7 through 9 present overview photographs of various portions of the project area parcel. These overview photographs show the project area's undulating topography, bulldozed pushes (with concrete blocks) and piles of construction materials (gravel).

**CONSULTATION**

Prior to contacting the interested parties for the consultation, a literature review was conducted on the land use history and previous archaeological studies completed in this area. Based on this research, it was noted that there is a low probability that surface and subsurface archaeological features and/or human remains would be discovered during any construction excavations in this area. During research efforts associated with this project, there were no



Central portion of the project area; view to the southwest.



Southern portion of the project area from Pua Melia Street; view to the west.

**Figure 7. Overview Photographs of the Central and Southern Portions of the Proposed Kaialu O Waikoloa Housing Project Area Parcel in Waikoloa, Hawai'i Island.**



Northeast corner of project area parcel; view to the east.



Bulldozer push in NW portion of the project area; view to the northwest.

**Figure 8. Overview Photographs of Northern Portions of the Proposed Kaialu O Waikoloa Housing Project Parcel in Waikoloa, Hawai'i Island.**



Southeast section of project area with bulldozer push in foreground.



Gravel pile and bulldozer push in central portion of the project area parcel.

**Figure 9. Overview Photographs of the Southeast and Central Portions of the Proposed Kaialu O Waikoloa Housing Project Area Parcel in Waikoloa, Hawai'i Island.**

indications that specific traditional and customary practices are being carried in the vicinity of the project area.

The Office of Hawaiian Affairs, the State Historic Preservation Division in Hilo and Kona, the South Kohala and Waimea Hawaiian Civic Clubs, and Ms. Hannah Springer were all contacted by letter inviting these organizations and individuals to participate in the CIA consultation. Formal letters were sent out to these organizations/individuals on March 23, 2018. Correspondence included requesting information concerning their views on this project, in addition any effects it might have on historic or cultural sites that they might know about in the area. Likewise, they were asked to share any information about legends, cultural properties, or traditional and customary practices associated with the project area.

### **Consultation Results**

Ms. Kaena Peterson, Pelekikena of the South Kohala Hawaiian Civic Club responded to our letter via phone on April 23, 2018. She acknowledged receiving our letter and stated that she checked around and didn't find any chants or cultural practices associated with this portion of Waikoloa, and that it appears that this area is clear.

None of the other organizations or individuals contacted responded to our invitation to participate in the CIA consultation.

### **CULTURAL IMPACT ASSESSMENT**

Based on the historical and archaeological literature review discussed above, the previous archaeological surveys conducted within the project area, the recent reconnaissance survey PCSI conducted in February, 2018, and the consultation for the CIA, the potential for impacting any historic properties or other cultural resources within the Kaiaulu O Waikoloa project area is quite low.

### **RECOMMENDATIONS**

The project area, consisting of deep to very deep Hapuna-Waikui-Lalamilo complex soils (Soil Unit 373--Soil Survey Staff 2017) formed on undulating to hilly 'a'a flows that are 65,000 to 250,000 years old, is located in Waikoloa Ahupua'a, in the District of South Kohala. Numerous discoveries of archaeological sites have been previously identified in this large ahupua'a. However, the previous archaeological studies conducted in the project area revealed no traditional Hawaiian archaeological sites were present. The reconnaissance survey determined that no rock outcrops that could signal the presence of caves were encountered.

Because of the absence of archaeological sites in the project area, and because the parcel has been bulldozed, it is recommended that a determination of "no historic properties affected" be considered for the proposed Kaiaulu O Waikoloa Housing Development Project, on Pu'u Melia Street.

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## Exhibit 12: Noise Abatement and Control

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## Noise (EA Level Reviews)

General requirements	Legislation	Regulation
HUD's noise regulations protect residential properties from excessive noise exposure. HUD encourages mitigation as appropriate.	Noise Control Act of 1972  General Services Administration Federal Management Circular 75-2: "Compatible Land Uses at Federal Airfields"	Title 24 CFR 51 Subpart B
References		
<a href="https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control">https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control</a>		

### 1. What activities does your project involve? Check all that apply:

- New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.

→ *Continue to Question 2.*

- Rehabilitation of an existing residential property

NOTE: For major or substantial rehabilitation in Normally Unacceptable zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. For major rehabilitation in Unacceptable zones, HUD strongly encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details.

→ *Continue to Question 2.*

- A research demonstration project which does not result in new construction or reconstruction, interstate, land sales registration, or any timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

- None of the above

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**2. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).**

**Indicate the findings of the Preliminary Screening below:**

There are no noise generators found within the threshold distances above.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing the location of the project relative to any noise generators.*

Noise generators were found within the threshold distances.

→ *Continue to Question 3.*

**3. Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:**

Acceptable: (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

**Indicate noise level here:**

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide noise analysis, including noise level and data used to complete the analysis.*

Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))

**Indicate noise level here:**

If project is rehabilitation:

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

If project is new construction:

**Is the project in a largely undeveloped area<sup>1</sup>?**

No

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.*

---

<sup>1</sup> A largely undeveloped area means the area within 2 miles of the project site is less than 50 percent developed with urban uses and does not have water and sewer capacity to serve the project.

Yes

→ Your project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). Elevate this review to an EIS-level review.

Unacceptable: (Above 75 decibels)

Indicate noise level here:

If project is rehabilitation:

HUD strongly encourages conversion of noise-exposed sites to land uses compatible with high noise levels. Consider converting this property to a non-residential use compatible with high noise levels.

→ Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.

If project is new construction:

**Your project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). You may either complete an EIS or provide a waiver signed by the appropriate authority. Indicate your choice:**

Convert to an EIS

→ Provide noise analysis, including noise level and data used to complete the analysis.

Continue to Question 4.

Provide waiver

→ Provide an Environmental Impact Statement waiver from the Certifying Officer or the Assistant Secretary for Community Planning and Development per 24 CFR 51.104(b)(2) and noise analysis, including noise level and data used to complete the analysis.

Continue to Question 4.

- 4. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation. This information will be automatically included in the Mitigation summary for the environmental review.**

Mitigation as follows will be implemented:

→ Provide drawings, specifications, and other materials as needed to describe the project's noise mitigation measures. Continue to the Worksheet Summary.

No mitigation is necessary.

**Explain why mitigation will not be made here:**

→ Continue to the Worksheet Summary.

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

Please see attached map.  
The nearest roadway is over 1,200 feet away.  
There are no railroads in the vicinity of the site, the nearest railroad (train museum) is located over 100,000 feet away.  
The nearest airport is 52,000 feet away.

**Are formal compliance steps or mitigation required?**

Yes

No

Fluwp'ltqo "Ukg<

Puu Waa Waa Ranch  
Approximately 52,000 feet

Kona International Airport:  
Approximately 112,000 feet

Honokaa Airstrip  
Approximately 116,000 feet

Upolu Airport  
Approximately 123,000 feet



Hilo International Airport  
Approximately 268,000 feet

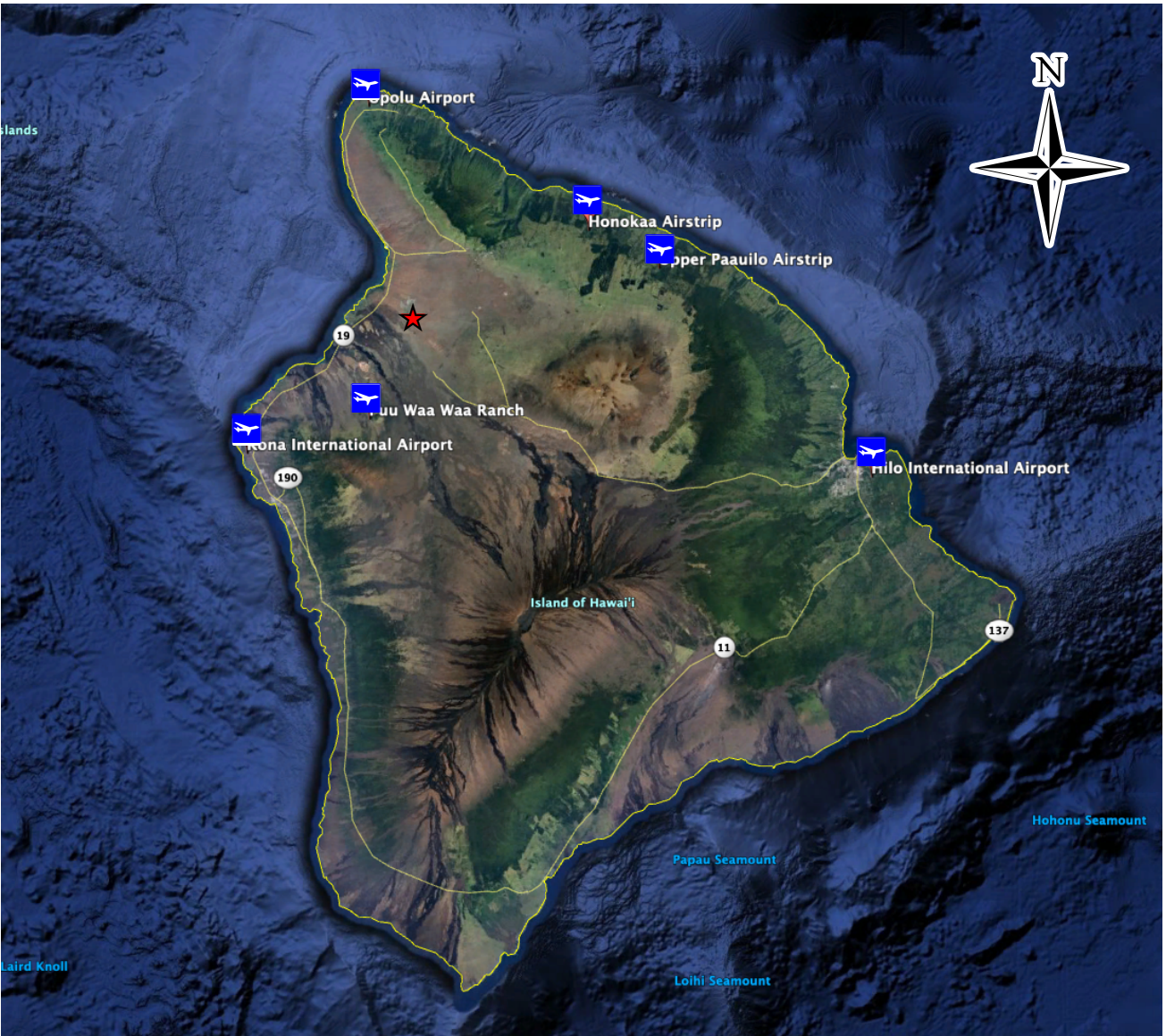
Bradshaw Army Airfield  
Approximately 98,000 feet

Upper Paauilo Airstrip  
Approximately 139,000 feet

Site is not located within 15,000 feet  
of a military airport or 2,500 feet of  
a civilian airport

**LEGEND**

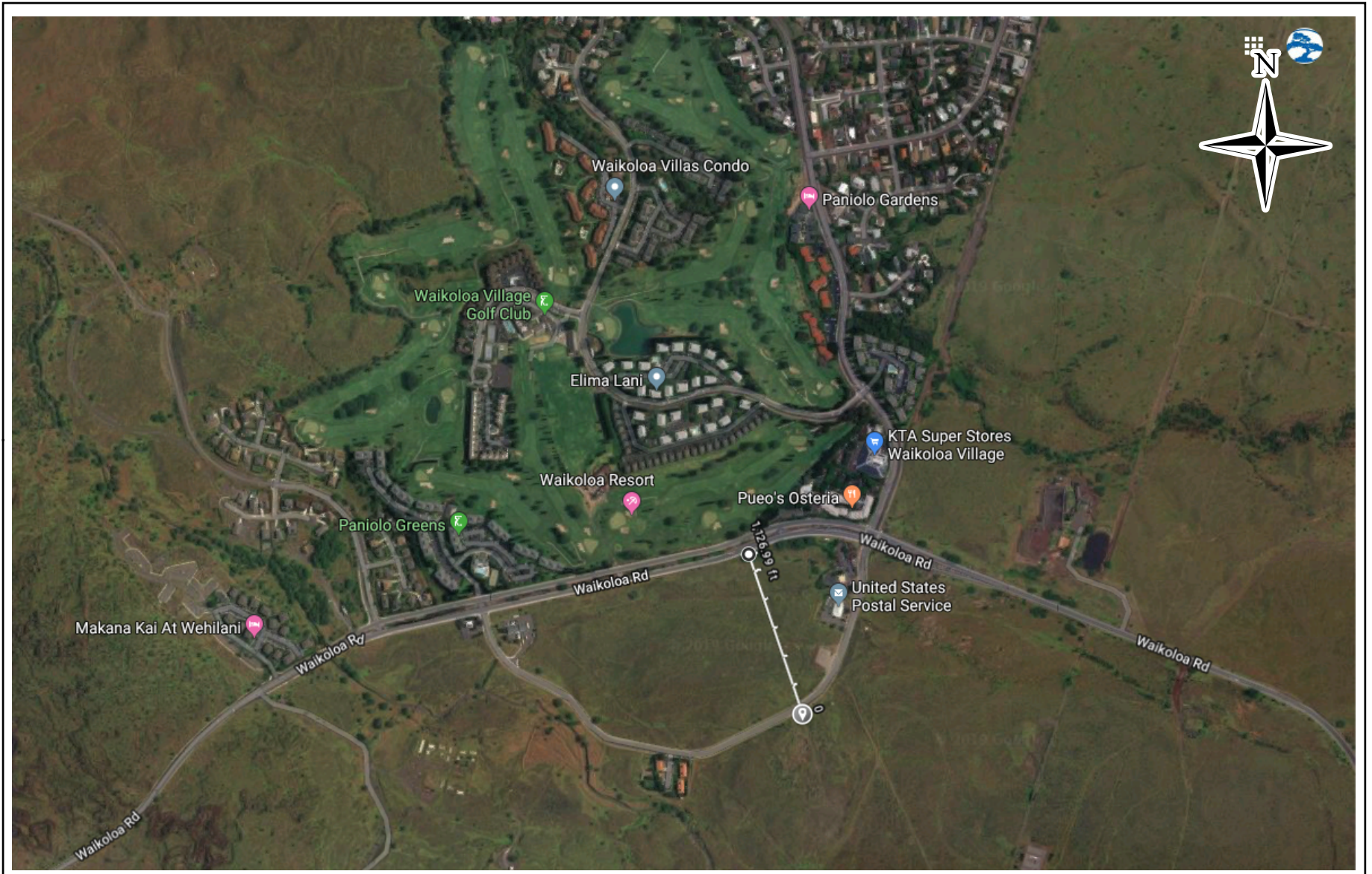
-  Site Location
-  Airport Location



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Noise  
 Distance to Airports





PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE:  
 Noise  
 Distance to Roadways

## Exhibit 13: Sole Source Aquifers/Safe Drinking Water

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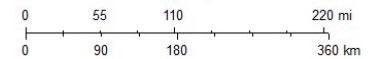
# ArcGIS Web Map



5/8/2019, 1:25:01 PM

Sole Source Aquifers - Labels  
SSA

1:4,622,324



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community  
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Web AppBuilder for ArcGIS  
US EPA Office of Water | Map Service and data: US EPA Office of Environmental Information (OEI). Data: US Census Bureau | Earthstar Geographics | Esri, HERE, Garmin |

