DAVID Y. IGE
GOVERNOR

DENISE ISERI-MATSUBARA
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:

22:PECB/44

August 15, 2022

Ms. Mary Alice Evans, Director
Office of Planning and Sustainable Development
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Ms. Evans:

Re: Final Environmental Assessment for the Kaiaulu O Kapiolani Housing Development
South Kohala District, Hawaii Island
TMK No. (3) 2-4-025:048, :053, :080

The Hawaii Housing Finance and Development Corporation (HHFDC) hereby transmits the Kaiaulu O Kapiolani Housing Development Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for publication in the next available edition of The Environmental Notice.

HHFDC has reviewed the environmental study, comments received during the 30-day public review period, and the corresponding responses from the applicant. Based on the significance criteria in section 11-200.1-13, Hawaii Administrative Rules, HHFDC has determined that the proposed action will have no significant adverse effects on the environment.

Submitted online is a completed Publication Form, the FEA-FONSI in PDF, and an electronic copy of this letter. 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 Dean Watase, Housing Planning Manager, at (808) 587-0639.

Sincerely,

Francis Paul Keeno

for Denise Iseri-Matsubara
Executive Director

c: Environmental Risk Analysis LLC

From: webmaster@hawaii.gov
Sent: Monday, August 15, 2022 3:29 PM
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice

Follow Up Flag: Follow up
Flag Status: Flagged

Action Name
Kaiaulu O Kapiolani
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
North Hilo, Hawai‘i
Tax Map Key(s) (TMK(s))
(3)2-4-025:048,053,080
Action type
Applicant
Other required permits and approvals
Building & Grading Permits, Chapter 343, NPDES
Discretionary consent required
None
Approving agency
Hawaii Housing Finance and Development Corporation
Agency contact name
Dean Watase
Agency contact email (for info about the action)
dean.k.watase@hawaii.gov
Agency contact phone
(808) 587-0639
Agency address
677 Queen Street, Suite 300 Honolulu, Hawaii 96813 United States Map It
Applicant
A0705 Hilo, L.P.
Applicant contact name

Grant Bigley

Applicant contact email

gbigley@uhcllc.net

Applicant contact phone

(714) 873-5568

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

Consultant contact phone

(808) 783-6840

Consultant address

905A Makahiki Way
Honolulu, Hawaii 96826
United States
Map It

Action summary

A0705 Hilo, L.P. is proposing to develop an affordable rental complex of 64 units, consisting of 32 two-bedroom units, an estimated 24 three-bedroom units, and an estimated 8 four-bedroom units in Hilo. The development will include a community center for resident use and 117 parking stalls. The objective of this project is to produce an affordable rental development, while utilizing the least amount of State of Hawaii resources. These apartments will target low income households earning 60 percent or less of the Area Median Income (AMI) for the County of Hawaiʻi. 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 and Appendix.

Attached documents (signed agency letter & EA/EIS)

- Kaiaulu-O-Kapiolani-EA-FINAL-2022.pdf
- 2022-08-15-Kaiaulu-O-Kapiolani-FEA-FONSI-Transmittal-to-OPSD.pdf

Shapefile

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

Action location map

- Figure-1.zip

Authorized individual

Rachel Okoji

Authorization

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

FINAL ~~DRAFT~~
ENVIRONMENTAL ASSESSMENT

Kaiaulu O Kapiolani
Proposed Housing Development
Hilo, Hawaii
TMK (3) 2-4-025:048, (3) 2-4-025:053,
(3) 2-4-025:080

Applicant:
A0705 Hilo, L.P.

Approving Agency:
Hawaii Housing Finance & Development Corporation
&
County of Hawaii, Office of Housing and Community Development

August 2022 ~~June 2021~~

FINAL ~~DRAFT~~
Environmental Assessment

Kaiaulu O Kapiolani
Proposed Housing Development
Kapiolani Street & Kukuau Street
Hilo, Hawaii 96720
TMK (3) 2-4-025:048, (3) 2-4-025:053, (3) 2-4-025:080

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

Prepared for:
A0705 Hilo, L.P.
2000 E. Fourth Street, Suite 220
Santa Ana, CA 92705

Applicant:
A0705 Hilo, L.P.

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

County of Hawaii, Office of Housing and Community Development
1990 Kinoʻole Street, Suite 102
Hilo, HI 96720-5293

August 2022 ~~June 2021~~

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

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	Exhibit 16: Consultation Letters

Acronyms and Abbreviations

AAQS	Ambient Air Quality Standards
AIS	Archaeological Inventory Survey
AMI	Area Median Income
ASTM	American Society for Testing and Materials
Bgs	Below ground surface
CAA	Clean Air Act
CDBG	Community Development Block Grant
CDP	Community Development Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability 1980
CFR	Code of Federal Regulations
Cl-	Chloride
dBA	decibel
DBEDT	Department of Business, Economic Development & Tourism
DOD	Department of Defense
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
ERA	Environmental Risk Analysis, LLC
ESA	Environmental Site Assessment
F^o	Degrees Fahrenheit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpd	Gallons per day

HAR	Hawaii Administrative Rules
HDOH	Hawaii Department of Health
HEER	HDOH Hazard Evaluation and Emergency Response
HELCO	Hawaiian Electric Company
HHFDC	Hawaii Housing Finance and Development Corporation
HRHP	Hawaii Register of Historic Places
HRS	Hawaii Revised Statutes
HTF	Housing Trust Fund
LUC	Land Use Commission
LUST	Leaking Underground Storage Tank
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFA	No Further Action
NRHP	National Register of Historic Places
Mg/L	Milligrams per liter
PCB	Polychlorinated biphenyl
PM	Particulate Matter
PV	Photovoltaic
PWS	Public Water Supply
SCS	Scientific Consultant Services, Inc.
SEL	Sound Exposure Level
SHPD	Hawaii State Historic Preservation Division
SO2	Sulfur Dioxide
TIAR	Traffic Impact Analysis Report
TMK	Tax Map Key
UH	University of Hawaii
UIC	Underground Injection Control Line

USDA	US Department of Agriculture
USEPA	US Environmental Protection Agency
USGS	US Department Geological Survey
UST	Underground Storage Tank

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 identified as Tax Map Keys (TMKs) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080 in Hilo, 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 – 64-unit housing development on Kapiolani Street and Kukuau Street in Hilo, 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 25 Section 8 Project Based Vouchers for rent subsidy, and the County may grant approximately $12,800,000 ~~$1,500,000~~ of CDBG, HOME and/or HTF funds in support of the project.

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
- 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 social 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.

- 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 Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969; 24 Code of Federal regulations (CFR) Part 50 and Part 58 Environmental Review with the National Housing Trust Fund (HTF) Environmental Provisions at 24 CFR 93.301(f)(1); the 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 Hilo Hawaii, Hawaii (Figure 1). A NEPA, 24 CFR Part 58 EA is required because the project has been allocated federal funds from the HOME Investment Partnerships Program (HOME), which is subsidized by the Department of Housing and Urban Development (HUD) and the County of Hilo, Department of Housing on Human Concerns, and also Community Development Block Grant funds. The HTF also requires a 24 CFR Part 50 and Part 58 review according to environmental provisions of 24 CFR 93.301(f)(1) for new construction, and when combining HTF and other HUD funds. An HRS Chapter 343 EA is also required due to the award of state funds from the Rental Housing Revolving Fund, which is administered by the Hawaii Housing Finance and Development Corporation (HHFDC).

1.2 Project Information

Project Name:	Kaiaulu O Kapiolani Proposed Housing Development Project Hilo, Hawaii
Applicant:	A0705 Hilo, L.P. 2000 E. Fourth Street, Suite 220 Santa Ana, California 92705 Contact: James Rock (714) 835-3955
Agent:	Environmental Risk Analysis, LLC 905 Makahiki Way Honolulu, Hawaii 96826 Contact: Russell Okoji (808) 425-0968
Approving Agency:	HHFDC 677 Queen Street, Suite 300 Honolulu, Hawaii 96813

	County of Hawaii Office of Housing and Community Development 1990 Kinoʻole Street, Suite 102 Hilo, Hawaii 96720-5293
Project Location:	Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 Island of Hawaii
Tax Map Keys (TMKs):	(3) 2-4-025:048,053,080
Total Affected Area:	219,978 square feet (5.05 acres)
Existing Land Use:	Currently unpaved and undeveloped
State Land Use Classification:	Urban
Land Use Ordinance Zoning:	MR-1.5 (Multiple-Family Residential Districts)
State Special District:	No
Flood Zone:	Flood Insurance Rate Map Zone X
Land Owner:	Giampaolo Boschetti 955 Prague Street San Francisco, CA 92705

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Hilo, Hawaii TMK (3) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080	FIGURE TITLE: Site Location Map FIGURE NUMBER: 1

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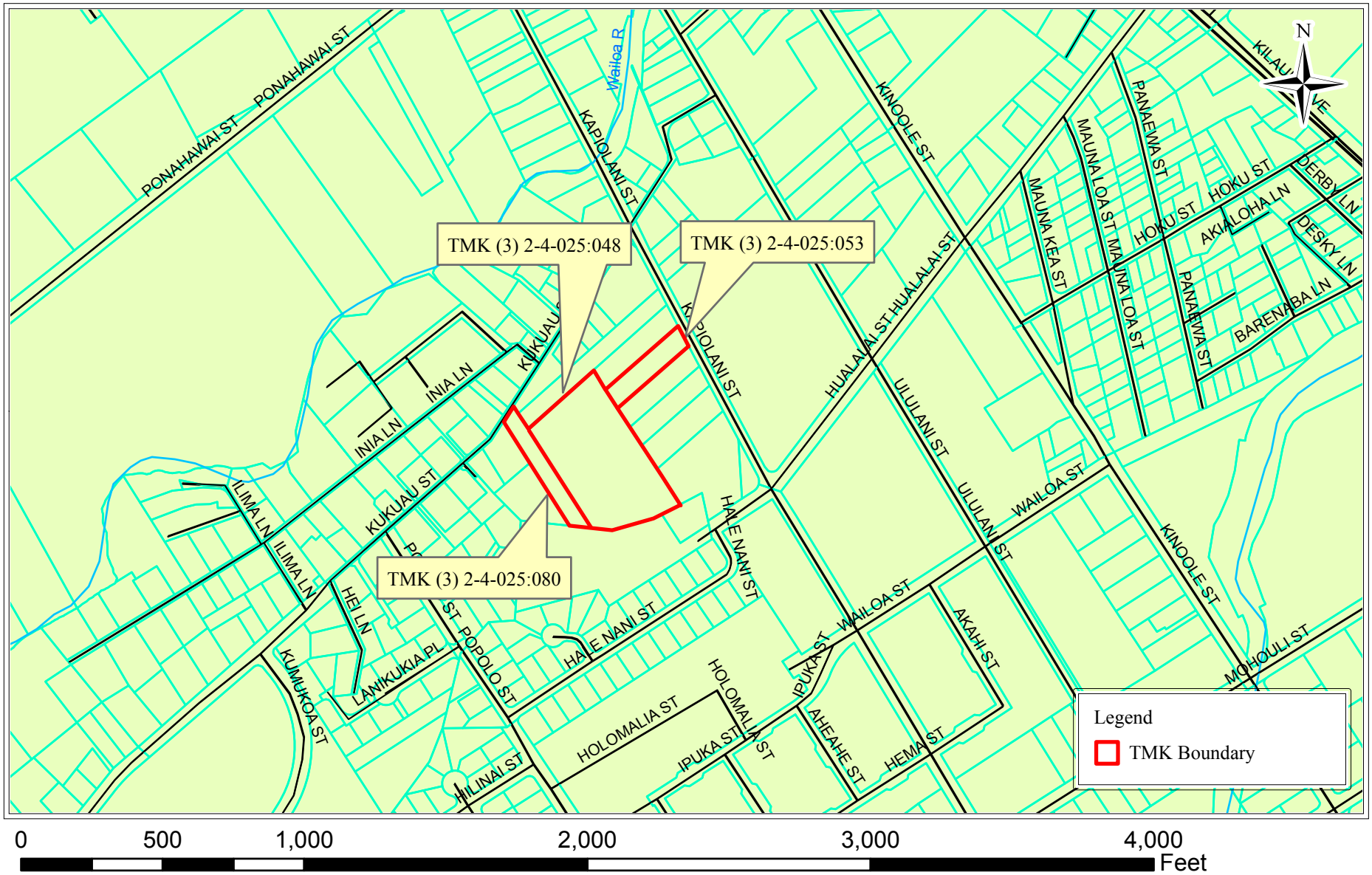

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment. Kaiaulu O Kapiolani Hilo, Hawaii TMK (3) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080	FIGURE TITLE: TMK Map FIGURE NUMBER: 2

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SECTION 2 PROJECT DESCRIPTION

2.1 Purpose and Need

Purpose: This EA has been prepared to satisfy the requirements of HRS Chapter 343, HUD, and 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 29.5% by 2025. This would result in a total demand of between 7,816 and 13,527 additional housing units for Hawaii County by 2025 (DBEDT, 2019).

2.2 Project Description

The proposed development site (TMKs (3) 2-4-025:048,053,080) encompasses 5.05 acres of land situated in Hilo on the east side of the Island of Hawaii. Currently, this location is zoned for multi-family dwelling units. A0705 Hilo, L.P. is proposing to develop an affordable rental complex of 64 units, consisting of 32 two-bedroom units, an estimated 24 three-bedroom units, and an estimated 8 4-bedroom units in Hilo (Figures 3-11). The development will include a community center for resident use (Figure 12) and ~~at least 80~~ 117 parking stalls. The objective of this project is to produce an affordable rental development, while utilizing the least amount of State of Hawaii resources. These apartments will target low income households earning 60 percent or less 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 Cost

The construction period is estimated to be from 2022 through 2023. Construction is estimated to begin first quarter of 2022. Completion is anticipated in the fourth quarter of 2023.

The total budget for these improvement activities is estimated at $53,888,000 ~~$46,400,000~~. The anticipated primary financing will be provided by Hunt Capital Partners and Section 8 Project Based Vouchers. HHFDC has awarded Tax Exempt Bonds, tax credits and the State’s Rental Housing Revolving Funds.

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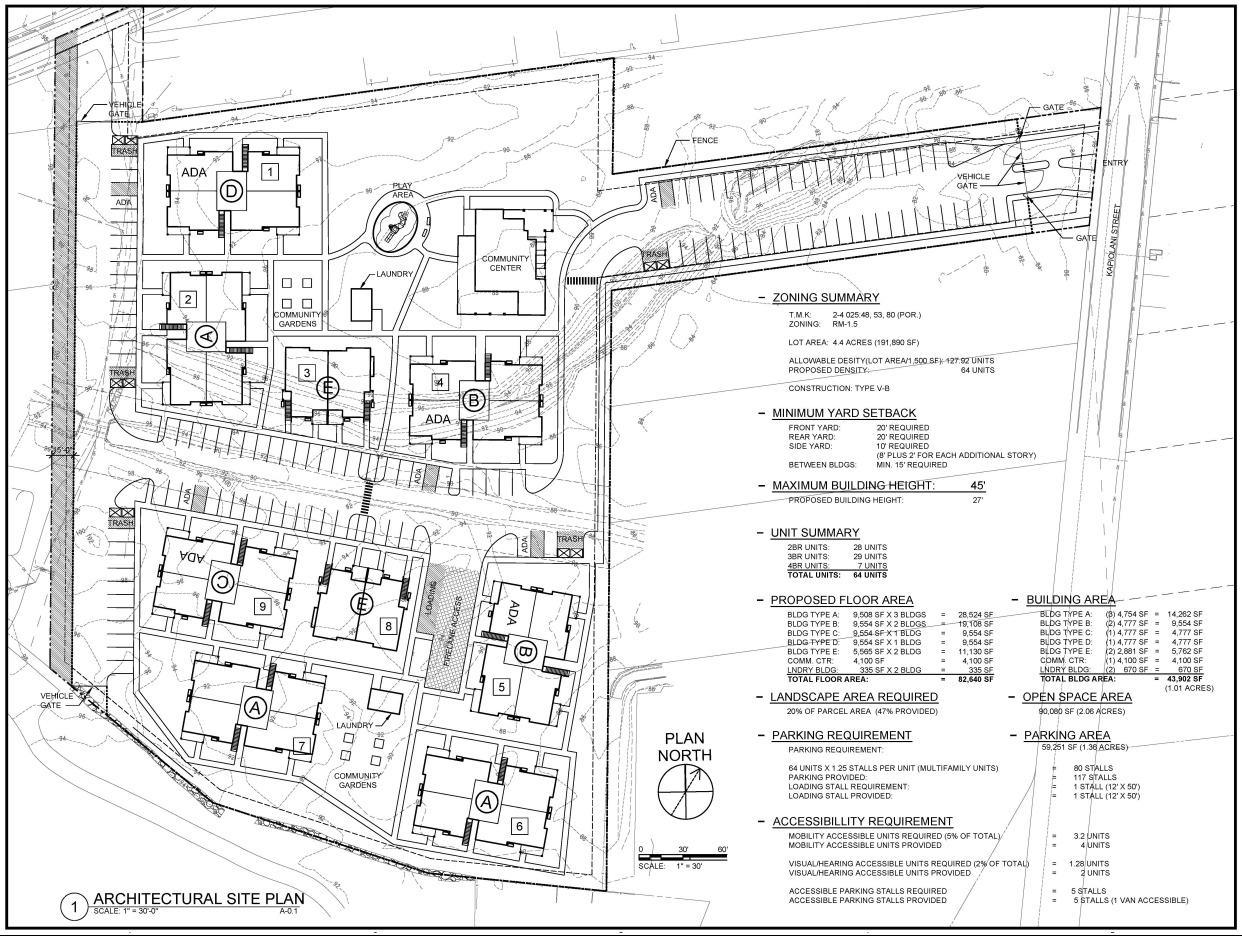

1 ARCHITECTURAL SITE PLAN
SCALE: 1" = 30'-0" A-0.1

ZONING SUMMARY

T.M.K: 2-4-025:48, 53, 80 (POR.)
ZONING: RM-1.5

LOT AREA: 4.4 ACRES (191,890 SF)

ALLOWABLE DESITY(LOT AREA/1,500 SF): 127.92 UNITS
PROPOSED DENSITY: 64 UNITS

CONSTRUCTION: TYPE V-B

MINIMUM YARD SETBACK

FRONT YARD: 20' REQUIRED
REAR YARD: 20' REQUIRED
SIDE YARD: 10' REQUIRED
(8' PLUS 2' FOR EACH ADDITIONAL STORY)
BETWEEN BLDGS: MIN. 15' REQUIRED

MAXIMUM BUILDING HEIGHT: 45'

PROPOSED BUILDING HEIGHT: 27'

UNIT SUMMARY

2BR UNITS: 28 UNITS
3BR UNITS: 29 UNITS
4BR UNITS: 7 UNITS
TOTAL UNITS: 64 UNITS

PROPOSED FLOOR AREA

BLDG TYPE A:	9,508 SF X 3 BLDGS	=	28,524 SF
BLDG TYPE B:	9,554 SF X 2 BLDGS	=	19,108 SF
BLDG TYPE C:	9,554 SF X 1 BLDG	=	9,554 SF
BLDG TYPE D:	9,554 SF X 1 BLDG	=	9,554 SF
BLDG TYPE E:	5,565 SF X 2 BLDG	=	11,130 SF
COMM. CTR:	4,100 SF	=	4,100 SF
LNDRY BLDG:	335 SF X 2 BLDG	=	335 SF
TOTAL FLOOR AREA:		**=**	**82,640 SF**

BUILDING AREA

BLDG TYPE A:	(3) 4,754 SF	=	14,262 SF
BLDG TYPE B:	(2) 4,777 SF	=	9,554 SF
BLDG TYPE C:	(1) 4,777 SF	=	4,777 SF
BLDG TYPE D:	(1) 4,777 SF	=	4,777 SF
BLDG TYPE E:	(2) 2,881 SF	=	5,762 SF
COMM. CTR:	(1) 4,100 SF	=	4,100 SF
LNDRY BLDG:	(2) 670 SF	=	670 SF
TOTAL BLDG AREA:		**=**	**43,902 SF**
			(1.01 ACRES)

LANDSCAPE AREA REQUIRED

20% OF PARCEL AREA (47% PROVIDED)

OPEN SPACE AREA

90,080 SF (2.06 ACRES)

PARKING REQUIREMENT

PARKING REQUIREMENT:

64 UNITS X 1.25 STALLS PER UNIT (MULTIFAMILY UNITS) = 80 STALLS
PARKING PROVIDED: = 117 STALLS
LOADING STALL REQUIREMENT: = 1 STALL (12' X 50')
LOADING STALL PROVIDED: = 1 STALL (12' X 50')

PARKING AREA

59,251 SF (1.36 ACRES)

ACCESSIBILLITY REQUIREMENT

MOBILITY ACCESSIBLE UNITS REQUIRED (5% OF TOTAL) = 3.2 UNITS
MOBILITY ACCESSIBLE UNITS PROVIDED = 4 UNITS

VISUAL/HEARING ACCESSIBLE UNITS REQUIRED (2% OF TOTAL) = 1.28 UNITS
VISUAL/HEARING ACCESSIBLE UNITS PROVIDED = 2 UNITS

ACCESSIBLE PARKING STALLS REQUIRED = 5 STALLS
ACCESSIBLE PARKING STALLS PROVIDED = 5 STALLS (1 VAN ACCESSIBLE)

Design Partners Incorporated
Architecture
Planning
Interiors Design
00/00/00

Signature
Expiration Date of the License
This work was prepared by me or under my supervision and construction of this project will be under my observation.

Revision Number/Description

Project Name
Kaiaulu O Kapiolani
A07015 HILO LP
-
TMK : 2-4-025:48,53,80(POR)

Drawing Title
ARCHITECTURAL SITE PLAN

Project Number	Date	
18056	APR 20 2020	
Drawn	Checked	Designed

Drawing Number
A-0.1
Sheet No. ___ of ___

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Site plan FIGURE NUMBER: **3**

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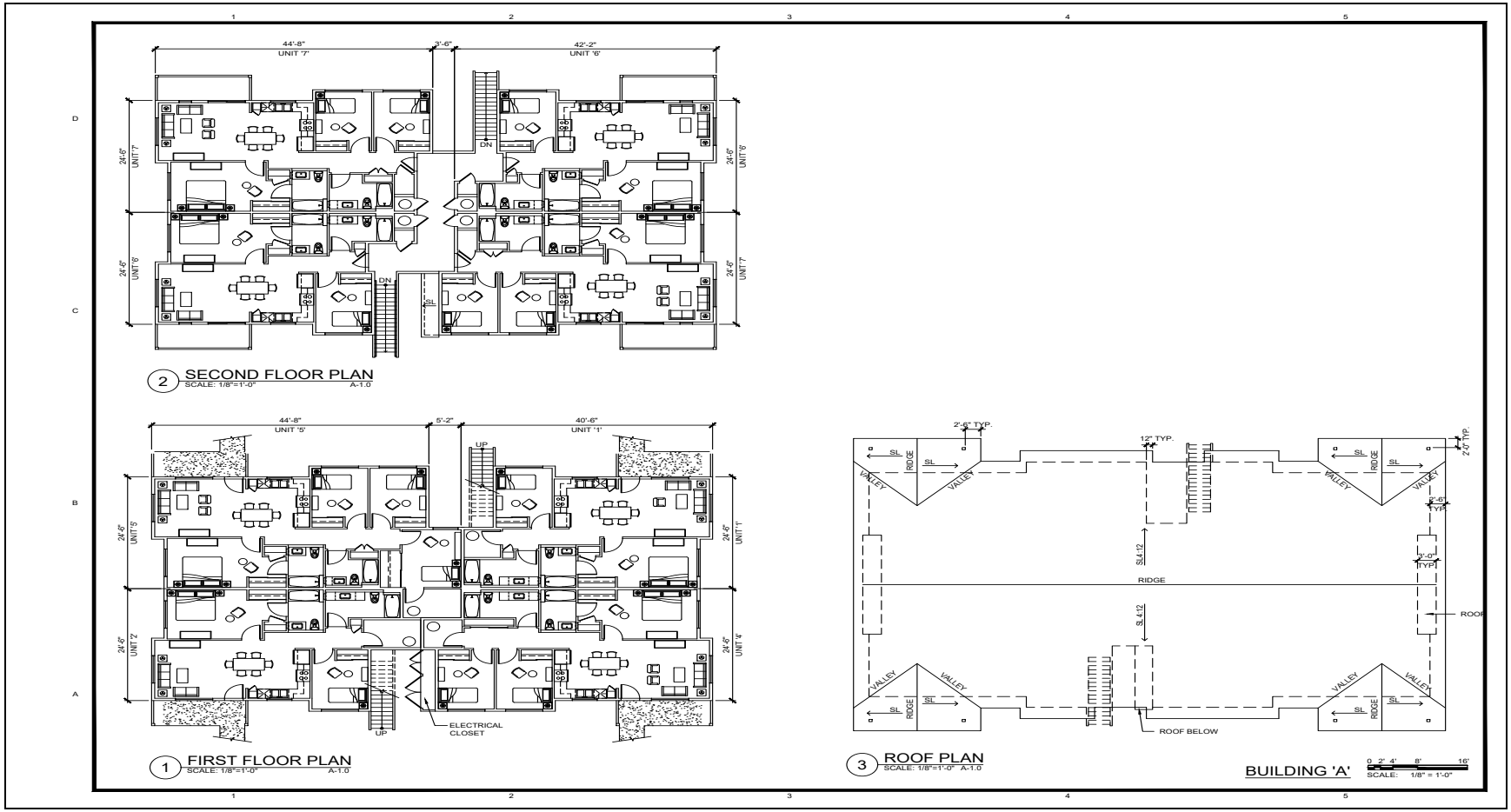

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type A Floor Plan FIGURE NUMBER: **4**

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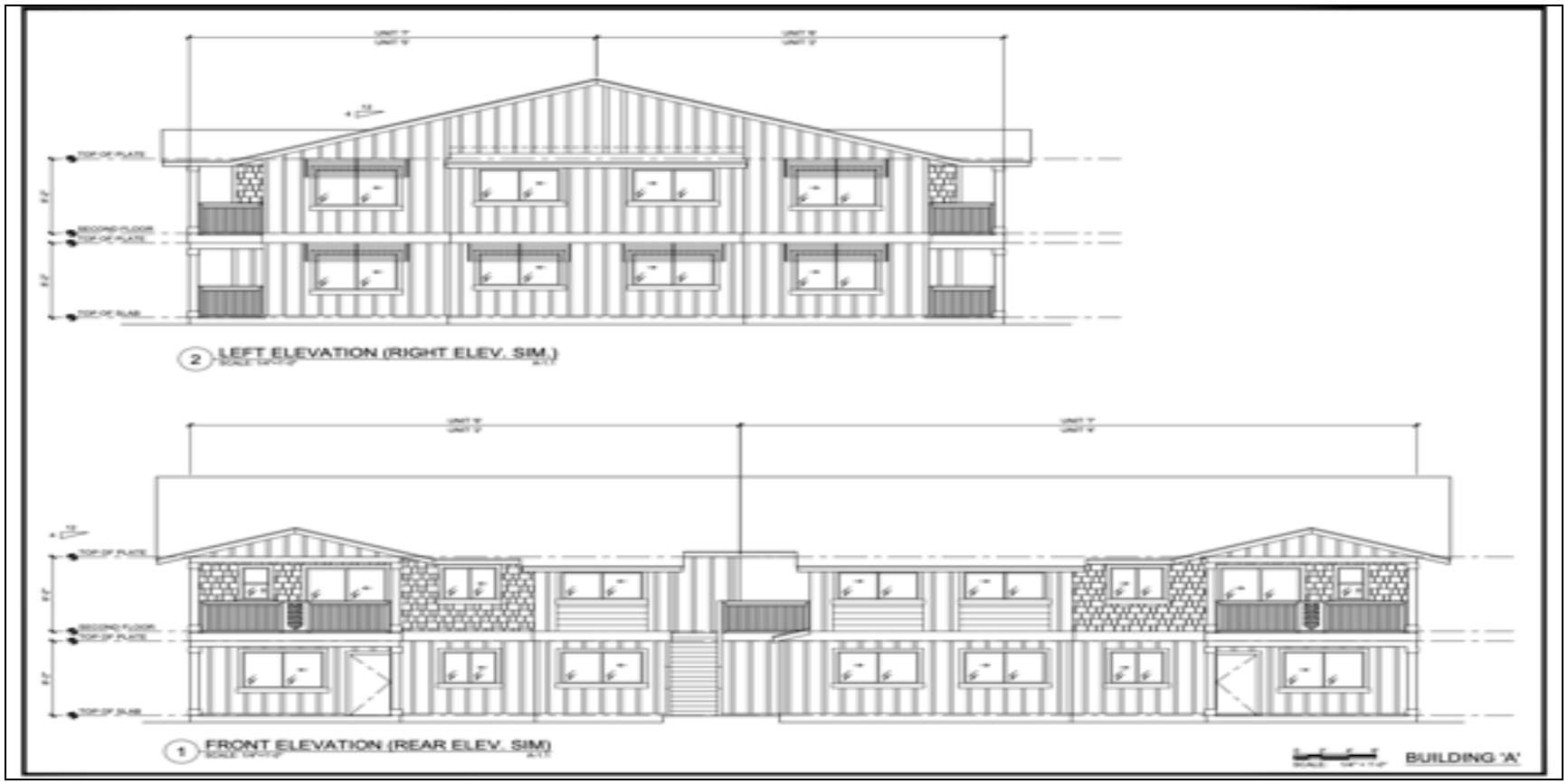

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type A Elevations FIGURE NUMBER: **5**

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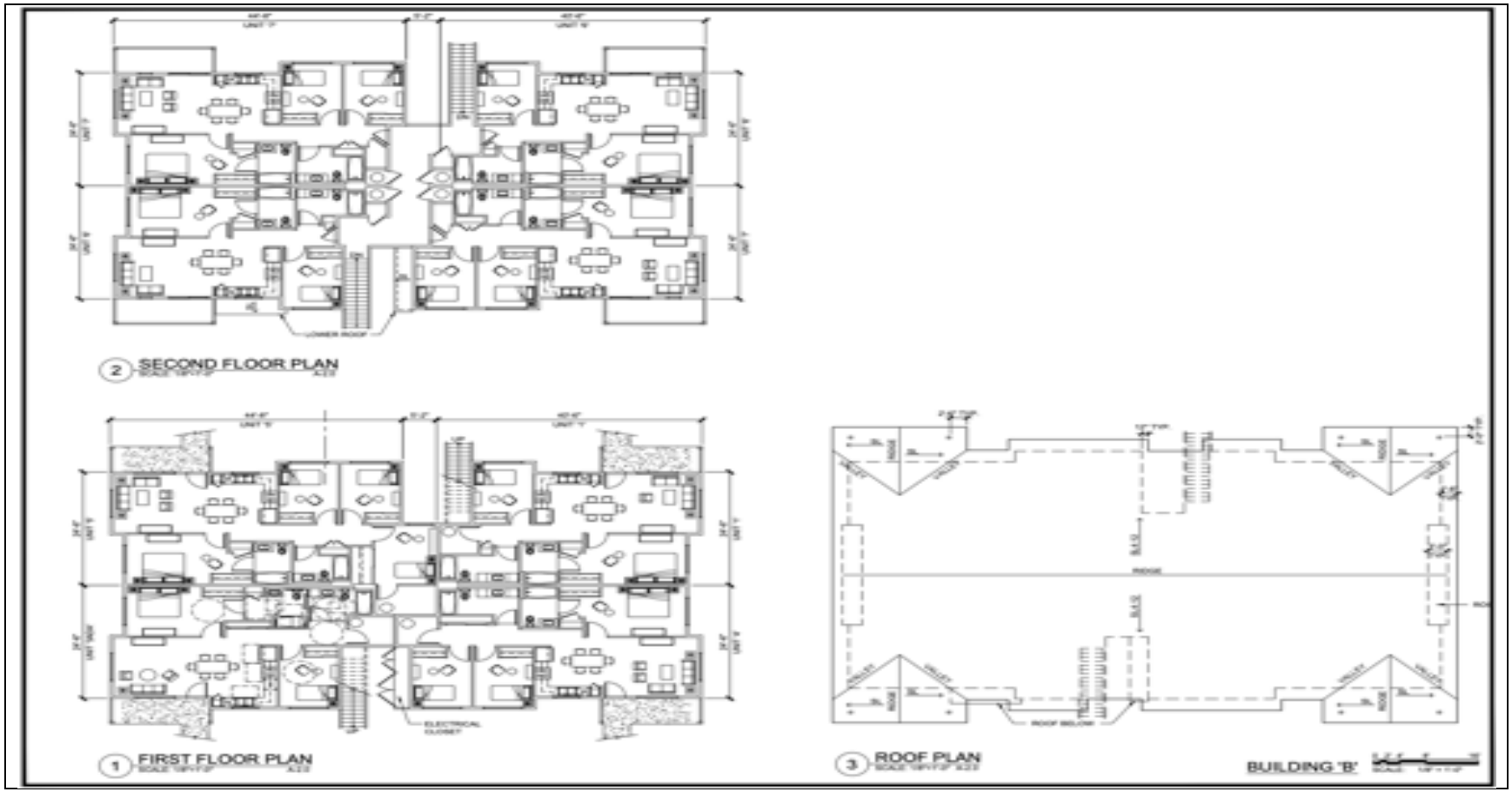

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type B Floor Plan FIGURE NUMBER: **6**