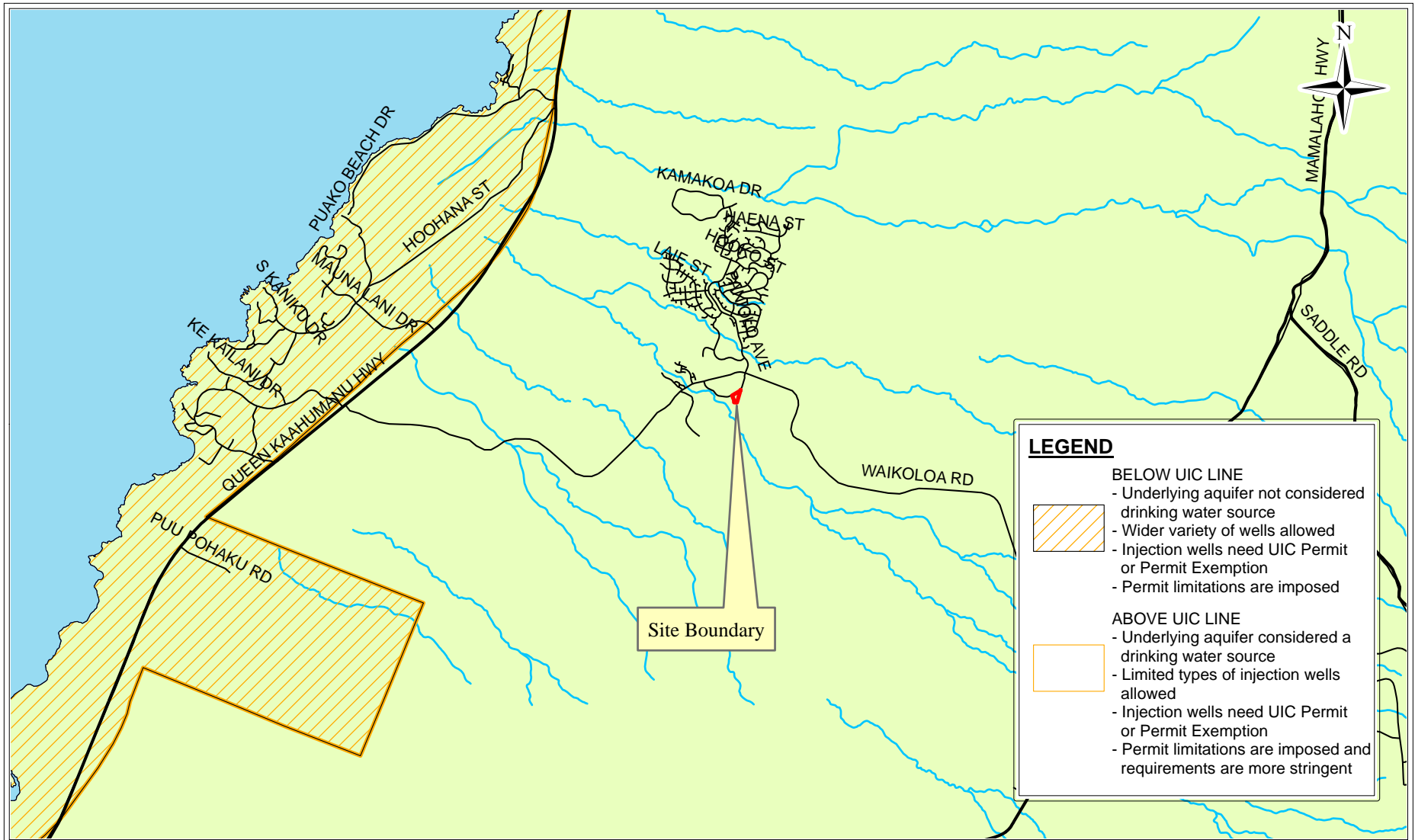


## PROJECT NAME:


Environmental Assessment  
Kaiaulu O Waikoloa  
Pua Melia Street  
Waikoloa, Hawaii 96738  
TMK (3) 6-8-3-28

## FIGURE TITLE:

Sole Source Aquifer



0 3 6 12 Miles

	<b>PROJECT NAME:</b> Environmental Assessment Kaiaulu O Waikoloa Pua Melia Street Waikoloa, Hawaii 96738 TMK (3) 6-8-3-28	<b>FIGURE TITLE:</b> Underground Injection Control Map
		<b>FIGURE NUMBER:</b>

# 2018

## Drinking Water Report

**WAIKOLOA DISTRICT**



Quality. Service. Value.®

# Table of Contents

## YOUR WATER

Your Water System

## 2018 TEST RESULTS

Possible Contaminants

Protecting Your Water

Individuals with Special Health

Concerns

Cross-Connection Control

About Lead

Water Quality Table

## MORE INFORMATION

Contact Us

## ABOUT YOUR WATER QUALITY

At Hawaii Water Service (Hawaii Water), our goal is to deliver safe, high-quality drinking water, 24 hours per day, seven days per week, 365 days per year. As part of that effort, we produce this annual water quality report, which includes information about where your water comes from, what it contains, and how it compares to state and federal standards. **Most importantly, it confirms that in 2018, our water met or surpassed all standards set by the Hawaii Department of Health and U.S. Environmental Protection Agency (EPA) to protect public health.**

# Your Water System

Waikoloa's drinking water is monitored and tested by our laboratory as well as an independent, certified laboratory and the Hawaii Department of Health for all contaminants established by the Safe Drinking Water Act.

Waikoloa's water comes from 1,200-foot-deep wells that draw from an underground aquifer that is continuously flushed and replenished. Waikoloa's drinking water wells are located at an elevation above Waikoloa Village. There are no development, industry, or injection pits located above Waikoloa's drinking water wells that could be a possible source of contamination. Waikoloa's water is continuously disinfected and delivered to our customers through reservoirs and distribution mains that are lead-free, and our water is non-corrosive due to a balanced pH between 7.9 and 8.3, and an alkalinity between 82 and 100.

The Hawaii Department of Health's Safe Drinking Water Branch completed the preliminary draft of Waikoloa's source water assessment and protection program in March 2004. For more information, please contact our Customer Center at (808) 883-2046.

For additional drinking water quality information, contact:

- EPA Safe Drinking Water Hotline: (800) 426-4791  
[Water.epa.gov/drink/contaminants](http://Water.epa.gov/drink/contaminants) or  
[Water.epa.gov/drink](http://Water.epa.gov/drink)
- State of Hawaii Safe Drinking Water Branch  
Department of Health: (808) 586-4258 or toll-free from the island of Hawaii at (808) 974-4000 ext. 64258  
[Health.hawaii.gov/sdwb](http://Health.hawaii.gov/sdwb)
- Hawaii's Source Water Assessment and Protection Program:  
[Health.hawaii.gov/sdwb/swap](http://Health.hawaii.gov/sdwb/swap)  
[www.fsa.usda.gov/Internet/FSA\\_File/hicreppeafinal.pdf](http://www.fsa.usda.gov/Internet/FSA_File/hicreppeafinal.pdf)

# Possible Contaminants

Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some substances. The presence of substances does not necessarily indicate that the water poses a health risk.

**More information about substances and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.**

## PROTECTING YOUR WATER

In general, the sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, and wells. As water travels over land's surface or through the earth, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be in untreated water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. Pesticides and herbicides, which may come

from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulates contaminants in bottled water to protect public health.

## INDIVIDUALS WITH SPECIAL HEALTH CONCERNS

Some people may be more vulnerable to substances in drinking water than the general population.

Immunocompromised people, such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, or people with HIV/AIDS or other immune system disorders; some elderly people; and infants can be particularly at risk from

infections. These people should seek advice about drinking water from their health care providers. The EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological substances are available from the Safe Drinking Water Hotline at (800) 426-4791.

# Cross-Connection Control

Cross-connection control is critical to ensuring that activities on customers' properties do not affect the public water supply. Hawaii Water Service's cross-connection control program safeguards against potential contaminants entering the water system through backflow or back-siphonage by requiring that all existing backflow prevention assemblies be tested annually. Additionally, our Cross-Connection Control Specialist focuses on assessing, managing, and enforcing all non-residential connections and installing any new commercial and residential backflow assemblies.

## WHAT YOU CAN DO

Our customers are our first line of defense in preventing water system contamination through backflow. A minor home improvement project can create a potentially hazardous situation, so careful adherence to plumbing codes and standards will ensure the community's water supply remains safe. Please be sure to utilize the advice or services of a qualified plumbing professional.

Many water use activities involve substances that, if allowed to enter the distribution system, would be aesthetically displeasing or could present health concerns. Some of the most common cross-connections are:

- Garden hoses connected to a hose bib without a simple hose-type vacuum breaker (available at a home improvement store)
- Improperly installed toilet tank fill valves that do not have the required air gap between the valve or refill tube
- Landscape irrigation systems that do not have the proper backflow prevention assembly installed on the supply line

# About Lead

As the issue of lead in water continues to be top of mind for many Americans, Hawaii Water wants to assure you about the quality of your water.

*None of these conditions exist at Hawaii Water.* We have worked proactively to eliminate lead-bearing materials from our water systems, and we are compliant with health and safety codes mandating the installation of lead-free materials in public water systems. We test our water sources to ensure that the water we deliver to customers' meters meets water quality standards and is not corrosive toward plumbing materials.

The water we deliver may meet lead standards, but what about your home plumbing? Because lead in drinking water comes primarily from materials and components associated with service lines and home plumbing, the Lead and Copper Rule is a critical part of our water quality monitoring program.

The Lead and Copper Rule requires us to test water *inside* a representative number of homes that have plumbing most likely to contain lead and/or lead solder. This test, with other water quality testing, tells us if the water is corrosive enough to cause lead from home plumbing to leach into the water. If the "Action Level" for lead is exceeded, we work with our customers to investigate the issue and, if necessary, implement corrosion control before the lead levels create a health issue.

Elevated levels of lead, if present, can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Hawaii Water is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

**In your system, results from our lead monitoring program, conducted in accordance with the Lead and Copper Rule, were non-detectable for the presence of lead.**



# Table Introduction

The 2018 Water Quality Table lists all of the contaminants that we detected in your drinking water in 2018 (except where noted).

Although the EPA requires water systems to test for up to 125 substances, we list only those substances detected in your water. The state allows us to monitor for some substances less than once per year because the concentrations of these substances do not change rapidly.

## KEY DEFINITIONS

### Maximum Contaminant Level Goal (MCLG)

Level of a contaminant in drinking water below which there is no known or expected risk to health; MCLGs allow for a margin of safety

### Maximum Contaminant Level (MCL)

Highest level of a contaminant that is allowed in drinking water; MCLs are set as close to the MCLGs as feasible using the best available treatment technology

### Action Level (AL)

Concentration of a contaminant which, if exceeded, triggers treatment or other required action by the water provider

# 2018 Water Quality

## Primary Drinking Water Standards

Inorganic Chemicals	Year Tested	Unit	MCL (SMCL)	MCLG	In Compliance	Range	Average	Source of Substance
Chromium	2017	ppb	100	100	<b>Yes</b>	4.0–4.6	4.27	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride	2018	ppm	4	4	<b>Yes</b>	0.27–0.32	0.30	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as nitrogen)	2018	ppm	10	10	<b>Yes</b>	1.1–1.3	1.2	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Disinfection Byproducts	Year Tested	Unit	MCL (SMCL)	MCLG	In Compliance	Range	Average	Source of Substance
Total trihalomethanes	2018	ppb	80	n/a	<b>Yes</b>	5.8–6.6	6.2	Byproduct of drinking water chlorination
Haloacetic acids	2018	ppb	60	n/a	<b>Yes</b>	2.0–2.2	2.1	Byproduct of drinking water chlorination
Disinfectant	Year Tested	Unit	MRDL	MRDLG	In Compliance	Range	Average	Source of Substance
Chlorine	2018	ppm	4	4	<b>Yes</b>	0.29–1.18	0.4	Drinking water disinfectant added for treatment

### TABLE KEY

n/a Not applicable

MRDL Maximum residual disinfectant level

MRDLG Maximum residual disinfectant level goal

ND Not detected

ppm Parts per million, or milligrams per liter (mg/L)

ppb Parts per billion, or micrograms per liter (µg/L)

pCi/L Picocuries per liter (a measure of radioactivity)

SMCL Secondary maximum contaminant level

# 2018 Water Quality

(Continued)

## Other Regulated Substances

Metals	Year Tested	Unit	AL	MCLG	In Compliance	90 <sup>th</sup> Percentile	Samples > AL	Source of Substance
Copper	2018	ppm	1.3	0.3	<b>Yes</b>	ND	0 of 30	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead	2018	ppb	15	2	<b>Yes</b>	ND	0 of 30	Internal corrosion of household plumbing systems; discharge from industrial manufacturers; erosion of natural deposits
Radionuclides	Year Tested	Unit	MCL (SMCL)	MCLG	In Compliance	Range	Average	Source of Substance
Beta particle	2014	pCi/L	50 <sup>1</sup>	0	<b>Yes</b>	ND–4.8	3.5	Erosion of natural deposits

## Secondary Drinking Water Standards and Unregulated Compounds

Inorganic Chemicals	Year Tested	Unit	SMCL	(MCLG)	In Compliance	Result or Range	Average	Source of Substance
Boron	2017	ppm	n/a	n/a	<b>Yes</b>	ND–0.057	0.029	Erosion of natural deposits
Calcium	2017	ppm	n/a	n/a	<b>Yes</b>	7.9–11	9.5	Erosion of natural deposits
Chloride	2017	ppm	250	250	<b>Yes</b>	27–100	64	Erosion of natural deposits; seawater influence
Magnesium	2017	ppm	n/a	n/a	<b>Yes</b>	12–19	16	Erosion of natural deposits
Silica	2017	ppm	n/a	n/a	<b>Yes</b>	67–69	68	Erosion of natural deposits
Sodium	2017	ppm	n/a	n/a	<b>Yes</b>	33–82	58	Erosion of natural deposits; seawater influence
Sulfate	2018	ppm	500	n/a	<b>Yes</b>	15–33	24	Runoff/leaching from natural deposits; industrial wastes
Molybdenum	2017	ppb	n/a	n/a	<b>Yes</b>	4.2–8	6.1	Erosion of natural deposits
Strontium	2017	ppb	n/a	n/a	<b>Yes</b>	48–87	68	Erosion of natural deposits
Vanadium	2017	ppb	n/a	n/a	<b>Yes</b>	56–66	61	Erosion of natural deposits; manufacturing of alloys and steel

<sup>1</sup>The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

# Thank you.

If you have questions, comments, or concerns regarding your drinking water, please contact Hawaii Water Service.

We welcome your interest in Waikoloa's water system.

Tony Carrasco  
Hawaii Water Service  
68-1845 Waikoloa Road, Unit 216  
384809  
Waikoloa, HI 96738

Phone: (808) 883-2046  
Toll-Free: (877) 886-7784

[customerservice@hawaiiwaterservice.com](mailto:customerservice@hawaiiwaterservice.com)

[www.hawaiiwaterservice.com](http://www.hawaiiwaterservice.com)











## Exhibit 14: Wetlands Protection

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U.S. Fish and Wildlife Service, National Standards and Support Team,  
wetlands\_team@fws.gov



- |   |                                |   |                                   |   |          |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Forested/Shrub Wetland |  | Other    |
|  | Estuarine and Marine Wetland   |  | Freshwater Pond                   |  | Riverine |
|  | Freshwater Emergent Wetland    |  | Lake                              |   |          |



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE: Wetland Map

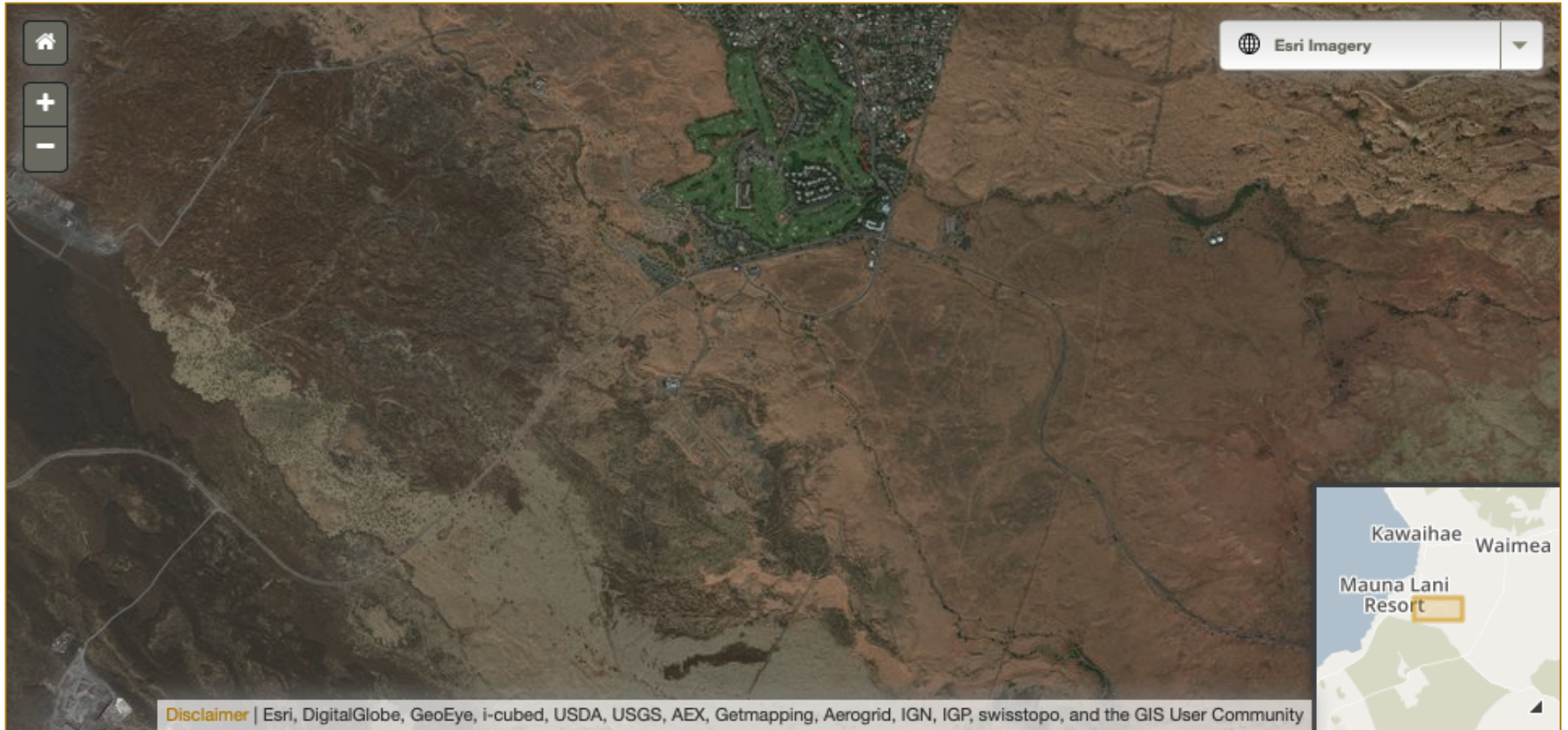
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## Exhibit 15: Wild and Scenic Rivers

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# NPS Wild & Scenic River Responsibilities



Map Legend: Rivers are shown in blue, orange, and green

<https://www.nps.gov/orgs/1912/plan-your-visit.htm>. Accessed December 2017.

There are no rivers are on or near the vicinity of the site.



PROJECT NAME:  
 Environmental Assessment  
 Kaiaulu O Waikoloa  
 Pua Melia Street  
 Waikoloa, Hawaii 96738  
 TMK (3) 6-8-3-28

FIGURE TITLE: Wild and Scenic Rivers

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## Exhibit 16: Environmental Justice

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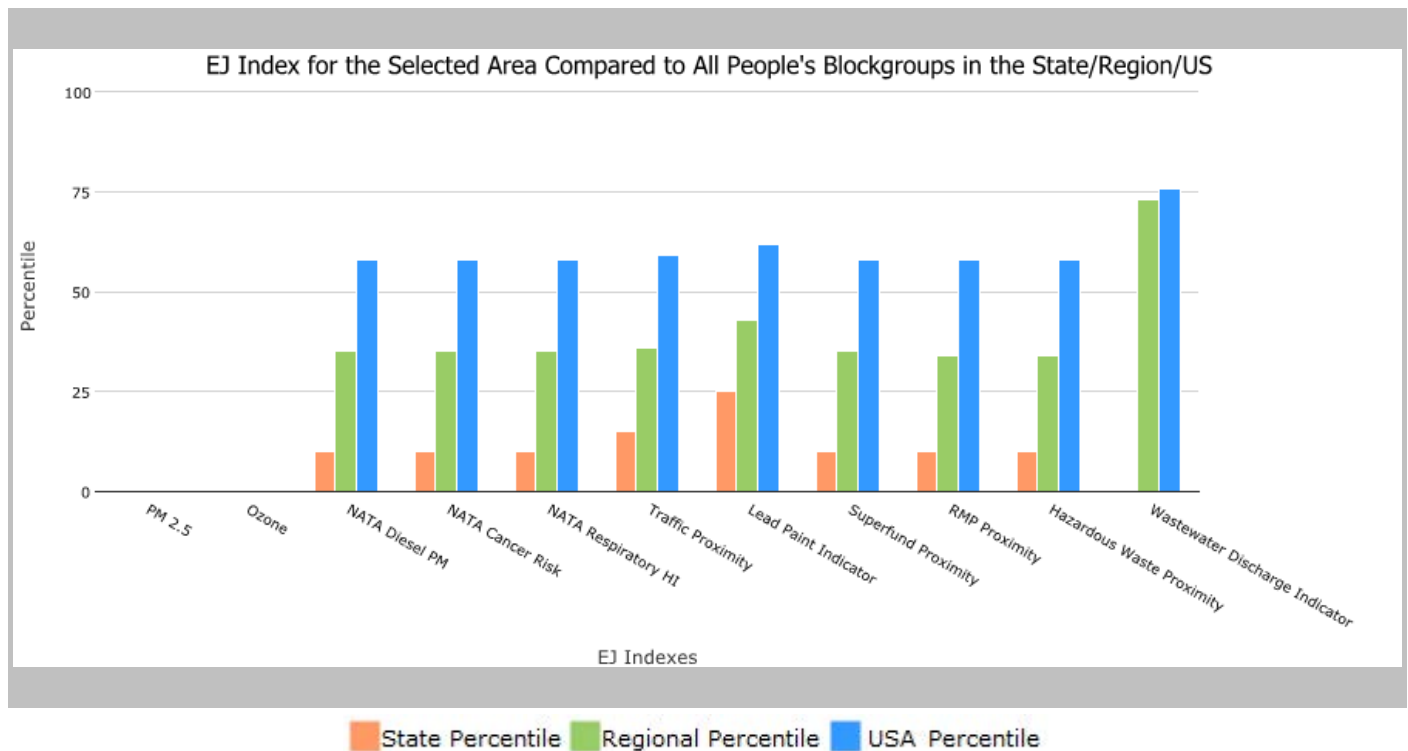
1 mile Ring Centered at 19.922818,-155.788451, HAWAII, EPA Region 9

Approximate Population: 1,333

Input Area (sq. miles): 3.14

Kaialuu O Waikoloa

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
<b>EJ Indexes</b>			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	10	35	58
EJ Index for NATA* Air Toxics Cancer Risk	10	35	58
EJ Index for NATA* Respiratory Hazard Index	10	35	58
EJ Index for Traffic Proximity and Volume	15	36	59
EJ Index for Lead Paint Indicator	25	43	62
EJ Index for Superfund Proximity	10	35	58
EJ Index for RMP Proximity	10	34	58
EJ Index for Hazardous Waste Proximity	10	34	58
EJ Index for Wastewater Discharge Indicator	N/A	73	76



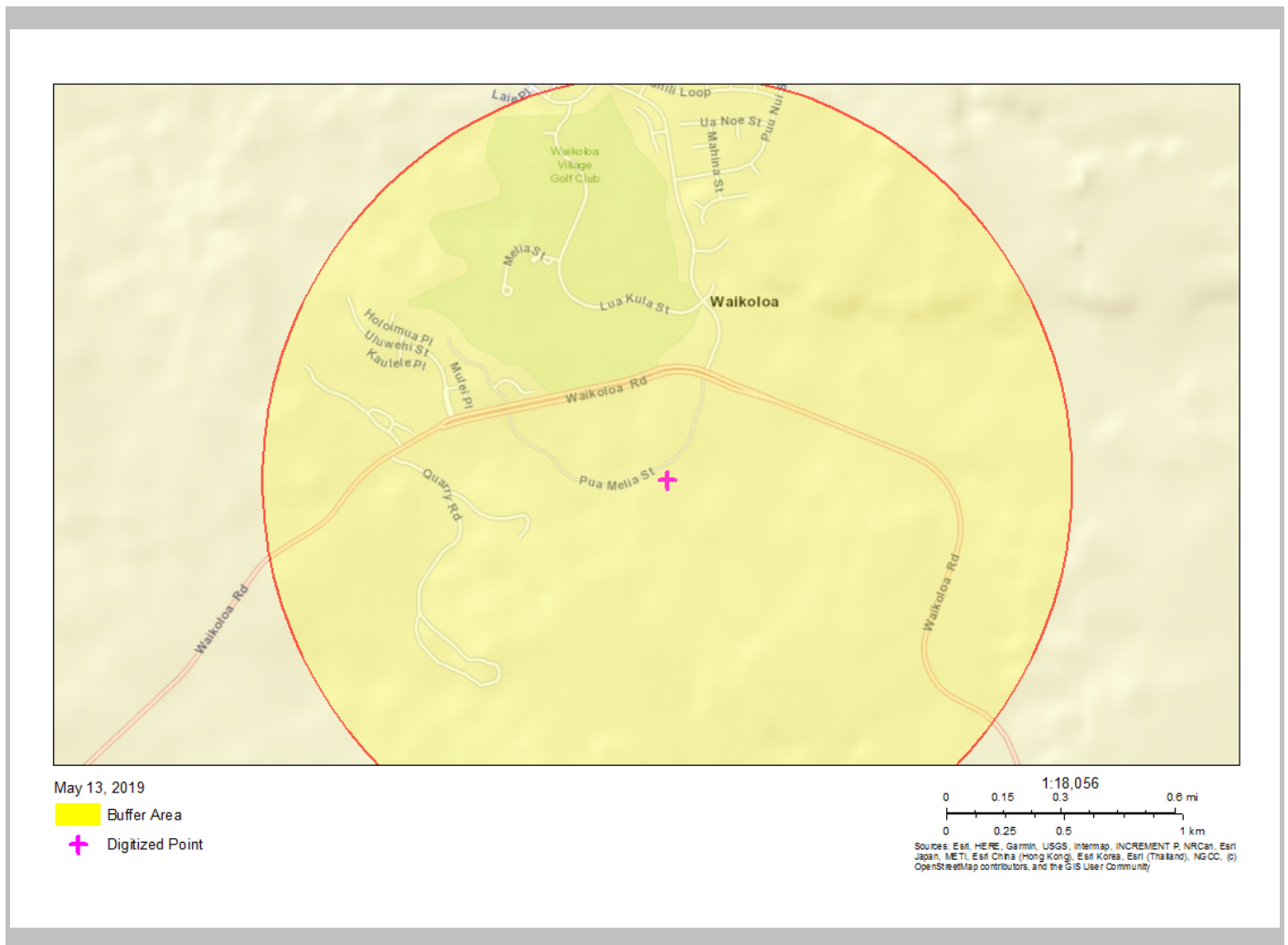
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

1 mile Ring Centered at 19.922818,-155.788451, HAWAII, EPA Region 9

Approximate Population: 1,333

Input Area (sq. miles): 3.14

**Kaiaulu O Waikoloa**



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0



## EJSCREEN Report (Version 2018)



1 mile Ring Centered at 19.922818,-155.788451, HAWAII, EPA Region 9

Approximate Population: 1,333

Input Area (sq. miles): 3.14

Kaiaulu O Waikoloa

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	N/A	N/A	N/A	10.1	N/A	9.53	N/A
Ozone (ppb)	N/A	N/A	N/A	48.3	N/A	42.5	N/A
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.013	0.15	7	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	25	34	5	43	<50th	40	<50th
NATA* Respiratory Hazard Index	0.49	1	5	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	6.5	1000	14	1100	9	600	13
Lead Paint Indicator (% Pre-1960 Housing)	0	0.16	16	0.24	16	0.29	10
Superfund Proximity (site count/km distance)	0.0035	0.096	12	0.14	2	0.12	1
RMP Proximity (facility count/km distance)	0.077	0.37	29	0.97	15	0.72	18
Hazardous Waste Proximity (facility count/km distance)	0.064	1.4	15	2.8	9	4.3	16
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	12	59	30	40
<b>Demographic Indicators</b>							
Demographic Index	36%	51%	10	47%	35	36%	58
Minority Population	49%	78%	9	59%	38	38%	66
Low Income Population	23%	25%	50	35%	35	34%	36
Linguistically Isolated Population	1%	6%	27	8%	20	4%	47
Population With Less Than High School Education	4%	9%	26	17%	18	13%	20
Population Under 5 years of age	6%	6%	53	6%	51	6%	55
Population over 64 years of age	17%	16%	59	13%	75	14%	69

\* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

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## Exhibit 17: Consultation Letters

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November 30, 2017

Department of the Army  
Army Corps of Engineers  
Pacific Office Division, Building 525, Suite 300  
Fort Shafter, HI 96858-5440

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Army Corps of Engineers:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

These units will address the dire need for affordable housing for many residents who are at risk of becoming homeless as a result of the severe housing shortage. Due to the overwhelming demand for affordable housing for very low income to moderate income households, and the low potential for adverse environmental impacts, ERA anticipates a Finding of No Significant Impact.

Please forward any comments, questions, or concerns within 15 calendar days. Responses received by December 15, 2017 will be included in the draft Environmental Assessment report. Comments can be submitted via email at [rachelokoji@enviroriskhawaii.com](mailto:rachelokoji@enviroriskhawaii.com), or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Waikoloa.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

County of Hawaii  
Department of Water Supply  
345 Kekuaanoa Street, Suite 20  
Hilo, HI 96720

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Water Supply:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of the Navy, Pacific Division  
Naval Facilities Engineering Command  
258 Makalapa Drive, Suite 100  
Pearl Harbor, HI 96860-3130

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development**  
**TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of the Navy:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

A handwritten signature in blue ink, appearing to read 'Rachel Okoji', is positioned below the word 'Sincerely,'.

Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

County of Hawaii  
Department of Public Works  
Aupuni Center  
101 Pauahi Street, Suite 7  
Hilo, HI 96720

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Public Works:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

A handwritten signature in blue ink that reads "Rachel Okoji". The signature is stylized and cursive.

Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan





November 30, 2017

County of Hawaii  
Department of Parks & Recreation  
West Hawai'i Civic Center, Building B,  
74-5044 Ane Keohokalole Highway  
Kailua-Kona, HI 96740

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Parks & Recreation:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of the Interior, Geological Survey  
Pacific Islands Water Science Center  
677 Ala Moana Blvd., Ste. 415  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Pacific Islands Water Science Center:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of the Interior  
Fish and Wildlife Service  
300 Ala Moana Blvd., Room 3-122  
Honolulu, HI 96850-0056

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Fish and Wildlife Service:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Homeland Security  
Coast Guard Commander, 14<sup>th</sup> Coast Guard District  
300 Ala Moana Blvd., Room 9-204  
Honolulu, HI 96850-4982

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Coast Guard Commander:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Hawaiian Home Lands  
P.O. Box 1879  
Honolulu, HI 96805

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Hawaiian Home Lands:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

County of Hawaii  
Department of Environmental Management  
74-5044 Ane Keohokalole Highway, Bldg. D  
Kailua-Kona, HI 96740

**Subject: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Environmental Management:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Education  
P.O. Box 2360  
Honolulu, HI 96804

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Education:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Defense  
3949 Diamond Head Road  
Honolulu, HI 96816

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Department of Defense:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan





November 30, 2017

State of Hawaii  
Department of Agriculture  
1428 S. King Street  
Honolulu, HI 96814

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Department of Agriculture:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Accounting and General Services  
P.O. Box 119  
Honolulu, HI 96810

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Accounting and General Services:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Accounting and General Services  
Archives Division  
P.O. Box 119  
Honolulu, HI 96810

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Business, Economic Development and Tourism  
P.O. Box 2359  
Honolulu, HI 96804

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Business, Economic Development and Tourism:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Business, Economic Development and Tourism  
Strategic Industries Division  
235 S. Beretania St., 5<sup>th</sup> Fl.  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear DBEDT Strategic Industries Division:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Business, Economic Development and Tourism  
Office of Planning  
235 S. Beretania St., 6<sup>th</sup> Fl.  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear DBEDT Office of Planning:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Mr. Herbert Richards III  
County Council Representative, District 9  
74-5044 Ane Keohokalole Highway, Bldg A  
Kailua-Kona, HI 96740

**Subject: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Representative Richards:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Office of Senator Mazie Hirono  
United States Senate  
730 Hart Senate Office Building  
Washington DC 20510

**Subject: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Senator Hirono:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan





November 30, 2017

Office of Representative Colleen Hanabusa  
1132 Bishop Street, Suite 1910  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Representative Hanabusa:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

University of Hawaii  
Water Resources Research Center  
2540 Dole Street, Room 283  
Honolulu, HI 96822

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Water Resources Research Center:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

University of Hawaii  
Office of Capital Improvement  
1960 East-West Road, Biomed B-102  
Honolulu, HI 96822

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Office of Capital Improvement:

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

University of Hawaii  
Marine Program  
2450 Campus Road, Dean Hall 105A  
Honolulu, HI 96822

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear UH Marine Program:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Sincerely,

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

University of Hawaii  
Environmental Center  
2500 Dole Street, Krauss Annex 19  
Honolulu, HI 96822

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear UH Environmental Center:

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

Ms. Lorraine Inouye  
State Senator, District 4  
Hawaii State Capitol  
415 South Beretania St., Room 210  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Senator Inouye:

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

Ms. Cindy Evans  
State Representative, District 7  
Hawaii State Capitol  
415 South Beretania St., Room 438  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Representative Evans:

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kamokila Blvd., Rm 555  
Kapolei, HI 96707

**Subject: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear State Historic Preservation Division:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan





November 30, 2017

County of Hawaii  
Hawaii Police Department  
349 Kapiolani Street  
Hilo, HI 96720

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Hawaii Police Department:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

These units will address the dire need for affordable housing for many residents who are at risk of becoming homeless as a result of the severe housing shortage. Due to the overwhelming demand for affordable housing for very low income to moderate income households, and the low potential for adverse environmental impacts, ERA anticipates a Finding of No Significant Impact.