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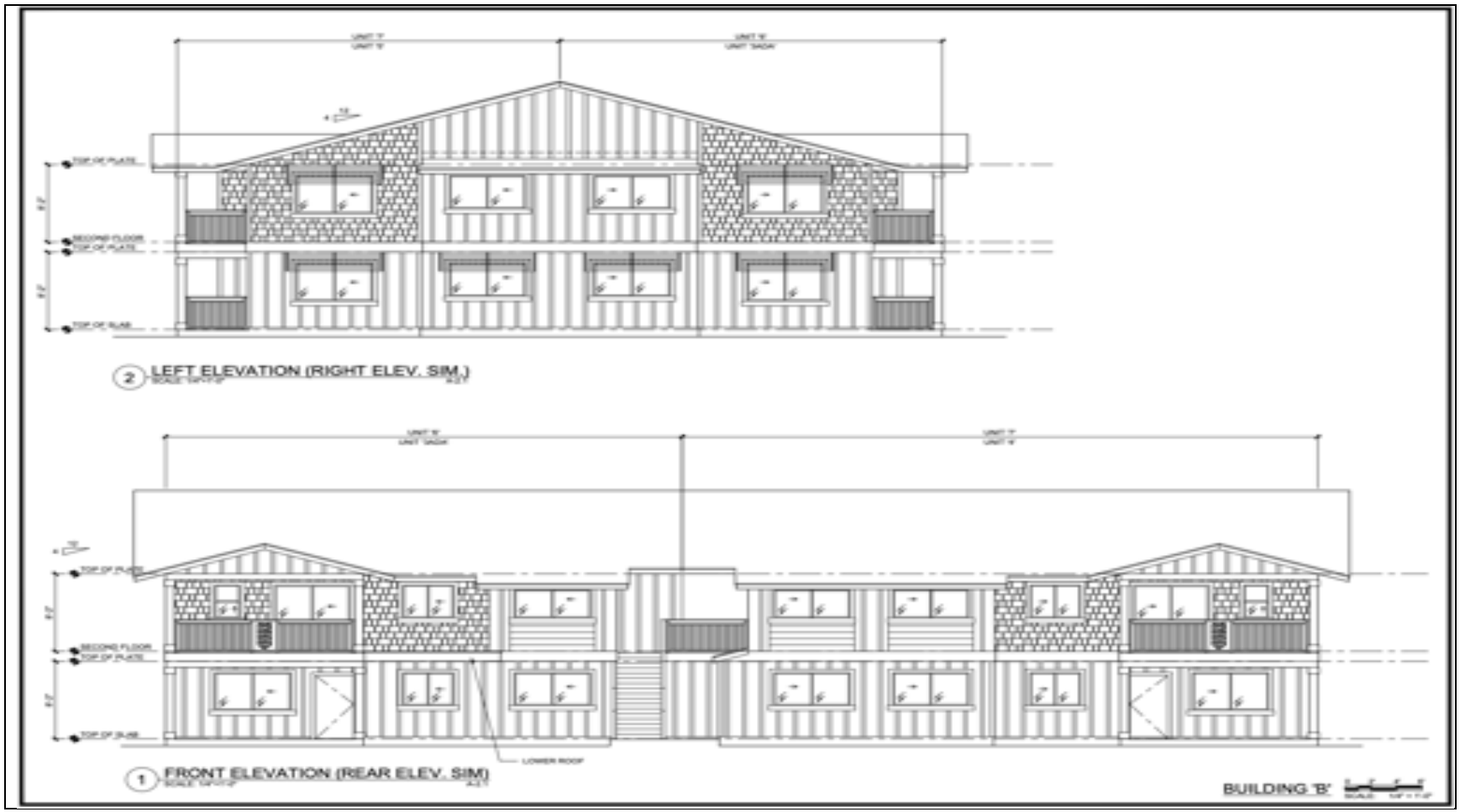

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type B Elevations FIGURE NUMBER: **7**

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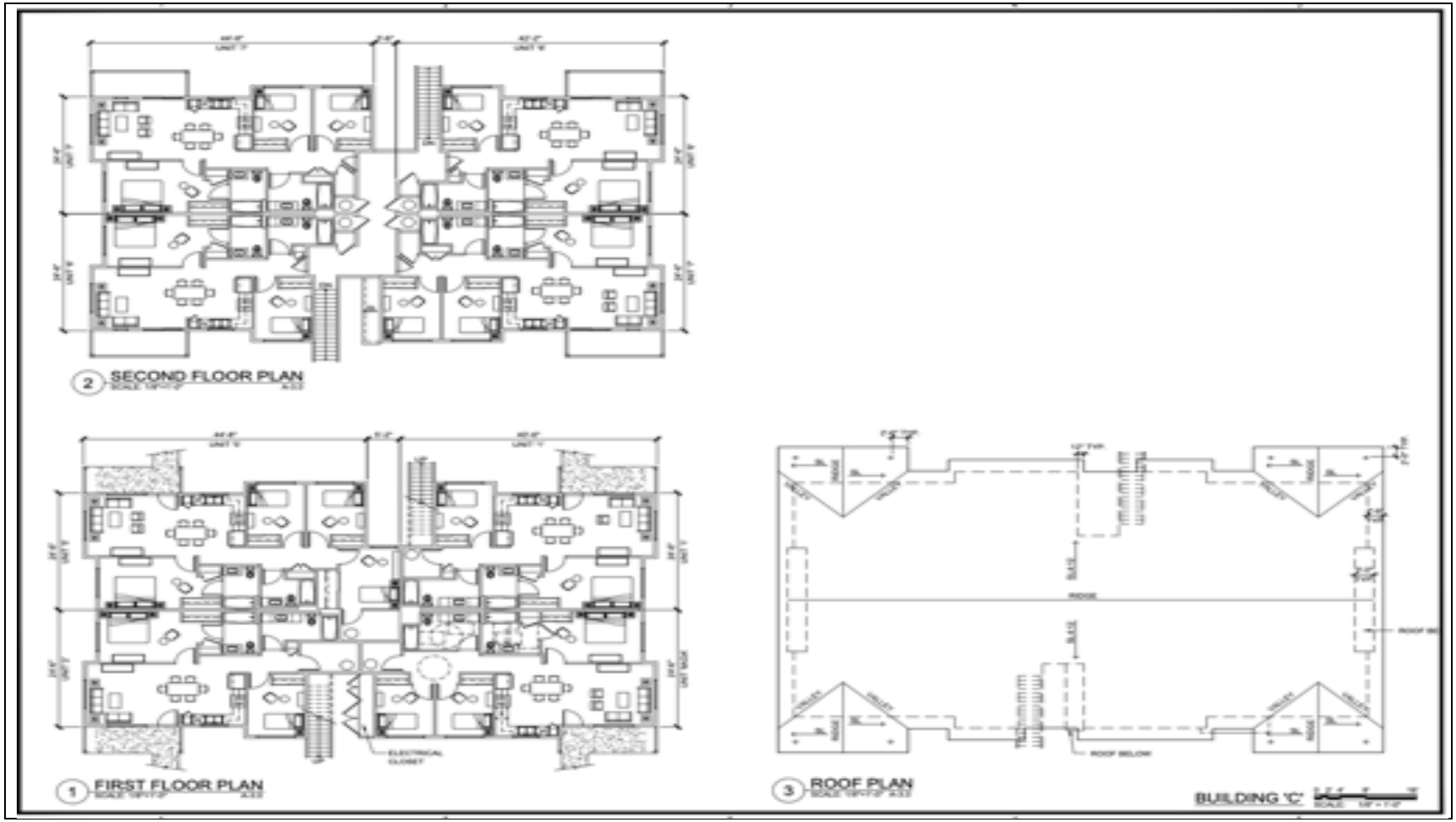

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type C Floor Plan FIGURE NUMBER: **8**

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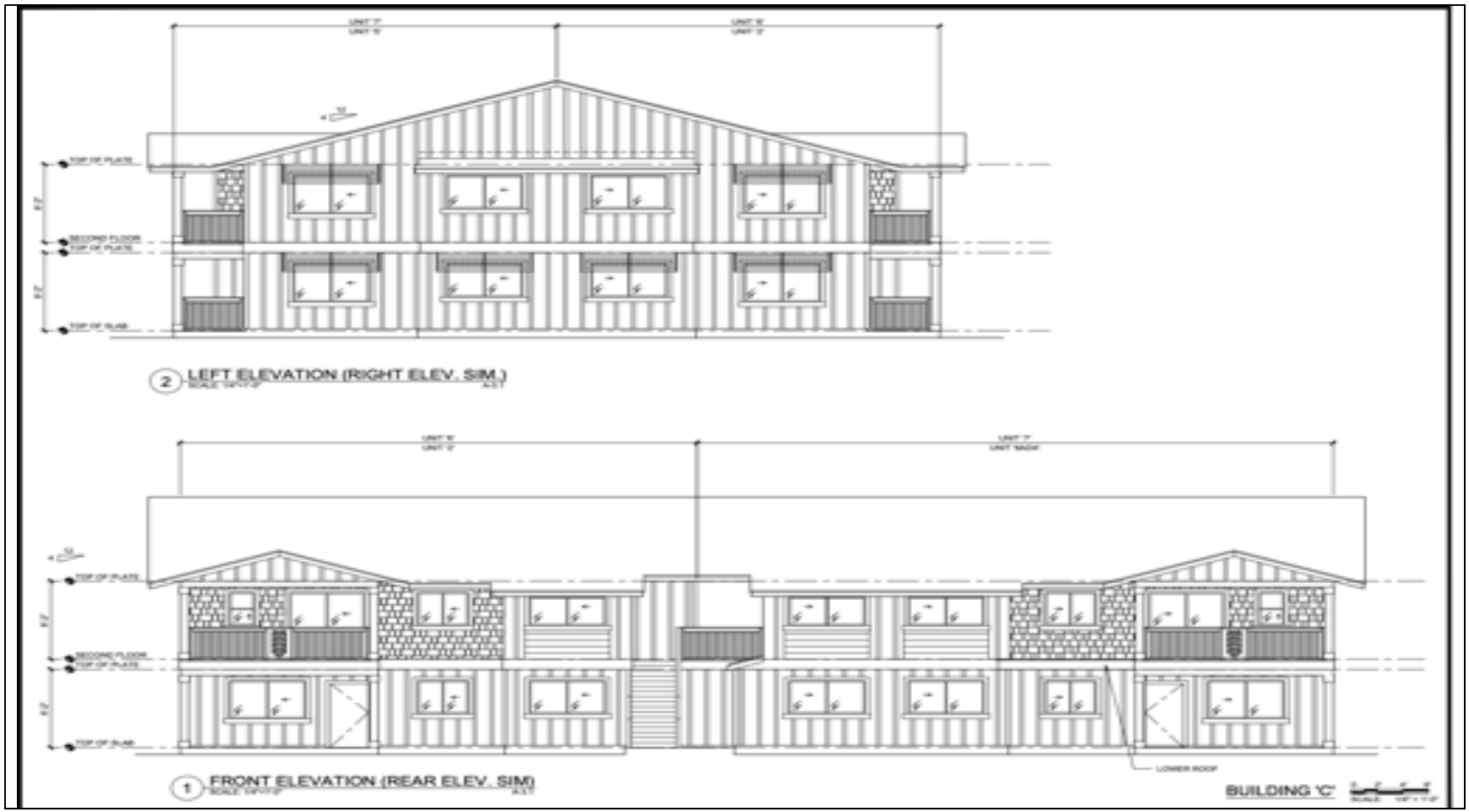

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type C Elevations FIGURE NUMBER: **9**

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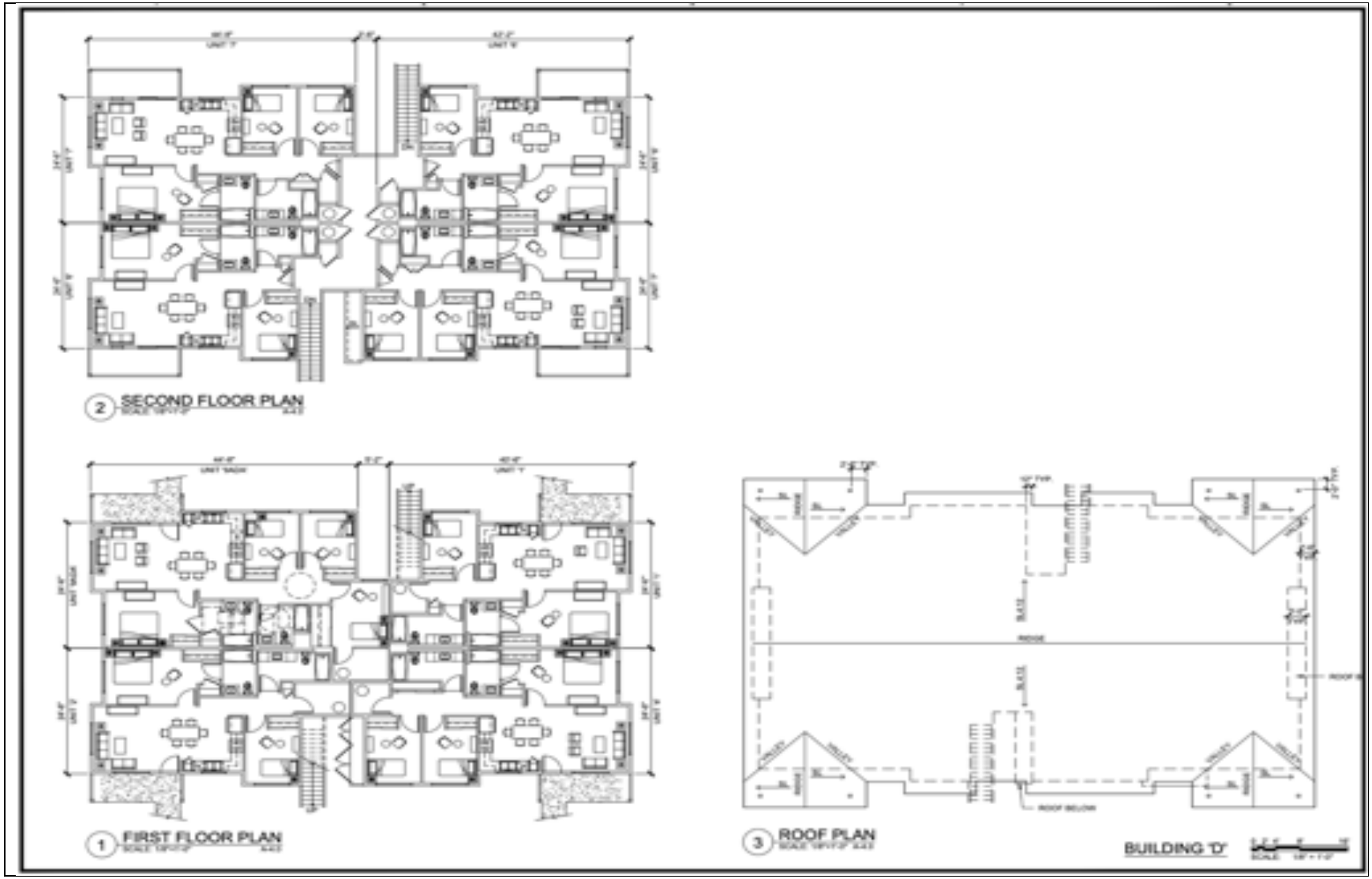

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type D Floor Plan FIGURE NUMBER: **10**

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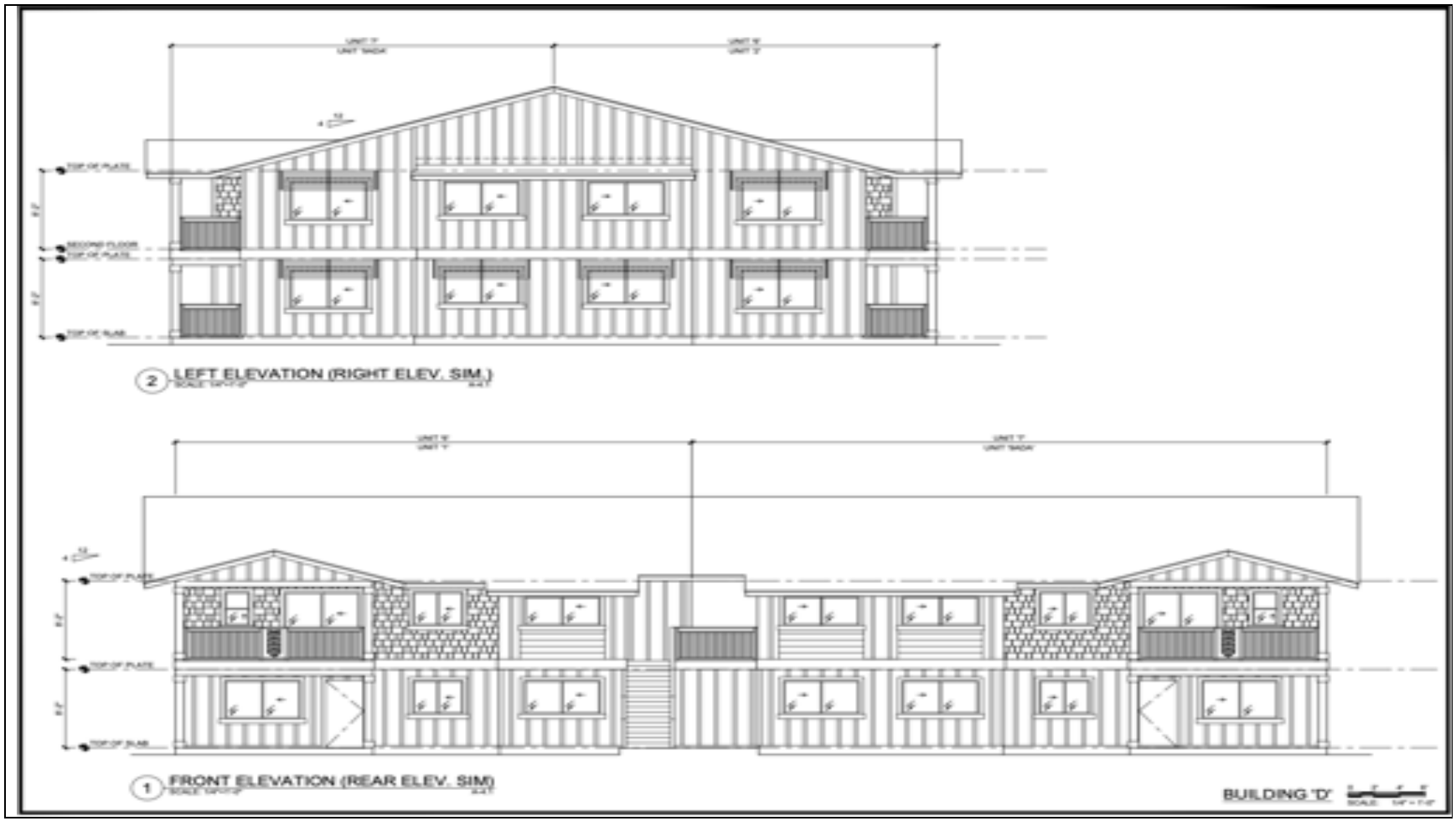

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Building Type D Elevations FIGURE NUMBER: **11**

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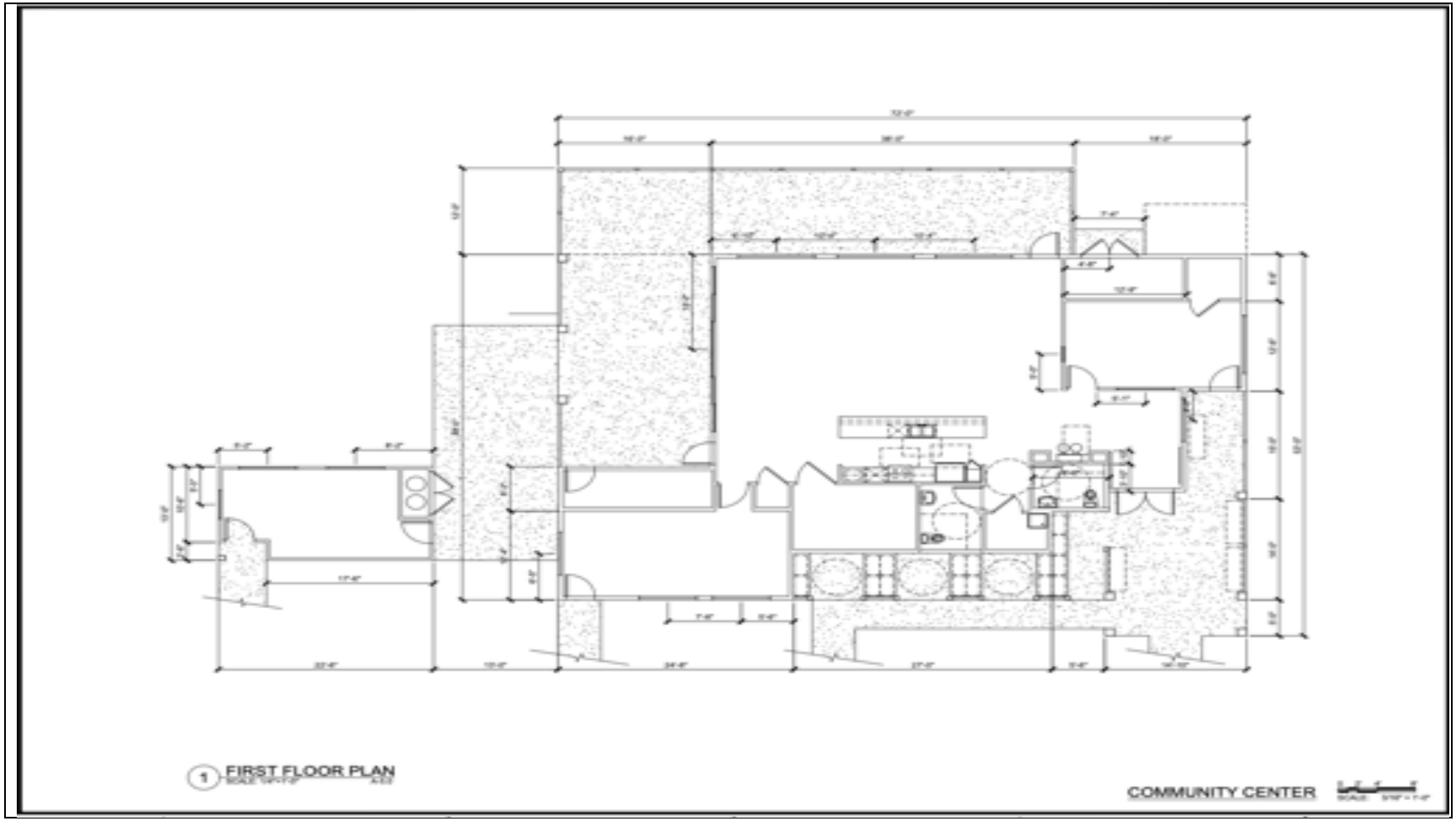

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Community Center Floor Plan FIGURE NUMBER: **12**

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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 64-unit multi-family apartment complex (Figures 4, 6, 8, 10). 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 map, the subject property is located at -155.087087 – 155° 5' 14' longitude and 19.71405 – 19° 42' 51" latitude, approximately 91 feet above mean sea level (EDR, 2019e). 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 heavily wooded and associated with the moist conditions 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 February 2019. The subject Site address submitted to the Environmental Database Resource (EDR) was not listed in any reviewed databases searched by EDR.

The Site is located south of the Wailuku River, which is the approximate boundary between the lava flows from Mauna Kea (north) and those from Mauna Loa (south). The Mauna Loa lava flow consists of Ka'u volcanic series, an extremely permeable basalt. There are patches of Pahala ash on some older Mauna Loa lavas near the Wailuku River, but are insignificant in contrast to the wide extent of bare Ka'u lava over the remainder of the area (Buchanan-Banks, J.M., 1993a).

4.1.2 Soils

The United States Department of Agriculture (USDA) Soil Conservation Service classifies the soil within the Site as 100% Keaukaha-Urban land complex. It is classified as Hydrologic Soil Group D with a typical profile consisting of highly decomposed plant material from 0 to 4 inches below ground surface (bgs), and lithic bedrock from 4 to 14 inches bgs. The soils have a high runoff class, which indicates they are well drained. The depth to groundwater is more than 80 inches (USDA, 2019).

4.1.3 Natural Hazard

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #1551660736F 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 13).

The Hawaiian Islands are seasonally affected by Pacific hurricanes from the months of June to November. The State has been affected by significant hurricanes in the past, including Hiki (1950), Nina (1957), Dot (1959), Iwa (1982), Iniki (1992), and Iselle (2014). The main concerns with hurricanes are the damaging winds, heavy rains, and high surf. According to a report presented at the International Union of Conservation of Nature World Conservation Congress, global climate

change could mean that Hawaii may experience more frequent and more severe hurricanes in the future (HNN, 2016).

A tsunami is a series of waves caused by earthquakes or undersea volcanic eruptions that can impact all shorelines (NOAA, 2019). This Site is not located in a tsunami evacuation zone. The County of Hawaii, Evacuation Zone Map is presented in Figure 15.

Due to the volcanic nature of the Hawaiian Islands, the islands are very vulnerable to seismic activity. Most of the earthquakes in Hawaii occur on the island of Hawaii, as it is the only island with an active volcano. However, other earthquakes are caused by the weight of the Hawaiian Islands on the Pacific lithosphere (Nullet, Dennis).

According to USGS, the Site is located in Lava-Flow Hazard Zone 3, which are areas less hazardous than Zone 2 due to greater distance from recent active vents (Figure 14). The eruption and subsequent lava flows that occurred in 2018 were located south of the Site in the Kilauea lava flow, which was designated Lava-Flow Hazard Zone 2 and 3 (Wright, Chun, & Exposo et. al., 2011).

The Site is not anticipated to be impacted by waves, storm surges, high tide or shoreline erosion. According to the Hawaii Sea Level Rise Viewer, mapping of the project site shows it is not susceptible to sea level rise at 0.5 feet (www.hawaiisealevelriseviewer.com), Appendix A, Exhibit 5.

4.1.4 Flora and Fauna

A Biological Survey was not performed on the Site. A pre-consult letter was sent to U.S. Fish and Wildlife Service (USFWS) in order to serve as a biological inquiry~~, but a response was not received before the submission date for this EA~~. USFWS identified the following species as may occurring or transiting through the vicinity of the proposed 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*),
- the threatened Newell's shearwater (*Puffinus newelli*),
- the endangered Hawaiian stilt or aeʻo (*Himantopus mexicanus knudseni*),
- the endangered Hawaiian coot or ʻalae keʻokeʻo (*Fulica alai*), and
- the endangered Blackburn's sphinx moth.

The Hawaiian petrel, band-rumped storm-petrel, and Newell's shearwater will hereafter, collectively be referred to as "Hawaiian seabirds," and the Hawaiian stilt and Hawaiian coot will be referred to as "Hawaiian waterbirds." The USFWS determined there is no critical habitat for listed species in the vicinity of this proposed project.

During the Archaeological Inventory Survey (AIS), some plant species were noted. Senior Archaeologists Glen and Suzan Escott noted that the area was dominated by trees, grasses, ferns, and bushes. The tree species include gunpowder (*Trema orientalis*), autograph (*Clusia rosea*),

National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet 1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, 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 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
- NO SCREEN 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
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 8/8/2019 at 6:10:37 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.

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Flood Insurance Rate Map FIGURE NUMBER: **13**

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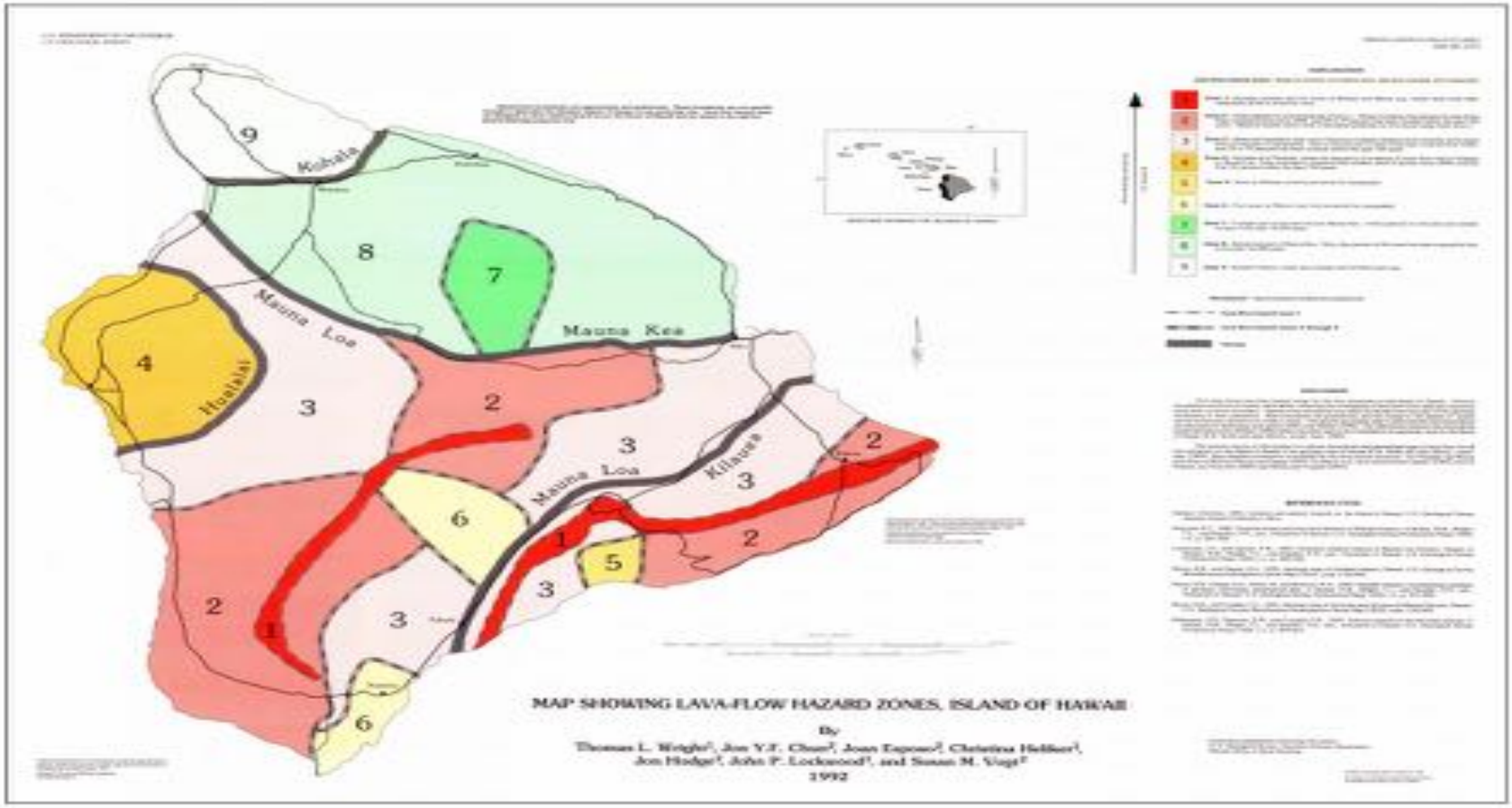

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Lava Flow Hazard Zones FIGURE NUMBER: **14**

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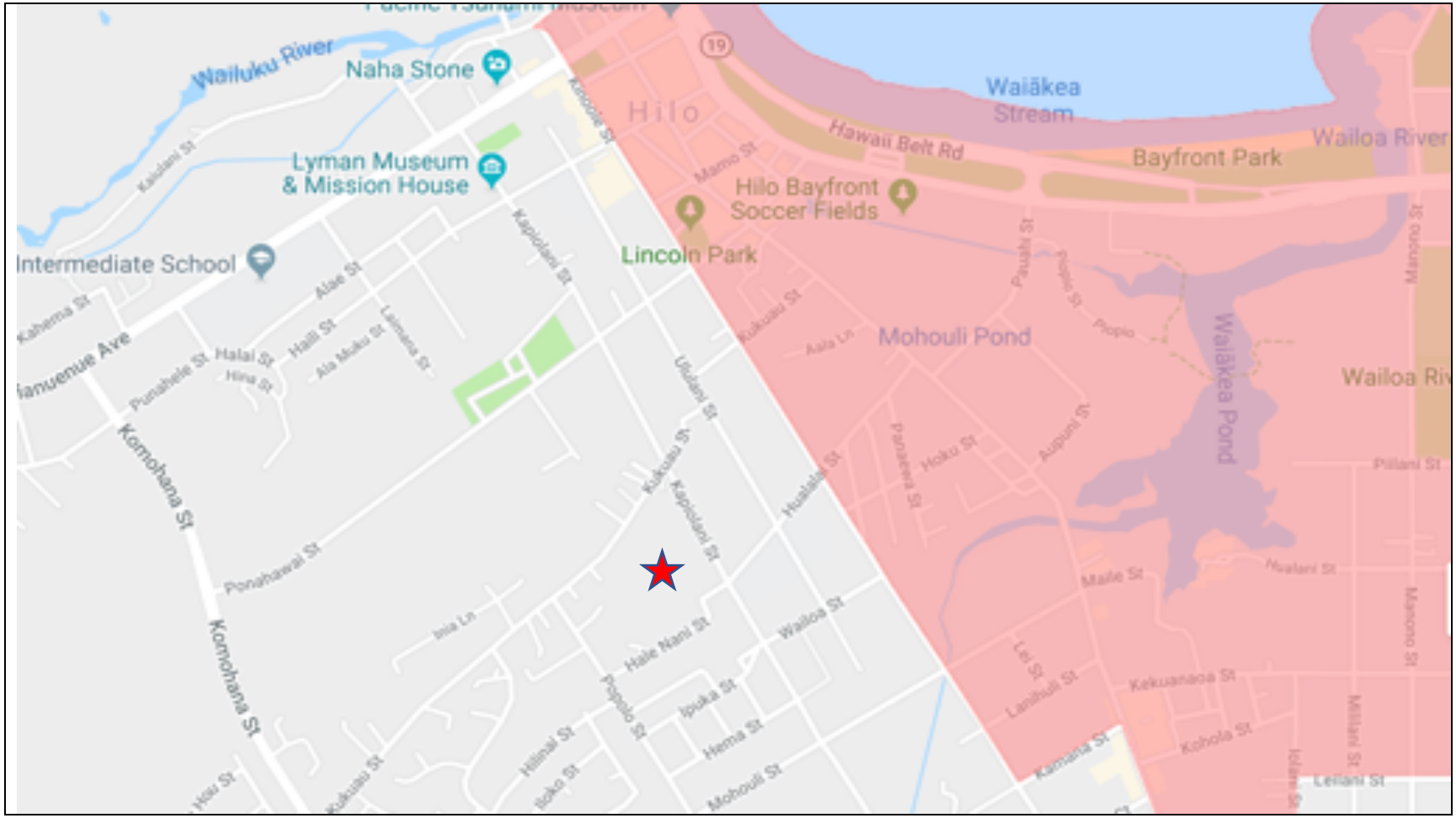

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: NOAA Tsunami Zone Evacuation Map FIGURE NUMBER: **15**

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banyan (*Ficus* sp.), guava (*Psidium* sp.), and bingabing (*Macaranga mappa*), none of which are native plant species. No mammals, birds, or insects were noted during the AIS.

A Biological Survey was conducted by SSFM International in October of 2018 at a proposed hydroelectric facility at Wailuku River, about two and a half miles northwest of the Site. Since this Biological Survey was conducted only a few miles from the site in an area not too much higher in elevation (approximately 350 feet higher than the Site), it can be assumed that the project areas would have similar plant and animal species. The follow are the findings of SSFM International's Biological Survey.

> The area was previously dominated by native *'ohi'a* and *koa* trees, but the native vegetation has mostly been destroyed by farming and cultivation of sugar cane. The area is now dominated by non-native plant species. Threatened or endangered wide-ranging terrestrial vertebrate species, such as the endangered Hawaiian hawk and endangered Hawaiian hoary bat may be present in the area. The Hawaiian hawk is endemic to Hawaii, but is currently only found on the Island of Hawaii. They breed in stands of the native *'ohi'a* trees, but utilize a broad range of areas for foraging, including wooded areas with both native or non-native vegetation. A total of six migratory Birds of Conservation Concern were identified in the USFWS's Information for Planning and Consrvation (IPaC) database. The endangered Hawaiian hoary bat (*Lashiurus cinereus semotus*) is the only native terrestrial mammal species that still exists in the Hawaiian Islands. They forage in open, wooded, and linear habitats with a wide range of vegetation types.

Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife noted the State listed Hawaiian *Hawk or 'Io (Buteo solitarius*) is known to occur in the project vicinity. And the Hawaiian Hoary Bat or 'Ōpe'ape'a *(Lasiurus cinereus semotus)* has the potential to occur in the vicinity of the project area and may roost in nearby trees.