Please forward any comments, questions, or concerns within 15 calendar days. Responses received by December 15, 2017 will be included in the draft Environmental Assessment report. Comments can be submitted via email at [rachelokoji@enviroriskhawaii.com](mailto:rachelokoji@enviroriskhawaii.com), or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Waikoloa.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

County of Hawaii  
Planning Department  
74-5044 Ane Keohokalole Highway, Bldg. E  
Kailua-Kona, HI 96740

**Subject: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Planning Department:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Office of Hawaiian Affairs  
711 Kapiolani Blvd., Suite 500  
Honolulu, HI 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Office of Hawaiian Affairs:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Agriculture  
National Resources Conservation Service  
Pacific Islands Area Office  
P.O. Box 50004  
Honolulu, HI 96850

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear National Resources Conservation Service:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of the Interior  
National Parks Service  
Pacific Islands Support Office  
300 Ala Moana Blvd., Room 6-226  
Honolulu, HI 96850

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear National Parks Service:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Commerce  
National Marine Fisheries Service  
Pacific Islands Regional Office  
1611 Kapiolani Blvd., Suite 1110  
Honolulu, HI 96814

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear National Marine Fisheries Service:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

County of Hawaii  
Mass Transit Agency  
1266 Kamehameha Avenue, Suite A-2  
Hilo, HI 96720

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Mass Transit Agency:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

County of Hawaii  
Hawaii Fire Department  
25 Aupuni Street, Suite 2501  
Hilo, HI 96720

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Hawaii Fire Department:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan





November 30, 2017

Department of Transportation  
Federal Transit Administration  
201 Mission Street, Suite 1650  
San Francisco, CA 94105-1839

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Federal Transit Administration:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Transportation  
Federal Aviation Administration  
300 Ala Moana Blvd., Room 7-128  
Honolulu, HI 96850-7128

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Federal Aviation Administration:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Environmental Protection Agency  
Region IX, Pacific Islands Contact Office  
P.O. Box 50003  
Honolulu, HI 96850

**Subject: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Environmental Protection Agency:

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Transportation  
869 Punchbowl Street  
Honolulu, HI 96813-5097

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Department of Transportation:

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Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Transportation  
Federal Highways Administration, Hawaii Division  
P.O. Box 50206  
300 Ala Moana Blvd., Room 3306  
Honolulu, HI 96850

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Federal Highways Administration:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

Department of Health  
Environmental Health Administration  
P.O. Box 3378  
Honolulu, HI 96801

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Environmental Health Administration:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, HI 96809

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Department of Land and Natural Resources:

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on unimproved real property known as tax map key (TMK) (3) 6-8-003:028 in Waikoloa, Hawaii on the Big Island. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana, with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. Construction is anticipated to begin in 2018.

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President

Enclosures: Site Map & Concept Plan



November 30, 2017

State of Hawaii  
Department of Land and Natural Resources  
Land Division  
P.O. Box 621  
Honolulu, HI 96809

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear DLNR Land Division:

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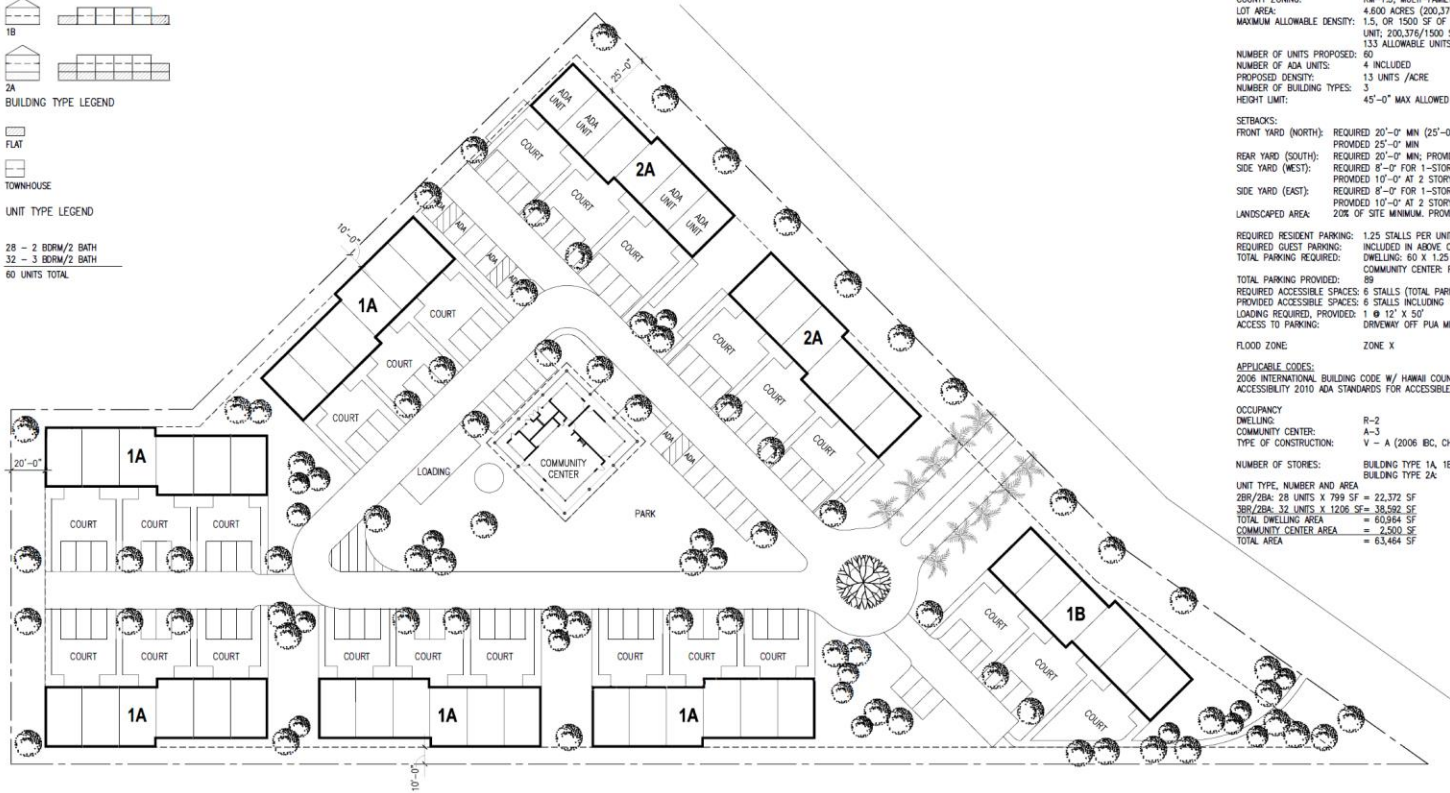
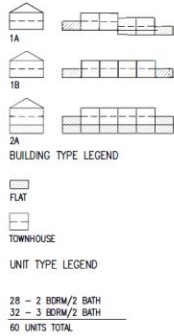
Rachel Okoji, M.S.  
President

Enclosures: Site Map & Concept Plan





	<b>PROJECT NAME:</b> Phase I Environmental Site Assessment Pua Melia Street Waikoloa, Hawaii 96738 TMK (3) 6-8-3-28	<b>FIGURE TITLE:</b> Site Location Map
		<b>FIGURE NUMBER:</b> 1



**CODE SUMMARY - GENERAL INFORMATION**  
 PROJECT NAME: WAIKOLOA WORK FORCE HOUSING  
 PROJECT LOCATION: WAIKOLOA, S. KOHALA, HAWAII  
 TRAC: 6-8-003328

**PROPERTY DATA**  
 COUNTY ZONING: RM-1.5; MULTI-FAMILY RESIDENTIAL DISTRICT  
 LOT AREA: 4,600 ACRES (200,376 SF)  
 MAXIMUM ALLOWABLE DENSITY: 1.5, OR 1500 SF OF LAND AREA PER DWELLING OR RENTABLE UNIT; 200,376/1500 SF  
 133 ALLOWABLE UNITS

**NUMBER OF UNITS PROPOSED:** 60  
**NUMBER OF ADA UNITS:** 4 INCLUDED  
**PROPOSED DENSITY:** 1.3 UNITS /ACRE  
**NUMBER OF BUILDING TYPES:** 3  
**HEIGHT LIMIT:** 45'-0" MAX ALLOWED

**SETBACKS:**  
 FRONT YARD (NORTH): REQUIRED 20'-0" MIN (25'-0" AS REQUIRED BY WVA COVENANTS); PROVIDED 25'-0" MIN  
 REAR YARD (SOUTH): REQUIRED 20'-0" MIN; PROVIDED 20'-0"  
 SIDE YARD (WEST): REQUIRED 8'-0" FOR 1-STORY BUILDING PLUS 2'-0" FOR EACH STORY. PROVIDED 10'-0" AT 2 STORY AND 12'-0" AT 3 STORY BUILDINGS.  
 SIDE YARD (EAST): REQUIRED 8'-0" FOR 1-STORY BUILDING PLUS 2'-0" FOR EACH STORY. PROVIDED 10'-0" AT 2 STORY BUILDINGS.  
 LANDSCAPED AREA: 20% OF SITE MINIMUM. PROVIDED MORE THAN 20%

**REQUIRED RESIDENT PARKING:** 1.25 STALLS PER UNIT (60 X 1.25) = 75  
**REQUIRED GUEST PARKING:** INCLUDED IN ABOVE CALCULATION  
**TOTAL PARKING REQUIRED:** DWELLING: 60 X 1.25 = 75  
 COMMUNITY CENTER: REQUIRED 1/200SF GROSS AREA: 14  
 89

**TOTAL PARKING PROVIDED:** 89  
**REQUIRED ACCESSIBLE SPACES:** 6 STALLS (TOTAL PARKING 75-100)  
**PROVIDED ACCESSIBLE SPACES:** 6 STALLS INCLUDING 1 VAN ACCESSIBLE STALL  
**LOADING REQUIRED, PROVIDED:** 1 @ 12' X 50'  
**ACCESS TO PARKING:** DRIVEWAY OFF PUA MELIA STREET

**FLOOD ZONE:** ZONE X

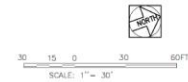
**APPLICABLE CODES:**  
 2006 INTERNATIONAL BUILDING CODE W/ HAWAII COUNTY CODE 1983 (2005 EDITION AS AMENDED)  
 ACCESSIBILITY 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

**OCCUPANCY**  
 DWELLING: R-2  
 COMMUNITY CENTER: A-3  
 TYPE OF CONSTRUCTION: V - A (2006 IBC, CHAP. 6 & TABLE 601)

**NUMBER OF STORIES:** BUILDING TYPE 1A, 1B: 2 STORIES  
 BUILDING TYPE 2A: 3 STORIES

**UNIT TYPE, NUMBER AND AREA**  
 28R/28A: 28 UNITS X 799 SF = 22,372 SF  
 32R/28A: 32 UNITS X 1206 SF = 38,592 SF  
 TOTAL DWELLING AREA = 60,964 SF  
 COMMUNITY CENTER AREA = 2,450 SF  
 TOTAL AREA = 63,414 SF

1 SITE PLAN  
 SCALE: 1" = 30'-0"



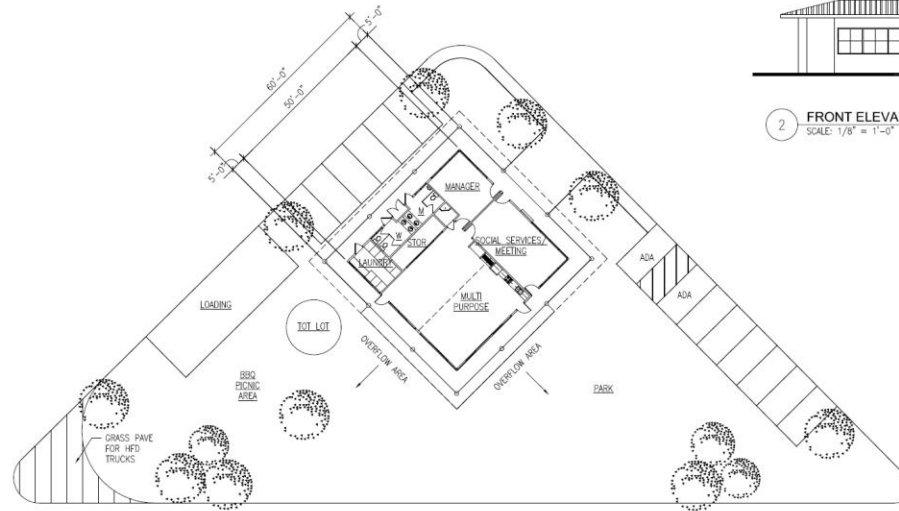
# Kaialu O Waikoloa Workforce Housing



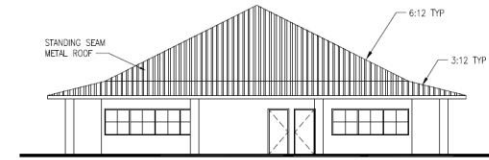
URBAN HOUSING  
 COMMUNITIES, LLC



9 June, 2016



COMMUNITY CENTER: 2,500 S.F.  
 PARKING REQ'D: 1 STALL PER 200 S.F.  
 PARKING PROVIDED: 14 STALLS.