4.1.5 Wetlands

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory, Wetland Mapper (USFWS, 2017) did not identify any wetlands in the project area. The nearest wetlands are Wailuku River, which is located approximately ½ mile north of the Site; Alenaio Stream, which is located approximately ¾ miles southeast the Site; and Waloa Pond, which is located approximately a mile southeast from the Site. The Wetlands Mapper figure is presented as Figure 16.

4.1.6 Water Resources

Groundwater

Groundwater in Hawaii occurs in volcanic rock aquifers, which consist of a freshwater lens that floats on saltwater, separated by a zone of brackish water (SSFM, 2018). The Site overlies the Hilo aquifer system of the Northeast Mauna Loa aquifer sector. The aquifer is a basal (fresh water in contact with sea water), unconfined (where water table is upper surface of saturated aquifer), flank aquifer. It is classified as currently used, drinking, irreplaceable, and highly vulnerable to contamination, and fresh water (<250 milligrams per liter [mg/l] chloride [Cl^-]) (Mink and Lau, 1992). The sustainable yield of the aquifer has been estimated at 347 million gallons per day

(County of Hawaii, 2014). The Project Site is not located above any of the nine Sole-Source aquifers identified in the U.S. Environmental Protection Agency's (US EPA) Region 9.

According to a 1-mile radius search from the Site, the EDR report listed two (2) United States Geological Survey (USGS) wells within a 1-mile radius of the Site (EDR, 2019e). The nearest Federal Public Water Supply (PWS) well is located within a ¼-mile radius from the Site. The subject property of the well is located up-gradient of the Underground Injection Control Line (UIC) therefore it is considered a potable water resource. The subject property of the other well is located down-gradient of the UIC therefore, not considered a potable water resource. Injection wells do require a UIC permit or permit exemption and permit limitations are imposed (Figure 17).

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 (Figure 18).

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 north. There is a natural occurring pond, Waiakea Pond, within a mile east of the vicinity. The pond, which flows into Hilo Bay, is utilized as a recreational public fishing area (Department of Land and Natural Resources).

4.1.7 Climate and Air Quality

Climate

The climate in Hilo is characterized as a subtropical rainforest climate with substantial rainfall throughout the year. The temperature and amount of rainfall in Hilo varies based on altitude, with cooler temperatures and greater precipitation in higher elevations. Temperatures in Hilo remain moderate and steady throughout the year, with an average temperature of 73 ºF. The steady temperature reflects small seasonal variation in energy received from the sun and the temperature effect of the surrounding Pacific Ocean. The average high temperature in Hilo is 80.9 ºF, which generally occurs during the months of July through October. The average low temperature in Hilo is 66.8 ºF, which generally occurs during the months of January and February (U.S. Climate Data).

Hilo, which is located on the windward side of the island, has a very wet climate. Hilo receiving an average of approximately 126.69 inches of rain per year (U.S. Climate Data).

Air Quality

The Clean Air Act of 1972 and its 1990 Amendments (CAA) and subsequent legislation regulate air emissions from area, stationary, and mobile sources. Both the USEPA and the State of Hawaii have instituted Ambient Air Quality Standards (AAQS) to maintain air quality in the interest of public health and secondary public welfare. Currently, the parameters that are regulated include: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and

U.S. Fish and Wildlife Service
National Wetlands Inventory

Kaiulu O Kapiolani wetlands

August 9, 2019

Wetlands

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

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 NWI mapper

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Wetland Map FIGURE NUMBER: **16**

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Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: Underground Control Injection Map FIGURE NUMBER: **17**

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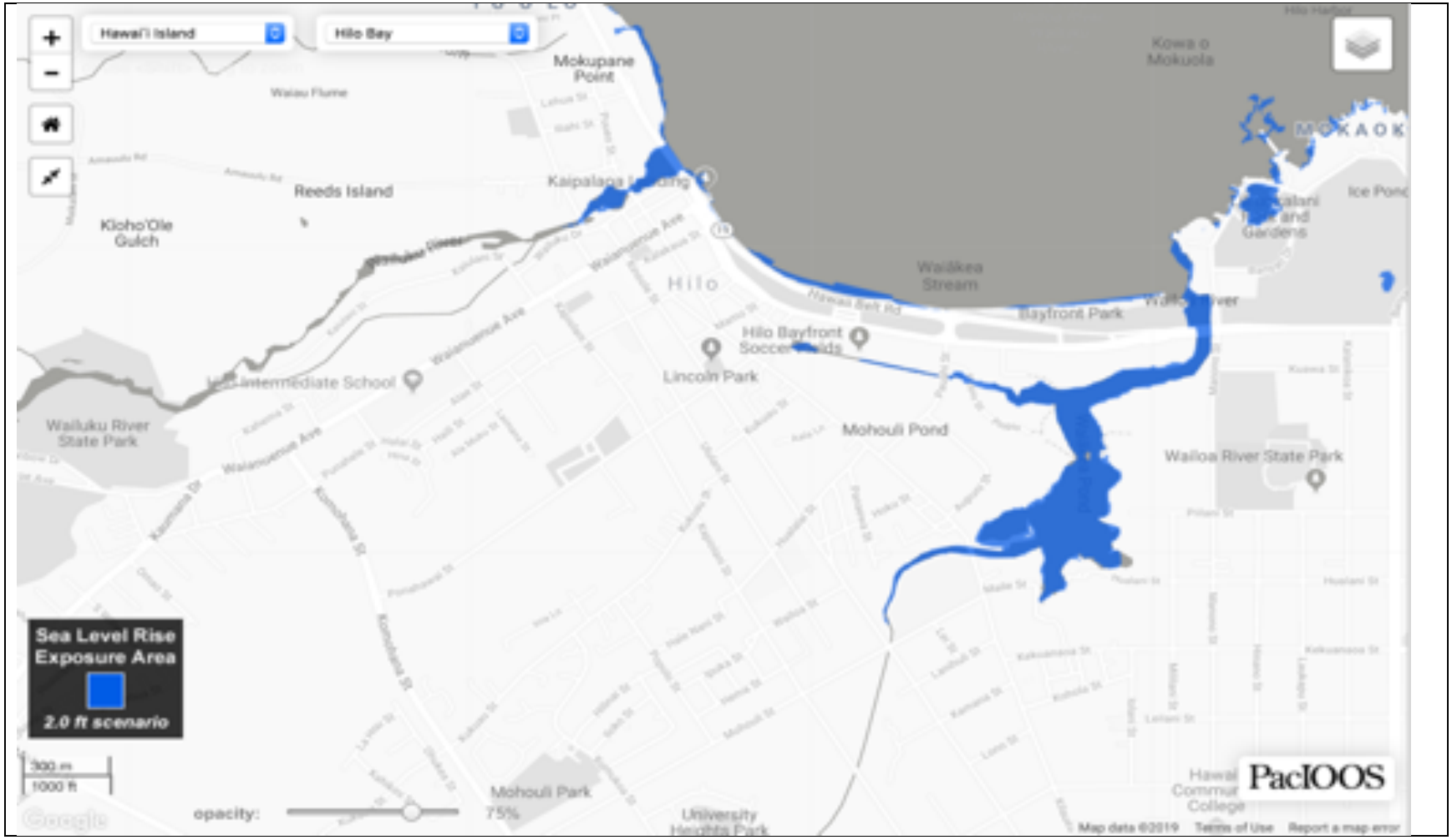

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: State Sea Level Rise Exposure Area Map FIGURE NUMBER: **18**

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lead. The Hawaii AAQS are in some cases considerably more stringent than the comparable National Ambient Air Quality Standards (NAAQS). In particular, the Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit.

The largest source of air pollution in the immediate project area is most likely associated with automobile traffic. Emissions from automobile traffic consist primarily of particulate matter, carbon monoxide, sulfur dioxide, and nitrogen oxides. Volcanic emissions from Kilauea Volcano also affect the air quality during "Kona" or southerly wind conditions. The Hawaii Department of Health (HDOH) operates a network of air quality monitoring stations at various locations around the state, including a station in Hilo located near the Hilo Medical Center. This station monitors particulate matter (PM) 2.5 and sulfur dioxide (SO2). Volcanic eruptions are considered natural events; therefore, the USEPA may exclude exceedances of the one-hour NAAQS from attainment determinations (HDOH, 2016). The State of Hawaii is in attainment with the NAAQS for all pollutants regulated by the USEPA. In addition to the NAAQS and the State AAQS, the HDOH regulates fugitive dust. HAR Section 11-60.1-33, Fugitive Dust, states that no person shall cause

or permit visible fugitive dust to become airborne without taking reasonable precautions, and no person shall cause or permit the discharge of visible fugitive dust beyond the property lot line on which the fugitive dust originates (HDOH, 2019). This rule applies to construction projects and would therefore be applicable to the Proposed Action.

The Site is located within 5 miles of Hilo International Airport. Specifically, it is approximately 1.55 miles from Runway 3. Due to the proximity of the airport, there are potential for fumes, smoke, vibrations, odors, etc. that may result from aircraft flight operations overhead.

4.1.8 Noise

Noise is defined as unwanted sound and is one of the most common environmental issues of concern to the public. The State of Hawaii Community Noise Control Rule (HAR Chapter 11-46) defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources (air-conditioning units, generators, pumps, etc.), but does not address most moving sources (vehicular traffic, air traffic, etc.). However, noise relating to construction activities is regulated.

Noise impacts from construction-related activities are regulated under the HAR, HDOH, Title 11, Chapter 46, Community Noise Control. The project area is located in 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). This sound threshold is enforced for any location at or beyond the property line, which cannot be exceeded for more than 10% of the time during any 20-minute period. 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.

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	64	68	78
Sweeper	64	76	85
Tractor-Trailer	67	78	77

The Site is located outside the 55 Day-Night Average Sound Levels noise contours on the 2018 Hilo International Airport map, however there is potential for single event noise from aircraft operations.

4.1.9 Solid Wastes

Public facilities for solid waste on the island of Hawaii includes ~~two landfills~~ West Hawaii Sanitary Landfill and East Hawaii Reload Facility and twenty-one transfer stations. There are two ~~three~~ locations near the site, ~~South Hilo Sanitary Landfill,~~ East Hawaii Organics Facility, and Hilo Transfer Station.

4.1.10 Hazardous Wastes

Environmental Risk Analysis, LLC performed a Phase 1 Environmental Site Assessment (ESA) in 2019. The findings are summarized below:

- 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 heavily wooded, most likely associated with the humid and moist condition of the area. No unusual odors or staining were noticed indicating a potential environmental condition.
- The Site was not listed in any of the databases searched by EDR. The EDR database search 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

08/31/2018) resulted in eleven (11) sites having reported a UST release within a ½-mile radius of the Site. According to the HDOH LUST database, of the 11 LUST sites, nine (9) sites are recorded as Site Cleanup Completed and were issued a No Further Action (NFA). The LUST sites do not pose an environmental threat to the subject Site.

- ERA observed three (3) electrical transformers located near the Site. Hawaii Electric Light Company (HELCO) was queried regarding if the polychlorinated biphenyl (PCB) status of these transformers were known. HELCO responded that all three (3) observed pole mounted transformers were 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 in Hilo, Hawaii, Tax Map Keys (TMKs) (3) 2-4-025:048,053,080, consists of a 5.05-acre parcel located on the west side of Kapiolani Street, where it intersects with Kukuau Street. The substrate of the project area is a Mauna Loa lava flow dated between 750 and 1,500 years ago. The soil of the project area is Keaukaha Series (rKFD) extremely rocky much overlaying pahoehoe lava. Scattered subsistence agriculture was evident around the project area. The Site is located on level to moderately sloping land at 95 feet above mean sea level.

Early accounts of settlements on the windward side of the island describe the Hilo area as having several different environmental regions. From Hilo Bay to approximately 6 miles inland was scattered subsistence agriculture, followed by a region full of tall ferns and bracken. In the higher elevations were forest regions spanning 10 to 20 miles across, followed by an expanse of grass and lava. The rich marine resources of Hilo Bay and gently sloping forests of Mauna Loa and Mauna Kea provided abundant resources for the local people. Hilo was established as a royal center by the sixteenth century and became a port of call for whalers and merchant ships, and a point of entry for missionaries and travelers. Hilo continued to develop as a commercial port throughout the twentieth century, and eventually became developed with shopping centers and malls, industrial parks and residential neighborhoods.

A search was conducted for archaeological sites and architectural structures within approximate half-mile of the current project area that are eligible for listing on the National Register of Historic Places (NRHP) and Hawaii Register of Historic Places (HRHP). These Sites include two historical districts, several church buildings, schools, commercial buildings, homes, and a Portuguese oven.

The Site is comprised of TMKs (3) 2-4-025:048,053,080. An AIS was conducted at each of the parcels in order to identify archaeological features and sites that may be located on the parcel. An AIS of parcels 048 and 053 had previously been conducted by Nelson, Clark and Rechtman in 2006. An AIS of parcel 080 was conducted on July 11, 2019 by Senior Archaeologists Glen Escott M.A. and Suzan Escott, B.A of Scientific Consultant Services, Inc. (SCS). There was no evidence

of prehistoric or historic sites or features observed during the field survey of the parcels. Based on historical and archaeological literature review, consultation efforts and responses, and the reconnaissance survey, SCS 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. SCS recommended a determination of "no historic properties affected" for the proposed development project. State Historic Preservation Division accepted the AIS and report concurred with the finding of "no historic properties affected".

An Archaelogical Field Inspection was conducted in September 2020 by ASM Affiliates (Appendix A, Exhibit 11). A 100% surface inspection was performed of the entire parcel. No lava blisters or historic properties were observed. ASM Affiliates recommended a "no historic properties affected" determination for the property.

Cultural Impact Assessment for TMK (3) 2-4-025:080

A Cultural Impact Assessment (October 2019) was conducted by Scientific Consultant Service, Inc. for the project site (Appendix A, Exhibit 11). Based on the results of an Archaeological Assessment of the project area, the results of previous archaeological studies, as well as organizational response, individual cultural informant responses, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel. The proposed project is not a location for past or ongoing cultural practices. The proposed undertaking will not produce adverse effects to any native Hawaiian cultural practices within the project area or in the broader region.

As suggested in the "Guidelines for Accessing Cultural Impacts" (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview procedures, circumstances attending the interviews, as well as the results of this consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

As stated above, consultation was sought from Kamaile Puluole-Mitchell, Office of Hawaiian Affairs (OHA) East Hawaii Island Representative; Jordan Kea Calpito, SHPD Burial Sites Specialist; Sean Naleimaile, State Historic Preservation Division (SHPD) Hawaii Island Archaeologist; and Kalena Blakemore, Hawaii Island Burial Council (HIBC) Member.

Public notices were printed in the September 2019 issue of the Office of Hawaiian Affairs (OHA) Ka Wai Ola Newspaper. Public notices were also published in the Honolulu Star- Advertiser, and the Hawaii Tribune Herald on August 14th, 15th, and 18th. The public notices did not generate responses from the public. This fact is not surprising since it is unlikely as there no known inland locations in Hilo town where gathering or cultural practices occur.

An analysis of the potential effect of the proposed construction of residences on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project

area was used as a location for animal husbandry in the late Historic to Modern eras. Based on historical research and responses from the above listed contacts, it is reasonable to conclude that, as the current project was not and is not a location for past and ongoing cultural practices, there will be no traditional cultural practices affected and there will be no direct adverse effect upon cultural practices or beliefs in the broader project area region.

4.2.3 Transportation

Traffic and Circulation

A Traffic Impact Analysis Report (TIAR) was conducted for the Site by Austin, Tsutsumi & Associates, Inc., received June 21, 2019 (provided in Appendix A). The following are the results of their study.

The Site will be made accessible along Kapiolani Street and Kukuau Street. Kapiolani Street provides access to residential and commercial areas as well as institutional uses, such as the Hawaii Police Department, Hilo Driver Licensing Station, and the University of Hawaii (UH) at Hilo. Kukuau Street mainly provides access to residential and commercial areas in South Hilo. Hualalai Street, which is located northeast of the Site, provides access to St. Joseph School and residential and commercial areas. Kupukupu Street, which is located approximately a ¼-mile southeast of the Site, provides access to Kukuau Street to 5 existing residential buildings, and is proposed as one of the access roads to the project.

The Site is equidistant to two major highways, Route 200 and Route 19, which are approximately a mile northwest and a mile northeast. The immediate area surrounding the site is a developed residential area, therefore, traffic is generally light to moderate. The main source of traffic in the area is the surrounding schools, with over 8 schools in the area including Hilo High School and UH Hilo. Therefore, peak traffic hours occur from 7AM to 8AM, and then in the afternoon from 3:45PM to 4:45PM. The intersections of Kukuau Street and Kupukupu Street, Kapiolani Street and Kukuau Street, and Kapiolani Street and Hualalai Street are all unsignalized.

The roads surrounding the Site are considered "complete streets", which encourage equitable, accessible, and safe transportation for all modes. Sidewalks are provided along both sides of the roadway on Kapiolani Street and Hualalai Street. Kukuau Street only has a sidewalk provided along the eastbound direction of the roadway. There is a bicycle lane located on Kukuau Street, and a signed shared roadway on Kapiolani Street. The Island of Hawaii utilizes the public transportation of the Hele-On Bus. There are no bus routes that run along the streets surrounding the project area, however, there is a bus stop approximately a half mile away from the Site on Kilauea Avenue.

The study addressed the following:

- Existing traffic operating conditions at key intersections during the weekday morning (AM) and afternoon (PM) peak hours of traffic within the study area.
- Traffic projections for Base Year 2021 (without the development of the Site) including traffic generated by other known developments in the vicinity of the Site in addition to an ambient growth rate. These other known developments are projects that are currently under

construction or known new/future developments that are anticipated to affect traffic demand and operations within the study area.

- Trip generation and traffic assignment characteristics for the proposed development of the Site.
- Traffic projections for Future Year 2021 (with the development of the Site), which includes Base Year traffic volumes in addition to traffic volumes generated by project.
- Recommendations for Base Year as well as Future Year roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by known developments in the region or the Site.

Based on the study, existing traffic volumes in the study area were generally light with the studied roadways servicing local traffic only. All intersections were observed to operate adequately with no major delays to any movements. The study intersections operate satisfactorily during both peak hours of traffic with all movements operating at LOS C or better. Base year 2021 predictions state that although some of the minor street movements are expected to experience longer delays, all minor street movements are anticipated to operate at LOS C or better during the AM peak hour of traffic and LOS D or better during the PM peak hour. All major street movements are anticipated to continue operating at LOS A during both peak hours. According to Future Year 2021 predictions, at full buildout, the Site is projected to generate a total of 32 net external trips during the AM peak hours of traffic, and 42 net external trips during the PM peak hours of traffic. Traffic from the Project is expected to generate growth along major roadways in the study area. It is anticipated that by Future Year 2021 with the Project, traffic will increase slightly compared to Base Year 2021 conditions without the Project due to the projected growth along Kapiolani Street and Kukuau Street. Despite the added traffic, all movements will continue to operate similar to Base Year 2021 conditions at LOS C or better during the AM peak hour of traffic and LOS D or better during the PM peak hour. Both Project access intersections are anticipated to operate with all movements at LOS B or better during both peak hours. Study findings are presented in Table 2.

Table 2: LOS Summary Table Existing Conditions and Base Year 2021

	Existing 2019 Conditions						Base Year 2021					
	AM			PM			AM			PM		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Kupukupu Street & Kukuau Street												
NB LT/RT	9.2	0.00	A	0.0	0.00	A	9.3	0.01	A	0.0	0.00	A
WB LT/TH	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
OVERALL	0.0	-	-	0.0	-	-	0.2	-	-	0.0	-	-
2: Kapiolani Street & Kukuau Street												
NB LT/TH/RT	7.9	0.03	A	8.1	0.08	A	8.0	0.04	A	8.2	0.09	A
EB LT/TH/RT	15.6	0.37	C	17.0	0.30	C	18.9	0.47	C	22.0	0.42	C
WB LT/TH/RT	15.5	0.05	C	14.7	0.04	B	18.0	0.09	C	17.2	0.07	C
SB LT/TH/RT	7.9	0.00	A	7.7	0.00	A	8.0	0.00	A	7.8	0.00	A
OVERALL	4.3	-	-	4.3	-	-	5.3	-	-	5.3	-	-
3: Kapiolani Street & Hualalai Street												
NB LT/TH/RT	7.7	0.01	A	7.8	0.00	A	7.8	0.01	A	7.9	0.00	A
EB LT/TH/RT	16.8	0.11	C	15.0	0.08	C	18.7	0.14	C	17.9	0.12	C
WB LT/TH/RT	16.1	0.24	C	19.7	0.48	C	19.3	0.31	C	27.2	0.60	D
SB LT/TH/RT	8.5	0.08	A	7.9	0.05	A	8.7	0.09	A	8.0	0.06	A
OVERALL	3.4	-	-	6.4	-	-	3.9	-	-	7.9	-	-

Airports

The Site is located approximately 1.55 miles from the end of Runway 3 at the Hilo International Airport. Due to the proximity of the Site to the Hilo International Airport, there is a potential for fumes, smoke, vibrations, odors, etc. that may result from aircraft flight operations over the proposed housing development. While the Site is located outside the 55 Day-Night Average Sound Levels area on the Noise Exposure Map, which can be seen in Appendix A, Exhibit 12, there is still a potential to create noise pollution from aircraft operations. Also, according to the Federal Aviation Association (FAA), the use of Photovoltaic (PV) systems near the approach path of aircrafts is prohibited, as it may interfere with radio communications and visually impair the pilots. The Site is not located within a Runway Protection Zone/Clear Zone (RPZ/CZ) or Accident Potential Zone (APZ).

4.2.4 Social Factors and Community Identity

Aerial photographs from 2013 depicts the area as it appears today with a police station to the northeast of the site. The Site is located approximately a mile away from Hilo Elementary School, Hilo High School, along with several other schools. Wailoa River State Recreational Area is located less than two miles from the Site. Within two miles of the Site are several small shops, grocery stores, drug stores, coffee shops, and restaurants. Two beachfront hotels and a golf course are located approximately two miles from the Site.

According to the U.S. Census Bureau the population in Hilo is approximately 43,263 people (Census, 2010). There are approximately 15,955 households, with an average of 2.78 people per household (Census, 2013-2017).

4.2.5 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 Hawaii, consisting of beach parks, golf courses, district and neighborhood parks, and community centers. Honoli'i Beach Park, Keaukaha Beach Park, and Laupahoehoe Beach Park are popular beach parks located on the east side of the island. Several state parks are located on the east side of the island as well, including 'Akaka Falls State Park, Wailoa River State Park, Lava Tree State Monument, and Hawaii Volcanoes National Park. There are several resorts found around Hilo Bay, which is located northeast of the Site.

Five (5) public recreational facilities were identified within a 1-mile radius of the project site. Lincoln Park is a County of Hawaii owned; public park located approximately 1500-feet north of the project site. Hilo Bayfront Soccer fields is a public park located approximately 3000-feet northeast of the project site. Mohouli Park is a public park located approximately 3000-feet southwest of the project site. University Heights Park is a County of Hawaii owned; public park located approximately 3200-feet south of the project Site.

4.2.6 Visual and Aesthetic Resources

The Site is located in a residential area and is not specifically identified in any county or State plans or studies as containing scenic vistas or view planes. Kaiaulu O Kapiolani 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. In addition, the project development will not have buildings exceeding two stories.

4.2.7 Infrastructure Systems and Utilities

Electricity service is supplied by Hawaiian Electric. Telephone, cable, and internet can be provided by Spectrum or Hawaiian Telcom, as well as satellite service providers. County of Hawaii Department of Water Supply is responsible for providing drinking water for all of Hawaii County. The infrastructure is expected to be able to meet the drinking water demand of the proposed project, as the water demand would be an additional 64 ~~75~~ units, whereas a previous proposed project at the Site had a water demand of an additional 97 units. Wastewater and sewer are managed by the County of Hawaii Wastewater Division. There is no sewer main on the Site, but there is a 10-inch sewer main located in Kukuau Street that may be an option for wastewater and sewer, as long as it can meet the demand of an extra 14,280 gallons per day (gpd) from the proposed project.

The Hawaii County Fire Department has 20 stations throughout the island of Hawaii. There is one station in Hilo, "Station 1", which is located at 466 Kinoole Street, less than a mile away from the Site. The next nearest station is "Station 2", located at 95 Keaa St., which is approximately 2.3 miles from the Site.

The Hawaii Police Department is headquartered in Hilo, which is located at 349 Kapiolani Street, directly across the street from the Site.

Kaiaulu O Kapiolani is located within the Hawaii School District, Hilo Complex. The schools located in the Hilo complex include: de Silva Elementary, Haaheo Elementary, Hilo High, Hilo Intermediate, Hilo Union Elementary, Kalanianaole Elementary and Intermediate, Chiefess Kapiolani Elementary, Kaumana Elementary, Keaukaha Elementary, Connections NCPCS, Ka 'Umeke Ka'eo PCS, and Ke Ana La'ahana PCS. Hilo Union, Hilo Intermediate, and Hilo High School are all within a mile of the Site.

University of Hawaii at Hilo~~,~~ and Hawaii Community College~~, and Pacific Academy of Music~~ are all located on the east side of the island of Hawaii. University of Hawaii at Hilo and Hawaii Community College offer on-site and distance learning classes and program. Other colleges and universities are located on the west side of Hawaii Island.

The Hele-On Bus transportation system is available for seniors and persons with disability and those with mobility devices. Hele-On Kako'o is available in the Hilo and Kona area. There are two (2) Hele-On bus stations within a 1/2-mile radius of the project Site. The Hele-On Mo'oheau Bus Terminal located at 329 Kamehameha Avenue and the hele-On Bus Stop located at 16-44 Ohuohu Street in Hilo, Hawaii.

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 essentially on a flat surface, 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, which occur often due to the Site being located on the windward side (wet side) of the island. 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 developed condition flow will not exceed the pre-developed condition flow in accordance with County drainage standards.

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 91 feet above mean sea level and is classified within Flood Zone X, where the risk of flooding would be minimal. The Site is located in Lava-Flow Hazard Zone 3, where risk of adverse impacts by lava is fairly low. The Site is not located in a tsunami evacuation zone and does not lie within the 0.5 ft sea level rise exposure area.

5.1.4 Flora and Fauna

Alternative I

No significant adverse impacts to flora/fauna are anticipated by implementing Alternative I, as the Site would remain undeveloped.

Alternative II

No significant adverse impacts to flora and fauna are anticipated due to Alternative II. While no biological survey was conducted, no threatened or endangered species are believed to exist in the project area. An inquiry with the US Fish and Wildlife Service (USFWS) was sent out and the following mitigative measures for potential species that may occur or transit the vicinity of the proposed project are listed below ~~but was not received in time for the EA submission~~. ~~Therefore, information~~ Information on flora and fauna near the Site was attained from the AIS and an EA that was completed a few miles northwest of the Site. ~~These studies revealed that there are two federally listed species in the vicinity of the project area. The following are recommendations to avoid or minimize project impacts to listed species:~~

> ~~Endangered Hawaiian hawk~~
>
> ~~Impacts to the endangered Hawaiian Hawk could occur due to vegetation removal, as these birds are known to forage and nest in all different types of vegetation. To minimize impact to the endangered Hawaiian hawk, all trees to be cut would be inspected to ensure that no Hawaiian hawk nests are present.~~
>
> ~~Endangered Hawaiian hoary bat~~
>
> ~~Impacts to the endangered Hawaiian hoary bat could occur due to vegetation removal, as they are known to forage in all types of vegetation and pup in trees that are 15 feet or taller. To avoid and minimize impacts to the endangered Hawaiian hoary bat, it is recommended that wooded plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15) not be disturbed, removed, or trimmed. It is also recommended that barbed wire fencing should not be used, as they are known to entangle the bats.~~

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

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.

Hawaiian waterbirds

Hawaiian waterbirds are currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, Colocasia esculenta (kalo or taro) lo'i or patches, irrigation ditches, sewage treatment ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. Threats to these species include nonnative predators, habitat loss, and habitat degradation.
Based on the project details provided, your project may result in the creation of standing water or open water that could attract Hawaiian waterbirds to the project site. In particular, the Hawaiian stilt is known to nest in sub-optimal locations (e.g., any ponding water), if water is present. Hawaiian waterbirds attracted to sub-optimal habitat may suffer adverse impacts, such as predation and reduced reproductive success, and thus the project may create an attractive nuisance. Therefore, we recommend you work with our office during project planning so that we may assist you in developing measures to avoid impacts to listed species (e.g., fencing, vegetation control, predator management).

To avoid and minimize potential project impacts to Hawaiian waterbirds we recommend you incorporate the following applicable measures into your project plan:

- In areas where waterbirds 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.
- If water resources are located within or adjacent to the project site, incorporate applicable best management practices regarding work in aquatic environments into the project design (see enclosed Aquatic Best Management Practices).

- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. Repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found:
    - Contact the Service within 48 hours for further guidance.
    - Establish and maintain a 100-ft buffer around all active nests and/or broods until the chicks have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
    - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

Hawaiian hawk

The Hawaiian hawk was recently federally delisted but remains a listed species under Hawai'i State law. The Hawaiian hawk is known to occur across a broad range of forest habitats throughout the island of Hawai'i. Loud, irregular and unpredictable activities, such as using heavy equipment or building a structure, near an endangered Hawaiian hawk nest may cause nest failure. Harassment of Hawaiian hawk nesting sites can alter feeding and breeding patterns or result in nest or chick abandonment. Nest disturbance can also increase exposure of chicks and juveniles to inclement weather or predators.

To avoid and minimize impacts to Hawaiian hawks we recommend you incorporate the following applicable measures into your project plan:

- If work must be conducted between March 1 through September 30, during the Hawaiian hawk breeding season, have a biologist familiar with the species conduct a nest search of the project footprint and surrounding areas immediately prior to the start of construction activities.
    - Pre-disturbance surveys for Hawaiian hawks are only valid for 14 days. If disturbance for the specific location does not occur within 14 days of the survey, conduct another survey.
- Clearing of vegetation or construction activities should not occur within 1,600 ft of any active Hawaiian hawk nest during the breeding season until the young have fledged.
- Regardless of the time of year, avoid trimming or cutting trees containing a hawk nest, as nests may be re-used during consecutive breeding seasons.

Other Measures to Reduce Mortality of Listed Animal Species

Additional measures for housing developments common to all listed animal species that will reduce mortality or predation include the following:

- Post and enforce low speed limits to reduce vehicle collisions with wildlife.
- Require all pets, including cats and dogs, to be on leash at all times outside.
- Require garbage cans with lids to reduce populations of rats and mongoose, which are invasive species and prey upon native and endangered species.
- Provide signage instructing residents and visitors to avoid approaching, feeding, or disturbing wildlife.

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 (cat, rodent, mongoose) presence by
    - removal of the predators, and/or
    - providing covered trash receptacles, and/or
    - placing bait stations.

- Minimize disturbance during bat birthing and pup rearing season between June 1 through September 15 or not disturbing woody plants greater than 15 feet tall without consultation with the Division of Forestry and Wildlife.
- For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15.
- The Division of Forestry and Wildlife also recommends using native plant species for landscaping and not using invasive plant species.
- In addition, minimizing the movement of plant or soil material between worksites, such as in fill, to reduce the spread of invasive fungal pathogens, vertebrate and invertebrate pests (e.g. Little Fire Ants), or invasive plant parts that could harm native species and ecosystems.

Mitigative measures above will be implemented during the proposed project. In addition, the project workers will be educated on identification of the above species and will stop work to determine the best course of action for completion. Biological consultation will be performed if any of the above species are observed at the property.

5.1.5 Wetlands

Alternative 1

No significant adverse impacts to wetlands are anticipated by implementing 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 operations associated with Alternative II as there is 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 (64 units) and unit type (2, 3, and 4 bedrooms) were used by Imata & Associates, Inc. The amount of water determined to be necessary for the development was estimated at 29,890 gallons per day. An existing water commitment expired on January 31, 2016 for a previous proposed development for the Site. Water is available from an existing eight (8) inch waterline within Kapiolani Street fronting TMK (3) 2-4-025:080. There are no existing services to the subject parcels. The Hawaii County Department of Water Supply can issue a water commitment if the conditions and standards are met and an application is submitted.

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 (64 units) and unit type (2, 3, and 4 bedroom) were used by Imata & Associates, Inc. The amount of waste water generated by the development was estimated at 12,544 gallons per day.

The Site is not located on a Sole-Source aquifer. No significant impact to surface water near the Site is anticipated as a result of construction or operations associated with Alternative II 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.

An NPDES permit may need to be obtained for point source water pollutant discharges into State Surface waters (HAR, Chapter 11-55). Point source means any discernible, confined, and discrete conveyance from which pollutants are or may be discharged. 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. This system will divert site waters to dry wells installed on the property. The drainage and dry wells are intended to prevent significant flooding and migration off property of site waters. Onsite and Offsite drainage were studied. Reports were provided to the Engineering Division for review and approval. The studies found that proposed culvert conditions would decrease adverse impacts or additional ponding. The installation of drywells would decrease runoff from the site compared to existing conditions. The system will be 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 downtown stream properties.

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.

Due to proximity of airport to the project site location; fumes, odors, and smoke may result from aircraft flight operations. Prospective occupants will be made aware of the potential for these to occur.

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, 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 of the noise environment are planned under Alternative II.

Due to proximity of airport to the project site location; excessive single event noise may result from aircraft flight operations. Prospective occupants will be made aware of the potential for this to occur.

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 ~~South Hilo Sanitary landfill~~ will have adequate capacity to accommodate waste generated from the proposed project. Future planning for waste on the island of Hawaii is being evaluated for the long-term. This increase in waste generation would not contribute to a significant adverse impact under Alternative II. There are three 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 solid waste 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 three 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 anticipated under Alternative I. Site conditions would remain the same.

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 2006 and 2019 did not reveal any cultural, historic, or natural resources, or practices and beliefs concerning the project area. A Cultural Impact Assessment in 2019 determined that though there have been numerous discoveries of archaeological sites in the Hilo 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 an absence of archaeological sites in the project area, it is recommended that a determination of "no historic properties affected" be considered for the proposed Kaiaulu O Kapiolani Housing Development Project. SHPD concurred with the "no historic properties affected" determination.

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 Division (SHPD) would be contacted in compliance with Chapter 6E of the HRS. These mitigation measures will be implemented. 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 Transportation

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 located in an area that serves mostly local traffic and is surrounded by unsignalized intersections. North of the Site is the County of Hawaii Police Department and a shopping center. Directly east of the Site is Saint Joseph's School, and further west of the site is Hilo Elementary and Hilo High School. South and west of the Site is residential area. The primary traffic affected would be the nearby schools. However, traffic in the area is believed to increase on its own in the near future due to the construction of more shops and businesses near the Site. Traffic at these areas operates at a LOS of C or better.

Projected traffic in the year 2021 showed a slightly worsening of traffic conditions operating at a LOS of D or better during the PM peak hour. Both Site access intersections are anticipated to operate with all movements at LOS B or better during both peak hours. Based on the TIAR projections, the proposed project's 64 multi-family residential units will generate a total of 32 vehicular trips during the AM peak hours of traffic, and 40 vehicular trips during the PM peak hours of traffic. The TIAR did not provide projections during the construction period for the Site.

While there are no significant adverse impacts anticipated under Alternative II for the airport, the airport may pose adverse impacts for the Site. The Site is located outside the 55 Day-Night Average Sound Levels area for the Hilo International Airport. However, residents should be aware of the proximity of the airport and potential single event noise from aircraft operations. The use of PV (normally used for common areas and offices) will also not be allowed for the Site due to its proximity to the airport, which could mean higher electricity costs for the project owner.

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. 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. Also, the project will incorporate a non-profit service that coordinates with community-based organizations to deliver programs and services that address health, education, employment, childcare, financial fitness and safety.

5.2.5 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 playground, with open areas and spaces to gather, including a picnic area. This is in addition to the onsite community meeting room that will be constructed.

The construction of the Site is not expected to impact nearby existing recreational facilities, such as golf courses, parks, and beaches.

5.2.6 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 the buildings will only be two stories tall, and the area is all relatively flat. Significant public views will also not be affected. The project location is set back from the main street and would not obstruct the view.

5.2.7 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 minimal impact on the infrastructure and utilities in and around the project area. Water, sewer, and electricity services are expected to be supplied by the same service providers used within the area. The addition of the 64-unit dwellings will not tax the current supply. An onsite drainage system, constructed in accordance with the County rules for the design of storm drainage facilities, will be constructed to accommodate generated runoff.

Waste diversion will be implemented during the proposed project construction and operation. In addition, the proposed project will have a Leadership in Energy and Environmental Design (LEED) consultant throughout our design and construction of the project to minimize waste and optimize utilization of resources.

There is currently no sewer main on the Site. The closest sewer main is located on Kukuau Street, which the developer would have to pump sewer up to an elevation and allow it to gravity into the Kukuau Street collector.

Students living in the proposed project will attend Hilo Elementary, Hilo Intermediate, and Hilo High Schools. Both Hilo Elementary and Intermediate schools have capacity, while Hilo High is over capacity. The number of students that will be generated by the complex is unknown. An inquiry was sent to DOE for an approximate number of students that would be generated by this proposed project, but there has been no response to this inquiry yet. Based on the types of units proposed, it is estimated up to 100 children of varying ages maybe residing at the Site. Hilo Elementary and Hilo Intermediate should have minimal impacts as there is capacity at those locations. Hilo High is reported at over capacity which will be further strained with the introduction of additional students. Impacts to educational facilities are anticipated, the developer will work with the Hawai'i Department of Education (DOE) to address and mitigate 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 64-unit housing facility. Population changes or effects on public facilities would be minimal. The addition of an estimated 180 individuals would minimally add to the existing population of 43,263 for the area (0.4% increase in the population). The change in population and demand for public facilities would be readily met by existing infrastructure.

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 Statues, 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

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 Kapiolani 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 Kapiolani 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, Objective sand Policies for the Physical Environment – Land Based, Shoreline, and Marine Resource
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.
Chapters 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 Kapiolani 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) Diversity 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 Kapiolani housing development is consistent with the State Housing Functional 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 60% AMI.

6.1.4 Hilo Community Development Plan

The County of Hawaii 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 Hilo CDP was prepared by the Hilo Community with the assistance of The County of Hawaii Planning Department and Townscape, Inc. It was adopted in 1975.

The Kaiaulu O Kapiolani Proposed Housing Development is in accordance with the following CDP Plan objectives:

- Planning and development of future land use taking into consideration environmental assets such as vegetation, important views, attractive rivers, interesting shoreline and protected bay, and environmental constraints, such as recurring tsunamis, earthquakes, flooding and volcanic activity.
- Development of residential areas of various densities distributed on the basis of their relationship to the city center, transportation facilities and other infrastructure and with sufficient expansion acreage for an approximate ten-year period, and with alternative or additional expansion areas indicated to provide flexibility to the County and developers.
- Identification of housing improvements needed by planning area and designation of priority improvement areas.

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.
(d) Part 50 and 58 Environmental Review with HTF Environmental Provisions under 24 CFR 93.301(f)(1) – The proposed project will be combining HOME and HTF funds. Compliance procedures are listed in Appendix D.

- Coastal Barrier Resources
- Coastal Zone Management
- Sole Source Aquifers
- Endangered Species
- Explosives and Hazards
- Environmental Justice

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 would not have significant adverse impacts on the environment. As such, a Finding of No Significant Impact (FONSI) is anticipated 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. The area around the Site is already developed. Archaeological surveys concluded that there would be "no historic properties affected". Furthermore, the 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. A Cultural Impact Assessment conducted in October 2019 did not reveal any cultural resources, practices and beliefs concerning the project area. SHPD has concurred with the "no historic properties affected" determination.

(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 64-unit apartment complex. Population changes or effects on public facilities would be minimal. The addition of an estimated 180 individuals would minimally add to the existing population of 43,263 for the area (0.4 % increase in population). The change in population and demand for public facilities would be readily met by existing infrastructure. The addition of school aged children residing at the Site would have minimal impact to Hilo Elementary and Hilo Intermediate Schools. Impacts to Hilo High School are anticipated as the school is over capacity. The developer will work with the Hawai'i DOE to address and mitigate project impacts

(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 64 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 eight (8) ~~five (5)~~ federally listed species in the vicinity of the project area. There is one (1) State listed species identified. Mitigation measures will be employed as to avoid or minimize any impacts to rare, threatened, or endangered species during and post-construction. There is little potential for encountering such resources as there are no rare, threatened, or endangered species or critical habitats at the Site.

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

No significant impacts on the area's long-term air or ambient noise environments are anticipated to result from Alternative II. During the 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 water
The Site is not located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area. Water quality impacts are not anticipated and do not require mitigation measures.

(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 180 individuals would minimally add to the existing population of 43,263 for the area (0.4 % 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 64 units of much needed affordable family rental housing in Hilo. Based on the foregoing analysis, the proposed action is not anticipated to result in any significant adverse impacts. A FONSI has been determined ~~is anticipated~~ for the proposed project.

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APPENDIX A

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SECTION 9 AGENCIES AND ORGANIZATIONS

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 Education

Department of Land & Natural Resources

DLNR, Land Division* **

DLNR SHPD

DLNR Division of Forestry and Wildlife**

DLNR Engineering Division**

Department of Transportation* **

Hawaii Department of Health, Wastewater Branch

HDOH, Clean Water Branch*

HDOH, Environmental Health Administration

HDOH, Environmental Planning Office

HDOH, Wastewater Branch

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

Department ~~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*

County of Hawaii Postmaster

Other

Hawaii Electric Light Company

Office of Representative Valerie T. Poindexter

Office of Senator Brian Schatz

State Senator Kalali'i Kahele

State Representative Mark Nakashima

Mr. Peter Vana, Trustee**

Mr. David Panoff**

Ms. Patricia Tummons**

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

**Indicates a comment letter was received during the Draft EA comment period.

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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

D e v e l o p

Environmental Assessment
Determinations and Compliance Findings for HUD-assisted Projects

24 CFR Part 58

Project Information

Project Name: Kaiaulu O Kapiolani Proposed Housing Development

Responsible Entity: County of Hawaii, Mayor

Grant Recipient: A0705 Hilo, LP

State/Local Identifier: Hilo, 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 keys (TMKs) (3) 2-4-025:048,053,080. The Site is located on Kapiolani Street between Kukuau Street and Hualalai Street. It encompasses 5.05 acres of land situated in Hilo on the east side of the island of Hawaii. This location is currently zoned for apartments.

Description of Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]: A0705 Hilo, L.P. is proposing to develop an affordable rental complex of 64 units in Hilo, consisting of 32 two-bedroom units, 24 three-bedroom units, and 8 four-bedroom units. The project will consist of 64 newly-constructed units, comprised of 2-bedroom, 3-bedroom, and 4-bedroom units in two-story apartment buildings. In addition to the residential buildings there will also be a community center, laundry facilities, tot lot, community gardens, and open spaces. The project anticipates providing at least 1.5 parking stalls per residential unit. The project does not anticipate the use of federal funds for infrastructure improvements. The objective of this project is to produce an affordable rental development, while utilizing the least amount of State of Hawaii resources. These apartments will target low income households earning 60 percent or less 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. The HHFDC Consolidated Plan outlines the planned project schedule. The construction start date is proposed to be in first quarter 2022. The last building by fourth quarter 2023.

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 Hawaii resources. These units will address the dire need for affordable housing on the island of Hawaii, 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 Partnership 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).

The County of Hawaii 2020-2024 Consolidated Plan noted that housing demand would increase and a total of 13,300 units would be needed in the years 2020 through 2025. The proposed project will directly address goals and priorities identified in the County of Hawaii’s Consolidated Plan for Program Years 2020 through 2024. The proposed project directly addresses the goal to “construct 3 new affordable rental projects for extremely low, low and moderate income households” and the high priorities of “housing” and “infrastructure Improvements.” The

proposed project will serve tenants earning up to 30%, 40%, 50%, and 60% of area median income, will create new housing units, and will improve a drainage area within a County easement on the property.

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

The property is currently unpaved and undeveloped with heavy wooded vegetation covering the entire parcel. Surrounding the Site is developed residential area. Aerial photographs from 2013 depicts the area as it is today with a police station directly northeast of the Site. The Site is located approximately a mile away from Hilo Elementary School, Hilo High School, and several other schools. Wailoa River State Recreational Area is located less than two miles from the Site. Within two miles of the Site are several small shops. Grocery stores, drug stores, coffee shops, and restaurants. Two beachfront hotels and a golf course are located approximately two miles from the Site. 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 Hawaii nor fulfill the purpose of the land use zoning ordinance.

Funding Information

Estimated Total HUD Funded Amount: The total is $12,800,000 ~~$1,500,000~~. 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 $53,888,000 ~~$46,400,000~~. This includes STATE RHRF of $12,800,000 ~~$1,5000.000~~, permanent loan of $601,297 ~~$5,340,000~~, $23,505,010 ~~$20,963,296~~ of private equity from the sale of federal tax credits, $8,681,693 ~~$7,292,310~~ of private equity from the sale of state tax credits, and $2,300,000 ~~$4,394~~ Deferred Developer Fee. This project also includes Section 8 project-based vouchers.

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.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR § 58.5 and § 58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 AND 58.6		
Airport Hazards 24 CFR Part 51 Subpart D	Yes No X	A site visit confirmed the Project Area is not within 2,500 feed 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 was conducted by Max Ulloa of Environmental Risk Analysis, LLC on February 10, 2019. Due to the proximity of the Hilo Airport, PV cells will not be able to be utilized at the proposed project Please see Exhibit 1. http://aviation.hawaii.gov/airfields-airports/hawaii/
Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes No X	Not within a coastal zone. There are no streams or surface features at the Site. The nearest water bodies are the Pacific Ocean to the northeast and Wailoa Pond to the east, used for recreational fishing. Please see Exhibit 2. https://www.fws.gov/CBRA/Maps/Mapper.html https://www.fws.gov/cbra/
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance	Yes No X	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). Please see Exhibit 3.

Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]		http://gis.hawaiinfip.org/FHAT/
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CRF 50.4 & 58.5		
Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes No X	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 (Island of Hawaii) record higher levels of sulfur dioxide (SO2) and particulate matter at 2.5 microns or less (PM2.5), with regular exceedances of 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 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 Hilo 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. http://health.hawaii.gov/cab/
Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)	Yes No X	The Site is not located in a tsunami evacuation zone. The County of Hawaii, Evacuation Zone Map (2019) for the area is presented as EA Figure 15 Please see Exhibit 5. https://tsunami.coast.noaa.gov/#/
Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)	Yes No X	According to a Phase I Environmental Site Assessment (ESA) dated February 2019, and a subsequent reconnaissance visit on February 10, 2019, 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 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. 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 08/31/2018) resulted in eleven (11) sites having reported a UST release within a ½-mile radius of the Site. According to the HDOH LUST database, of the 11 LUST sites, nine (9) sites are recorded as Site Cleanup Completed and were issued a No Further Action (NFA). The LUST sites do not pose an environmental threat to the subject Site. Please see Exhibit 6.
Endangered Species Endangered Species Act of 1972, particularly section 7; 50 CFR Part 402	Yes No X	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. Please see Exhibit 7.
Explosive and Flammable Hazards 24 CFR Part 51 Subpart C	Yes No X	Research regarding historical land use was conducted to determine any RECs at the Site and if the surrounding area may have impacted the Site. No RECs were found at the Site, and it is not believed that previous uses of the Site will affect surrounding areas. During previous site reconnaissance, no explosive or hazardous materials were observed. Please see Exhibit 8.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes No X	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. The United States Department of Agriculture (USDA) Soil Conservation Service Classifies the soil within the 100% Keaukaha-Urban land complex. It is classified as Hydrologic Soil Group D with a typical profile consisting of highly decomposed plant material from 0 to 4 inches below ground surface (bgs), and lithic bedrock from 4 to 14 inches bgs. The soils have high runoff class, which indicates they are well drained. The depth of groundwater is more than 80 inches (USDA, 2019). Please see Exhibit 9.

Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes No X	According to FEMA FIRM Map No. 1551660736F, it was determined that the Site lies beyond the 500-year flood plain (within Flood Zone X). Please see Exhibit 10.
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	Yes No X	Two surveys were conducted of the project parcels. Nelson, Clark, and Rechtman conducted an AIS of parcels 048 and 053 in 2006 and in 2019. An AIS of parcel 080 was conducted by Glen and Suzan Escott in 2019. 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. <u>SHPD has concurred with the "no historic properties affected" determination.</u> An Archaelogical Field Inspection was conducted in September 2020 by ASM Affiliates. A 100% surface inspection was performed of the entire parcel. No lava blisters or historic properties were observed. ASM recommended a "no historic properties affected" determination for the property. Please see Exhibit 11.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes No X	The properties immediately surrounding the Site are developed. No significant noise disturbance is anticipated from nearby roadways or from Hilo International Airport. 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. Please see Exhibit 12.

		https://maps.bts.dot.gov/arcgis/apps/webappviewer/index.html?id=a303ff5924c9474790464ccOe9d5c9fb
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424€; 40 CFR Part 149	Yes No X	The Site is not located on a sole source aquifer. The County of Hawaii Department of Water Supply provides public water service for Hilo. Water supply is from the Hilo aquifer system, which has a sustainable yield of 347 million gallons per day (MGD). 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 Imata and Associates Inc. They provided an estimate of 29,890 gallons per day (gpd) drinking water demand for the proposed project. There are no existing water services to the Site. An existing water commitment for a proposed development on the Site expired in June of 2016. Water is available from an 8-inch waterline within Kapiolani Street fronting parcel 080. The Hawaii County Department of Water Supply can issue a water commitment if their conditions and standards are met and an application is submitted. Please see Exhibit 13.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes No X	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 northwest and east of the Site. Please see Exhibit 14.
ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	Yes No X	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 for 64 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 target community, as there is a dire need for affordable housing in the State of Hawaii. Please see Exhibit 16.

		https://www.epa.gov/environmentaljustice https://www.epa.gov/environmentaljustice/environmental-justice-and-national-environmental- policy-act

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
LAND DEVELOPMENT		
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	The Proposed Action could have a potential minor 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 minimalized to less than significant or avoided by implementing temporary erosion control measures during construction activities. 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 Count'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. 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.
Hazards and Nuisances including Site Safety and Noise	3	Construction activities at the Site will increase noise levels during the 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 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. 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.
Energy Consumption	2	The Proposed Action would not require substantial energy consumption. The Kaiaulu O Kapiolani 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.
SOCIOECONOMIC		
Employment and Income Patterns	1	No adverse impacts to the economy near the Site are anticipated as a result under the proposed project. The proposed renovations will result in short-term economic benefit 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.
COMMUNITY FACILITIES AND SERVICES		
Education and Cultural Facilities	2	The Kaiaulu O Kapiolani is located within the Hawaii School District, Hilo complex. Hilo Union, Hilo Intermediate, and Hilo High School are the schools within the Hilo complex that would service the Kaiaulu O Kapiolani community. The proposed project is not located within any of the School Impact Districts where fees are collected, though the Department of Education is reassessing whether collection of fees will be implemented in the future.
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. Hilo Medical Center is located less than 1.5 miles away. Straub Medical Center, Hilo Clinic is a little over a half mile away. Ululani Medical Center is less than 0.25 miles away. Kaiser Permanente Hilo Clinic is located approximately 2.6 miles from the project site. Kaiser Permanente provides general medical, behavioral, and optical health services.
Solid Waste Disposal / Recycling	3	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. This increase in waste generation would not contribute to a significant adverse impact under the proposed project. Residential wastes are disposed of at West Hawaii Sanitary Landfill ~~South Hilo Sanitary~~ landfill, operated by waste management, located near

		Waikoloa ~~to the west of the Site in Hilo~~. The nearest transfer station is Hilo Transfer Station.
Waste Water / Sanitary Sewers	2	There are existing sewer lines along Kukuau Street and Kapiolani Street, with an existing sewer main on Kukuau Street. These sewer lines and sewer main are maintained by the County of Hawaii Wastewater Division. 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 Imata & Associates, Inc.
Water Supply	2	The Proposed Action is expected to have no 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. 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 Imata & Associates.
Public Safety – Police, Fire and Emergency Medical	2	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. The Hawaii County Department has 20 stations throughout the island of Hawaii. There is one station in Hilo, "Station 1", which is located at 466 Kinoole Street, less than a mile away from the Site. The next nearest station is "Station 2", located at 95 Keaa Street, which is approximately 2.3 miles from the Site. The Hawaii Police Department is headquartered in Hilo, located at 349 Kapiolani Street, directly across the street from the Site. Kaiser Permanente Hilo Clinic is located approximately 2.6 miles from the project site. Kaiser Permanente provides general medical, behavioral, and optical health services.
Parks, Open Space, and Recreation	2	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 privately-owned golf courses open to the public within the Hilo and east Hawaii area.

		The development plans on having an outside playground with open space and areas together, such as picnic tables. This is in addition to the community center.
Transportation and Accessibility	3	No significant adverse impacts are anticipated under the Proposed Action. Traffic in the area was evaluated for the intersections surrounding the project site. Traffic was evaluated on the following intersections: Kukuau Street/ Kupukupu Street (unsignalized); Kapiolani Street/ Kukuau Street (unsignalized); Kapiolani Street/ Hualalai Street (unsignalized). Traffic conditions were assessed during the peak AM and PM hours. (See Exhibit 17). Traffic at these areas operated at a LOS of C or better. Projected traffic in the year 2021 showed slightly worsening of traffic conditions operating at a LOS of D or better. 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: 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.
NATURAL FEATURES		
Unique Natural Features, Water Resources	3	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 County of Hawaii Department of Water Supply standards and requirements. Fire hydrants will be installed with a maximum spacing of 250 feet.
Vegetation, Wildlife	2	No 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 adverse impacts to natural hazard vulnerability would result from the proposed project. The project area lies approximately 95 feet above mean sea level and is classified within Flood Zone X, where the risk of flooding would be minimal.

Additional Studies Performed:
2006 – Archaeological Inventory Survey
October 2018 – Biological Survey
June 2019 – Traffic Impact Analysis Report
August 2019 – Archaeological Assessment
September 2020 – Archeological Field Survey

Field Inspection (Date and completed by):
February 10, 2019 by Max Ulloa 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 – July 17, 2019
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 Hilo. While further development in Hilo is probable, the Kaiaulu O Kapiolani development

is an in-fill of the recognized residential growth boundaries of the region and has been seen as such by the Hilo 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 64 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€; 40 CFR 1508.9]

The Proposed Action is the construction of a 64-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€]:

Under the No alternative, the property, which is zoned for residential uses, would continue to remain vacant. Additionally, 64 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 Kapiolani 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 Kapiolani will not curtail the range of beneficial uses of the environment. This community is intended to provide affordable housing in the Hilo region. Use of the land for housing is appropriate in the context of the Hilo Community Plan and the current need for affordable housing inventory.

Kaiaulu O Kapiolani 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. Establish 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 Kapiolani 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 Kapiolani 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 Kapiolani 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 Kapiolani 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 Kapiolani 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 Hilo. 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 Kapiolani 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 Kapiolani 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 Kapiolani 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.

Hilo 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. The Kaiaulu O Kapiolani 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 Kapiolani 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 Kapiolani will not result in any significant impacts.

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

Summarized below are all the 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
HAR, Chapter 11-46, Community Noise Control HAR Chapter 11-60.1, Air Pollution Control, Section 11-60.1-33, Fugitive Dust; County's "Soil Erosion and Sediment Control Standards."	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. All construction activities will comply with all applicable Federal, State, and County regulations and rules for erosion control. Before issuance of grading permit by the County of Hawaii, the final erosion control plan and best management practices required for the NPDES permit will be completed. 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-ff ditches where needed, installing silt screens where appropriate, covering open-bodied trucks.
In 2007, the Hawaii Legislature enacted Act 245 as Section 302A, HRS, "School Impact Fees".	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.
Drainage	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 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 downtown stream properties. Please see Exhibit 5 for drainage studies.
Department of Water Supply	Based upon coordination with the County of Hawaii Department of Water Supply, 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: 8//11/2022

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

APPROVED AS TO FORM AND LEGALITY:

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).

Compliance with Part 50 and 58 of HTF Environmental Provisions 24 CFR 93.301(F)(1)

Environmental Provisions and Resource	Yes/ No	Environmental Review Record
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800.	YES	Two surveys were conducted of the project parcels. Nelson, Clark, and Rechtman conducted an AIS of parcels 048 and 053 in 2006 and in 2019. An AIS of parcel 080 was conducted by Glen and Suzan Escott in 2019. 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. SHPD concurred with the "no historic properties affected" determination. An Archaelogical Field Inspection was conducted in September 2020 by ASM Affiliates. A 100% surface inspection was performed of the entire parcel. No lava blisters or historic properties were observed. ASM recommended a "no historic properties affected" determination for the property. http://www.nps.gov.nr/research/ Please see Exhibit 11.
Farmlands Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	YES	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. The United States Department of Agriculture (USDA) Soil Conservation Service Classifies the soil within the 100% Keaukaha-Urban land complex. It is classified as Hydrologic Soil Group D with a typical profile consisting of highly decomposed plant material from 0 to 4 inches below ground surface (bgs), and lithic bedrock from 4 to 14 inches bgs. The soils have high runoff class, which indicates they are well drained. The depth of groundwater is more than 80 inches (USDA, 2019). http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

		Please see Exhibit 9.
Environmental Provision and Resource	**Yes/ No**	**Environmental Review Record**
Airport Zones 24 CFR Part 51 Subpart D https://www.epa.gov/nepa/nepassist	YES	A site visit confirmed the Project Area is not within 2,500 feed 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 was conducted by Max Ulloa of Environmental Risk Analysis, LLC on February 10, 2019. Due to the proximity of the Hilo Airport, PV cells will not be able to be utilized at the proposed project http://aviation.hawaii.gov/airfields-airports/hawaii/ Please see Exhibit 1.
Floodplains Executive Order 11988, particularly section 2(a); 24 CFR Part 55	YES	According to FEMA FIRM Map No. 1551660736F, it was determined that the Site lies beyond the 500-year flood plain (within Flood Zone X). http://msc.fema.gov/portal Please see Exhibit 10.
Wetlands Executive Order 11990, particularly sections 2 and 5	YES	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 northwest and east of the Site. Please see Exhibit 14.
Contamination 24 CFR Part 50.3(i) & 58.5(i)(2)	YES	According to a Phase I Environmental Site Assessment (ESA) dated February 2019, and a subsequent reconnaissance visit on February 10, 2019, 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 and

Environmental Provisions and Resource	**Yes/ No**	**Environmental Review Record**
		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. 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 08/31/2018) resulted in eleven (11) sites having reported a UST release within a ½-mile radius of the Site. According to the HDOH LUST database, of the 11 LUST sites, nine (9) sites are recorded as Site Cleanup Completed and were issued a No Further Action (NFA). The LUST sites do not pose an environmental threat to the subject Site. Please see Exhibit 6.
Noise Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	YES	The properties immediately surrounding the Site are developed. No significant noise disturbance is anticipated from nearby roadways or from Hilo International Airport. 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.

Environmental Provisions and Resource	**Yes/ No**	**Environmental Review Record**
		https://maps.bts.dot.gov/arcgis/apps/webappviewer/index.html?id=a303ff5924c9474790464ccOe9d5c9fb Please see Exhibit 12.
Safe Drinking Water Safe Drinking Water Act of 1974, as amended, particularly section 1424€; 40 CFR Part 149		There are no existing water services to the Site. An existing water commitment for a proposed development on the Site expired in June of 2016. Water is available from an 8-inch waterline within Kapiolani Street fronting parcel 080. The Hawaii County Department of Water Supply can issue a water commitment if their conditions and standards are met and an application is submitted. The pipes that will need to be installed to provide water to the Site will use only lead-free pipes, solder, and flux. Please see Exhibit 13.

If any of the answers to the worksheet above are "No" the project cannot be funded through the Housing Trust Fund. However, it is possible that the project can be funded using other HUD funds.[1]

[1] 93.301 (f)(3) Acquisition projects environmental requirements. (i)(A) Existing housing that is acquired with HTF funds and has been newly constructed or rehabilitated less than 12 months before the commitment of HTF funds must meet the property standards at paragraph (f)(1) of this section. (B) All other existing housing that is acquired with HTF assistance must meet the property standards requirements of paragraph (f)(2) of this section. (ii) If under paragraph (f)(3)(i)(A) of paragraph (B) of this section, HTF funds cannot be used to acquire the property. (4) Manufactured housing environmental requirements. Manufactured housing is subject to the environmental standards in paragraph (f)(1) of this section for new construction or paragraph (f)(2) of this section for rehabilitation, as applicable. If an existing property does not meet these standards, HTF funds cannot be used to acquire the property unless it is rehabilitated to meet the standards in paragraph (f)(2), as applicable, with the exception of noise standards in paragraph (f)(2)(x).

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: Environmental Justice

Exhibit 16: Consultation Letters

Exhibit 17: Traffic Impact Analysis

Exhibit 1: Airport Hazards

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Airport Zones Accident Potential Zone

Exhibit 2: Coastal Barrier Resources

U.S. Fish and Wildlife Service

Coastal Barrier Resources System

Kaiulu O Kapiolani

August 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.

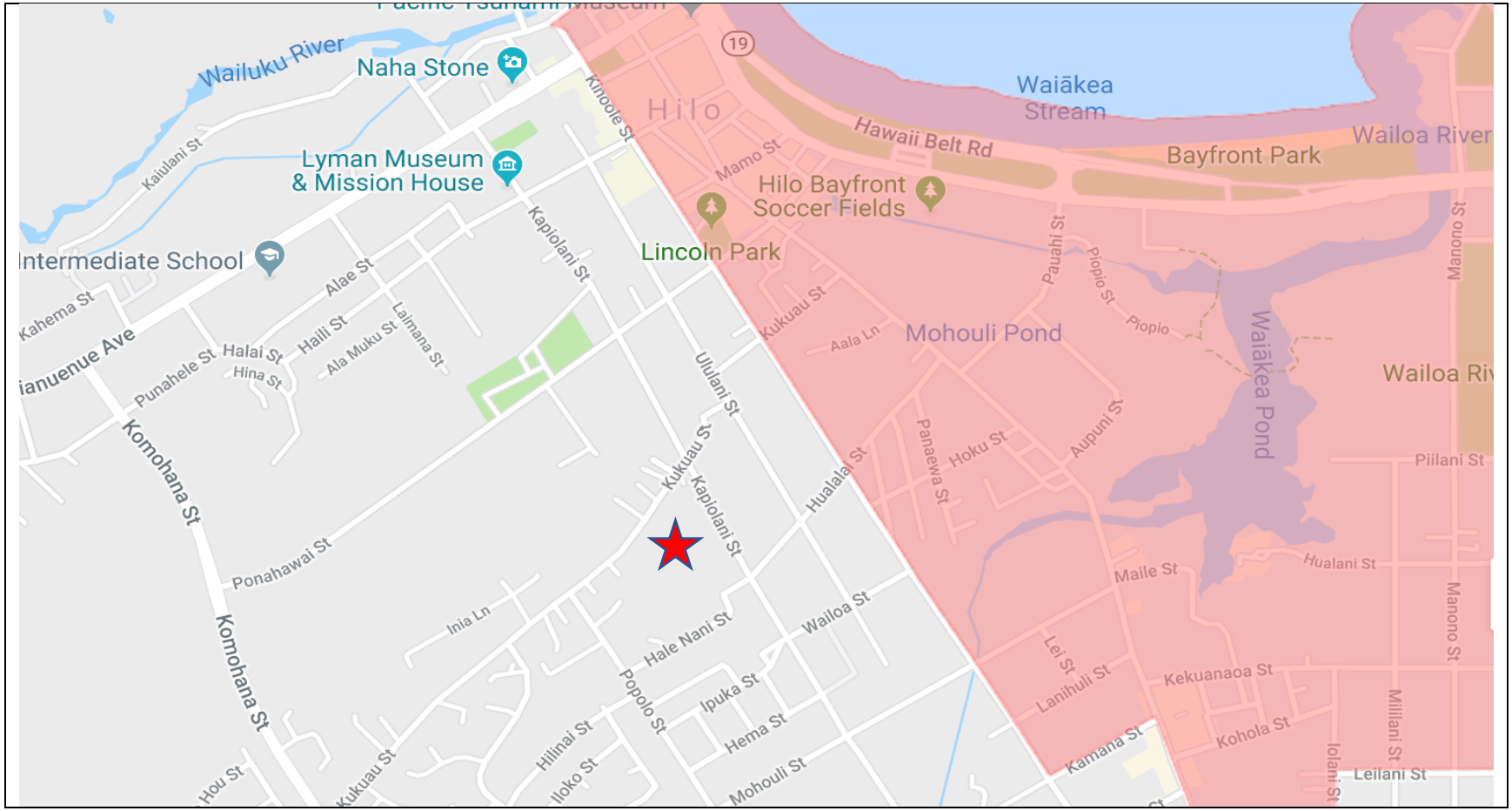
The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (http://www.fws.gov/cbra/Determinations.html) as to whether the property or project site is located "in" or "out" of the CBRS.

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:	FIGURE TITLE:
Environmental Risk Analysis	Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	Coastal Barrier Resources

Exhibit 3: Flood Insurance



Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: NOAA Tsunami Zone Evacuation Map

National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet 1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, 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 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
- NO SCREEN 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
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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 8/8/2019 at 6:10:37 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:	FIGURE TITLE:
Environmental Risk Analysis	Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	National Flood Hazard Layer FIRMette

Exhibit 4: Clean Air Act

2015 Annual Summary of Hawaii Air Quality Data

Air Pollutant	Average Time	Annual Mean	Standards		
			Hawaii State Standard	Federal Primary Standard	Federal Secondary Standard
Carbon Monoxide	1-hr	0.7 / 0.7 ppm	9 ppm	35 ppm	---
	8-hr	0.7 / 0.7 ppm	4.4 ppm	9 ppm	---
Ozone	24-hr	0.024 / 0.028 ppm	0.08 ppm	0.07 ppm	0.07 ppm
PM_{10}	24-hr	15.8 / 21.1 $\mu g/m^3$	150 $\mu g/m^3$	150 $\mu g/m^3$	---
	Annual	15.8 / 21.1 $\mu g/m^3$	50 $\mu g/m^3$	---	---
$PM_{2.5}$	24-hour	4.7 $\mu g/m^3$	---	35 $\mu g/m^3$	35 $\mu g/m^3$
	Annual	4.7 $\mu g/m^3$	---	12 $\mu g/m^3$	15 $\mu g/m^3$
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 $\mu g/m^3$	1.5 $\mu g/m^3$	0.15 $\mu g/m^3$	0.15 $\mu g/m^3$
Hydrogen sulfide	1-hour	0.001 ppm (Puna)	0.025 ppm	---	---

Note: All measurements were taken at the Kapolei Monitoring Station, except for PM2.5 which his reported from the Kihei Monitoring Station. Secondary values are the greatest value of all measurements taken in the State regardless of location. $\mu g/m^3$ = micrograms per cubic meter/ *98th % value.

State of Hawaii
Annual Summary
2015
Air Quality Data

Kilauea Lighthouse in Kilauea, Kauai

Virginia Pressler, M.D.
Director of Health

State of Hawaii
Department of Health

David Y. Ige
Governor of Hawaii

December 2016

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 $PM_{2.5}$ Averages: SPM Stations

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 35 µg/m^3														
	1st High	98th%	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
HAWAII																		
Hilo	19.7	15.5	4.1	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	365	335	91.8
Mt. View	20.6	14.4	3.4 [1]	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	365	315	86.3
Pahala	23.7	14.8	5.4	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 [2]	84	93.3
KAUAI																		
Niumalu	14.5	10.4	4.5	0	0	0	0	0	0	0	0	0	0	0	0	365	326	89.3
MAUI																		
Paia	49.7	12.6	5.3 [3]	0	0	0	0	0	0	0	0	1	0	0	0	365	299	81.9

The special purpose stations on Hawaii island were established to monitor ambient air concentrations of $PM_{2.5}$ 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.