2 FRONT ELEVATION  
 SCALE: 1/8" = 1'-0"

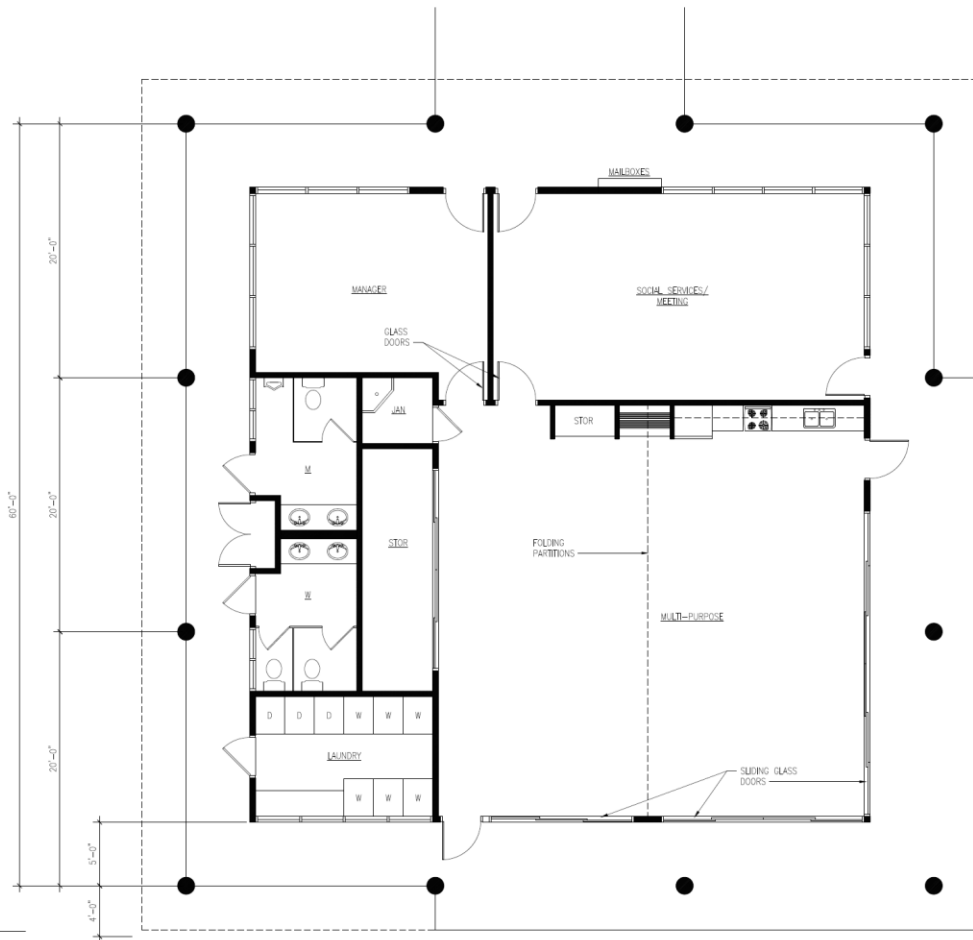
1 COMMUNITY CENTER SITE PLAN  
 SCALE: 1/16" = 1'-0"



# Kaialu O Waikoloa Workforce Housing



9 June, 2016



1 COMMUNITY CENTER  
SCALE: 1/4" = 1'-0"

4 3 2 1 0 4  
SCALE: 1/4" = 1'-0" (FT)

# Kaialu O Waikoloa Workforce Housing

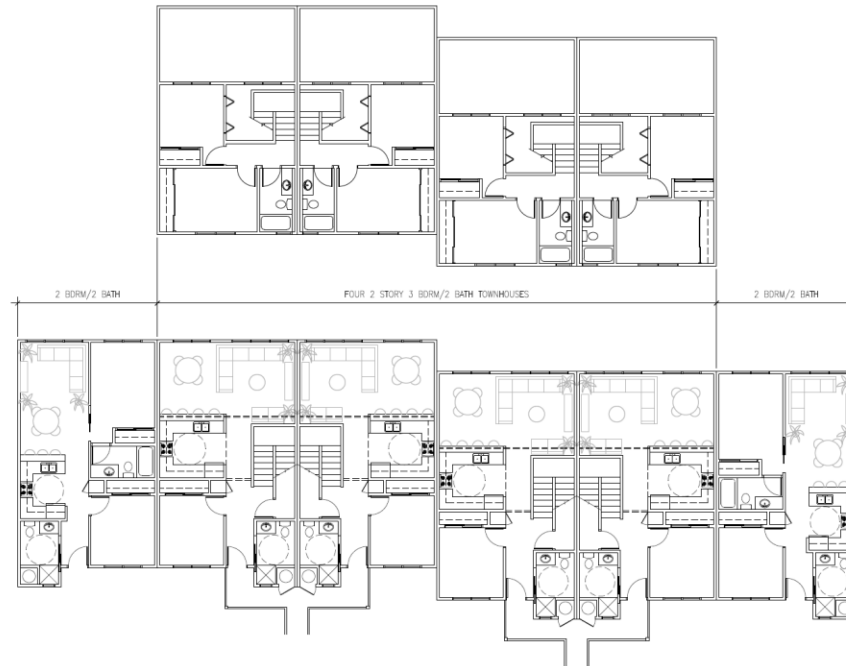


URBAN HOUSING  
COMMUNITIES, LLC



9 June, 2016

2ND FLOOR PLAN



1ST FLOOR PLAN

1 BLDG TYPE 1A & 1B  
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8 10FT  
SCALE: 1/8" = 1'-0"

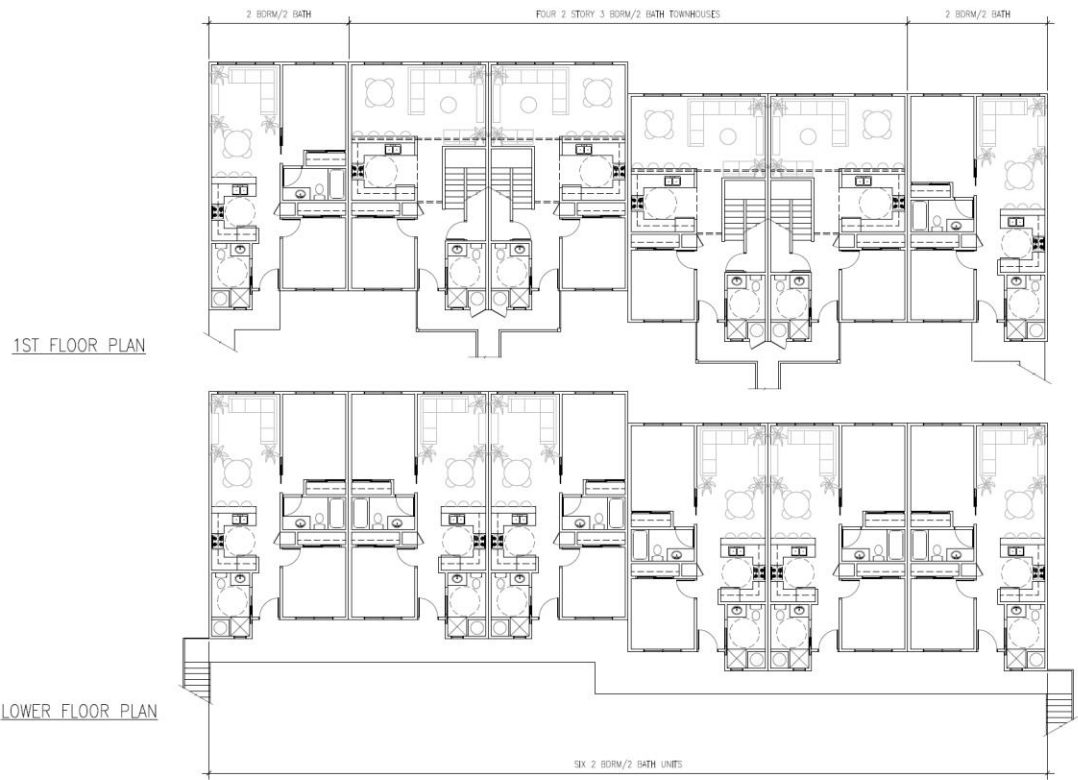
# Kaiulu O Waikoloa Workforce Housing



URBAN HOUSING  
COMMUNITIES, LLC



9 June, 2016



1ST FLOOR PLAN

LOWER FLOOR PLAN

1 BLDG TYPE 2A  
SCALE: 1/8" = 1'-0"

0 6 4 2 0 8 10 FT  
SCALE: 1/8" = 1'-0"

# Kaialu O Waikoloa Workforce Housing

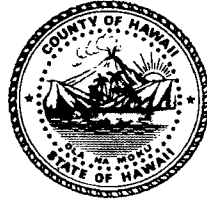


URBAN HOUSING  
COMMUNITIES, LLC



9 June, 2016

Harry Kim  
Mayor



Michael Yee  
Director

Daryn Arai  
Deputy Director

West Hawai'i Office  
74-5044 Ane Keohokalole Hwy  
Kailua-Kona, Hawai'i 96740  
Phone (808) 323-4770  
Fax (808) 327-3563

**County of Hawai'i**  
**PLANNING DEPARTMENT**

East Hawai'i Office  
101 Pauahi Street, Suite 3  
Hilo, Hawai'i 96720  
Phone (808) 961-8288  
Fax (808) 961-8742

December 15, 2017

Rachel Okoji, M.S., President  
Environmental Risk Analysis, LLC  
[rachelokoji@enviroriskhawaii.com](mailto:rachelokoji@enviroriskhawaii.com)

Dear Ms. Okoji:

**SUBJECT: Environmental Assessment for the Kaiāulu 'O Waikoloa Housing Development**  
**TMK: (3) 6-8-003:028, South Kohala**

Thank you for your letter dated November 30, 2017, received by this office on December 11, 2017, regarding your preparation of the above-referenced environmental assessment.

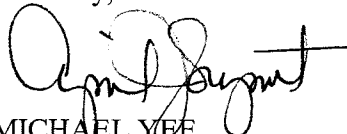
The subject parcel is within the State "Urban" land use district and is designated for "medium density urban" land uses on the County of Hawai'i General Plan Land Use Pattern Allocation Guide (LUPAG) Map. The site is also within the County Residential Multiple-Family (RM-1.5) zoning district, which is consistent with the above land use designations and provides for the proposed housing development as a permitted use and density.

The proposed project is also generally consistent with the South Kohala Community Development Plan (CDP), particularly as to its Chapter 5: Waikoloa Village Plan and its included Waikoloa Village Conceptual Plan (Figure 5.3). Please review the South Kohala CDP for any additional references that may be relevant to this project.

We have no further comments on the proposed development at this time.

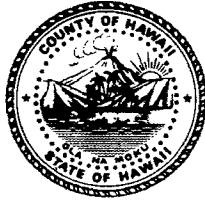
Should you have any questions, please contact Keola Childs of this department at (808) 323-4780.

Sincerely,

  
MICHAEL YEE  
Planning Director

KC: ja  
P:\USERS\Keola\Okoji\EAforKaiauluWaikaloaHousingDev.doc

**Harry Kim**  
Mayor



**Paul K. Ferreira**  
Police Chief

**Kenneth Bugado Jr.**  
Deputy Police Chief

## County of Hawai`i

### POLICE DEPARTMENT

349 Kapi`olani Street • Hilo, Hawai`i 96720-3998  
(808) 935-3311 • Fax (808) 961-2389

December 28, 2017

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

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE KAIAULU O WAIKOLOA  
HOUSING DEVELOPMENT  
TMK: (3) 6-8-003:028, BIG ISLAND, HAWAII

Dear Ms. Okoji:

This is in response to your letter dated November 30, 2017, regarding a request for comments or questions on an environmental assessment for the proposed development housing project in Waikoloa.

Thank you for allowing the Hawaii Police Department to make comments or ask questions regarding this development. At this time, the Hawai`i Police Department has no comments.

Should you have any questions or concerns please contact Captain Randal M. Ishii of our South Kohala Patrol Division at 887-3080, extension 131.

Sincerely,

  
PAUL K. FERREIRA  
POLICE CHIEF

RMI/jaj  
RS171150





STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

December 21, 2017

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

Re: Early Consultation for the Kaiaulu O Waikoloa Housing Development  
Hawaii County

Dear Ms. Okoji:

The Department of Education (DOE) received your request for early consultation on a December 14, 2017. Comments were being solicited for the Kaiaulu O Waikoloa project (Project). We were dismayed to learn the deadline for comments was December 15, 2017. We are not familiar with comment deadlines of 15 calendar days. The DOE will offer these comments with a request that our letter be included in the draft Environmental Assessment for the Project.

Students who would reside in the Project would attend Waikoloa Elementary and Middle School and Kealakehe High School. We estimate that at the Project's maturity, when turnover rates are stable, there should be roughly 13 DOE students (grades k-12) residing in the Project. While this Project is relatively small, we are aware there will be other new residential developments in the Waikoloa area.

Current enrollment at Waikoloa Elementary and Middle School has exceeded the classroom capacity of the school by approximately 30 students. In the next five years, enrollment is expected to grow, without including the Project. We estimate the classroom shortage will increase.

There is room for additional students at Kealakehe High School, but that excess capacity is expected to be eliminated by projected enrollment growth over the next five years.

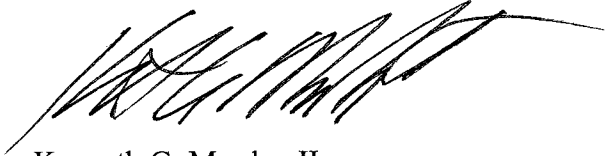
To offset the impact of new residential growth in West Hawaii, the Board of Education adopted the designation of a West Hawaii School Impact Fee District in 2010. Implementation of fee collection was suspended by the DOE. The DOE will need to update its analysis and data to determine if collection of school impact fees in West Hawaii should be resumed in the near future. Waikoloa is in the designated West Hawaii School Impact Fee District. However, we do not expect that this Project will be subject to school impact fees on its current development schedule.

Ms. Rachel Okoji  
December 21, 2017  
Page 2

The DOE has no other comments or concerns about Kaiaulu O Waikoloa at this time. We would like adequate opportunity to review and comment on the DEA.

If you have any questions, please contact Heidi Meeker of the Planning Section, Facilities Development Branch at (808) 784-5095.

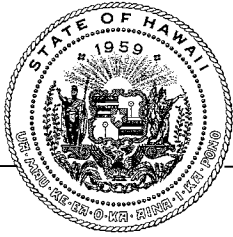
Respectfully,

A handwritten signature in black ink, appearing to read 'Kenneth G. Masden II', written in a cursive style.

Kenneth G. Masden II  
Public Works Manager  
Planning Section

KGM:jmb

c: Arthur Souza, Complex Area Superintendent, Honokaa/Kealakehe/Kohala/Konawaena  
Complex



## OFFICE OF PLANNING STATE OF HAWAII

DAVID Y. IGE  
GOVERNOR

LEO R. ASUNCION  
DIRECTOR  
OFFICE OF PLANNING

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

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

DTS201712121525NA

December 13, 2017

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

Dear Ms. Okoji:

Subject: Environmental Assessment for the Kaiaula O Waikoloa Housing  
Development. Waikoloa, Hawaii;  
TMK: (3) 6-8-003: 028

Thank you for the opportunity to provide comments on the pre-consultation request for the preparation of a Draft Environmental Assessment (Draft EA) on the Kaiaula O Waikoloa affordable rental housing project. The pre-consultation review material was transmitted to our office via letter dated November 30, 2017.

It is our understanding that this project proposes to build a 60-unit affordable housing complex on an unimproved parcel in Waikoloa, on the Island of Hawaii. This project that will provide affordable rental housing for the residents of West Hawaii County. The project will be funded by Ikaika Ohana (a nonprofit 501(c) 3 affordable housing developer, social service coordinator and asset management company), tax exempt bonds, private contributions, and grant funding from the State's Rental Housing Revolving Fund.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics, this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies. Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Planning Act, provides goals, objectives, policies, planning coordination and implementation, and priority guidelines for growth, development, and the allocation of resources throughout the state.

The Draft EA should include a discussion on the project's ability to meet all parts of HRS Chapter 226. The analysis should examine consistency with these statutes or clarify where it is in conflict with them. If any of these statutes are not applicable to

the project, the analysis should affirmatively state such determination, followed by discussion paragraphs.

2. The coastal zone management (CZM) area is defined as “all lands of the State and the area extending seaward from the shoreline to the limit of the State’s police power and management authority, including the U.S. territorial sea” (HRS § 205A-1).

The Draft EA should include an assessment as to how the proposed action conforms to each of the goals and objectives as listed in HRS § 205A-2. Compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.

3. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the surface water and nearshore marine resources on the Island of Hawaii remain protected, the negative effects of stormwater inundation, potentially caused by the proposed development activities, should be evaluated in the Draft EA.

Issues that may be examined include, but are not limited to, project site characteristics in relation to flood and erosion prone areas, open spaces, the potential vulnerability of surface water resources, drainage infrastructure currently in place, soil absorption characteristics of the area, and examining the amount of permeable versus impervious surfaces in the project area. These items should be considered when developing mitigation measures for the protection for surface water resources and the coastal ecosystem, pursuant to HAR § 11-200-10(7).

OP has developed a number of resources and recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent nearshore water contamination while considering the best management practices (BMP) suited for the project and the types of contaminants affecting the project area. The evaluative tools that should be used during the design process include:

- Hawaii Watershed Guidance provides direction on mitigation strategies for urban development activities that will safeguard watersheds and implement watershed plans [http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf](http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI_Watershed_Guidance_Final.pdf)
- Stormwater Impact Assessments can be used to identify and analyze information on hydrology, sensitivity of coastal and riparian resources, and management measures to control runoff, as well as consider secondary and

Ms. Rachel Okoji, M.S.  
December 13, 2017  
Page 3

cumulative impacts to the area.

[http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater\\_imapct/final\\_storm\\_water\\_impact\\_assessments\\_guidance.pdf](http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_storm_water_impact_assessments_guidance.pdf)

- Low Impact Development (LID), A Practitioners Guide covers a range of structural BMPs for stormwater control management, onsite infiltration techniques, water reuse methods, and building layout designs that minimize negative environmental impacts.

[http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid\\_guide\\_2006.pdf](http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf)

4. Pursuant to Act 127, Session Laws of Hawaii 2016, a Special Action Team on affordable rental housing was established to make recommendations on actions to promote affordable rental housing. One of the key objectives of Act 127 is to achieve 22,500 affordable rental-housing units by December 31, 2026. Affordable rental housing is the focus of this project; therefore, the Draft EA should include analysis on how this project aligns with the goals of Act 127.