[1,3] Does not meet summary criteria, <75% data recovery in one or more quarters

[2] Station shut down 3/31/2014, incomplete year

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

Table 4-20. 2014 Monthly Maximum of 24-Hour $PM_{2.5}$ Values ($\mu g/m^3$)

The month with the highest value in the year is highlighted

The federal 24-hr $PM_{2.5}$ standard is 35 $\mu g/m^3$

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SLAMS Stations												
Honolulu	12	11	6	12	12	6	6	9	8	9	8	10
Kapolei [1]	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
SPM Stations												
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 [2] (volcano)	15	20	42 [3]	-	-	-	-	-	-	-	-	-
Paia (cane burning)	13	24	11	12	12	7	5	12	50 [4]	7	13	11

[1] Kapolei station no values from September to November, incomplete year [2] Waikoloa station shut down 3/31/14 [3] Value due to high winds/dust [4] Value due to brush fire

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

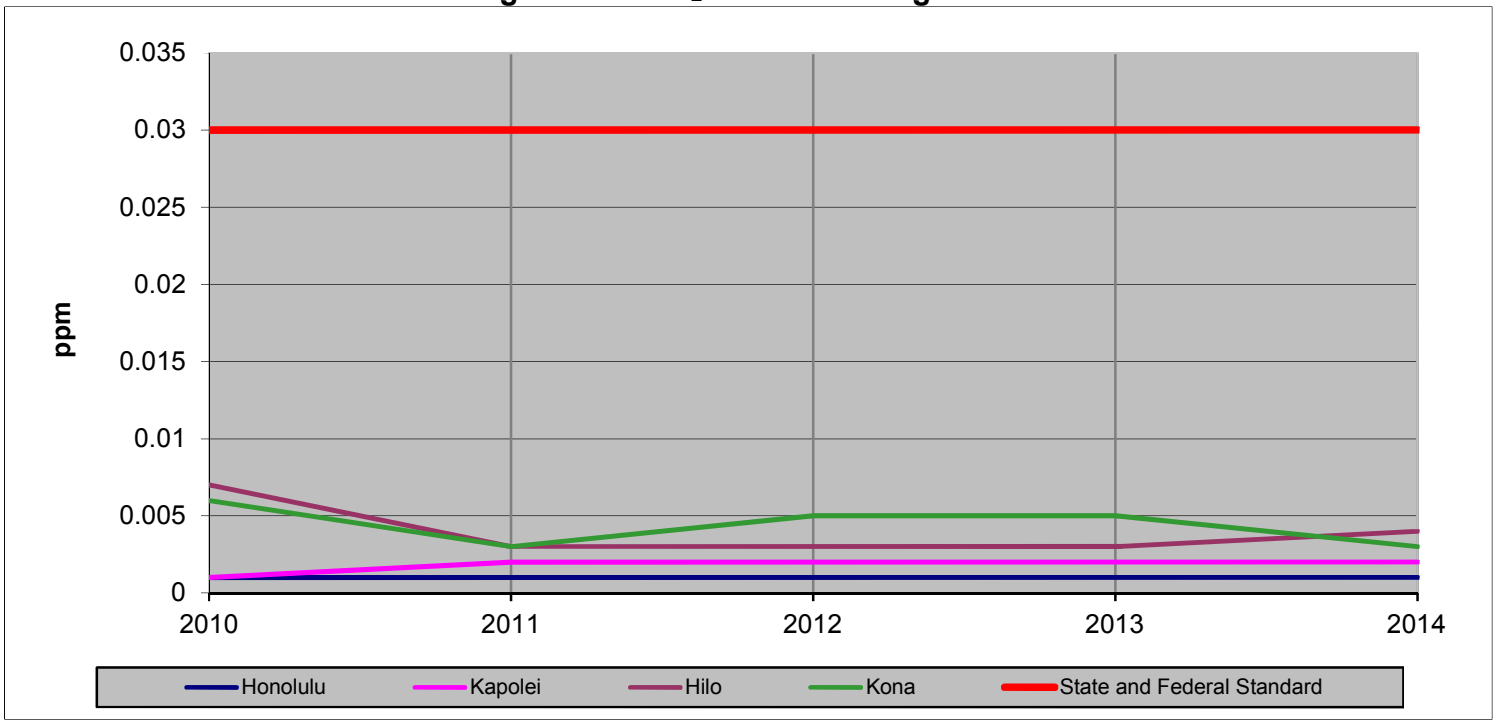
Table 5-1 Continued

Parameter	1st High (µg/m³)	2nd High (µg/m³)	Annual Mean (µg/m³)	No. of Samples	Percent Recovery
IONS					
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_2 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_{10} and $PM_{2.5}$). 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
- $PM_{2.5}$ 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_2 data from stations located on the island. It provides near real-time 15-minute SO_2 averages and advisory level guidance to help individuals protect themselves against possible health effects. To view this data online, go to 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
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Phone: (808)586-4200
Fax: (808)586-4359

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

98th Percentile Value	The $PM_{2.5}$ 24-hour average or the maximum daily 1-hour NO_2 average in the year below which 98% of all values fall.
99th Percentile Value	The maximum daily 1-hour SO_2 value in the year below which 99% of all values fall.
Ambient Air	The general outdoor atmosphere, external to buildings, to which the general public has access.
Ambient Air Quality Standard	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.
Carbon Monoxide	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.
CFR	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.
Collocated	This is a procedure required for a certain percentage of PM_{10} and $PM_{2.5}$ samplers in the monitoring network. Collocated samplers determine precision or variation in the PM_{10} or $PM_{2.5}$ concentration measurements of identical samplers run in the same location under the same sampling conditions.
Criteria Pollutants	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_{10} and $PM_{2.5}$).
EPA	The U. S. Environmental Protection Agency; established to

protect human health and the natural environment.

Hydrogen Sulfide — Hydrogen sulfide (H_2S) 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.

$\mu g/m^3$ — 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_{10}, $PM_{2.5}$, 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_2) is a brownish, highly corrosive gas with a pungent odor. It is formed in the atmosphere from emissions of nitrogen oxides (NO_x). Sources of nitrogen oxides include electric utilities, industrial boilers, motor vehicle exhaust and combustion of fossil fuels. NO_2 is also a component in the atmospheric reaction that produces ground-level ozone.

Ozone — Ozone (O_3) is the main constituent in photochemical air pollution. It is formed in the atmosphere by a chemical reaction of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. In the upper atmosphere, O_3 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.
PM_{10}	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.
$PM_{2.5}$	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.
ppm	Parts per million is one particle in 1,000,000 other particles. It is approximately one drop in 13 gallons.
SLAMS	State and Local Air Monitoring Stations. The Clean Air Act requires that every state establish a network of air monitoring stations for criteria pollutants.
SPM	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.
Sulfur Dioxide	Sulfur dioxide (SO_2) 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.
Vog	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 [a]	Federal Secondary Standard [b]
Carbon Monoxide (CO)	1-hour 8-hour	9 ppm 4.4 ppm	35 ppm 9 ppm	None
Nitrogen Dioxide (NO_2)	1-hour Annual	--- 0.04 ppm	0.100 ppm 0.053 ppm	--- 0.053 ppm
PM_{10}	24-hour Annual [c]	150 µg/m^3 50 µg/m^3	150 µg/m^3 ---	--- ---
$PM_{2.5}$	24-hour Annual	---	35 µg/m^3 12 µg/m^3	35 µg/m^3 15 µg/m^3
Ozone (O_3)	8-hour	0.08 ppm	0.070 ppm	0.070 ppm
Sulfur Dioxide (SO_2)	1-hour 3-hour 24-hour Annual	--- 0.5 ppm 0.14 ppm 0.03 ppm	0.075 ppm --- --- ---	--- 0.5 ppm --- ---
Lead (Pb)	Rolling 3-month	1.5 µg/m^3 [d]	0.15 µg/m^3	0.15 µg/m^3
Hydrogen Sulfide	1-hour	0.025 ppm	None	None

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

[b] ***Secondary Standards*** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

[c] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM_{10} standard effective December 17, 2006. However, the state still has an annual standard.

[d] 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_2 1-hour: The 3-year average of the 98th percentile daily maximum 1-hour averages must not exceed the standard.
NO_2 Annual: Average of all 1-hour values in the year may not exceed the level of the standard.
PM_{10} 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)
$PM_{2.5}$ 24-hour: The 3-year average of the 98th percentile 24-hour concentrations must not exceed the level of the standard.
$PM_{2.5}$ 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_2 1-hour: The 3-year average of the 99th percentile daily maximum 1-hour averages must not exceed the standard.
SO_2 3-hour: Not be exceeded more than once per year.
SO_2 24-hour: Not be exceeded more than once per year.
SO_2 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.

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

Station	Name	Location	Pollutants Monitored
1	Hilo	1099 Waianuenue Ave.	SO_2, $PM_{2.5}$
2	Mountain View	17-1235 Volcano Rd.	SO_2, $PM_{2.5}$
3	Puna E	TMK (3)-1-3-28-37 (Leilani)	H_2S, SO_2
4	Pahala	96-3150 Pikake St.	SO_2, $PM_{2.5}$
5	Ocean View	92-6091 Orchid Mauka Circ.	SO_2, $PM_{2.5}$
6	Kona	81-1043 Konawaena School Rd.	SO_2, $PM_{2.5}$

Hilo (HL)

Location:	1099 Waianuenue Ave., Hilo
Latitude:	19.71756
Longitude:	-155.11053
Altitude:	136.8 m
Parameters:	SO_2, $PM_{2.5}$
Established:	January 1997
Brief Description:	

Located near the Hilo Medical Center, this station was established to monitor vog during “Kona” or southerly wind conditions.

Kona (KN)

Location:	81-1043 Konawaena School Rd., Kona
Latitude:	19.50978
Longitude:	-155.91342
Altitude:	517.2 m
Parameters:	SO_2, $PM_{2.5}$
Established:	September 2005
Brief Description:	

Located on the upper campus of Konawaena High School, this station monitors for vog on the west side of the island of Hawaii.

Mt. View (MV)

Location:	17-1235 Volcano Rd., Mt. View
Latitude:	19.57002
Longitude:	-155.08046
Altitude:	436.5 m
Parameters:	SO_2, $PM_{2.5}$
Established:	December 2010
Brief Description:	

Located on the grounds of the Mt. View Elementary School, this station was established to monitor vog during southerly wind conditions.

Ocean View (OV)

Location:	92-6091 Orchid Mauka Circle, Ocean View
Latitude:	19.11756
Longitude:	-155.77814
Altitude:	862.6 m
Parameters:	SO_2, $PM_{2.5}$
Established:	April 2010
Brief Description:	

This station is located in Hawaii Ocean View Estates at the Ocean View fire station and monitors for volcanic emissions.

Pahala (PA)		
	Location:	96-3150 Pikake St., Pahala
	Latitude:	19.2039
	Longitude:	-155.48018
	Altitude:	320 m
	Parameters:	SO_2, $PM_{2.5}$
	Established:	August 2007
	Brief Description:	
	The station is on the grounds of the Kau High and Pahala Elementary School, monitoring for volcanic emissions.	

Puna E (PE)		
	Location:	13-763 Leilani Ave., Pahoa
	Latitude:	19.46399
	Longitude:	-154.89871
	Altitude:	207.9 m
	Parameters:	SO_2, H_2S
	Established:	March 1991
	Brief Description:	
	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_2 emissions from the volcano during southwesterly wind conditions.	

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_2 and $PM_{2.5}$, with regular exceedances of the NAAQS for SO_2 and occasional exceedances of the NAAQS for $PM_{2.5}$. 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_2S standard (there is no federal H_2S standard);
- The "Maximum" is the highest and second highest valid values recorded in the year for the averaging period. For $PM_{2.5}$, the maximum and 98th percentile concentrations are provided and for O_3, the 4th 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_{10} Averages

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

Table 4-2. Attainment Determination of the 24-Hour PM_{10} 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_{10} NAAQS.**				

Table 4-3. 2015 Summary of the 24-Hour $PM_{2.5}$ Averages: SLAMS Stations

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 35 µg/m^3														
	1st High	98th %	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
OAHU																		
Honolulu	17.3	10.4	3.7	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	365	346	94.8
Pearl City	14.0	11.4	5.2	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	365	354	97.0
MAUI																		
Kihei	23.3	12.9	4.7[1, 2]	0	0	0	0	0	0	0	0	0	0	0	0	365	306	83.8

[1] Does not meet summary criteria, <75% data recovery in one or more quarters [2] Passed data substitution test

Table 4-4. Attainment Determination of the 24-Hour $PM_{2.5}$ NAAQS: SLAMS Stations

Station	2013 98th value	2014 98th value	2015 98th 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 98th percentile values must be less than or equal to 35 µg/m^3.
In 2015, Hawaii was in attainment with the 24-hour $PM_{2.5}$ NAAQS.

Table 4-5. Attainment Determination of the Annual $PM_{2.5}$ 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^3.
In 2015, Hawaii was in attainment with the annual $PM_{2.5}$ NAAQS.

Table 4-6. 2015 Summary of the 24-Hour $PM_{2.5}$ Averages: SPM Stations

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 35 µg/m^3														
	1st High	98th%	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
HAWAII																		
Hilo	24.8	17.1	5.0	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	365	351	96.2
Mt. View	34.6	13.1	2.9	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	365	356	97.5
Pahala	25.9	17.8	7.5	0	0	0	0	0	0	0	0	0	0	0	0	365	347	95.1
KAUAI																		
Niumalu	13.2	10.1	3.3	0	0	0	0	0	0	0	0	0	0	0	0	365	338	92.6
MAUI																		
Kahului	19.8	11.5	5.4	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	365	362	99.2

The special purpose stations on Hawaii island were established to monitor ambient air concentrations of $PM_{2.5}$ 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.

Table 4-7. 2015 Summary of the 8-Hour O_3 Averages

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

Table 4-8. Attainment Determination of the 8-Hour O_3 NAAQS

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

Attainment: The 3-year average of the annual 4th 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_3 NAAQS.

[1] Does not meet summary criteria, <75% data recovery in year [2] 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_2 Averages

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

Attainment of the annual NO_2 NAAQS: The annual mean shall not exceed 0.053 ppm.
In 2015, Hawaii was in attainment with the annual NO_2 NAAQS.

[1] Does not meet summary criteria, <75% data recovery in one or more quarters [2] Does not pass data substitution test, <50% recovery in one or more quarters

Table 4-10. Attainment Determination of the 1-Hour NO2 NAAQS

Station	2013 98th value	2014 98th value	2015 98th 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 98th percentile values must be less than or equal to 0.100 ppm.
In 2015, Hawaii was in attainment with the 1-hour NO_2 NAAQS.

4-11. 2015 Summary of the 1-Hour SO_2 Averages

	Maximum		Annual Mean	No. of 1-hour Averages Greater than 0.075 ppm														
	1st High	99th%	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
OAHU	**SLAMS Stations**																	
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
HAWAII	**SPM Stations (see NOTE)**																	
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
KAUAI	**SPM Station**																	
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 99th 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_2 NAAQS (SLAMS stations only).

NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO_2 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_2 NAAQS: SLAMS Stations

	2013 99th value	2014 99th value	2015 99th value	3-Year Average	Violation of the NAAQS
OAHU SLAMS stations					N= NO Y= YES
Honolulu	0.007	0.006	0.010	0.008	N
Kapolei	0.009	0.021 [1]	0.013	0.014	N
HAWAII SPM stations (SEE note)					
Hilo	0.169	0.144 [1]	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
KAUAI SPM station					
Niumalu	0.025	0.036	0.014	0.025	N

Attainment: The 3-year average of the 99th 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_2 NAAQS (SLAMS stations only).

NOTE: The SPM stations on Hawaii Island were established to monitor ambient air concentrations of SO_2 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.

[1] Does not meet summary criteria, < 75% data recovery in one or more quarters

Table 4-13. 2015 Summary of the 3-Hour SO_2 Averages

	Maximum		Annual Mean	No. of 3-hour Averages Greater than 0.5 ppm														
	1st High	2nd High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
OAHU	**SLAMS stations**																	
Honolulu	0.007	0.007	0.000	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	2920	2542	87.1
HAWAII	**SPM stations (see NOTE)**																	
Hilo	0.472	0.370	0.004	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	2920	2681	91.8
Mt. View	0.294	0.173	0.004	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	2920	2710	92.8
Pahala	0.423	0.364	0.026	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	2920	2656	91.0
KAUAI	**SPM station**																	
Niumalu	0.021	0.011	0.000	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_2 NAAQS (SLAMS stations only).

NOTE: The SPM stations on Hawaii island were established to monitor ambient air concentrations of SO_2 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_2 Averages

	Maximum		Annual Mean	No. of 24-hour Averages Greater than 0.140 ppm														
	1st High	2nd High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
OAHU	**SLAMS Stations**																	
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
HAWAII	**SPM Stations (see NOTE)**																	
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
KAUAI	**SPM Station**																	
Niumalu	0.005	0.005	0.000	0	0	0	0	0	0	0	0	0	0	0	0	365	324	88.8

Attainment: 24-hour values not to exceed 0.14 ppm more than once per year.
In 2015, Hawaii was in attainment of the state 24-hour SO_2 standard (SLAMS stations only).

NOTE: The SPM stations on Hawaii island were established to monitor ambient air concentrations of SO_2 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.

Attainment: Annual average (from SLAMS stations only) not to exceed 0.03 ppm.
In 2015, Hawaii was in attainment of the state annual SO_2 standard.

NOTE: The SPM stations on Hawaii island were established to monitor ambient air concentrations of SO_2 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.

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

	Maximum		Annual Mean	No. of 1-hour Averages Greater than 35 ppm														
	1st High	2nd High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
OAHU	**SLAMS stations**																	
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.
In 2015, Hawaii was in attainment with the 1-hour CO NAAQS.

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

	Maximum		Annual Mean	No. of 8-hour Averages Greater than 9 ppm														
	1st High	2nd High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
OAHU	**SLAMS stations**																	
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.
In 2015, Hawaii was in attainment with the 8-hour CO NAAQS.

Table 4-17. 2015 Summary of the 1-Hour H_2S Averages (State Standard)

	Maximum		Annual Mean	No. of 1-hour Averages Greater than 0.025 ppm														
	1st High	2nd High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
HAWAII																		
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.
In 2015, Hawaii was in attainment of the state 1-hour H_2S standard.

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/m³														
				Rolling 3-Month period ending in the month of														
	1st High	2nd High	All Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Possible Periods	Valid Periods	Percent Recovery
HAWAII																		
Kapolei	0.002	0.001	0.001	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/m³.
Note: Sampling for lead conducted 1 in 6 days. Sampling began 1/1/2012.

Table 4-19. 2015 Monthly Maximum of 24-Hour PM_{10} Values (µg/m³)

The month with the highest value in the year is highlighted

The state and federal 24-hr PM_{10} standard is 150 µg/m³

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 $PM_{2.5}$ Values ($\mu g/m^3$)

The month with the highest value in the year is highlighted

The federal 24-hr $PM_{2.5}$ standard is 35 $\mu g/m^3$

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SLAMS Stations												
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
SPM Stations												
Niumalu (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_2 Values (ppm)

The month with the highest value in the year is highlighted *The federal 1-hour standard for NO_2 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
Niumalu[1]	0.029	0.016	0.000	0.027	0.031	0.024	0.017	0.014	0.038	0.022	0.037	0.034

[1] 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

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_3 Values (ppm)

The month with the highest value in the year is highlighted *The federal 8-hr O_3 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_2 Values (ppm)

The month with the highest value in the year is highlighted *The federal 1-hr SO_2 standard is 0.075 ppm (75 ppb)*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SLAMS Stations												
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
SPM Stations (see NOTE)												
Niumalu (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_2 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_2 Values (ppm)

The month with the highest value in the year is highlighted *The state and federal 3-hr SO_2 standard is 0.5 ppm*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SLAMS Stations												
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
SPM Stations (see NOTE)												
Niumalu (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_2 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_2 Values (ppm)

The month with the highest value in the year is highlighted *The state and federal 24-hr SO_2 standard is 0.14 ppm*

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SLAMS Stations												
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
SPM Stations (see NOTE)												
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_2 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_2S Values (ppm)

The month with the highest value in the year is highlighted *The state 1-hour H_2S 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 ($\mu g/m^3$)

The month with the highest value in the year is highlighted *The federal rolling 3-month lead standard is 0.15 $\mu g/m^3$*

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 $PM_{2.5}$ 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 $PM_{2.5}$ 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 $PM_{2.5}$, 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 $PM_{2.5}$.

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

Table 5-1. Annual Summary of $PM_{2.5}$ Speciation Data

Parameter	1st High (µg/m³)	2nd High (µg/m³)	Annual Mean (µg/m³)	No. of Samples	Percent Recovery
CARBON					
Organic Carbon	1.28	1.02	0.3695	82	68
Elemental Carbon	0.384	0.341	0.1144	82	68
METALS					
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	1st High (µg/m³)	2nd High (µg/m³)	Annual Mean (µg/m³)	No. of Samples	Percent Recovery
IONS					
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_{10}, $PM_{2.5}$, SO_2, NO_2, O_3, 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_{10} annual and maximum 24-hour averages.

Figure 6-3 is the graph of the $PM_{2.5}$ annual averages. Attainment of the $PM_{2.5}$ 24-hour standard is based on the 98th percentile value at each station, which is depicted in Figure 6-4.

Figures 6-5 and 6-6 are graphs of the SO_2 annual and maximum 24-hour averages.

Figure 6-7 and 6-8 shows the annual and maximum 1-hour averages of NO_2 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_{10} Annual Average: 2011-2015

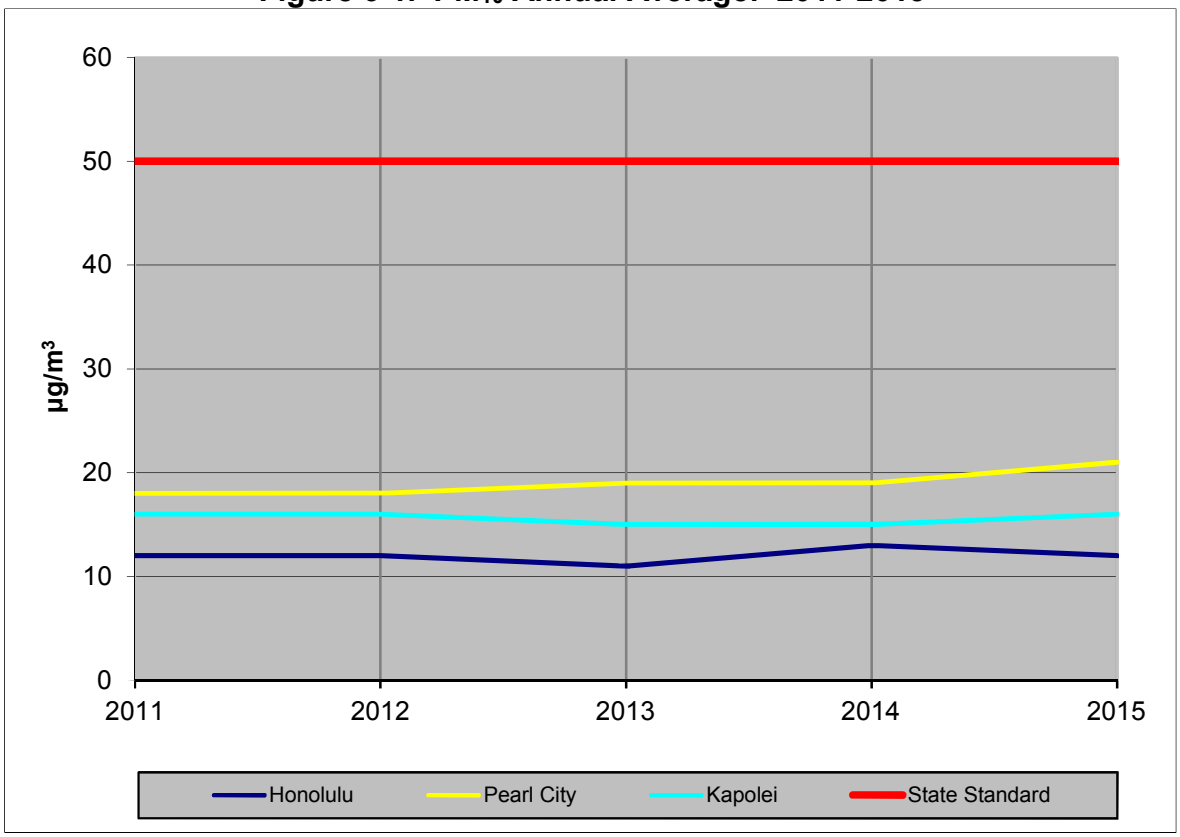


Figure 6-2. PM_{10} Maximum 24-Hour Average: 2011-2015

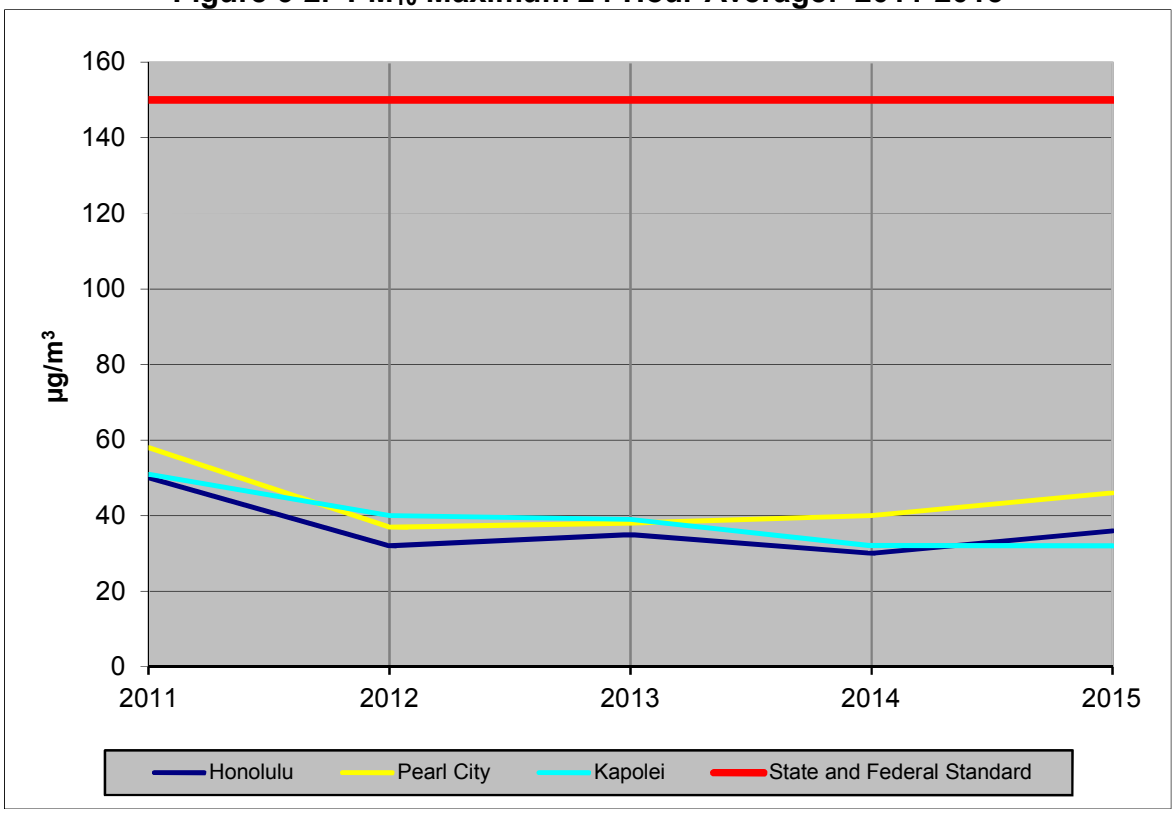


Figure 6-3. $PM_{2.5}$ Annual Average: 2011-2015

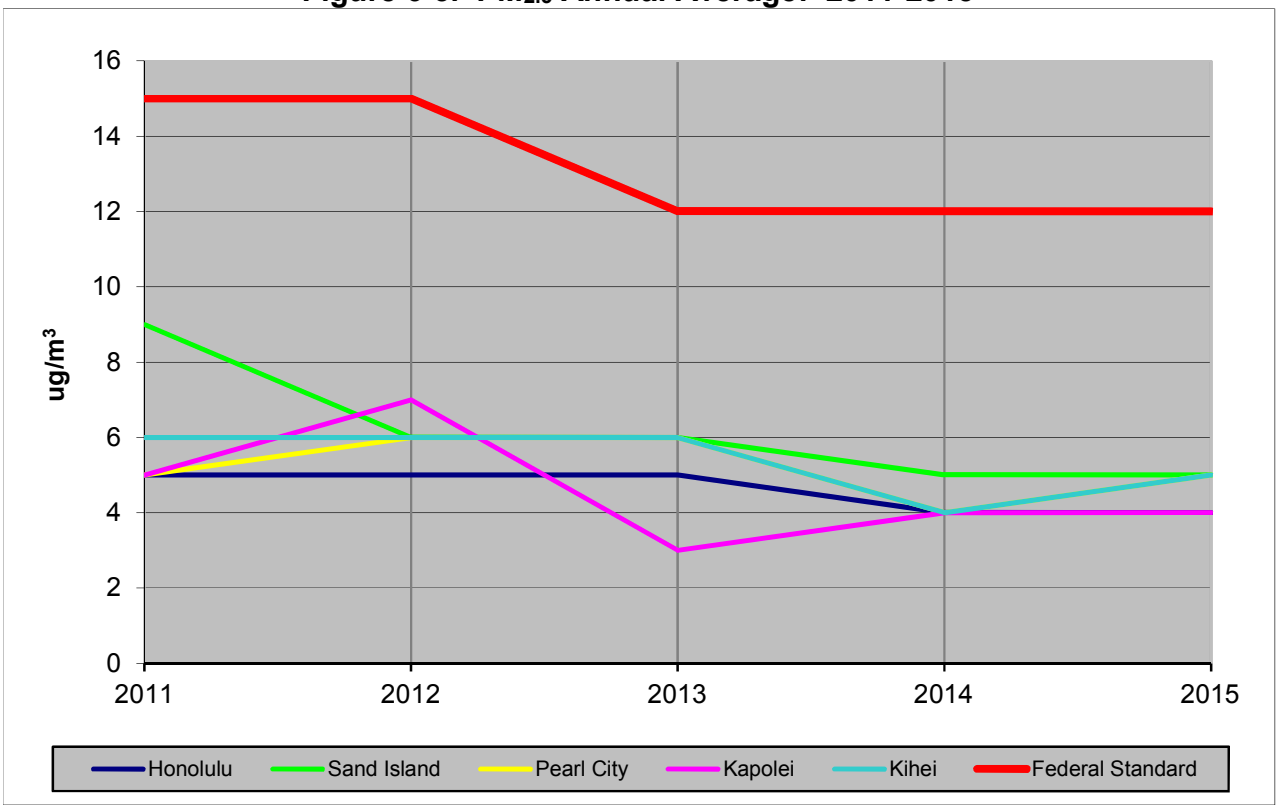


Figure 6-4. $PM_{2.5}$ 98th Percentile 24-Hour Average: 2011-2015

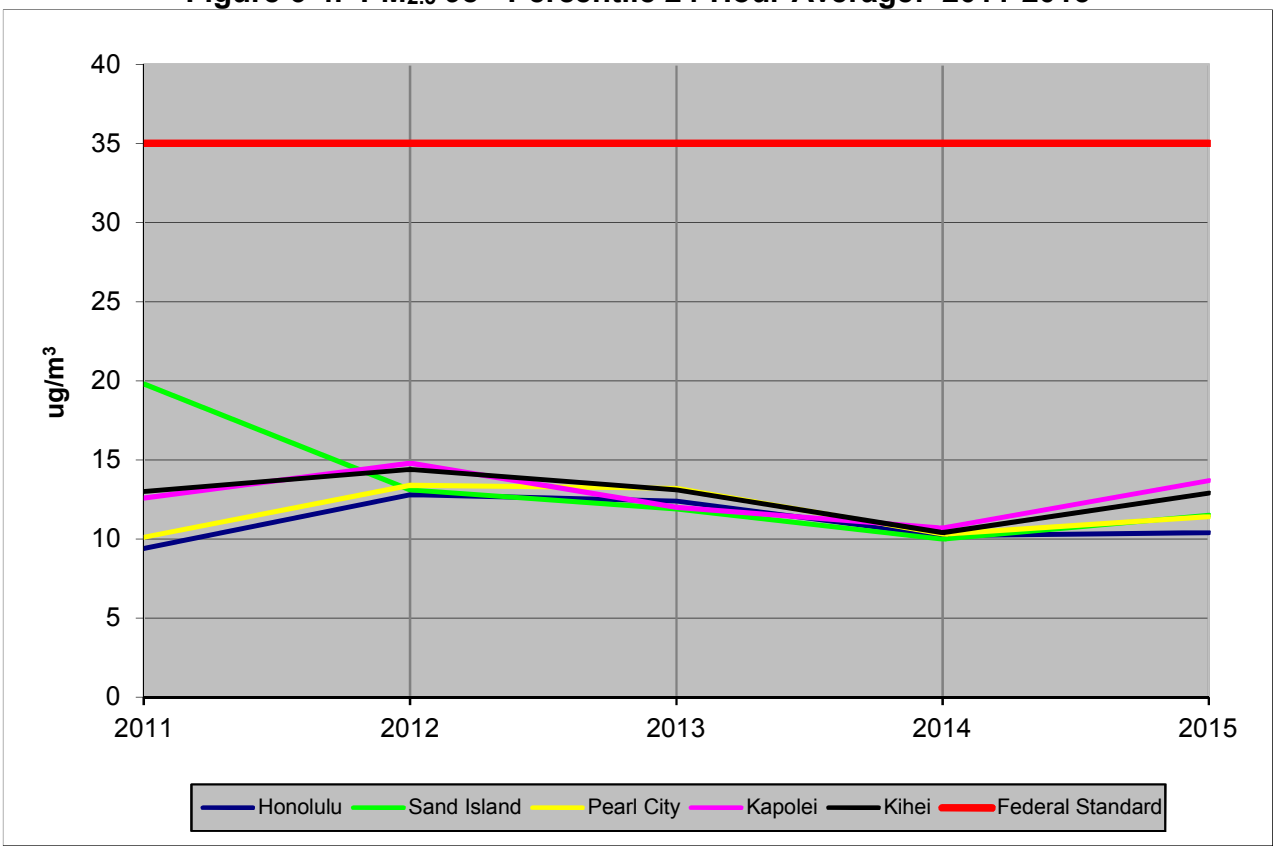


Figure 6-5. SO_2 Annual Average: 2011-2015

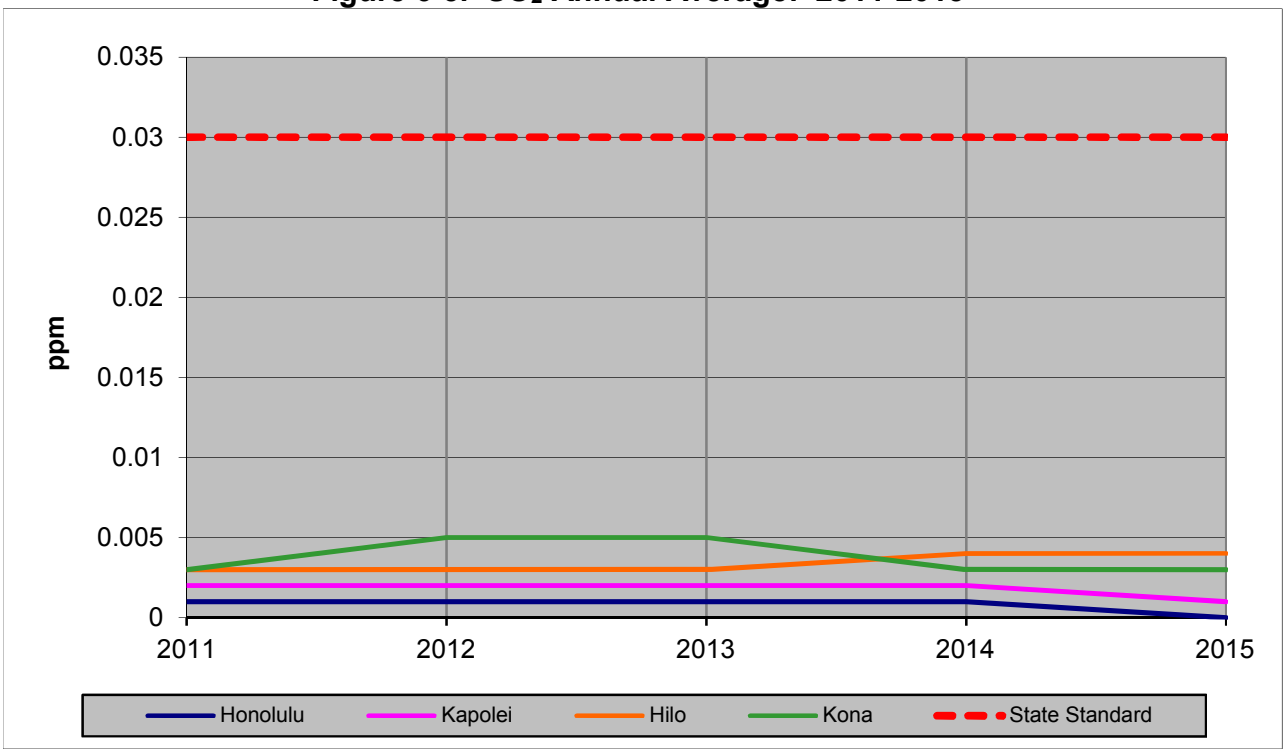


Figure 6-6. SO_2 Maximum 24-Hour Average: 2011-2015

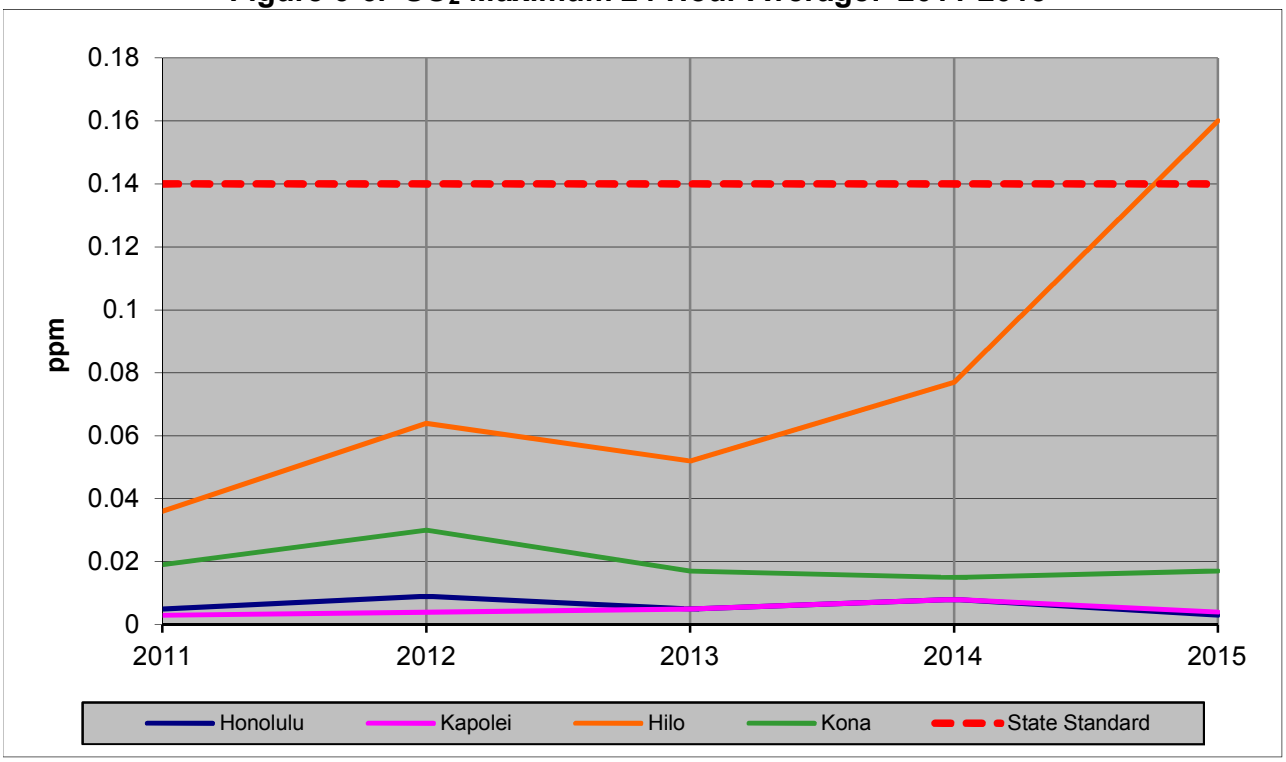


Figure 6-7. NO_2 Annual Average: 2011-2015

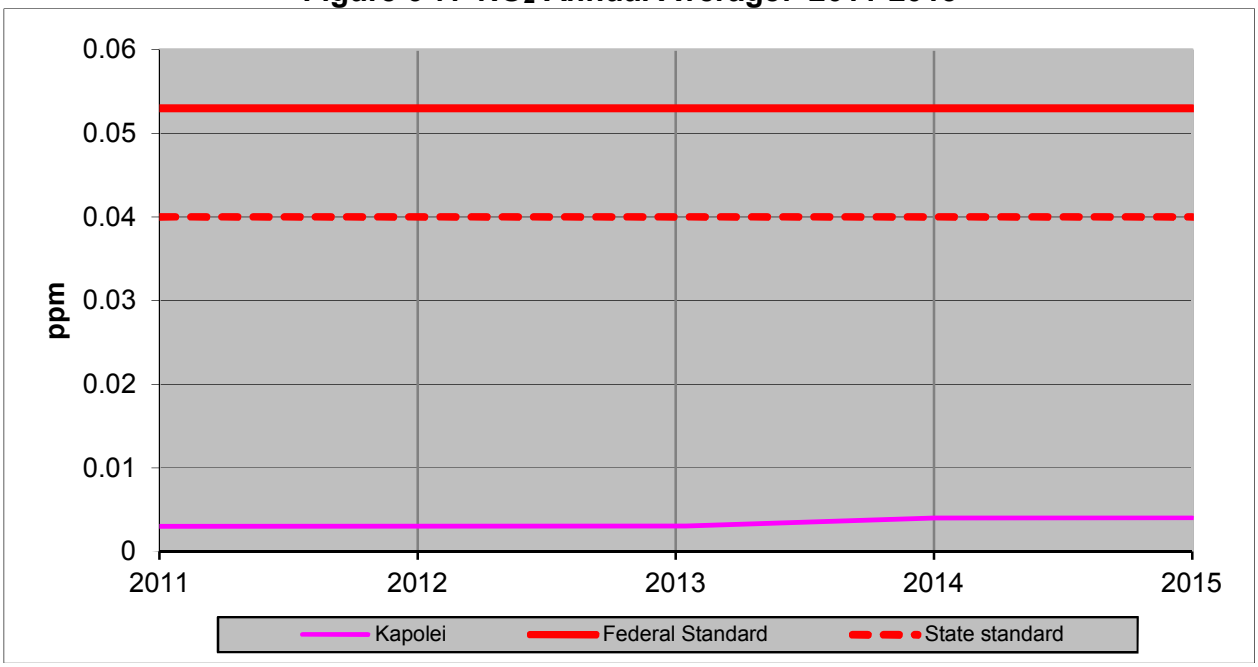


Figure 6-8. NO_2 Maximum 1-Hour Average: 2011-2015

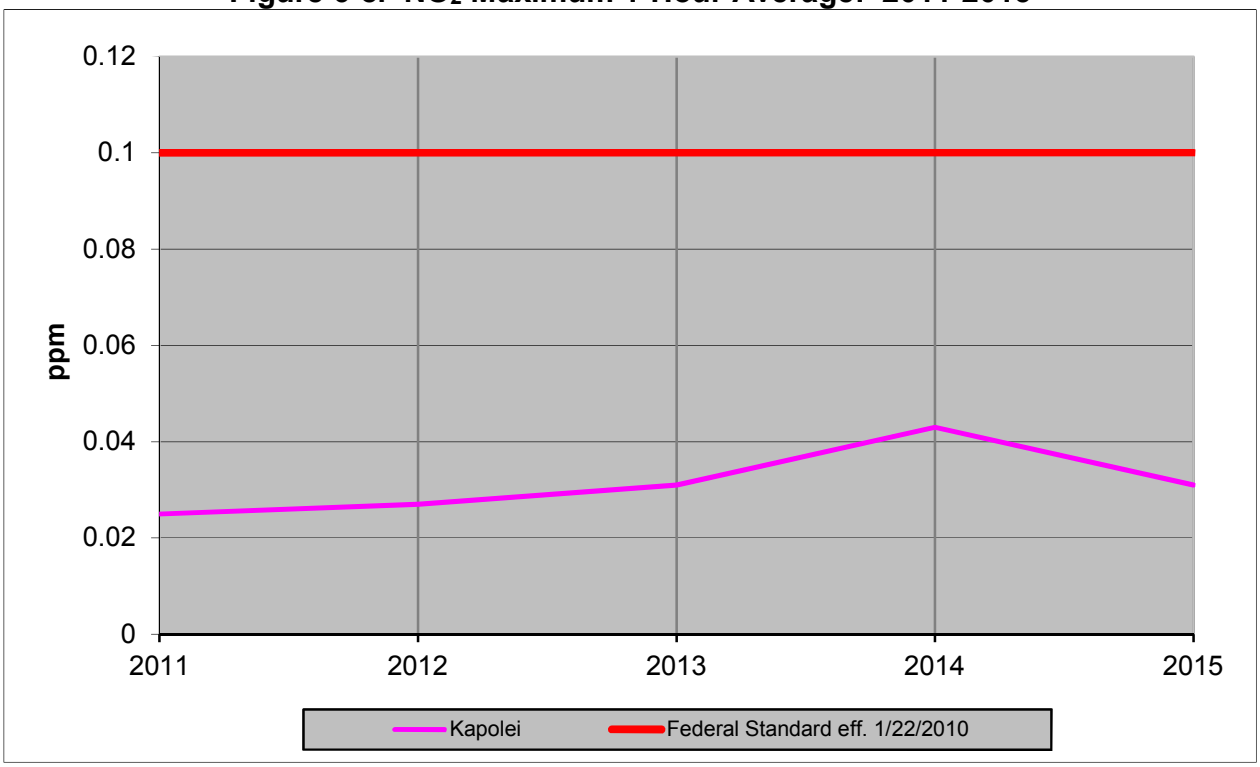


Figure 6-9. O_3 Fourth Highest Daily Maximum 8-Hour Average: 2011-2015

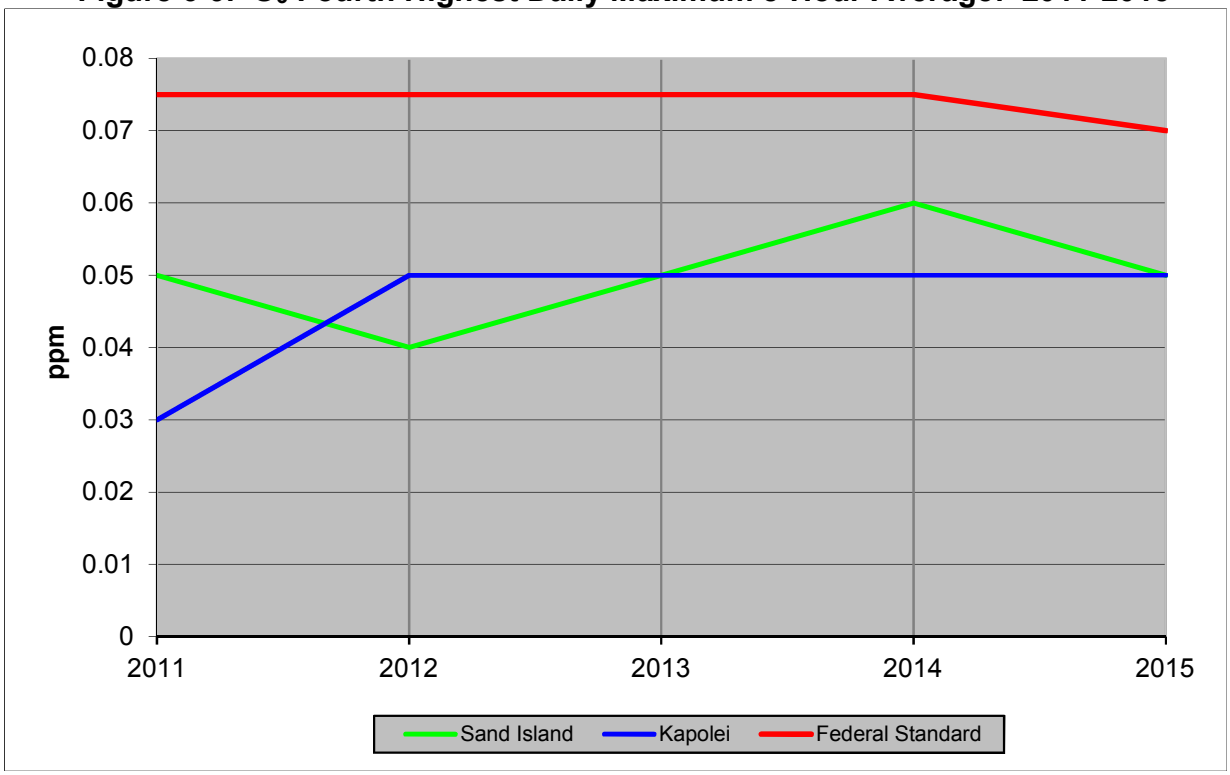


Figure 6-10. CO Maximum 1-Hour Average: 2011-2015

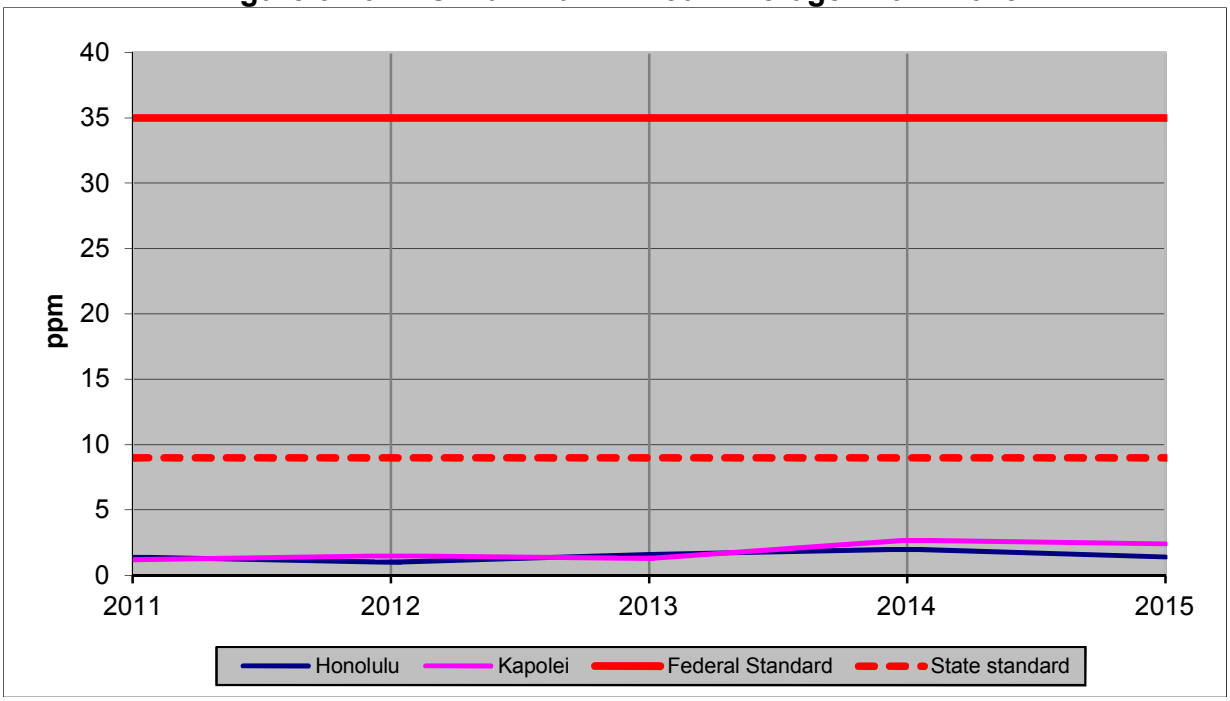


Figure 6-11. CO Maximum 8-Hour Average: 2011-2015

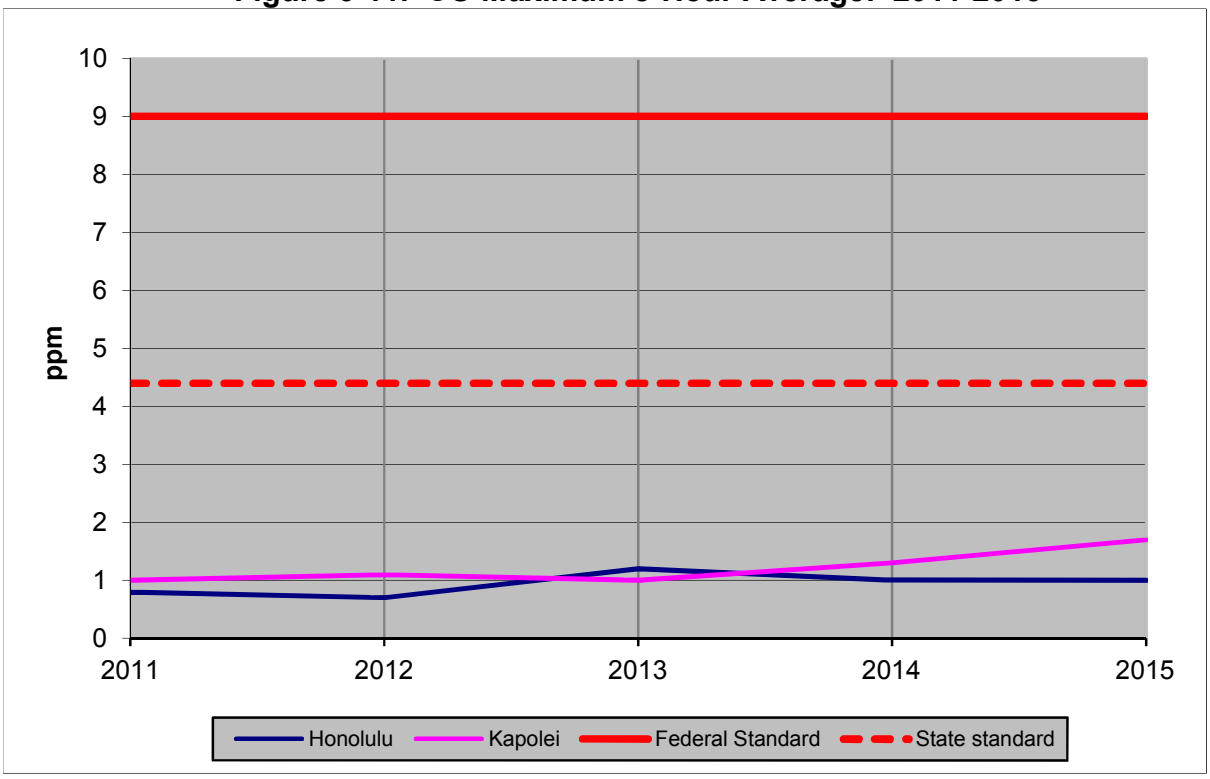


Exhibit 5: Coastal Zone Management

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		
https://www.onecpd.info/environmental-review/coastal-zone-management		

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 Hawaii 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 Hawaii'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 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 playground 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. <u>Historic Resources</u>

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, a cultural impact assessment was 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, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the applicant will contract the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD/DLNR). Pursuant to their specific requests, the Office of Hawaiian Affairs (OHA) will also be notified.

3. <u>Scenic and Open Space Resources</u>

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 areas;

b. Ensure that new developments are compatible with their 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 the developments that are not coastal dependent to locate in inland areas.

Response: The subject property is located in Hilo at elevations up to approximately 91-feet above mean sea level. The proposed project plan will conform to the Hilo 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. <u>Coastal Ecosystems</u>

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, 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 3,400 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 impacts to surrounding properties.

5. **<u>Economic Uses</u>**

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 in 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. **<u>Coastal Hazards</u>**

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. <u>Managing Development</u>

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 costal 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. <u>Public Participation</u>

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 zone 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. <u>Beach Protection</u>

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 3,400 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. <u>Marine Resources</u>

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

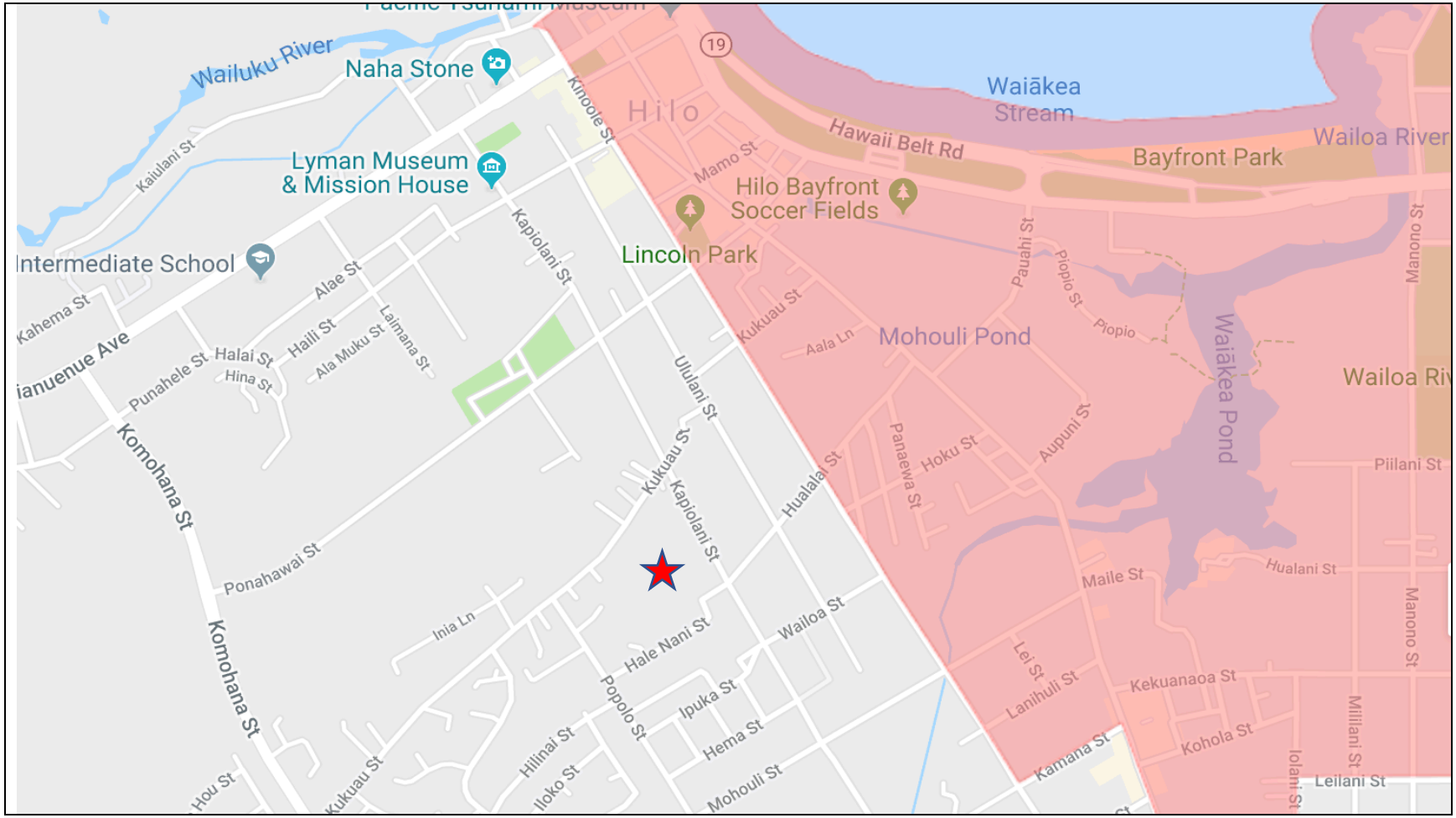
e. Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: The proposed project is situated inland (approximately 3,400 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.

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



Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: NOAA Tsunami Zone Evacuation Map

OFFSITE DRAINAGE REPORT

STREAM STUDY

FOR

KAIAULU O KAPIOLANI

TMK: (3) 2-4-025: 048, 053 & 080

PREPARED BY:

Dempsey Pacific Inc.

Civil Engineering Design & Consulting Services

P.O. Box 10384
Honolulu, HI 96816

ENGINEERING DIVISION
Reviewed by Melanie DeMello
Date 8/27/2021
☑ Approved ☐ Not Approved
☐ Approved as Noted

TY J. DEMPSEY
LICENSED PROFESSIONAL ENGINEER
No. 12058-C
HAWAII, U.S.A.

Exp. 4/30/22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

August 2021

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I. INTRODUCTION

This offsite drainage report and stream study determines the peak flow discharge rate for the proposed Kaiaulu O Kapiolani affordable housing project at TMK parcels 2-4-025 : 048, 053 and 080. The property has an existing drainage easement which runs through the property to convey offsite runoff from the mauka side of the property to the makai side, prior to draining into County properties above Kapiolani Street with an undeveloped retention basin area. Based on the peak flows determined to flow through the drainage easement, onsite drainage improvements are recommended to accommodate the storm water runoff and allow the site to be developed into the proposed multi-family development.

II. EXISTING CONDITIONS

The properties for the proposed Kaiaulu O Kapiolani affordable housing project are TMKs: 2-4-025: 048, 053 and 080. See Appendix A for a Tax Map of the properties involved. Currently the site is a vacant and has a paved and gravel access driveway along the mauka side of the property connecting to Kukuau Road to the north and a long winding driveway to Hualalai Street to the south. The drainage easement runs through the center of the main parcel and consists of Drainage Easement "254" being approximately 3,388 square feet in size and Drainage Easement "253" being approximately 18,059 square feet. Along the mauka portion of the drainage easement, three (3) 36" diameter culverts run underneath the driveway and an unlined channel conveys storm water runoff through the property in the middle of the drainage easement. The site elevations range from 92' on the mauka side of the easement down to 86' on the makai side of the drainage easement. See Appendix B for a topographic survey of the properties showing the existing driveway culverts and unlined channel in the drainage easement.

The current FEMA Flood Insurance Rate Map (FIRM) for the area is panel 155166 0904 Revision F dated September 29, 2017. A copy of the area of interest from the current FIRM panel is attached in Appendix C. This FIRM panel shows the property is fully outside of the regulatory floodplain and within the Zone X (unshaded) floodplain being outside of the 500-year floodplain. An additional Flood Hazard Assessment Report from Hawaii State DLNR for the property is provided in Appendix D. The properties and drainage easement conveying offsite runoff through the site is situated between larger drainageways of the Alenaio Stream to the north and the Waiakea Flood Control Channel to the south. Some adjacent residential properties to the north of the site are shown as being within a Zone X location protected by a Levee on the Alenaio Stream, however the proposed Kaiaulu O Kapiolani development does not reside within the area protected by the Levee.

Even though the properties lie outside the FEMA 500-year floodplain, this report assesses the smaller drainage area and peak runoff flows through the drainage easement in accordance with the County Storm Drainage Standard, dated October 1970 (Drainage Standards).

III. HYDROLOGIC CRITERIA

The offsite drainage area was obtained using USGS topographic maps available for the offsite areas and the USGS StreamStats tool. The offsite watershed was determined to start up near Kahikini Street by the Hilo Adult Day Center, passing through Komohana Steet down to the Kaiaulu O Kapiolani project development site and ending in the undeveloped retention basin area below the project site within County property on the mauka side of Kapiolani Street. See Appendix E for the Offsite Drainage Map.

The total offsite drainage area is estimated to be 65 acres with mean elevation of 176 ft. Change in elevations is 269 feet from top to bottom over about 4,800 feet distance. Since the offsite runoff will flow through a culvert within a County drainage easement, the 50-year recurrence interval will be used. Maximum 60 minute precipitation that occurs on average once in 50-years is 6.2 inches per hour per Plate 2. See Appendix F for the StreamStats report summarizing the drainage area and Plate 6 showing the hydrologic information for the offsite watershed area.

Based on the County Drainage Standards, the design recurrence interval for the offsite drainage area of 65 acres is the 50 year design storm (for drainage area being less than 100 acres) within a County drainage easement. The 50-year design storm recurrence interval will be used as the basis for the drainage improvements for the drainage easement through the project site.

Runoff Coefficient (C)

Based on the Drainage Standards, the rational method will be used to estimate the storm runoff for the offsite drainage area being less than 100 acres. The runoff coefficient (C) for the offsite drainage area was estimated based on Table 1 of the Drainage Standards. The offsite drainage area is generally developed and residential in nature with a small drainageway running through the properties. The runoff coefficient is estimated to be:

Watershed Characteristics	Value
Infiltration	0.07 (medium)
Relief	0.03 (rolling 5% to 15% grades)
Vegetal Cover	0.03 (good 10% to 50%)
Development Type	0.40 (residential)
Total (Runoff Coefficient)	0.53

The estimated runoff coefficient for the offsite drainage area is calculated to be 0.53.

Time of Concentration, Tc

The time of concentration is calculated for the overland flow across the offsite areas. The time of concentration will be 30.5 minutes. Refer to Figure 1: Plate 3 – Overland Flow Chart.

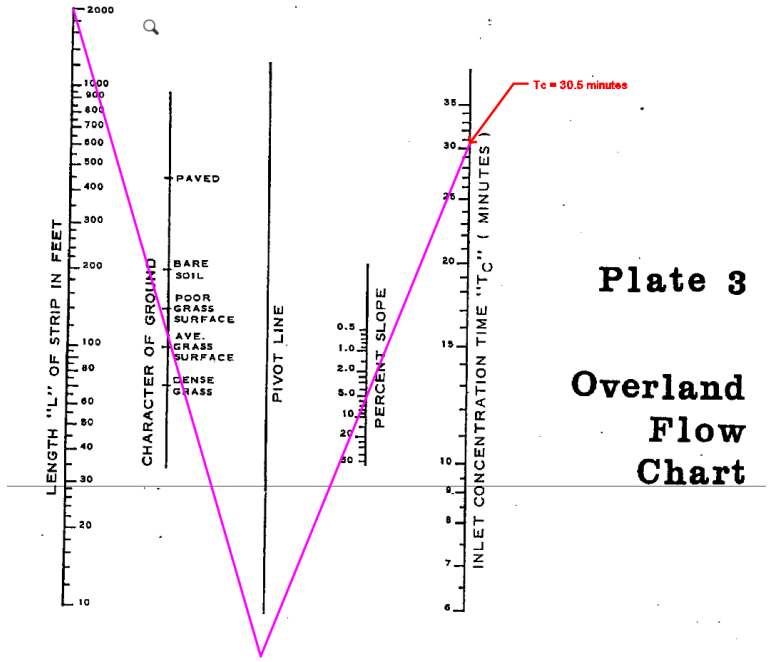


Figure 1: Plate 3 – Overland Flow Chart

Rainfall Intensity for Indicated Durations

Based on the Time of Concentration for drainage area, the Rainfall Intensity for the Indicated Duration is calculated based on Plate 4 from the County's Drainage Standards. The Rainfall Intensities are estimated as shown in Figure 2: Plate 4 – Rainfall Intensities for Indicated Duration.

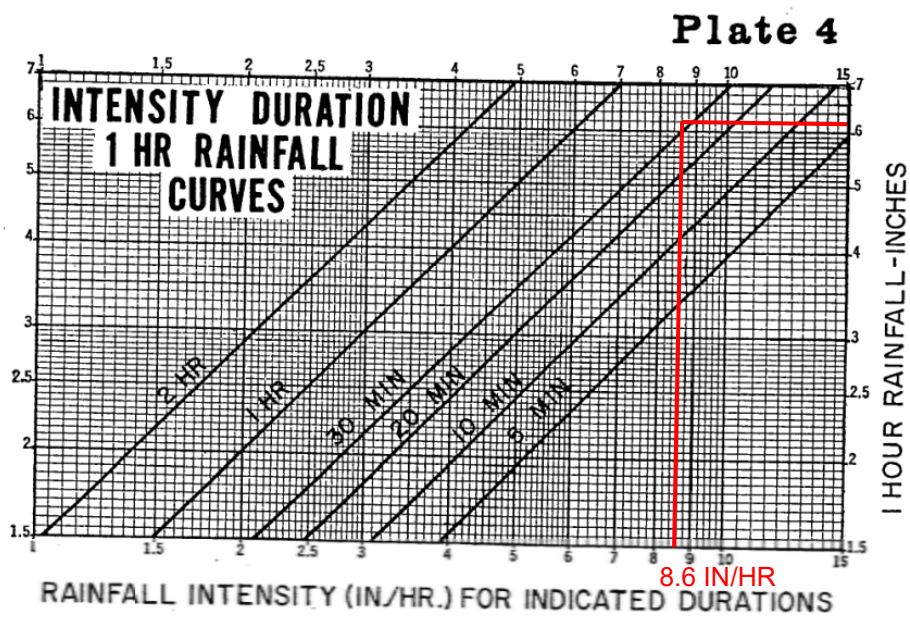


Figure 2: Plate 4 – Rainfall Intensities for Indicated Duration

Using the rational method equation, the peak storm water runoff discharge rates for the offsite drainage area through the drainage easement through the property is calculated as:

	Area	C	I		Q	
	(Acre)		(in/hr)		(cfs)	
50-year	65.0	0.53	I_{50i}	8.60	Q_{50}	296.27

IV. HYDRAULIC CRITERIA

The proposed site development plan for Kaiaulu O Kapiolani is shown in Appendix G. The drainage easement is shown within the middle of the site and is planned to remain as open pavement and parking areas without any building structures. To provide a safe and usable site, a long culvert is planned to be installed underneath the central parking lot drive aisle. An inlet headwall will be installed on the mauka side of the culvert along with an outlet headwall on the makai side of the culvert. The culvert pipes will generally be placed in the same location as the existing unlined channel and replace the existing three (3) 36" diameter culverts on the gravel driveway. It will pass through the middle of the site under the parking lot drive aisle.

The Federal Highway Administration (FHWA) HY-8 culvert modeling software was used to confirm the culvert sizing that would be warranted to pass the offsite drainage through the drainage easement underneath the parking lot drive aisle. Based on the preliminary construction plans, the culvert design is based on a 386.92' long culvert with 1.24% slope and square headwalls on the inlet and outlet structures. Based on the 50-year design recurrence interval (296.27 cfs peak flow rate), the following culvert configuration will be used for the culvert installation:

- Four (4) 36" diameter RCP circular pipe culverts (HDPE pipe culverts also allowable)

Since the basis of design is the 50-year recurrence interval, it would be recommended to have the parking lot drive aisle areas above the culvert to be designed as a low spot in the project site to accommodate additional storm water runoff if the culverts overflow due to a higher recurrence rain event or temporary blockage of the culvert(s) by debris. Regular maintenance of the culvert pipes will be required to clear any large debris that doesn't pass through the culvert. See Appendix H for the HY-8 analysis report. Based on the proposed culvert analysis, a headwater elevation of 97.33' would occur during the 50-year storm event.