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,



Leo R. Asuncion  
Director

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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, Box 50088  
Honolulu, Hawaii 96850

In Reply Refer To:  
01EPIF00-2018-TA-0082

JAN 0 8 2018

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

**Subject:** Technical Assistance for the Environmental Assessment to Evaluate Potential Environmental Impacts Associated with the Construction and Operation of a Proposed Affordable Housing Development in Waikoloa, Island and County of Hawaii

Dear Ms. Okoji:

The U.S. Fish and Wildlife Service (Service) received your correspondence on December 7, 2017, requesting technical assistance for conducting an environmental assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on TMK (3) 6-8-003:028 in Waikoloa. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana and grant funding from the State's Rental Housing Revolving Fund. Due to the overwhelming demand for affordable housing for very low income to moderate income households, and the low potential for adverse environmental impacts, Environmental Risk Analysis, LLC. anticipates a Finding of No Significant Impact.

Based on information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, five listed species have the potential to either be in or fly through the vicinity of the project area: the federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Nene (Hawaiian goose, *Branta (=Nesochen) sandvicensis*), Hawaiian petrel (*Pterodroma sandwichensis*), Band-rumped storm-petrel (*Oceanodroma castro*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*).

The Service offers the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation, construction, and operation. Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

## **Avoidance and Minimization Measures**

### **Hawaiian hoary bat**

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 three 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 we recommend you incorporate the following applicable measures into your 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 goose**

Nene are found on the islands of Hawaii, Maui, Molokai, and Kauai predominately, with a small population on Oahu. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

To avoid and minimize potential project impacts to Nene we recommend you incorporate the following applicable measures into your project description:

- Do not approach, feed, or disturb Nene.
- If Nene are observed loafing or foraging within the project area during the Nene breeding season (September through April), have a biologist familiar with the nesting behavior of Nene survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of three or more days (during which the birds may attempt to nest).
  - Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed work, or a previously undiscovered nest is found within said radius after work begins.
- In areas where Nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

### **Hawaiian petrel, Band-rumped storm-petrel, and Newell's shearwater**

Hawaiian seabirds may traverse the project area at night during the breeding season (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.



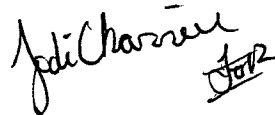
To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following applicable measures into your project description:

- 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 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.

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.

Thank you for participating with us in the protection of our endangered species. If you have any further questions or concerns regarding this consultation, please contact Eldridge Naboa, Fish and Wildlife Biologist, 808-284-0037, e-mail: [eldridge\\_naboa@fws.gov](mailto:eldridge_naboa@fws.gov). When referring to this project, please include this reference number: **01EPIF00-2018-TA-0082**.

Sincerely,

A handwritten signature in black ink that reads "Michelle Bogardus" with a date "1/12" written below it.

Michelle Bogardus  
Island Team Leader  
Maui Nui and Hawaii Island

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UNIVERSITY  
of HAWAII®  
MĀNOA

December 14, 2017

Environmental Risk Analysis LLC  
905A Makahiki Way  
Honolulu Hawaii 96826  
Attn: Kaiaulu O Waikoloa

Ms. Okoji:

This is to acknowledge receipt of your letter for review of an Environmental Assessment for the Kaiaulu O Waikoloa Housing Development.

Unfortunately, the Water Resources Research Center does not have the capacity to review the environmental assessment at this time due to the faculty position vacancy.

While we continue to explore filling the current vacancy, the Center will exclude itself from commentary on this specific environmental assessment study.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Lerner'.

Darren T. Lerner, PhD  
Interim Director

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# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard  
Honolulu, Hawaii 96850



In Reply Refer To:  
01EPIF00-2018-TA-0082

July 1, 2019

Environmental Risk Analysis, LLC  
Attention: Kaiaulu O Waikoloa  
Ms. Rachel Okoji, M.S., President  
905A Makahiki Way  
Honolulu, Hawaii 96826

Subject: Technical Assistance for the prepared Environmental Assessment for the Construction and Operation of the Proposed Kaiaulu O Waikoloa Affordable Housing Development in Waikoloa, Island and County of Hawaii

Dear Ms. Okoji:

The U.S. Fish and Wildlife Service (Service) received your correspondence on May 29, 2019, requesting comments for the prepared Environmental Assessment completed by the Environmental Risk Analysis (ERA) LLC to evaluate potential environmental impacts associated with the construction and operation of a proposed affordable housing development on TMK (3) 6-8-003:028 in Waikoloa. The proposed action is to build a 60-unit apartment complex that would provide affordable rental housing for low income households. The project will be funded by Ikaika Ohana with private funds, Tax Exempt Bonds, and grant funding from the State's Rental Housing Revolving Fund. ERA anticipates a Finding of No Significant Impact.

The Service offers the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation, construction, and operation. Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

In our previous letter dated January 9, 2018, we identified five (5) listed species have the potential to either be in or fly through the vicinity of the project area: The federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian goose (*Branta sandvicensis*), Hawaiian petrel (*Pterodroma sandwichensis*), Band-rumped storm-petrel (*Oceanodroma castro*), Blackburn's sphinx moth (*Manduca blackburni*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*).

## **Avoidance and Minimization Measures**

### **Hawaiian hoary bat**

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 three 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 we recommend you incorporate the following applicable measures into your 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 goose**

Nene are found on the islands of Hawaii, Maui, Molokai, and Kauai predominately, with a small population on Oahu. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

To avoid and minimize potential project impacts to Nene we recommend you consider incorporating the following applicable measures into your project description:

- Do not approach, feed, or disturb Nene.
- If Nene are observed loafing or foraging within the project area during the Nene breeding season (September through April), have a biologist familiar with the nesting behavior of Nene survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of three or more days (during which the birds may attempt to nest).
  - Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed work, or a previously undiscovered nest is found within said radius after work begins.
- In areas where Nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

### **Hawaiian petrel, Band-rumped storm-petrel, and Newell's shearwater**

Hawaiian seabirds may traverse the project area at night during the breeding season (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 seabirds we recommend you incorporate the following applicable measures into your 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 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.

### **Blackburn's sphinx moth**

The Blackburn's sphinx moth may be in the vicinity of the proposed project area. Adult moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum* sp.). To pupate, the larvae burrow into the soil and can remain in a state of torpor for up to a year (or more) before emerging from the soil. Soil disturbance can result in death of the pupae.

We offer the following survey recommendations to assess whether the Blackburn's sphinx moth is within the project area:

- A biologist familiar with the species should survey areas of proposed activities for Blackburn's sphinx moth and its larval host plant tree tobacco prior to work initiation.
  - Surveys should be conducted within 4-6 weeks prior to construction.
  - Surveys should include searches for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage).
- If no Blackburn's sphinx moth are found on the tree tobacco during surveys, it is imperative that measures be taken to avoid attraction of Blackburn's sphinx moth to the project location and prohibit additional tree tobacco from entering the site. Tree tobacco can grow greater than 3 feet tall in approximately 6 weeks. If it grows over 3 feet, the plants may become a host plant for Blackburn's sphinx moth. We therefore recommend that you:
  - Remove any existing tree tobacco less than 3 feet tall.
  - Monitor the site every 4-6 weeks for new tree tobacco growth before, during and after the proposed ground-disturbing activity and remove all tree tobacco that resprouts before it reaches 3 feet in height.
    - Monitoring for tree tobacco can be completed by any staff, such as groundskeeper or regular maintenance crew, provided with picture placards of tree tobacco at different life stages.
  - Soil around tree tobacco smaller than 3 feet may be disturbed after removal.
- If tree tobacco is more than 3 feet in height, it is possible that the signs of Blackburn's sphinx moth foraging have been shed and pupating larvae may be in

the ground in the area beneath the plant(s). Therefore, if there are no signs of Blackburn's sphinx moth on tree tobacco more than 3 feet in height, the above-ground portion of the plant(s) may be cut off and removed and the following

measures implemented to minimize the potential for future use of the plant by Blackburn's sphinx moth and potential impact to a pupae that may already be in the soil near the plant:

- Treat stems with herbicide or re-trim to prevent leaf growth and potential use by Blackburn's sphinx moth.
- A 33-ft (10-m) buffer should be established around the plant's location for three months assuming a heavy rain event occurs. If no heavy rains occur, then this period should be extended for six months until rains do occur. After this period, the plant roots may be removed and the soil disturbed.
- If additional Blackburn's sphinx moth eggs or larvae are found, notify the Service biologist below to coordinate on avoiding take.

If this project should receive federal funding, federal permits, or any federal authorization, it is that Federal agency's responsibility to consult with the Service pursuant to section 7 of the ESA. The Service only conducts Section 7 consultations with the federal action agency or their designated representative. If there is no federal action agency, but the take of listed species cannot be fully avoided, the project proponent should apply for an incidental take permit from the Service by developing a Habitat Conservation Plan.

Thank you for participating with us in the protection of our endangered species. If you have any further questions or concerns regarding this consultation, please contact Eldridge Naboia, Fish and Wildlife Biologist, 808-284-0037, e-mail: [eldridge\\_naboia@fws.gov](mailto:eldridge_naboia@fws.gov). When referring to this project, please include this reference number: **01EPIF00-2018-TA-0082**.

Sincerely,

Michelle Bogardus  
Island Team Leader  
Maui Nui and Hawaii Island



**BIOSECURITY PROTOCOL – HAWAII ISLAND (JULY 2018)**

The following biosecurity protocol (based on National Park Service, State of Hawaii, U.S. Fish and Wildlife, U.S. Geological Survey, and the DOI Office of Native Hawaiian Relations guidance) should be followed when operating on Hawaii Island to prevent the introduction of harmful invasive species including frogs, ants, weeds, and fungi into local natural areas (e.g., Hawaii Volcanoes National Park, Hakalau Forest National Wildlife Refuge, State of Hawaii “Natural Areas”) and areas with native habitat (habitat that is primarily composed of native vegetation), other islands in Hawaiian archipelago, or the U.S. mainland. The protocol also includes suggestions for keeping field staff safe from certain invasive species.

1. All work vehicles, machinery, and equipment should be cleaned, inspected by its user, and found free of mud, dirt, debris and invasive species prior to entry into the natural areas or native habitat.
  - a. Vehicles, machinery, and equipment must be thoroughly pressure washed in a designated cleaning area and visibly free of mud, dirt, plant debris, insects, frogs (including frog eggs) and other vertebrate species such as rats, mice and non-vegetative debris. A hot water wash is preferred. Areas of particular concern include bumpers, grills, hood compartments, areas under the battery, wheel wells, undercarriage, cabs, and truck beds (truck beds with accumulated material (intentionally placed or fallen from trees) are prime sites for hitchhikers).
  - b. The interior and exterior of vehicles, machinery, and equipment must be free of rubbish and food. The interiors of vehicles and the cabs of machinery must be vacuumed clean. Floor mats shall be sanitized with a solution of >70% isopropyl alcohol or a freshly mixed 10% bleach solution.
  - c. Any machinery, vehicles, equipment, or other supplies found to be infested with ants (or other invasive species) must not enter natural areas or native habitat. Treatment is the responsibility of the equipment or vehicle owner and operator.
2. Little Fire Ants – All work vehicles, machinery, and equipment should be inspected for invasive ants prior to entering the natural areas or native habitat.
  - a. A visual inspection for little fire ants should be conducted prior to entry into natural areas or native habitat.
  - b. Hygiene is paramount but even the cleanest vehicle can pick up a little fire ant. Place MaxForce Complete Brand Granular Insect Bait (1.0% Hydramethylnon; <http://littlefireants.com/Maxforce%20Complete.pdf>) into refillable tamper resistant bait stations. An example of a commercially available refillable tamper resistant bait station is the Ant Café Pro (<https://www.antcafe.com/>). Place a bait station (or stations) in vehicle. Note larger vehicles, such as trucks, may require multiple stations. Monitor bait stations frequently (every week at a minimum) and replace bait as needed. If the station does not have a sticker to identify the contents, apply a sticker listing contents to the station.
  - c. Any machinery, vehicles, equipment, or other supplies found to be infested with ants (or other invasive species) must not enter natural areas or native habitat until it is sanitized and re-tested following a resting period. Infested vehicles must be sanitized following recommendations by the Hawaii Ant Lab (<http://www.littlefireants.com/>) or other ant control expert and in accordance

with all State and Federal laws. Treatment is the responsibility of the equipment or vehicle owner.

d. Gravel, building materials, or other equipment such as portable buildings should be baited using MaxForce Complete Brand Granular Insect Bait (1.0% Hydramethylnon; <http://littlefireants.com/Maxforce%20Complete.pdf>) or AmdroPro (0.73% Hydramethylnon; <http://littlefireants.com/Amdro%20Pro.pdf>) following label guidance.

e. Storage areas that hold field tools, especially tents, tarps, and clothing should be baited using MaxForce Complete Brand Granular Insect Bait (1.0% Hydramethylnon; <http://littlefireants.com/Maxforce%20Complete.pdf>) or AmdroPro (0.73% Hydramethylnon; <http://littlefireants.com/Amdro%20Pro.pdf>) following label guidance.

3. Base yards and staging areas inside and outside areas must be kept free of invasive species.

a. Base yards and staging areas should be inspected at least weekly for invasive species and any found invasive removed immediately. Pay particular attention to where vehicles are parked overnight, keeping areas within 10-meters of vehicles free of debris. Parking on pavement and not under trees, while not always practical is best.

b. Project vehicles or equipment stored outside of a base yard or staging area, such as a private residence, should be kept in a pest free area.

4. All cutting tools must be sanitized to prevent the Rapid Ohia Death (ROD) fungus.

a. Avoid wounding ohia trees and roots with mowers, chainsaws, weed eaters, and other tools. Cut only the minimum amount of trees and branches as approved for the project.

b. All cutting tools, including machetes, chainsaws, and loppers must be sanitized to remove visible dirt and other contaminants prior to entry into natural areas or areas with native habitat, and when moving to a new project area within the native habitat area. Tools may be sanitized using a solution of >70% isopropyl alcohol or a freshly mixed 10% bleach solution. One minute after sanitizing, you may apply an oil based lubricant to chainsaw chains or other metallic parts to prevent corrosion.

c. Only dedicated tools and chainsaws should be used to sample known or suspected ROD infected trees.

d. Vehicles, machinery, and equipment must be cleaned as described in (1) above.

5. Imported firewood, logs, and ohia parts:

a. Ohia firewood, ohia logs, and ohia parts should not be transported.

6. For individuals working in the field:

a. Before going into the field, visually inspect and clean your clothes, boots, pack, radio harness, tools and other personal gear and equipment, for seeds, soil, plant parts, insects, and other debris. A small brush is handy for cleaning boots, equipment and gear. Soles of shoes

should be sanitized using a solution of >70% isopropyl alcohol or a freshly mixed 10% bleach solution.

b. Immediately before leaving the field, visually inspect and clean your clothes, boots, pack, radio harness, tools, and other personnel gear and equipment, for seeds, soil, plant parts, insects, and other debris. Soles of shoes should be sanitized using a solution of >70% isopropyl alcohol or a freshly mixed 10% bleach solution.

c. Little fire ants nest in trees. If you are under a tree and that tree is bumped or somehow stressed, the threat response of the ants is to fall from the leaves and sting the person under the tree. If you are subject to an ant attack, do not panic. The ants are extremely small but their stings are painful so make sure you remove all ants from your body and clothing. The stings cause inch long welts that are itchy and painful, and can last for weeks. Treat stings as you would other insect stings. In some persons stings can produce life threatening reactions. Stocking antihistamine in the first aid kit is a reasonable precaution.

d. Rat Lungworm disease is caused by a parasite that can infect humans who consume raw or undercooked infected snails or slugs or consume raw produce that contains a small infected snail or slug. Infection is rare but can be serious. Symptoms can include severe headache, neck stiffness, low grade fever, nausea, and vomiting anywhere from 1-6 weeks after exposure. The disease is not spread person to person. Anyone who handles snails or slugs should wear gloves and/or wash hands. Eating unwashed produce is discouraged.

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July 9, 2019

US Department of the Interior  
Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard  
Honolulu, Hawaii 96850

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Ms. Bogardus:

Thank you for your comment letter, dated July 1, 2019, in response to the above project. We acknowledge the addition of the Blackburn's sphinx moth (*Manduca blackburni*) to the listed species previously provided in the January 9, 2018 comment letter, as well as Biosecurity Protocols. We have included this information into the Final Environmental Assessment document, as well as mitigative measures proposed by the US Fish and Wildlife Service.

Your support of affordable rental housing is appreciated.

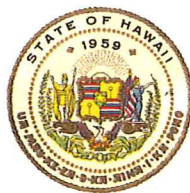
Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", written over a light blue horizontal line.

Rachel Okoji, M.S.  
President

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DAVID Y. IGE  
GOVERNOR OF HAWAII



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

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 24, 2019

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

via email: [rachelokoji@envioriskhawaii.com](mailto:rachelokoji@envioriskhawaii.com)

Dear Ms. Okoji:

SUBJECT: Draft Environmental Assessment for the **Kaiaulu O Waikoloa Proposed Housing Development** located at Pua Melia Street, Waikoloa, Island of Hawaii; TMK: (3) 6-8-003:028 on behalf of K00674 Waikoloa, L.P.

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

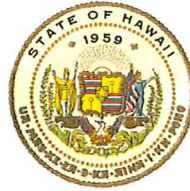
At this time, enclosed are comments from the (a) Engineering Division, (b) Division of Forestry & Wildlife, (c) Commission on Water Resource Management, and (d) Land Division – Hawaii District on the subject matter. Should you have any questions, please feel free to contact Darlene Nakamura at (808) 587-0417 or email: [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

Sincerely,

A handwritten signature in black ink, appearing to be "R. Tsuji".

Russell Y. Tsuji  
Land Administrator

Enclosures  
cc: Central Files



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 5, 2019

MEMORANDUM

RECEIVED  
LAND DIVISION  
2019 JUN -7 AM 11:56  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

19 JUN 05 PM 02:30 ENGINEERING

TO:  
FROM

**DLNR Agencies:**

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

TO  
FROM:

**SUBJECT:** Russell Y. Tsuji, Land Administrator   
**FROM:** Draft Environmental Assessment for the **Kaialulu O Waikoloa Proposed Housing Development**  
**LOCATION:** Pua Melia Street, Waikoloa, Island of Hawaii; TMK: (3) 6-8-003:028  
**APPLICANT:** Environmental Risk Analysis LLC on behalf of K00674 Waikoloa, L.P.

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit any comments by **June 20, 2019**.

The DEA can be found on-line at: <http://health.hawaii.gov/oeqc/> (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417 or by email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

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

Signed: 

Print Name: Cary S. Chang, Chief Engineer

Date: 6/7/19

Attachments  
cc: Central Files



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

**LD/Russell Y. Tsuji**

**Ref: Draft Environmental Assessment for the Kaiaulu O Waikoloa Proposed  
Housing Development**

**Location: Pua Melia Street, Waikoloa, Island of Hawaii**

**TMK(s): (3) 6-8-003:028**

**Applicant: Environmental Risk Analysis LLC on behalf of K00674  
Waikoloa, L.P.**

**COMMENTS**

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (<http://gis.hawaiiinfip.org/FHAT>).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

Signed: \_\_\_\_\_

  
CARTY S. CHANG, CHIEF ENGINEER

Date: \_\_\_\_\_

4/17/19



2019 JUN 18 AM 10:42  
STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 5, 2019

**MEMORANDUM**

TO:  
FROM:

**DLNR Agencies:**

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

TO:  
FROM:

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Draft Environmental Assessment for the **Kaiaulu O Waikoloa Proposed Housing Development**

LOCATION: Pua Melia Street, Waikoloa, Island of Hawaii; TMK: (3) 6-8-003:028

APPLICANT: Environmental Risk Analysis LLC on behalf of K00674 Waikoloa, L.P.

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit any comments by **June 20, 2019**.

The DEA can be found on-line at: <http://health.hawaii.gov/oegc/> (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417 or by email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

- We have no objections.
  - We have no comments.
  - Comments are attached.
- ROUTED COMMENTS  
FOR SIGNATURE  
FOR #19780

Signed:

Print Name: **DAVID G. SMITH, Administrator**

Date: \_\_\_\_\_

Attachments  
cc: Central Files

DAVID Y. IGE  
GOVERNOR OF HAWAII



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

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 5, 2019

MEMORANDUM

*TO:*

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

*FR:*

*TO:*

~~FROM:~~

~~SUBJECT:~~

Russell Y. Tsuji, Land Administrator  
Draft Environmental Assessment for the **Kaialulu O Waikoloa Proposed Housing Development**

LOCATION:

Pua Melia Street, Waikoloa, Island of Hawaii; TMK: (3) 6-8-003:028

APPLICANT:

Environmental Risk Analysis LLC on behalf of K00674 Waikoloa, L.P.

RECEIVED  
COMMISSION ON WATER  
RESOURCE MANAGEMENT  
2019 JUN -5 PM 12: 54  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit any comments by **June 20, 2019**.

*The DEA can be found on-line at: <http://health.hawaii.gov/oeqc/> (Click on The Environmental Notice in the middle of the page.)*

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417 or by email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

- ( ) We have no objections.
- ( ) We have no comments.
- ( x ) Comments are attached.

Signed: /s/ M. Kaleo Manuel

Print Name: Deputy Director

Date: June 17, 2019

Attachments  
cc: Central Files

FILE ID: RFD.4747.8  
DOC ID: 21557

DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
CHAIRPERSON

BRUCE S. ANDERSON, PH.D.  
KAMANA BEAMER, PH.D.  
NEIL J. HANNAHS  
WAYNE K. KATAYAMA  
PAUL J. MEYER

M. KALEO MANUEL  
DEPUTY DIRECTOR

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

June 17, 2019

REF: RFD.4747.8

TO: Mr. Russell Tsuji, Administrator  
Land Division

FROM: M. Kaleo Manuel, Deputy Director *Kaleo Manuel*  
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment for the Kaiaulu O Waikoloa Proposed Housing Development

FILE NO.: RFD.4747.8  
TMK NO.: (3) 6-8-003:028

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://dlnr.hawaii.gov/cwrn>.

Our comments related to water resources are checked off below.

1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at <http://www.usgbc.org/leed>. A listing of fixtures certified by the EPA as having high water efficiency can be found at <http://www.epa.gov/watersense>.
5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at <http://planning.hawaii.gov/czm/initiatives/low-impact-development/>
6. We recommend the use of alternative water sources, wherever practicable.
7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at <http://energy.hawaii.gov/green-business-program>.
8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at [http://www.hawaiiscap.com/wp-content/uploads/2013/04/LICH\\_Irrigation\\_Conservation\\_BMPs.pdf](http://www.hawaiiscap.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf).

- 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
  - 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.
  - 11. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.
  - 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.
  - 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
  - 14. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
  - 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.
  - 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
  - 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
  - 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- OTHER: Although the Waimea Aquifer System Area sustainable yield from the 2008 Water Resource Protection Plan (WRPP) is currently 24 mgd, the 2019 Update to the WRPP has reduced that estimate to 16 mgd based on updated recharge estimates from the USGS (Engott, 2011). Further, the Commission is currently considering combining the Waimea ASA with Anaeoomalu ASA without altering the new lower sustainable yield estimates. The new combined and larger ASA would have a new combined sustainable yield of 46 mgd although this is subject to Commission approval sometime around November 2019.

If you have any questions, please contact W. Roy Hardy of the Commission staff at 587-0225.

DAVID Y. IGE  
GOVERNOR OF HAWAII



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

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

2019 JUN 10 A 11:02

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

RECEIVED  
LAND DIVISION  
HILO, HAWAII

June 5, 2019

MEMORANDUM

TO:

**DLNR Agencies:**

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

RECEIVED  
LAND DIVISION  
2019 JUN 21 AM 10:04  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Draft Environmental Assessment for the **Kaialu O Waikoloa Proposed Housing Development**

LOCATION:

Pua Melia Street, Waikoloa, Island of Hawaii; TMK: (3) 6-8-003:028

APPLICANT:

Environmental Risk Analysis LLC on behalf of K00674 Waikoloa, L.P.

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit any comments by **June 20, 2019**.

*The DEA can be found on-line at: <http://health.hawaii.gov/oegc/> (Click on The Environmental Notice in the middle of the page.)*

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417 or by email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

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

Signed:

Print Name:

GORDON C. HEIT

Date:

6/18/19

Attachments

cc: Central Files



July 9, 2019

State of Hawaii  
Department of Land and Natural Resources  
Engineering Division  
PO Box 621  
Honolulu, Hawaii 96809

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Mr. Chang:

Thank you for your comment letter, dated June 7, 2019, in response to the above project.

The project is located in Flood Zone X, beyond the 500-year flood plain. The proposed project will conform to all applicable federal, state and county regulations.

Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", is written over a faint, light blue circular stamp or watermark.

Rachel Okoji, M.S.  
President



July 9, 2019

State of Hawaii  
Department of Land and Natural Resources  
Division of Forestry and Wildlife  
PO Box 621  
Honolulu, Hawaii 96809

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Administrator Smith:

Thank you for your comment letter, dated June 18, 2019, in response to the above project.

We acknowledge that there are no comments at this time.

Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President





July 9, 2019

State of Hawaii  
Department of Land and Natural Resources  
Land Division – Hawaii District  
PO Box 621  
Honolulu, Hawaii 96809

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Mr. Heit:

Thank you for your comment letter, dated June 21, 2019, in response to the above project.

We acknowledge that there are no comments at this time.

Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", is written over a light blue, semi-transparent watermark of the same signature.

Rachel Okoji, M.S.  
President



July 9, 2019

State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
PO Box 621  
Honolulu, Hawaii 96809

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Deputy Director Manuel:

Thank you for your comment letter, dated June 17, 2019, in response to the above project.

We acknowledge your comments on incorporating this project into the county's Water Use and Development Plan by contacting the Planning Department and/or Department of Water Supply and on the source of water. The project is supplied by a privately owned and operated system. The County of Hawaii Department of Water Supply did not have any comments.

We acknowledge the additional information provided which notes a decrease in sustainable yield of the Waimea Aquifer System. However, the Waimea Aquifer System may be combined at a future time with the Anaehoomalu Aquifer System, which would have a combined yield approximately double the size of the Waimea Aquifer System.

Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", is written over a light blue, textured background.

Rachel Okoji, M.S.  
President

---

**From:** [anbbb@yahoo.com](mailto:anbbb@yahoo.com)  
**Date:** June 1, 2019 at 2:47:01 PM PDT  
**To:** [dbigley@ikaikaohana.org](mailto:dbigley@ikaikaohana.org)  
**Subject:** Ikaika Ohana Waikoloa

Aloha-

I just learned of the proposed affordable housing development for Waikoloa. I read that for 60 units, there will be 75 spaces. Someone in your business should drive around Waikoloa and take note of how many cars people have. I suppose the "affordable" neighborhood is the one past in school - people have garages AND there are cars parked in the driveways.

If the planned apartments are for the workforce, you must understand that each adult will have their own automobile. And it is likely that for each couple, at least one of the vehicles will be a large truck. Where this development is sited there will not be a lot of options for on-street parking outside of the development. There will be a shopping center across the street, so maybe you are counting on Ikaika residents parking there.

It would be far better to plan to build large parking spaces, one for each adult you anticipate residing in a unit. So that is a minimum of 120 spaces, plus maybe visitor parking.

Please let me know if I am misinformed about the planned development.

Alexandra

Waikoloa, HI

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July 9, 2019

Alexandra  
anbbb@yahoo.com

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Alexandra:

Thank you for your email, dated June 1, 2019, in response to the above project. We acknowledge your concern regarding parking. The project as planned exceeds County regulations requiring 1.25 stalls per multi family dwelling unit. In addition, the project will be complaint with the Disability and Communication Access Board/American's with Disabilities Act requirements. Parking is an important amenity and every effort was taken to balance multiple facets of the project, such as the number of units produced, resident parking, community space, nature, etc.

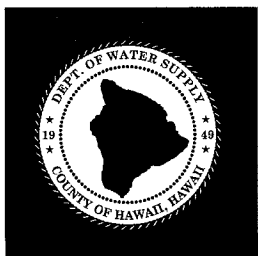
Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President

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**DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I**

345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720  
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

June 20, 2019

Mr. Russell Okoji, M.S.  
Environmental Risk Analysis, LLC  
905A Makahiki Way  
Honolulu, HI 96826

Dear Mr. Okoji:

**Subject: Draft Environmental Assessment for Kaiaulu O Waikoloa Proposed Housing  
Development Project, Waikoloa, Hawai'i  
Tax Map Key 6-8-003:028**

We have reviewed the subject Draft Environmental Assessment (DEA) and have no comments as the water system in the area is privately owned and operated.

Should there be any questions, please contact Mr. Ryan Quitariano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.  
Manager-Chief Engineer

RQ:dfg

copy – Planning Department  
State of Hawai'i, Office of Environmental Quality Control

*... Water, Our Most Precious Resource ... Ka Wai A Kāne ...*

The Department of Water Supply is an Equal Opportunity provider and employer.

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July 9, 2019

County of Hawaii  
Department of Water Supply  
345 Kekuaanoa Street, Suite 20  
Hilo, Hawaii 96720

**Subject: Environmental Assessment for the Kaiaulo O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Mr. Okamoto, P.E.:

Thank you for your comment letter, dated June 20, 2019, in response to the above project. We acknowledge there are no comments as the water system in the area is privately owned and operated.

Your support of affordable rental housing is appreciated.

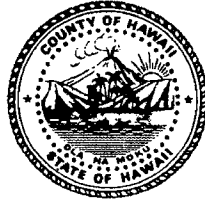
Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President

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Harry Kim  
Mayor



Paul K. Ferreira  
Police Chief

Kenneth Bugado, Jr.  
Deputy Police Chief

## County of Hawai'i

### POLICE DEPARTMENT

349 Kapi'olani Street • Hilo, Hawai'i 96720-3998  
(808) 935-3311 • Fax (808) 961-2389

June 12, 2019

Ms. Rachel Okoji, M.S.  
President  
Environmental Risk Analysis LLC  
Attn: Kaiaulu O Waikoloa  
905A Makahiki Way  
Honolulu, Hawaii 96826  
[rachelokoji@enviroriskhawaii.com](mailto:rachelokoji@enviroriskhawaii.com)

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE KAI AULU O WAIKOLOA  
HOUSING DEVELOPMENT  
TMK: (3) 6-8-003:028, BIG ISLAND, HAWAII

Dear Ms. Okoji:

This is in response to your correspondence dated May 28, 2019, with regard to the above-referenced environmental assessment.

Thank you for allowing the Hawai'i Police Department to offer comments regarding this request. At this time, the Hawai'i Police Department has no objections or comments.

Please direct any questions or concerns to Captain Sherry D. Bird, Commander of our South Kohala District, at (808) 887-3080, or via email at [Sherry.Bird@hawaiiicounty.gov](mailto:Sherry.Bird@hawaiiicounty.gov).

Sincerely,

PAUL K. FERREIRA  
POLICE CHIEF

  
MITCHELL KANEHAILUA JR.  
ASSISTANT POLICE CHIEF  
AREA II OPERATIONS BUREAU

SDB/jaj  
19HQ0604

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July 9, 2019

County of Hawaii  
Police Department  
349 Kapiolani Street  
Hilo, Hawaii 96720-3998

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Assistant Police Chief Kanehailua Jr:

Thank you for your comment letter, dated June 12, 2019, in response to the above project. We acknowledge there are no comments or objections to the proposed project.

Your support of affordable rental housing is appreciated.

Sincerely,

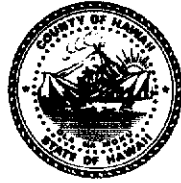
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Rachel Okoji, M.S.  
President

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Harry Kim  
Mayor

Wilfred M. Okabe  
Managing Director



William A. Kucharski  
Director

Diane A. Noda  
Deputy Director

**County of Hawai'i**  
**DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

345 Kekūanāo'a Street, Suite 41 · Hilo, Hawai'i 96720  
Ph: (808) 961-8083 · Fax: (808) 961-8086  
Email: cohdem@hawaiicounty.gov

June 14, 2019

Via email: [rachelokoji@enviroriskhawaii.com](mailto:rachelokoji@enviroriskhawaii.com)

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

Re: Environmental Assessment for the Kaiulu O Waikoloa Housing Development  
Tax Map Key: (3) 6-8-003:028, Big Island, Hawai'i

Dear Ms. Okoji:

Pursuant to your May 28, 2019, letter seeking comments on the above project, our Solid Waste Division would require that the project include waste diversion as part of the project specifications. The Solid Waste Division can work with the architect, engineer, and/or contractor at the appropriate time.