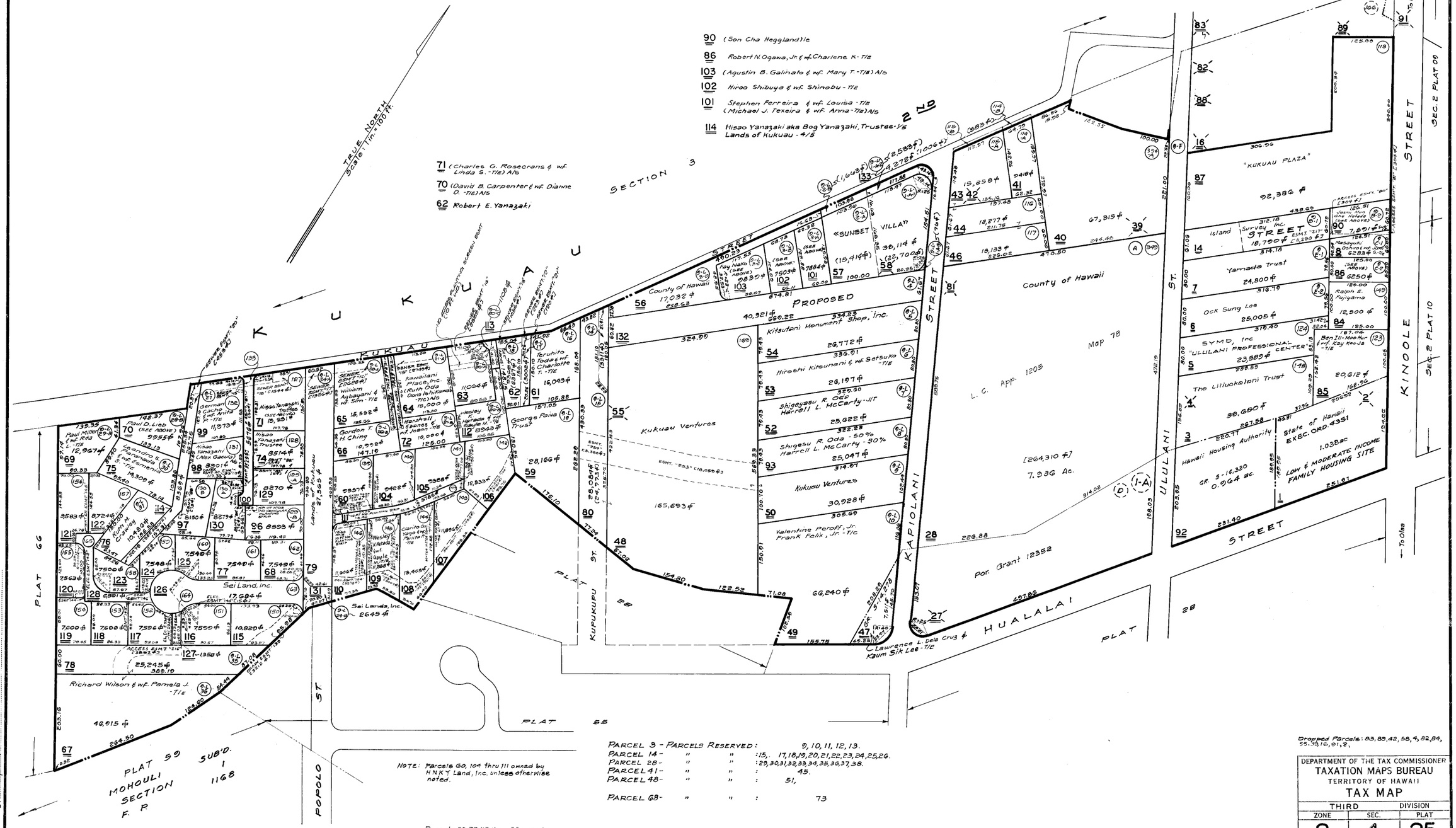
For the current existing conditions, see Appendix I for the HY-8 analysis report for the existing three (3) 36" diameter culverts. The existing conditions has an unpaved driveway going overtop of the existing three culverts, which drains into a natural open channel with a relatively flat channel slope. According to the topographic survey, the existing culverts actually have an inverted negative slope (i.e. the inlet inverts are lower than the outlet inverts), however the center culvert has close to the same invert and outlet elevations, so we modeled the existing culvert conditions using a flat culvert slope. Based on the existing culvert analysis, an existing headwater elevation of 97.89' would occur during the 50-year storm event.

The culvert outlet will have flow velocities of 12 feet per second, and outlet protection shall be provided in the final construction plan design, that can accommodate the flow velocities.

V. CONCLUSION

The offsite watershed area passing through the proposed project drainage easement has been assessed and a range of culvert options are proposed to convey the design 50-year recurrence interval storm offsite runoff through the site. The proposed culvert conditions would decrease the anticipated headwater elevation slightly compared to the existing culvert headwater elevations, so there would not be adverse impacts or additional ponding to the upstream lot. The culvert options would safely convey the design peak storm water runoff and not cause adverse impacts to neighboring adjacent properties. It is recommended that the Kaiaulu O Kapiolani development provide onsite stormwater provisions to convey runoff into this culvert within the drainage easement either by surface flow into drain inlets above the culvert, or underground storm drain lines to tie into the sidewalls of the culvert with a 45-degree angle in the downstream flow direction. Drywells could be installed within the project site or below the invert of the new culvert (if a box culvert option was selected) to help infiltrate stormwater runoff and mitigate developmental increase in storm water runoff anticipated due to the impervious surfaces added for the proposed development.

Appendix A: Tax Map



90 (Son Cha Heggland) T/E
86 Robert N. Ogawa, Jr. & wf. Charlene K. - T/E
103 (Agustin B. Galinato & wf. Mary T. - T/E) A/S
102 Hiroo Shibuya & wf. Shinobu - T/E
101 Stephen Ferreira & wf. Louisa - T/E
(Michael J. Texeira & wf. Anna - T/E) A/S
114 Hisao Yanagaki aka Bog Yanagaki, Trustee - 1/5
Lands of Kukuau - 4/5

71 (Charles G. Rosecrans & wf. Linda S. - T/E) A/S
70 (David B. Carpenter & wf. Dianne D. - T/E) A/S
62 Robert E. Yanagaki

Note: This is a direct tracing from Ld. Ct. App. 1205 - Map 9.

DWG. NO.: 402G
SOURCE: T.M.B. data & Ld. Ct. App. 1205, Map 9.
BY: T.S.A./R.D.Y. Date: Mar. 19, 1951

NOTE: Parcels 60, 104 thru 111 owned by H.N.K.Y. Land, Inc. unless otherwise noted.

Parcels 68, 77, 115 thru 128 owned by Sai Land, Inc. unless otherwise noted.

PARCEL 3 - PARCELS RESERVED: 9, 10, 11, 12, 13.
PARCEL 14 - " " : 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26.
PARCEL 28 - " " : 29, 30, 31, 32, 33, 34, 35, 36, 37, 38.
PARCEL 41 - " " : 45.
PARCEL 48 - " " : 51,
PARCEL 68 - " " : 73

Dropped Parcels: 83, 89, 42, 98, 4, 82, 84, 55, 93, 16, 91, 2.

LD. CT. APP. 1205
POR. KUKUAU 1ST, SO. HILO, HAWAII

SUBJECT TO CHANGE

DEPARTMENT OF THE TAX COMMISSIONER
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP

THIRD		DIVISION
ZONE	SEC.	PLAT
2	4	25
CONTAINING		PARCELS
SCALE: 1 IN. = 100 FT.		

Appendix B: Topographic Survey

Legend:

- back flow preventer
- fence line
- fire hydrant
- flow line
- overhead line
- tree
  - h=height
  - s=spread
  - d=diameter
- utility pole
- water meter
- water valve

Survey Abbreviations:

ac	asphalt concrete
approx	approximate
bfp	back flow preventer
clf	chain link fence (height)
co	clean-out
ep	edge of pavement
fdc	fire department connection
fh	fire hydrant
gp	guy pole
hwf	hog wire fence
inv	invert
jp	joint utility pole (cable/elec/tele)
mb	mail box
pvc	polyvinyl chloride
tp	telephone pole
trans	transformer
typ	typical
ts	top of stem
wl	water line
wm	water meter
wv	water valve

Survey Notes:

1. Topographic survey completed on November 20, 2019.
2. Azimuths and Coordinates referred to Government Survey Triangulation Station 'HALAI'.
3. Origin of elevations is USGS BM 2YY(Re-set) and is referred to Mean Sea Level.
4. Underground utilities shown are for information only. No guarantee is made on the accuracy and/or completeness of said information.

Tax Map Key: 3rd Div. 2-4-025: 048, 053 & 080

TOPOGRAPHIC SURVEY

LOT 169, 9-L-6, 9-L-14 AND 9-L-15
LAND SITUATED AT KUKUAU 1ST, SOUTH HILO
ISLAND OF HAWAII, HAWAII
PORTION OF R. P. 1666, L. P. 1872,
L. C. Aw. 8515 PART 2 TO KEONI ANA
LAND COURT APPLICATION 1205 (MAP 9 AND 72)

Prepared By:
Imata & Associates, Inc.
171 Kapiolani Street
Hilo, Hawaii 96720

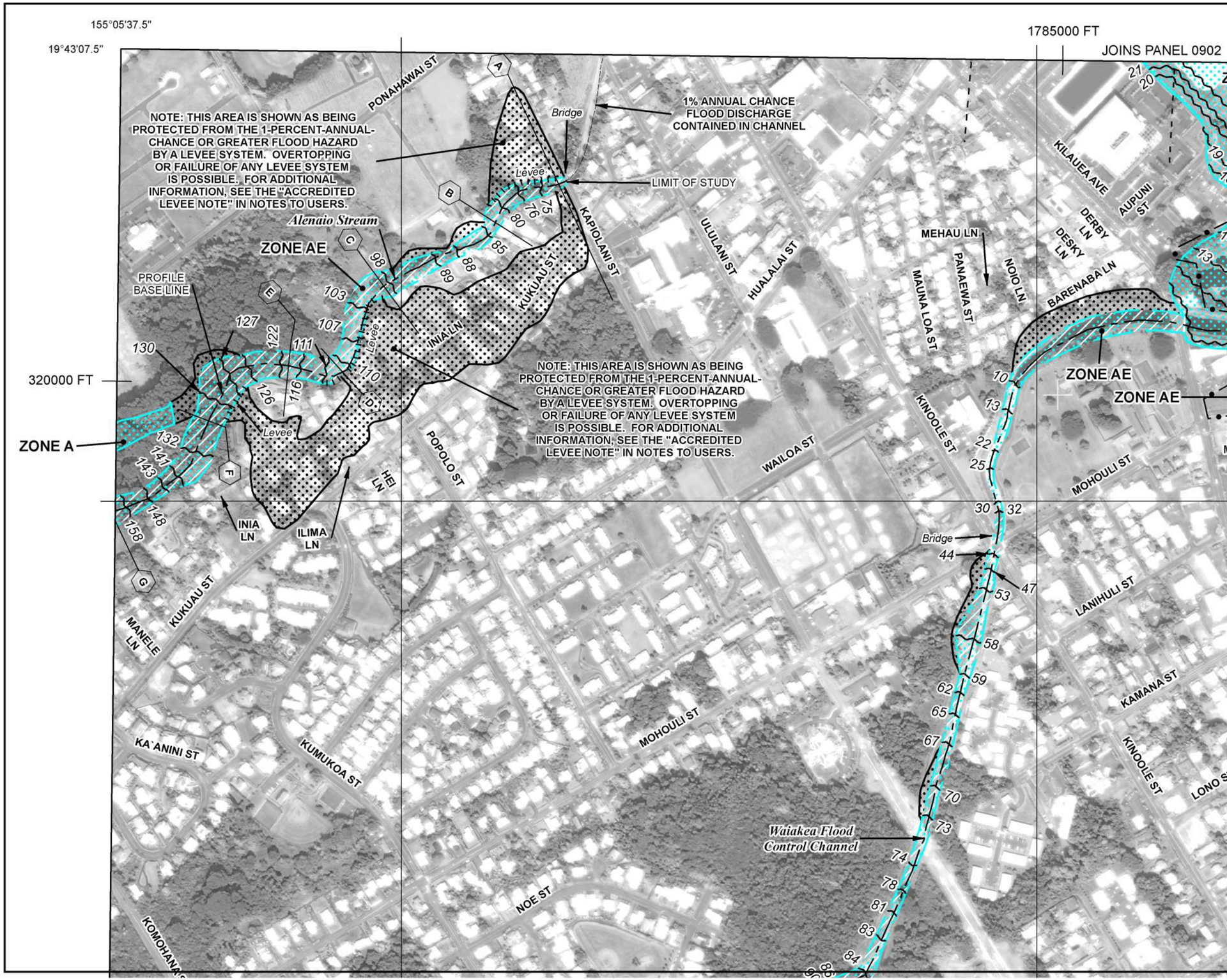
This work was prepared by me or under my supervision

WAYNE A. SUBICA, JR. LICENSED PROFESSIONAL LAND SURVEYOR NO. 13717 HAWAII, U.S.A.

Wayne A. Subica, Jr.
Licensed Professional Land Surveyor
Certificate Number 13717
Expires: April 30, 2020

November 25, 2019

Appendix C: FEMA FIRM Panel



MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0904F

FIRM

FLOOD INSURANCE RATE MAP

HAWAII COUNTY, HAWAII

PANEL 904 OF 1975

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HAWAII COUNTY	155166	0904	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
1551660904F

MAP REVISED
SEPTEMBER 29, 2017

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Appendix D: Flood Hazard Assessment Tool Report

Flood Hazard Assessment Report

www.hawaiinfip.org

Property Information

COUNTY:	HAWAII
TMK NO:	(3) 2-4-025:048
WATERSHED:	WAILOA
PARCEL ADDRESS:	KAIAULU O KAPIOLANI HILO, HI 96720

Notes:

Flood Hazard Information

FIRM INDEX DATE:	SEPTEMBER 29, 2017
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	1551660904F
PANEL EFFECTIVE DATE:	SEPTEMBER 29, 2017

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 200 400 ft

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

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

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(*Note: legend does not correspond with NFHL*)

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

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

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

- **Zone XS (X shaded)**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X**: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

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

Appendix E: Offsite Drainage Map

1 / E OFFSITE DRAINAGE MAP
SCALE: 1" =200'

GRAPHICAL SCALE:
200' 0 200' 400' 600'
SCALE: 1"=200'

Dempsey Pacific Inc.
Civil Engineering Design and Consulting Services
P.O. Box 10384
Honolulu, HI 96816
(808) 277-2043
www.dempseypacific.com

TY J. DEMPSEY
LICENSED PROFESSIONAL ENGINEER
No. 12058-C
HAWAII, U.S.A.
Exp. 4/30/22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Project: KAIAULU O KAPIOLANI

Project Location: TMK: (3) 2-4-025:048, 053 & 080
HILO, HAWAII

Sheet Title: OFFSITE DRAINAGE MAP

Drawing Revisions

No:	Date:	Description:	Appr:

Date: 2/10/20

Drawn By: AB Checked By: TD

Job Number: J19.45

Sheet: E

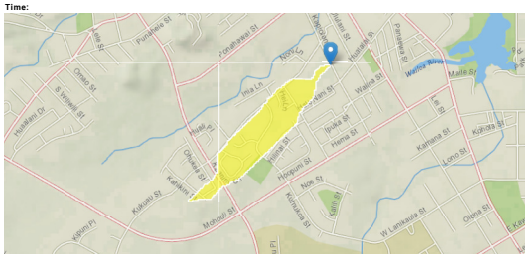
Number: of

Appendix F: StreamStats Report

A study area is needed before viewing the report

Kaiaulu O Kapiolani Offsite Drainage Analysis

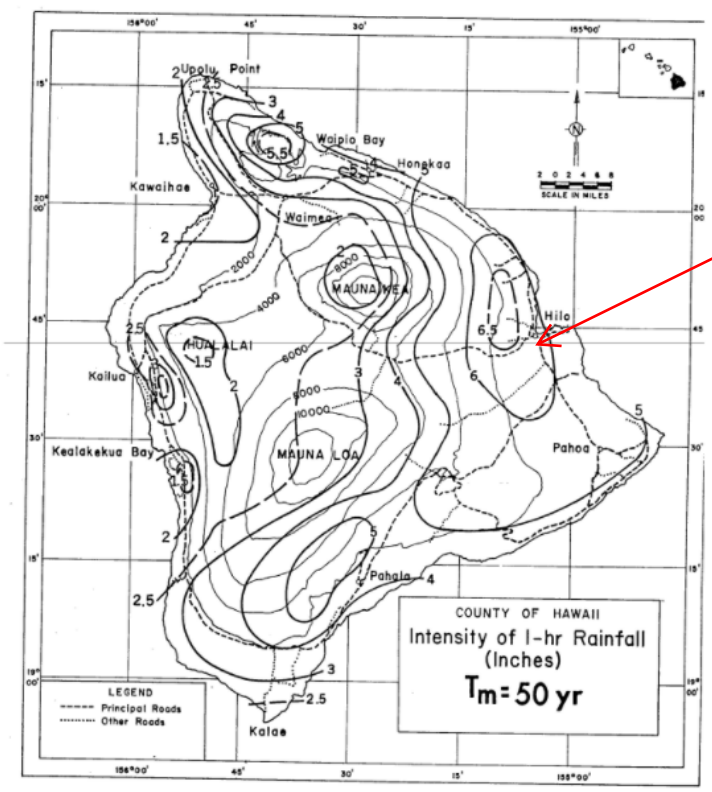
Region ID: HI
Workspace ID: HI20200204194408506000
Clicked Point (Latitude, Longitude): 19.71480, -155.08595
Time: 2020-02-04 09:44:28 -1000



Offsite Drainage Area and Hydrology determined by USGS StreamStats topographic analysis and regression equations.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BASINPERIM	Perimeter of the drainage basin as defined in SIR 2004-5262	2.59	miles
BSLDEM10M	Mean basin slope computed from 10 m DEM	6.61	percent
CENTROIDY	Basin centroid vertical (y) location in state plane units	2184142.9	meters
COMPRAT	A measure of basin shape related to basin perimeter and drainage area	2.28	dimensionless
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	269	feet per mi
DRNAREA	Area that drains to a point on a stream	0.1	square miles
ELEV	Mean Basin Elevation	176	feet
ELEV10FT	Elevation at 10 percent from outlet along longest flow path slope using DEM	92.8	feet
ELEV10FT3D	Elevation at 10 percent from outlet along longest flow path slope using 3D line	92.6	feet
ELEV85FT	Elevation at 85 percent from outlet along longest flow path slope using DEM	293	feet
ELEV85FT3D	Elevation at 85 percent from outlet along longest flow path slope using 3D line	293	feet
ELEVMAX	Maximum basin elevation	345	feet



Project Site
I_{50}=6.2 inches/hour

Plate 2

General Disclaimers

Parameter values have been edited, computed flows may not apply.

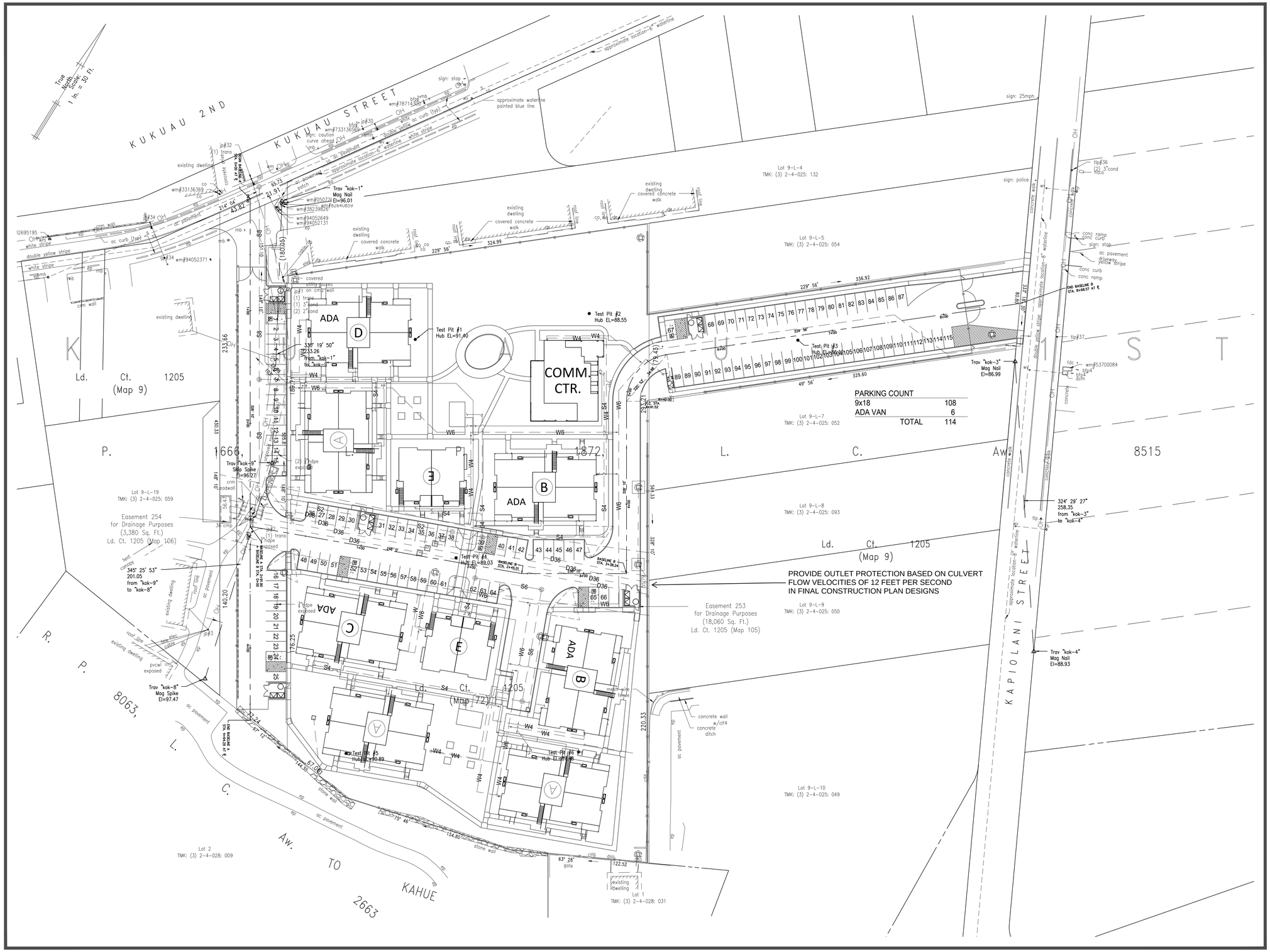
Upstream regulation was checked for this watershed.

This watershed is percent regulated, computed flows may not apply.

This watershed has been edited, computed flows may not apply.

The resulting delineations are derived from digital elevation data and storm drain vectors that have been processed to enforce drainage through storm drains.

Appendix G: Preliminary Site Plan



Design Partners Incorporated

Architecture
Planning
Interiors Design

Signature

April 30, 2020
Expiration Date of the License

This work was prepared by me or under my supervision and construction of this project will be under my observation.

Revision Number/Description

Project Name

Kaiaulu O Kapiolani

A0705 HILO LP
-
TMK : 2-4-025:48,53,80(POR)

Drawing Title

SITE LAYOUT PLAN

Project Number	Date	
18056	AUG 2020	
Drawn JKO	Checked DTI	Designed DTI

Drawing Number

C2.1

Sheet No X of X

Appendix H: HY-8 Culvert Analysis Proposed Conditions

Proposed Culvert Conditions

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 146.42 cfs

Design Flow: 296.27 cfs

Maximum Flow: 300 cfs

Table 1 - Summary of Culvert Flows at Crossing: Kaiaulu O Kapiolani

Headwater Elevation (ft)	Total Discharge (cfs)	Culverts Discharge (cfs)	Roadway Discharge (cfs)	Iterations
94.07	146.42	146.42	0.00	1
94.31	161.78	161.78	0.00	1
94.57	177.14	177.14	0.00	1
94.84	192.49	192.49	0.00	1
95.14	207.85	207.85	0.00	1
95.46	223.21	223.21	0.00	1
95.80	238.57	238.57	0.00	1
96.17	253.93	253.93	0.00	1
96.57	269.28	269.28	0.00	1
97.33	296.27	296.27	0.00	1
97.43	300.00	299.67	0.17	14
97.42	299.33	299.33	0.00	Overtopping

Rating Curve Plot for Crossing: Kaiaulu O Kapiolani

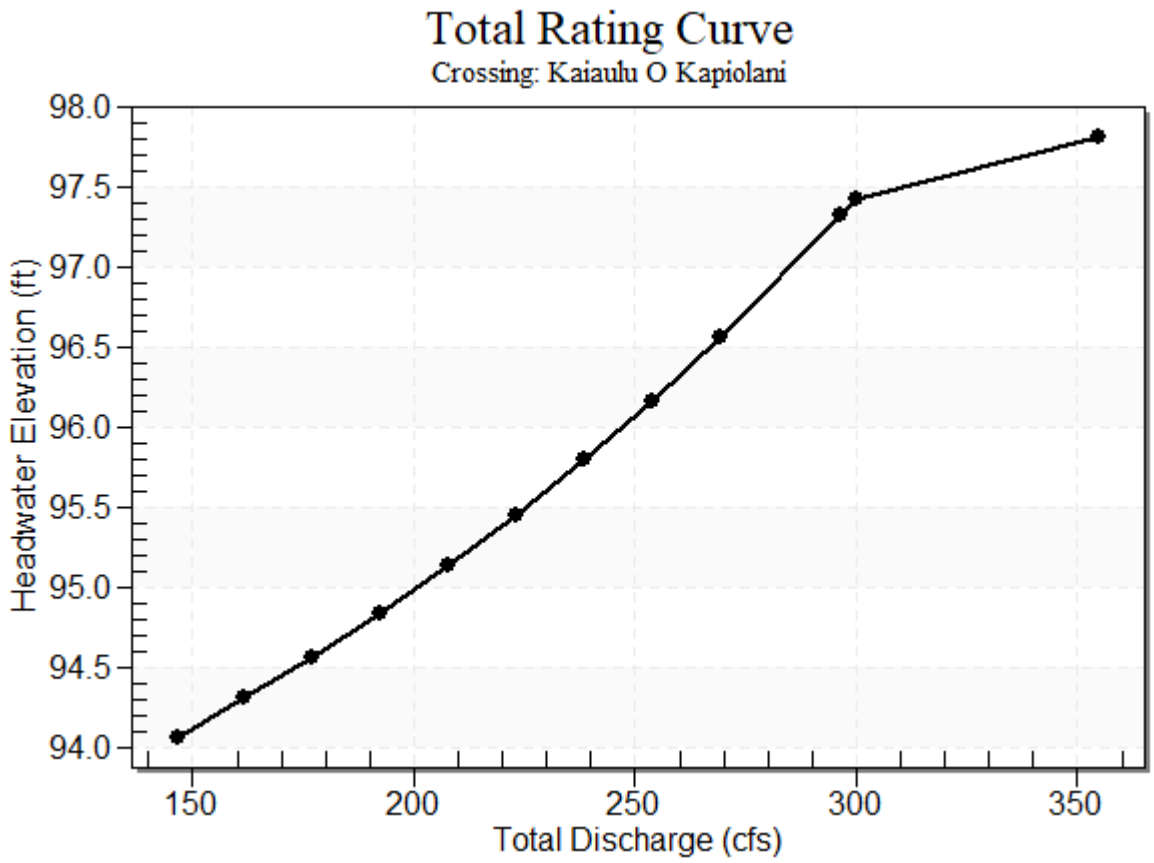


Table 2 - Culvert Summary Table: Culverts

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
146.42	146.42	94.07	3.072	0.0*	5-S2n	1.485	1.967	1.500	1.452	10.354	7.332
161.78	161.78	94.31	3.312	0.0*	5-S2n	1.576	2.071	1.576	1.523	10.750	7.528
177.14	177.14	94.57	3.567	0.0*	5-S2n	1.666	2.168	1.666	1.590	10.986	7.711
192.49	192.49	94.84	3.841	0.912	5-S2n	1.756	2.259	1.756	1.654	11.198	7.883
207.85	207.85	95.14	4.137	1.466	5-S2n	1.846	2.344	1.846	1.714	11.388	8.044
223.21	223.21	95.46	4.456	2.056	5-S2n	1.938	2.423	1.952	1.773	11.457	8.196
238.57	238.57	95.80	4.800	2.682	5-S2n	2.032	2.495	2.032	1.829	11.702	8.340
253.93	253.93	96.17	5.171	3.345	5-S2n	2.130	2.561	2.156	1.882	11.675	8.478
269.28	269.28	96.57	5.568	4.043	5-S2n	2.234	2.620	2.234	1.934	11.925	8.609
296.27	296.27	97.33	6.329	5.356	5-S2n	2.446	2.708	2.446	2.021	12.004	8.825
300.00	299.67	97.43	6.430	5.530	5-S2n	2.478	2.718	2.478	2.033	12.000	8.854

****

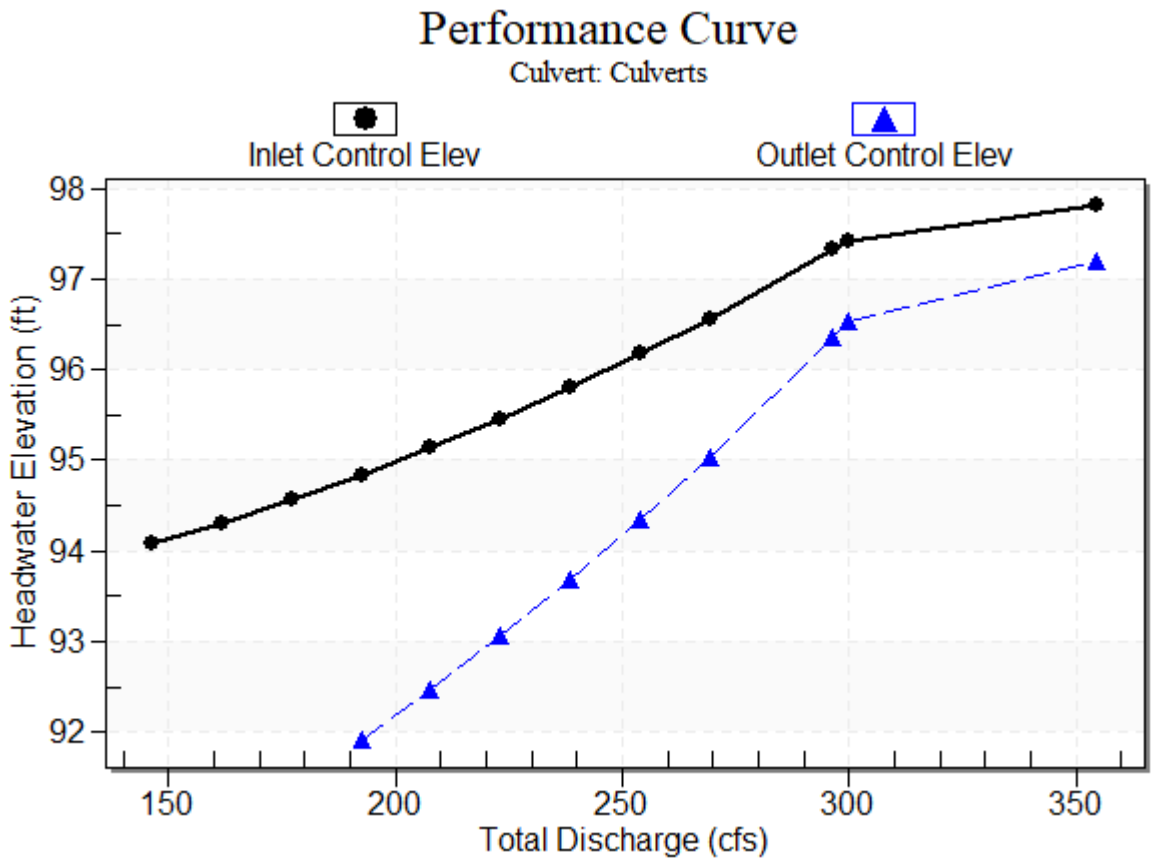
Straight Culvert

Inlet Elevation (invert): 91.00 ft, Outlet Elevation (invert): 86.20 ft

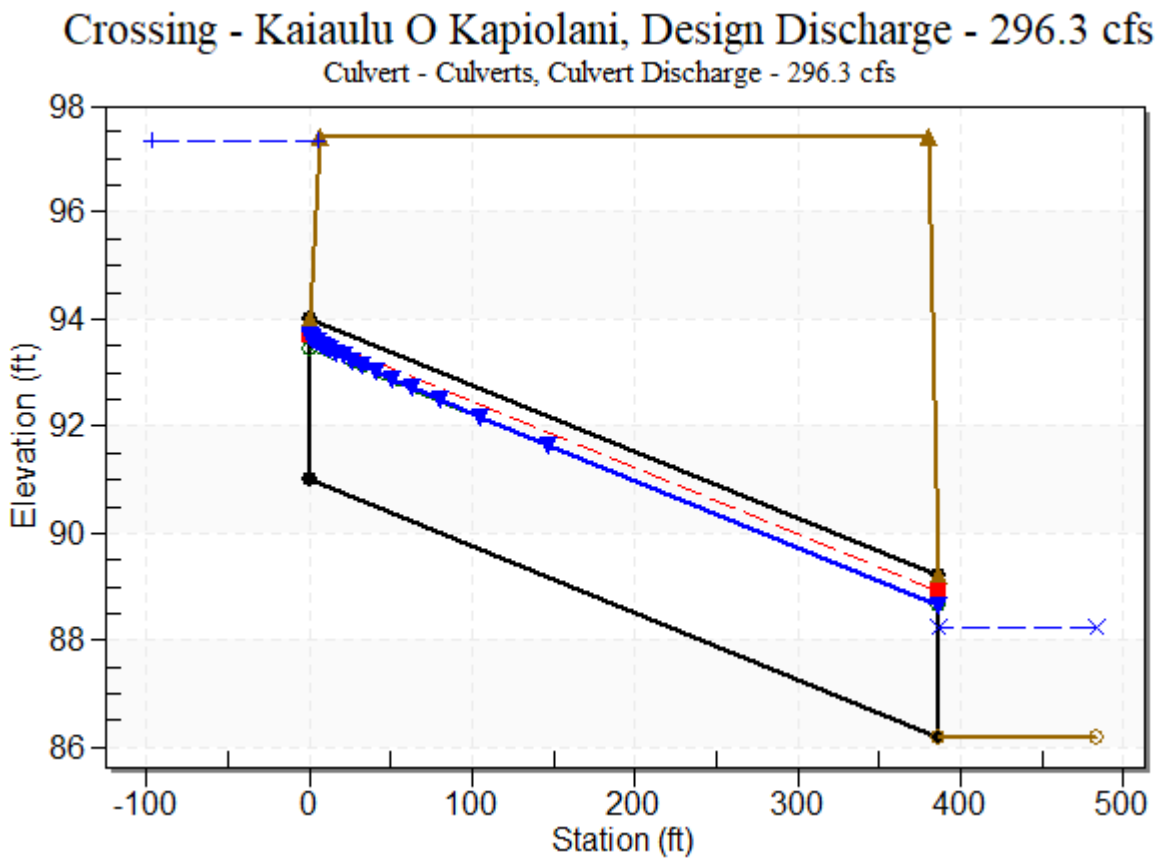
Culvert Length: 386.95 ft, Culvert Slope: 0.0124

****

Culvert Performance Curve Plot: Culverts



Water Surface Profile Plot for Culvert: Culverts



Site Data - Culverts

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 91.00 ft

Outlet Station: 386.92 ft

Outlet Elevation: 86.20 ft

Number of Barrels: 4

Culvert Data Summary - Culverts

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: Kaiaulu O Kapiolani)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
146.42	87.65	1.45	7.33	2.94	1.33
161.78	87.72	1.52	7.53	3.09	1.33
177.14	87.79	1.59	7.71	3.22	1.34
192.49	87.85	1.65	7.88	3.35	1.35
207.85	87.91	1.71	8.04	3.48	1.36
223.21	87.97	1.77	8.20	3.59	1.36
238.57	88.03	1.83	8.34	3.71	1.37
253.93	88.08	1.88	8.48	3.82	1.37
269.28	88.13	1.93	8.61	3.92	1.38
296.27	88.22	2.02	8.83	4.10	1.39
300.00	88.23	2.03	8.85	4.12	1.39