Thank you for the opportunity to comment.

Sincerely,

William A. Kucharski  
Director

WK:mef

cc: Gregory Goodale, SWD  
Gene Quiamas, SWD

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July 9, 2019

County of Hawaii  
Department of Environmental Management  
345 Kekuaanoa St, Suite 41  
Hilo, Hawaii 96720

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Director Kucharski:

Thank you for your comment letter, dated June 14, 2019, in response to the above project. We acknowledge your requirement for waste diversion as part of the project specifications. We have reached out to Gene Quiamas at the County of Hawaii Department of Environmental Management – Solid Waste Division. The Kaiaulu O Waikoloa project will be mindful about the waste generated and will implement programs to limit the amount sent to landfill whenever possible. Kaiaulu O Waikoloa will be at least LEED Silver, which should align with many of the goals of the department.

Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink that reads "Rachel Okoji".

Rachel Okoji, M.S.  
President

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DAVID Y. IGE  
GOVERNOR  
STATE OF HAWAII

JOSH GREEN  
LT. GOVERNOR  
STATE OF HAWAII



WILLIAM J. AILA, JR.  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION

**STATE OF HAWAII**  
**DEPARTMENT OF HAWAIIAN HOME LANDS**

P. O. BOX 1879  
HONOLULU, HAWAII 96805

June 17, 2019

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

Dear Ms. Okoji:

Subject: Environmental Assessment for the Kaiāulu O Waikoloa

The Department of Hawaiian Home Lands acknowledges receiving the request for comments on the above-cited project. The proposed project is located approximately 8 miles south-east of DHHL nearest landholdings in Kawaihae. After reviewing the materials submitted, due to its lack of proximity to Hawaiian Home Lands, we do not anticipate any impacts to our lands or beneficiaries from the project.

However, we highly encourage all agencies to consult with Hawaiian Homestead community associations and other (N)ative Hawaiian organizations when preparing environmental assessments in order to better assess potential impacts to cultural and natural resources, access and other rights of Native Hawaiians.

Mahalo for the opportunity to provide comments. If you have any questions, please call Malia Cox, at 620-9485 or contact via email at [malia.m.cox@hawaii.gov](mailto:malia.m.cox@hawaii.gov).

Aloha,

William J. Aila Jr., Chairman  
Hawaiian Homes Commission

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July 9, 2019

State of Hawaii  
Department of Hawaiian Home Lands  
PO Box 1879  
Honolulu, Hawaii 96805

**Subject: Environmental Assessment for the Kaiaulo O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Chairman Aila Jr:

Thank you for your comment letter, dated June 17, 2019, in response to the above project. We acknowledge that based on the proximity to Hawaiian Home Lands, you do not anticipate any impacts to the lands and beneficiaries from the proposed project. We also acknowledge your recommendation for additional consultation. We have reached out to other agencies and have performed a Cultural Impact Assessment. No ongoing traditional practices were identified in the proposed project area. No historic properties were identified that would be affected.

Thank you for your support of affordable rental housing..

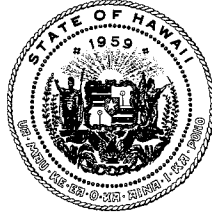
Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President

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DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF FORESTRY AND WILDLIFE  
1151 PUNCHBOWL STREET, ROOM 325  
HONOLULU, HAWAII 96813

**JUN 17 2019**

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

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

Log#19780

Dear Ms. Okoji:

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the Draft Environmental Assessment for the proposed Kaiaulu O Waikoloa Housing Development in Waikoloa on the island of Hawai'i, TMK: (3) 6-8-003:028. Proposed work would include construction of an affordable rental complex with 60 units, a community center, approximately 75 parking stalls, and associated improvements on 4.6 acres of undeveloped land.

We appreciate the measures identified in the Draft Environmental Assessment to avoid and minimize impacts during design and construction to State listed species including the Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) and seabirds.

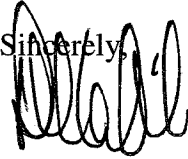
State listed waterbirds such as the Hawaiian Duck (*Anas wyvilliana*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), and Hawaiian Goose or Nēnē (*Branta sandvicensis*) have the potential to occur in the vicinity of the proposed project site. It is against State law to harm or harass these species. If any of these species are present during construction activities, then all activities within 100 feet (30 meters) should cease, and the bird should not be approached. Work may continue after the bird leaves the area of its own accord. If a nest is discovered at any point, please contact the Hawai'i DOFAW Office at (808) 974-4221.

DOFAW is concerned about attracting vulnerable birds to areas that may host nonnative predators such as cats, rodents, and mongoose. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles.

DOFAW 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.). Please do not plant invasive species. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (<https://sites.google.com/site/weedriskassessment/home>), and [www.plantpono.org](http://www.plantpono.org) for guidance on selection and evaluation for landscaping plants.

We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Jim Cogswell, Wildlife Program Manager at (808) 587-4187 or [James.M.Cogswell@hawaii.gov](mailto:James.M.Cogswell@hawaii.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Smith', written over the word 'Sincerely,'.

DAVID G. SMITH  
Administrator





July 9, 2019

State of Hawaii  
Department of Land and Natural Resources  
Division of Forestry and Wildlife  
1151 Punchbowl Street, Room 325  
Honolulu, Hawaii 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Mr. Smith:

Thank you for your comment letter, dated June 17, 2019, in response to the above project.

The information provided regarding the State listed waterbirds and mitigative measures to protect them have been incorporated into the Final Environmental Assessment. Additionally, recommendations about landscaping have also been included into the Final Environmental Assessment.

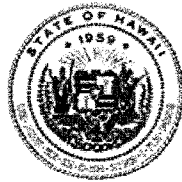
Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", is positioned above the typed name.

Rachel Okoji, M.S.  
President

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DAVID Y. IGE  
GOVERNOR



JADE T. BUTAY  
DIRECTOR

Deputy Directors  
LYNN A.S. ARAKI-REGAN  
DEREK J. CHOW  
ROSS M. HIGASHI  
EDWIN H. SNIFFEN

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:  
DIR 0558  
STP 8.2690

June 12, 2019

Ms. Rachel Okoji, M.S.  
President  
Environmental Risk Analysis LLC  
905A Makahiki Way  
Honolulu, Hawaii 96738

Dear Ms. Okoji:

Subject: Kaiaulu O Waikoloa Housing Development  
Draft Environmental Assessment  
Waikoloa, Hawaii  
TMK: (3) 6-8-003:028

The Department of Transportation (DOT) understands K00674 Waikoloa, L.P. is proposing to develop a 60-unit affordable rental housing complex in the Waikoloa area. In reviewing the project information and location, the DOT has determined that the subject project does not appear to have any significant impact to our State highway facilities; therefore, we have no comments at this time.

If there are any questions, please contact Mr. Blayne Nikaido of the DOT Statewide Transportation Planning Office at (808) 831-7979 or by email at [blayne.h.nikaido@hawaii.gov](mailto:blayne.h.nikaido@hawaii.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Jade T. Butay".

for JADE T. BUTAY  
Director of Transportation

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July 9, 2019

State of Hawaii  
Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Director Butay:

Thank you for your comment letter, dated June 12, 2019, in response to the above project. We acknowledge your finding of the proposed project not significantly impacting State highway facilities, and thus no comments as this time.

Thank you for your support of affordable rental housing..

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", with a stylized flourish at the end.

Rachel Okoji, M.S.  
President

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Harry Kim  
Mayor

David Yamamoto, P.E.  
Director

Wil Okabe  
Managing Director

Allan G. Simeon, P.E.  
Deputy Director

**County of Hawai'i**  
**DEPARTMENT OF PUBLIC WORKS**  
Aupuni Center  
• 101 Pauahi Street, Suite 7 · Hilo, Hawai'i 96720-4224  
(808) 961-8321 · Fax (808) 961-8630  
public\_works@hawaiicounty.gov

June 24, 2019

Environmental Risk Analysis LLC  
905A Makahiki Way  
Honolulu, HI 96826  
Attn: Kaiaulu O Waikoloa  
(Transmitted via email to: rachelokoji@enviro-riskhawaii.com)

**SUBJECT: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development**

Location: Big Island, Hawaii  
Tax Map Key: (3) 6-8-003:028

We have reviewed the subject Environmental Assessment and have the following comments:

1. Drainage studies conducted for adjacent properties (3) 6-8-002:16 and (3) 6-8-003:032 by R.M. Towill Corporation dated December 1992 and September 2006 indicate existing flood routes that run through the subject property. Offsite runoff which flows through the subject property is subject to the requirements of Hawaii County Code Chapter 27 – Floodplain Management. A drainage study shall be required and any improvements and/or alterations to any water course shall meet the approval of the Department of Public Works (DPW).
2. All development generated runoff shall be disposed of on-site and shall not be directed toward adjacent properties. An on-site drainage study shall be required and the recommended drainage system shall be constructed meeting with the approval of the DPW.
3. Streetlights, signs, and markings shall be installed when required by and meeting with the approval of the DPW, Traffic Division.
4. Access to the project site via Pua Melia Road, a County owned and maintained road, shall meet the approval of DPW.
5. All earthwork and grading shall conform to Hawaii County Code Chapter 10 – Erosion and Sediment Control.

Should you have any questions on this matter, please contact me at 323-4853.

Natalie Whitworth, P.E.  
Civil Engineer V

Copy: DPW Engineering – Hilo/Kona, Planning Department

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July 9, 2019

County of Hawaii  
Department of Public Works  
101 Pauahi Street, Suite 7  
Hilo, Hawaii 96720-4224

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

---

Dear Ms. Whitworth, P.E.:

Thank you for your comment letter, dated June 24, 2019, in response to the above project.

In response to your comments:

1. Drainage studies conducted for adjacent properties (3) 6-8-002 :16 and (3) 6-8-003:032 by R.M. Towill Corporation dated December 1992 and September 2006 indicate existing flood routes that run through the subject property . Offsite runoff which flows through the subject property is subject to the requirements of Hawaii County Code Chapter 27 - Floodplain Management. A drainage study shall be required and any improvements and/or alterations to any water course shall meet the approval of the Department of Public Works (DPW).

*An existing flood route is in the immediate vicinity of the proposed project site. Impacts from the undeveloped flood route have been evaluated. The flood route will remain to convey flow across the corner of the site to Pua Melia Street. The developed condition flow will not exceed the pre-developed condition flow in accordance with County drainage standards.*

2. All development generated runoff shall be disposed of on-site and shall not be directed toward adjacent properties. An on-site drainage study shall be required and the recommended drainage system shall be constructed meeting with the approval of the DPW.

*All runoff will be disposed of on-site. Please see response to #1 above.*

3. Streetlights, signs, and markings shall be installed when required by and meeting with the approval of the DPW, Traffic Division.

*DPW, Traffic Division will be consulted during the planning and construction phases.*

4. Access to the project site via Pua Melia Road, a County owned and maintained road, shall meet the approval of DPW.

*DPW, Traffic Division will be consulted during the planning and construction phases.*

5. All earthwork and grading shall conform to Hawaii County Code Chapter 10 -Erosion and Sediment Control.

*All earthwork will conform to Hawaii County Code Chapter 10.*

Your support of affordable rental housing is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Rachel Okoji". The signature is written in a cursive, slightly slanted style.

Rachel Okoji, M.S.  
President



**From:** Delene Osorio delene@dkoci.com  
**Subject:** FW: Kaiaulu O Waikoloa--Draft EA (AFNSI)  
**Date:** June 3, 2019 at 12:40 PM  
**To:** kohalacoastresortassn@gmail.com  
**Cc:** Rachel Okoji rachelokoji@enviroriskhawaii.com, James Rock jrock@uhcllc.net

---

Hi Stephanie,

Here is Rachel's email address. Rachel Okoji <rachelokoji@enviroriskhawaii.com>

I have copied her on this email so that she is aware that the KCRA supports our project in Waikoloa.

Mahalo!

Delene

-----Original Message-----

From: James Rock <jrock@uhcllc.net>  
Sent: Monday, June 3, 2019 11:05 AM  
To: Doug Bigley <dbigley@uhcllc.net>  
Cc: Mig Saenz (msaenz2020@gmail.com) <msaenz2020@gmail.com>; Randy Hiu <rhiu@ikaikaohana.org>; Delene Osorio <delene@dkoci.com>  
Subject: FW: Kaiaulu O Waikoloa--Draft EA (AFNSI)

FYI - received positive support from Kohala coast resort association for the Waikoloa EA

-----Original Message-----

From: kohalacoastresortassn@gmail.com <kohalacoastresortassn@gmail.com>  
Sent: Monday, June 3, 2019 1:47 PM  
To: janice.n.takahashi@hawaii.gov  
Cc: James Rock <jrock@uhcllc.net>; rachelokoji@enviroriskhawaii.net  
Subject: Kaiaulu O Waikoloa--Draft EA (AFNSI)

Aloha Janice, James and Rachel,

Thank you for the opportunity to comment on the Draft EA for the Kaiaulu O Waikoloa project.

The Kohala Coast Resort Association supports the development of additional workforce and rental housing in the Waikoloa area. With more than 5,000 employees along the Kohala Coast, we believe there is a strong need for this type of development.

Mahalo,

Stephanie Donoho

Stephanie Donoho, Administrative Director

Kohala Coast Resort Association

PO Box 6991, Kamuela, HI 96743

(808) 747-5762

kohalacoastresortassn@gmail.com

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July 9, 2019

Stephanie Donoho, Administrative Director  
Kohala Coast Resort Association  
PO Box 6991,  
Kamuela, HI 96743

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Ms. Donoho:

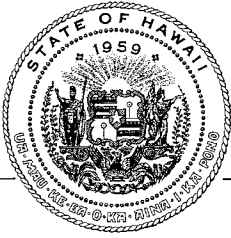
Thank you for your email, dated June 3, 2019, in response to the above project. We appreciate the support of the Kohala Coast Resort Association and acknowledge there are no objections for the proposed project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji", is positioned below the word "Sincerely,".

Rachel Okoji, M.S.  
President

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## OFFICE OF PLANNING STATE OF HAWAII

DAVID Y. IGE  
GOVERNOR

MARY ALICE EVANS  
DIRECTOR  
OFFICE OF PLANNING

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

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

DTS201906180944NA

June 19, 2019

Ms. Rachel Okoji, M.S.  
President  
Environmental Risk Analysis, LLC  
905A Makahiki Way  
Honolulu, Hawaii 96826  
Attn.: Kaiaulu O Waikoloa

Dear Ms. Okoji:

Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development.  
Waikoloa, Hawaii  
TMK: (3) 6-8-003: 028

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) on the Kaiaulu O Waikoloa affordable rental housing project. The review notification was transmitted to our office via letter dated May 28, 2019.

It is our understanding that this project proposes to build a 60-unit affordable rental housing complex on 4.6 acres of land situated in Waikoloa on the west side of Hawaii Island. The units will consist of two, three, and four-bedroom apartments.

The objective of this project is to produce an affordable rental development for residents of West Hawaii County. The proposed housing units will target low income households residing in Hawaii County, who earn less than 60 percent of the Area Median Income. These units will help meet the dire need for affordable housing for demographic groups that are at risk of becoming homeless due to the severe shortages.

The Office of Planning has reviewed the Draft EA and acknowledges that our comments and concerns listed in our pre-consultation comment letter, DTS201712121525NA, dated December 13, 2017 have been satisfied. Furthermore, we note that pursuant to Act 127, Session Laws of Hawaii 2016, the 60-units offered by this affordable rental housing project will be applied to the goals of the Special Action Team formed to address the objectives of Act 127 (22,500 affordable rental-housing units by December 31, 2026).

We have no further comments at this time. If you have any questions regarding this comment letter, please contact Joshua Hekekoa of our office at (808) 587-2845.

Mahalo,

Mary Alice Evans  
Director

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July 9, 2019

Office of Planning  
State of Hawaii  
235 South Beretania Street, 6<sup>th</sup> Floor  
Honolulu, Hawaii 96813

**Subject: Environmental Assessment for the Kaiaulu O Waikoloa Housing Development  
TMK: (3) 6-8-003:028, Big Island, Hawaii**

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Dear Director Evans:

Thank you for your comment letter, dated June 19, 2019, in response to the above project.

We appreciate your review and acceptance of responses to your earlier comment letter, dated December 13, 2017, and note there are no further comments from the Office of Planning.

Your support of affordable rental housing is appreciated.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rachel Okoji".

Rachel Okoji, M.S.  
President

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