Tailwater Channel Data - Kaiaulu O Kapiolani

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 6.50 ft

Side Slope (H:V): 5.00 (_:1)

Channel Slope: 0.0325

Channel Manning's n: 0.0350

Channel Invert Elevation: 86.20 ft

Roadway Data for Crossing: Kaiaulu O Kapiolani

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 55.00 ft

Crest Elevation: 97.42 ft

Roadway Surface: Paved

Roadway Top Width: 375.00 ft

Appendix I: HY-8 Culvert Analysis Existing Conditions

Existing Culvert Conditions

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 146.42 cfs

Design Flow: 296.27 cfs

Maximum Flow: 300 cfs

Table 1 - Summary of Culvert Flows at Crossing: Kaiaulu O Kapiolani

Headwater Elevation (ft)	Total Discharge (cfs)	Culverts Discharge (cfs)	Roadway Discharge (cfs)	Iterations
94.80	146.42	146.42	0.00	1
95.20	161.78	161.78	0.00	1
95.64	177.14	177.14	0.00	1
96.14	192.49	192.49	0.00	1
96.68	207.85	207.85	0.00	1
97.27	223.21	223.21	0.00	1
97.52	238.57	229.45	9.00	8
97.64	253.93	232.39	21.42	6
97.74	269.28	234.79	34.31	5
97.89	296.27	238.38	57.75	5
97.91	300.00	238.83	61.07	4
97.36	225.53	225.53	0.00	Overtopping

Rating Curve Plot for Crossing: Kaiaulu O Kapiolani

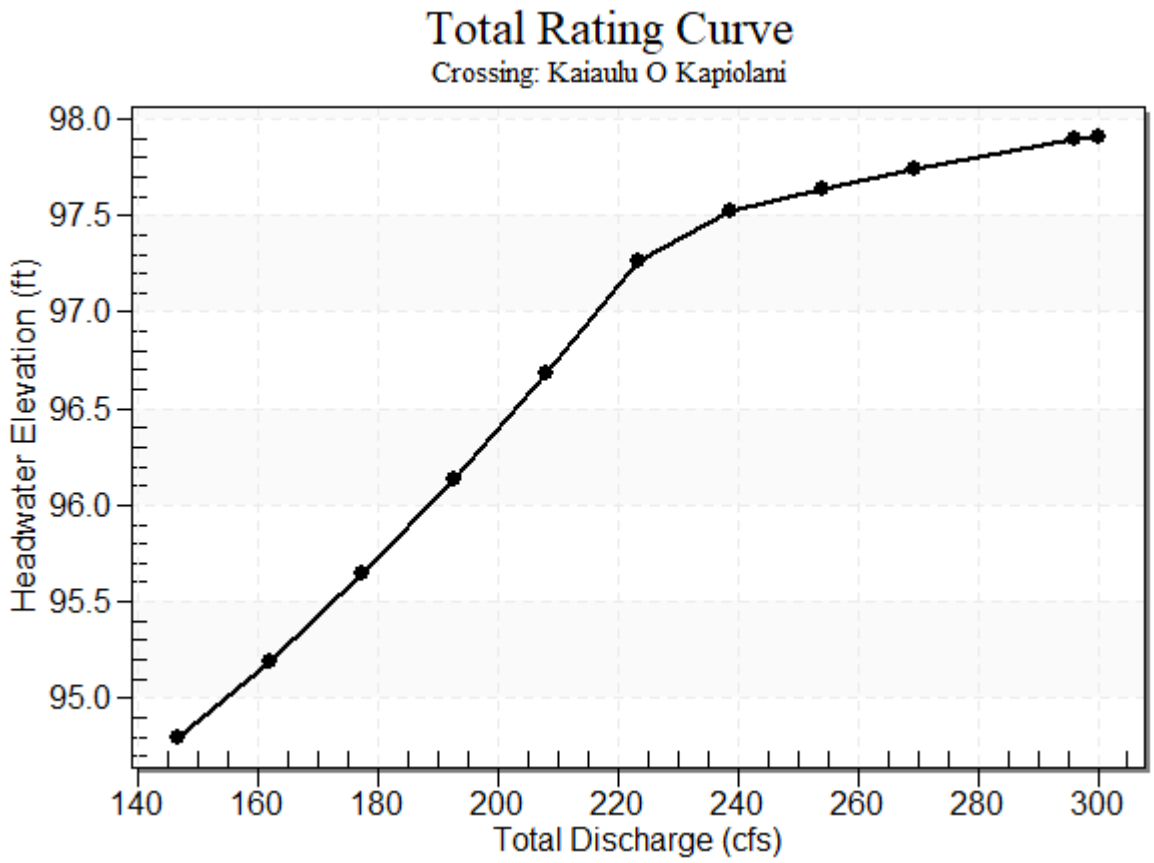


Table 2 - Culvert Summary Table: Culverts

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
146.42	146.42	94.80	3.910	3.922	7-H2c	-1.000	2.274	2.274	1.624	8.489	4.479
161.78	161.78	95.20	4.315	4.231	7-JH2c	-1.000	2.385	2.385	1.709	8.950	4.606
177.14	177.14	95.64	4.764	4.559	7-JH2t	-1.000	2.484	2.484	1.790	9.436	4.724
192.49	192.49	96.14	5.258	4.914	7-H2t	-1.000	2.572	2.572	1.866	9.950	4.834
207.85	207.85	96.68	5.800	5.240	7-H2t	-1.000	2.648	2.648	1.940	10.495	4.938
223.21	223.21	97.27	6.387	5.583	7-H2t	-1.000	2.712	2.712	2.010	11.071	5.035
238.57	229.45	97.52	6.639	5.729	7-H2t	-1.000	2.735	2.735	2.078	11.314	5.128
253.93	232.39	97.64	6.760	5.799	7-H2t	-1.000	2.745	2.745	2.143	11.429	5.216
269.28	234.79	97.74	6.861	5.858	7-H2t	-1.000	2.753	2.753	2.206	11.524	5.300
296.27	238.38	97.89	7.012	5.946	7-H2t	-1.000	2.765	2.765	2.312	11.666	5.439
300.00	238.83	97.91	7.031	5.957	7-H2t	-1.000	2.766	2.766	2.326	11.684	5.457

****

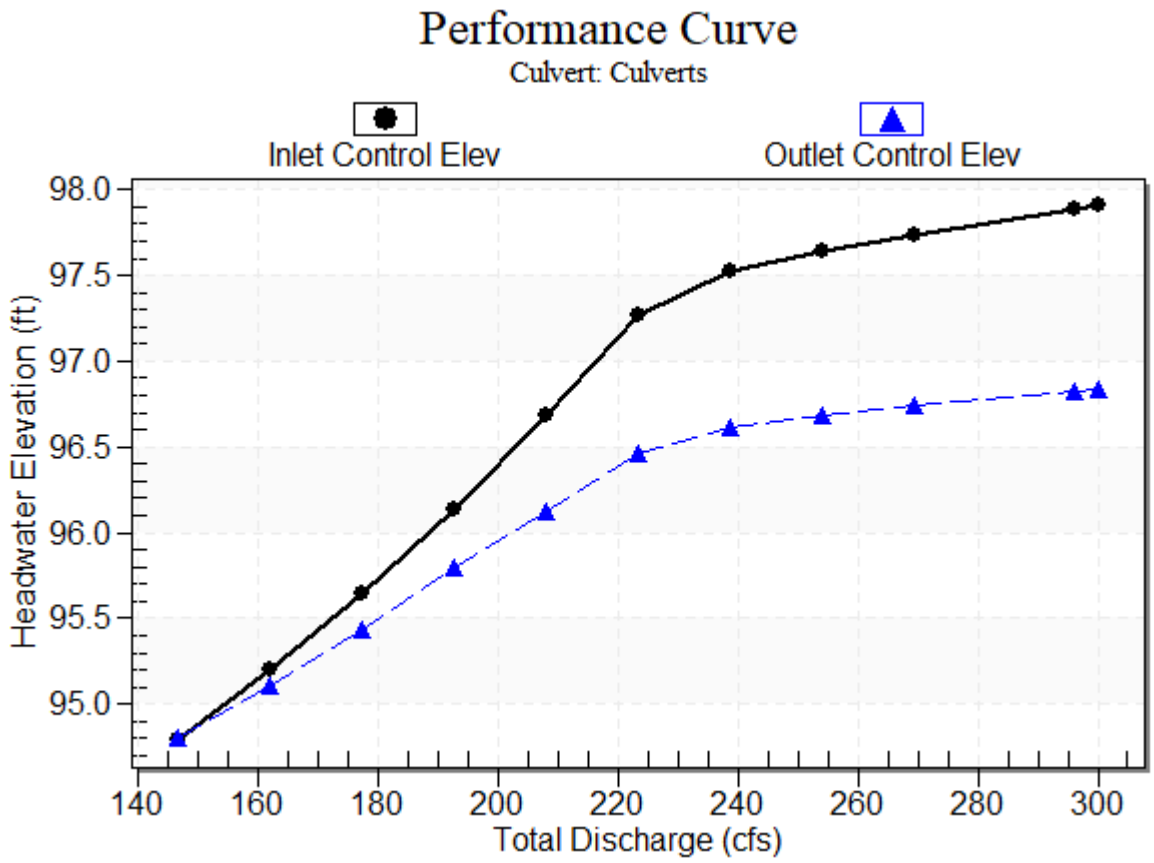
Straight Culvert

Inlet Elevation (invert): 90.88 ft, Outlet Elevation (invert): 90.88 ft

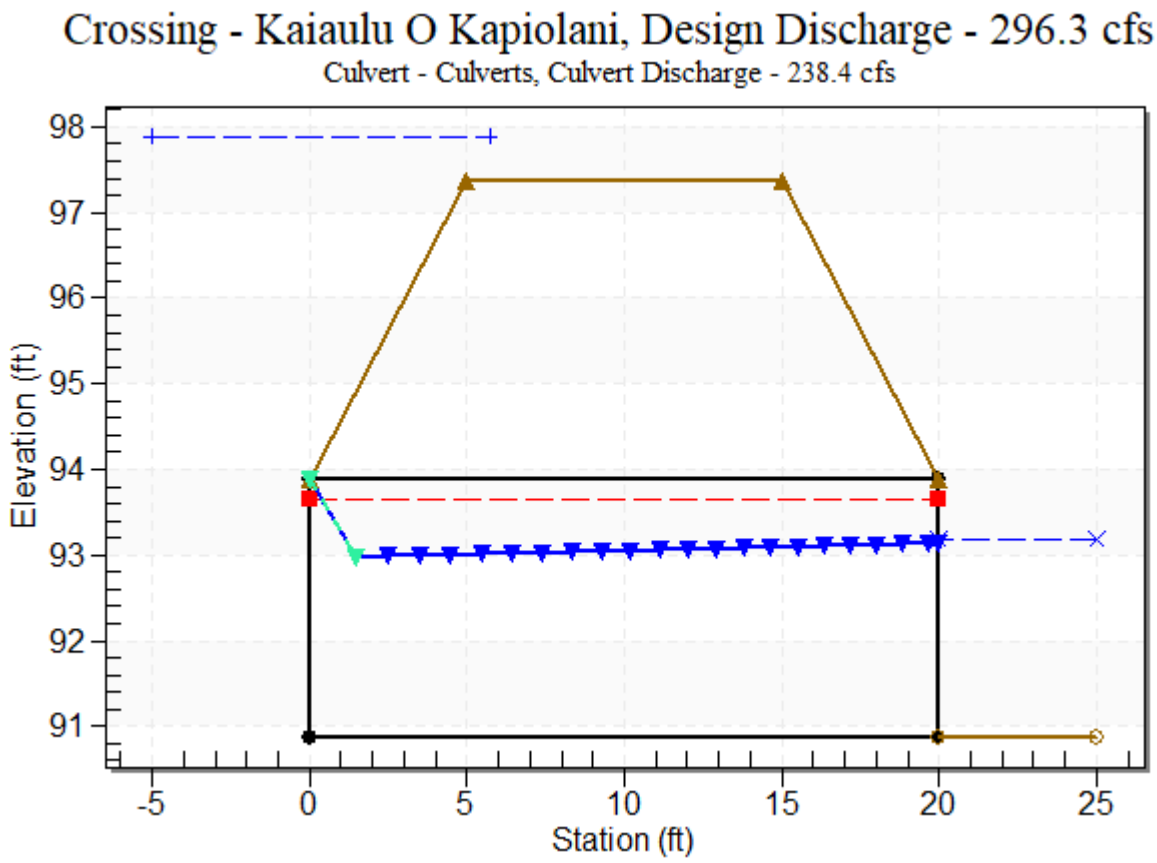
Culvert Length: 20.00 ft, Culvert Slope: 0.0000

****

Culvert Performance Curve Plot: Culverts



Water Surface Profile Plot for Culvert: Culverts



Site Data - Culverts

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 90.88 ft

Outlet Station: 20.00 ft

Outlet Elevation: 90.88 ft

Number of Barrels: 3

Culvert Data Summary - Culverts

Barrel Shape: Circular

Barrel Diameter: 3.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: Kaiaulu O Kapiolani)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
146.42	92.50	1.62	4.48	0.94	0.73
161.78	92.59	1.71	4.61	0.99	0.74
177.14	92.67	1.79	4.72	1.04	0.74
192.49	92.75	1.87	4.83	1.08	0.75
207.85	92.82	1.94	4.94	1.13	0.75
223.21	92.89	2.01	5.04	1.17	0.76
238.57	92.96	2.08	5.13	1.21	0.76
253.93	93.02	2.14	5.22	1.24	0.76
269.28	93.09	2.21	5.30	1.28	0.76
296.27	93.19	2.31	5.44	1.34	0.77
300.00	93.21	2.33	5.46	1.35	0.77

Tailwater Channel Data - Kaiaulu O Kapiolani

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 12.00 ft

Side Slope (H:V): 5.00 (_:1)

Channel Slope: 0.0093

Channel Manning's n: 0.0350

Channel Invert Elevation: 90.88 ft

Roadway Data for Crossing: Kaiaulu O Kapiolani

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 55.00 ft

Crest Elevation: 97.36 ft

Roadway Surface: Gravel

Roadway Top Width: 10.00 ft

DRAINAGE REPORT
FOR
KAIAULU O KAPIOLANI

TMKs:
2-4-025: 048; 053; 080

ENGINEERING DIVISION
Reviewed by Melanie DeMello
Date 8/27/2021
[✓] Approved [ ] Not Approved
[ ] Approved as Noted

PREPARED BY:

IMATA AND ASSOCIATES., INC.
171 KAPIOLANI STREET
HILO, HAWAII 96720

DAVID T. IMATA
REGISTERED PROFESSIONAL ENGINEER
NO. 5105-C
HAWAII, U.S.A.

Signature 11/25/20 Date

Project Background and Overview

The proposed development site consists of three parcels (TMK's 2-4-025: 048; 053; 080) having a combined area of 5.05 acres and is located in the Kukuau 1st area of South Hilo, on the island of Hawaii. All parcels are owned by the same land owner.

The parcels are currently zoned RM-1.5 allowing for multi-family dwelling units. Surrounding lots have residential zoning including RM-1, RM-1.5, and RS-7.5. Parcel 053 is bound by Kapiolani Street to the east, while parcel 80 is bound by Kukuau Street to the north. Parcel 048 does not have direct access to any surrounding streets; access will be through the other project parcels.

The proposed development will aim to construct 64 affordable housing units. The site will be composed of 9 residential buildings, a community center building and 2 laundry buildings. Other site improvements shall include paved driveways, and inter connecting walkways. Amenities will include a playground area and community garden areas.

New site utilities to serve the development will include a sewer, domestic water, fire protection water, irrigation water, and drainage improvements.

The design of drainage improvements shall aim to mitigate any increase of runoff due to the development of the site. Drainage improvements shall include grading design, installation of drainage structures (grated inlets, drywells etc.) and also underground drainage piping connecting the drainage structures. Drywells shall be the primary method to mitigate increases in runoff due to development.

Drainage easements (Easement 253 and 254) currently exists on parcels 048 and 080. This easement conveys storm water runoff from west to east, ultimately leading to County owned parcels (TMKs: 2-4-025: 050; 052 and 093) which are used as drainage mitigation area. The project development will install headwalls and culverts to span the drainage easements in order to maintain the existing flow pattern.

Although the storm water flow though the drainage easements is not the primary focus this drainage report, a copy of the hydrologists report regarding the flow is attached for reference.

Existing Pre-Development Drainage Conditions:

For the purpose of this report, the drainage study area will encompass all three parcels consisting of 5.05 acres.

The site generally slopes from west to east with elevations ranging from a high of about 100 to a low of about 84. The existing terrain exhibits medium infiltration, have rolling grades averaging 2-15%, and have good vegetal cover. The development type in the pre-development stage is considered to be Agricultural.

The parcels are unpaved and undeveloped, and will use a calculated runoff coefficient of c= 0.28 in the existing condition.

There is very little impervious surfaces in the existing condition aside from a small portion of paved driveway near Kukuau Street that serves a neighboring lot. There are no buildings or other impervious surfaces currently on the lots. The total amount of impervious surfaces in the existing condition is 0.0552 acres. A runoff coefficient of c= 0.95 is used for paved areas.

The total rate of runoff produced in the study area under current conditions is calculated to be 12.27 cfs. The study area currently contains no drainage infrastructure such as drywells to dissipate stormwater. Therefore all stormwater runoff is allowed to exit the study area.

Computation of the amount of storm water runoff in the pre-development stage was determined according to the County of Hawaii's Storm Drainage Standards using the rational method. A storm event with a 10-year recurrence interval, and a 1-Hour rainfall intensity of 5.0 inches per hour was used for this project. Supporting calculations and the pre-development drainage map (DM1) are included with this report.

Calculated Post-Development Drainage Conditions:

In the post-development condition grassed areas will have a development type similar to residential and will use have a calculated runoff coefficient of 0.53, which is higher than in the existing condition (c= 0.28).

The runoff coefficient for impervious surfaces remains c= 0.95.

The total amount of impervious surfaces in the developed condition is 3.1912 acres; an increase of 3.136 acres from the existing condition. Runoff increases to a total of 43.35 cfs in the study area; an increase of 31.08 cfs from the existing conditions. The increase in runoff is attributable to development of the site, including more impermeable areas and higher runoff values for unpaved areas.

The construction of 8-drywells (25.0' depth) and 1- shallow drywell (depth 7'-10"), aims to mitigate a majority of the on-site runoff and protect neighboring parcels. The new drywells have a capacity to mitigate up to 50 cfs of storm water (6.0 cfs per drywell and 2.0 cfs per shallow drywell).

The amount of runoff directed to and mitigated by the drywells reduces the amount of runoff allowed to leave the site to 1.44 cfs, a reduction of 10.83 cfs from the existing condition.

Computation of the amount of storm water runoff in the post-development stage was determined according to the County of Hawaii's Storm Drainage Standards using the rational method. A storm event with a 10-year recurrence interval, and a 1-Hour rainfall intensity of 5.0 inches per hour was used for this project. Supporting calculations and the Post-development drainage map (DM2) are included with this report.

Kaiaulu O Kapiolani
Pre-Development Drainage Data

Date Modified: 11/25/20
Corresponding Map: DM1 - Pre-Development Drainage Map

							Time of Concentration									
Area Designation	**Area, A (acres)**	**Permeable area (grass)**	**Impermeable area (paved or covered)**	**Runoff Coefficient, C**	**[1]Storm Recurrence, Tm (yrs.)**	**[1]1-Hr. Rainfall Intensity (in./hr.)**	**Overland Flow Length, $L_{overland}$ (ft)**	**Beginning Elevation (ft)**	**Ending Elevation (ft)**	**Change in Elevation (ft)**	**Slope, S**	**[2]Time of Concentration, Tc (min)**	**[3]Adjusted Rainfall Intensity, I (in./hr.)**	**[4]Flow Rate, Q (cfs)**	**Location of Discharge**	**Location of Overflow**
PRE-1	0.0871	0.0456	0.0415	0.60	10	5.0	66.45	97.92	94.96	2.96	4.45	7.39	11.49	0.60	Offsite	-
PRE-2	1.8922	1.8922	0.0000	0.28	10	5.0	436.14	98.62	87.50	11.12	2.55	21.15	8.17	4.33	Offsite	-
PRE-3	1.2457	1.2392	0.0066	0.28	10	5.0	403.22	100.40	87.38	13.02	3.23	19.67	8.35	2.95	Offsite	-
PRE-4	1.3800	1.3729	0.0071	0.28	10	5.0	471.77	97.09	85.58	11.51	2.44	21.98	8.05	3.15	Offsite	
PRE-5	0.4449	0.4449	0.0000	0.28	10	5.0	164.46	98.00	80.18	17.82	10.84	11.00	10.00	1.25	Offsite	-
Σarea	5.0499	4.9948	0.0552										**Total Q =**	**12.27**	**cfs**	

[1]From Storm Drainage Standard (1970) use Plate 1
[2]From Storm Drainage Standard (1970) use Plate 3 (Overland Flow Chart) to determine Tc. The minimum time of concentration shall be 5.0 minutes, regardless of slope and overland flow length.
[3]From Storm Drainage Standard (1970) use Plate 4 (Intensity Duration 1 Hr Rainfall Curves)
[4]Flow Rate, Q = C x I x A
[5]From Storm Drainage Standard (1970) Table 1

Kaiaulu O Kapiolani
Post-Development Drainage Data

Date Modified: 11/25/20
Corresponding Map: DM3 - Post-Development Drainage Map

							Time of Concentration									
Area Designation	Area, A (acres)	Permeable area (grass)	Impermeable area (paved or covered)	Runoff Coefficient, C	[1]Storm Recurrence, Tm (yrs.)	[1]1-Hr. Rainfall Intensity (in./hr.)	Overland Flow Length, $O_{verland}$ (ft)	Beginning Elevation (ft)	Ending Elevation (ft)	Change in Elevation (ft)	Slope, S	[2]Time of Concentration, Tc (min)	[3]Adjusted Rainfall Intensity, I (in./hr.)	[4]Flow Rate, Q (cfs)	Location of Discharge	Location of Overflow
D1	0.0629	0.0171	0.0458	0.84	10	5.0	65.97	97.74	95.81	1.93	2.93	5.95	12.25	0.64	Offsite	-
D2	0.4919	0.0857	0.4062	0.88	10	5.0	113.50	98.01	96.03	1.98	1.74	5.00	12.80	5.52	DW	
D3	0.7348	0.5823	0.1526	0.62	10	5.0	326.72	96.51	92.75	3.76	1.15	17.15	8.80	3.99	DW	Offsite
D4	0.5652	0.2029	0.3623	0.80	10	5.0	285.22	97.35	92.72	4.63	1.62	11.65	9.88	4.46	DW	-
D5	0.5160	0.0534	0.4626	0.91	10	5.0	327.66	94.58	85.95	8.63	2.63	5.97	12.25	5.73	DW	Offsite
D6	0.0850	0.0260	0.0591	0.82	10	5.0	124.58	89.65	86.00	3.65	2.93	7.52	11.40	0.80	Offsite	-
D7	0.5054	0.0892	0.4162	0.88	10	5.0	246.77	99.00	93.82	5.18	2.10	5.57	12.47	5.52	DW	-
D8	0.6186	0.1461	0.4726	0.85	10	5.0	252.34	96.70	91.88	4.82	1.91	10.72	10.10	5.32	DW	Offsite
D9	0.1397	0.0277	0.1120	0.87	10	5.0	134.59	97.88	96.06	1.82	1.35	5.00	12.80	1.55	SDW	
D10	0.5985	0.2337	0.3648	0.79	10	5.0	244.53	97.24	92.63	4.61	1.89	10.62	10.10	4.75	DW	
D11	0.7316	0.3945	0.3372	0.72	10	5.0	253.58	80.68	74.50	6.18	2.44	13.28	9.57	5.07	DW	Offsite
Σarea	5.0497	1.8585	3.1912										Total Q =	43.35	cfs	

[1]From Storm Drainage Standard (1970) use Plate 1

[2]From Storm Drainage Standard (1970) use Plate 3 (Overland Flow Chart) to determine Tc. The minimum time of concentration shall be 5.0 minutes, regardless of slope and overland flow length.

[3]From Storm Drainage Standard (1970) use Plate 4 (Intensity Duration 1 Hr Rainfall Curves)

[4]Flow Rate, Q = C x I x A

[5]From Storm Drainage Standard (1970) Table 1

Kaiaulu O Kapiolani
Summary of Drainage Data

Date Modified: 11/25/20

	Pre Development Q (cfs)	Post Development Q (cfs)	Increase or Decrease (cfs)	Percent Change (%)
Runoff in drainage study area	12.27	43.35	31.08	253.23
Runoff To Drywells	0.00	41.91	41.91	-
Total Drywell Capacity	0.00	50.00	50.00	-
Total Runoff Allowed to Exit The Site	12.27	1.44	-10.83	-88.27

Kaiaulu O Kapiolani
Notes & Examples

Date Modified: 11/25/20

A) Runoff Coefficient: Paved area = 0.95

[5]Runoff Coefficient: Unpaved area Pre Development = 0.28

Infiltration:	0.07	Medium
Relief:	0.03	Rolling
Vegetal Cover:	0.03	Good
Development Type:	0.15	Agricultural
Total:	0.28	

[5]Runoff Coefficient: Unpaved area Post Development= 0.53

Infiltration:	0.07	Medium
Relief:	0.03	Rolling
Vegetal Cover:	0.03	Good
Development Type:	0.40	Residential
Total:	0.53	

B) Runoff Coefficient (C) determined by weighted average of impervious paved areas (C=0.95) and permeable unpaved areas [5](C=0.28 or 0.53) :

SAMPLE CALCULATION:

$$\frac{\text{paved area (0.95) + unpaved area (0.28)}}{\text{total area}} = \text{weighted average}$$

for area PRE-1: $\frac{(0.0415 \times 0.95) + (0.0456 \times 0.28)}{0.0871} = 0.60$

C) Slope = 100 x $\Delta_{Elevation}$ / $O_{verland}$

for area EX1:

$\Delta_{elevation}$ = 97.92 ft - 94.96 ft = 2.96 ft

$L_{overland}$ = 66.45 ft

Slope = $100 \times \left(\frac{2.96}{66.45}\right) = 4.45\ \%$

D) for area EX-1:

C= 0.60 Q = C x I x A = 0.60 cfs

I= 11.49 in/hr

A= 0.0871 acres

E) The depth of shallow drywells shall not exceed the width of the ecavation and shall mitigate a maximum of 2.0 cfs of runoff.

F) Each typical or deep drywell (depth 25.0') have the capacity to mitigate a maximum of 6.0 cfs of runoff.

[1]From Storm Drainage Standard (1970) use Plate 1

[2]From Storm Drainage Standard (1970) use Plate 3 (Overland Flow Chart) to determine Tc. The minimum time of concentration shall be 5.0 minutes, regardless of slope and overland flow length.

[3]From Storm Drainage Standard (1970) use Plate 4 (Intensity Duration 1 Hr Rainfall Curves)

[4]Flow Rate, Q = C x I x A

[5]From Storm Drainage Standard (1970) Table 1

KAIAULU O KAPIOLANI
RAINFALL INTENSITY - LOCATION MAP

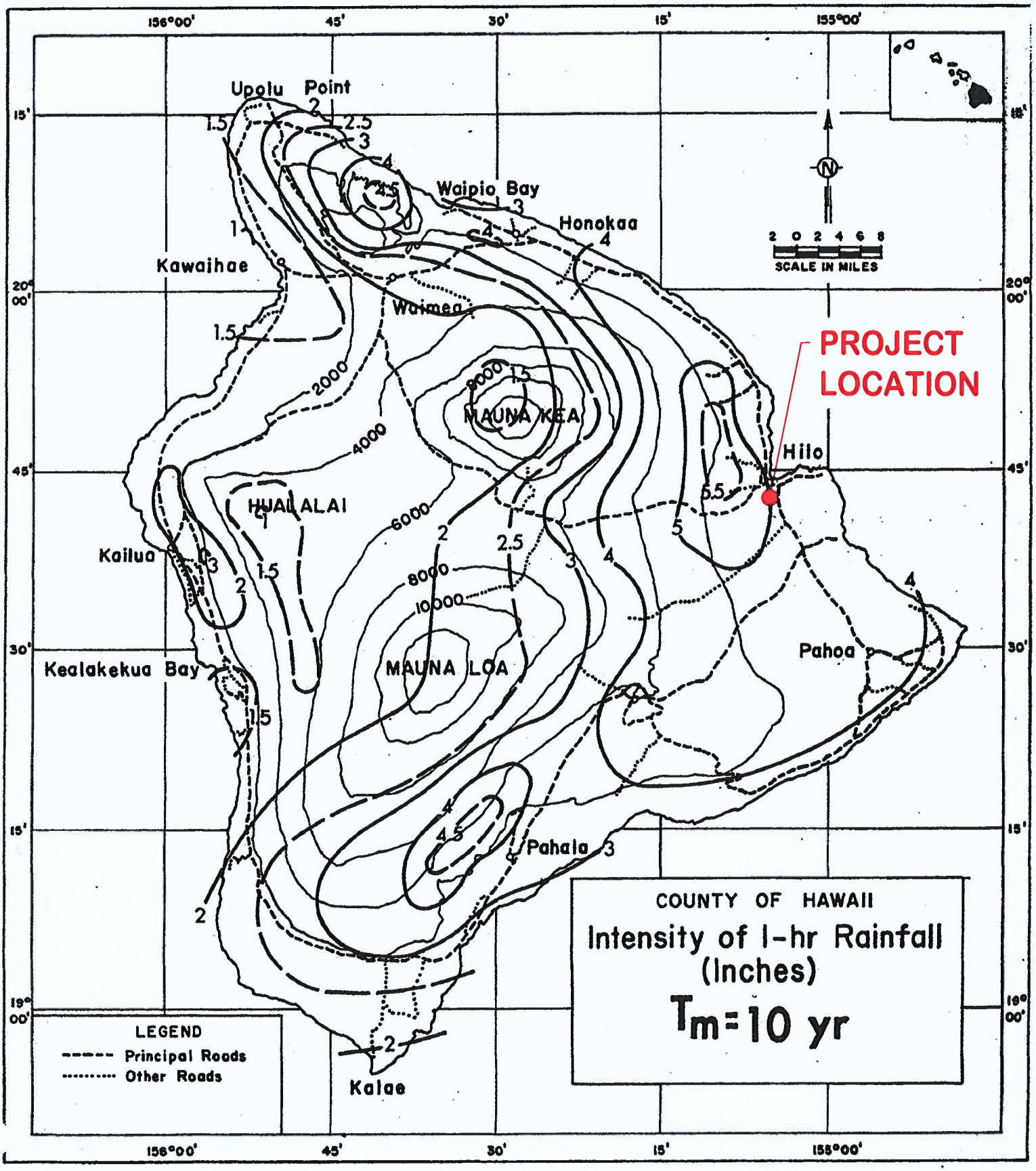
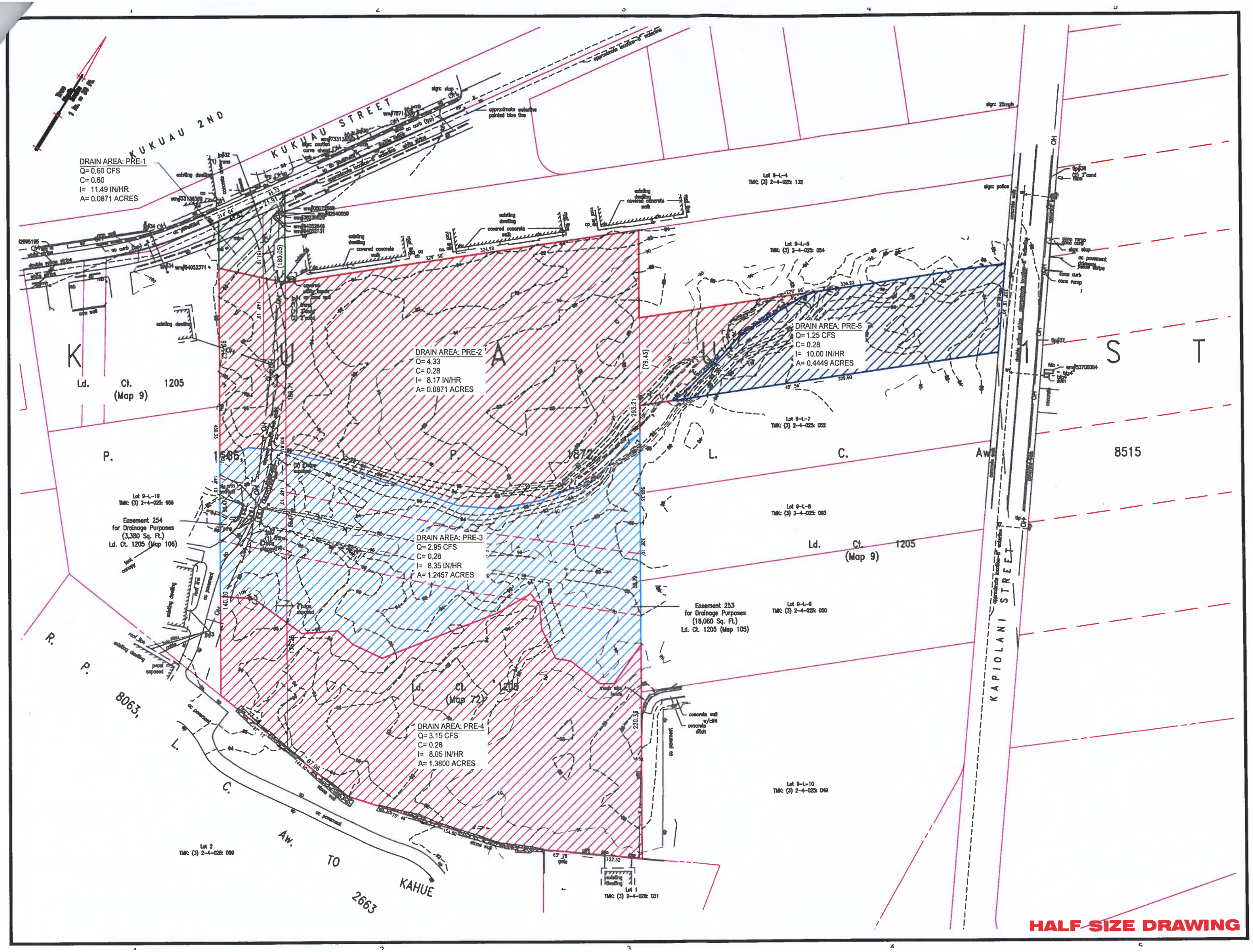


Plate 1



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Revision Number/Description

Project Name

Kaiaulu O Kapiolani

A0705 HILO LP

TMK : 2-4-025:48,53,80(POR)

Drawing Title

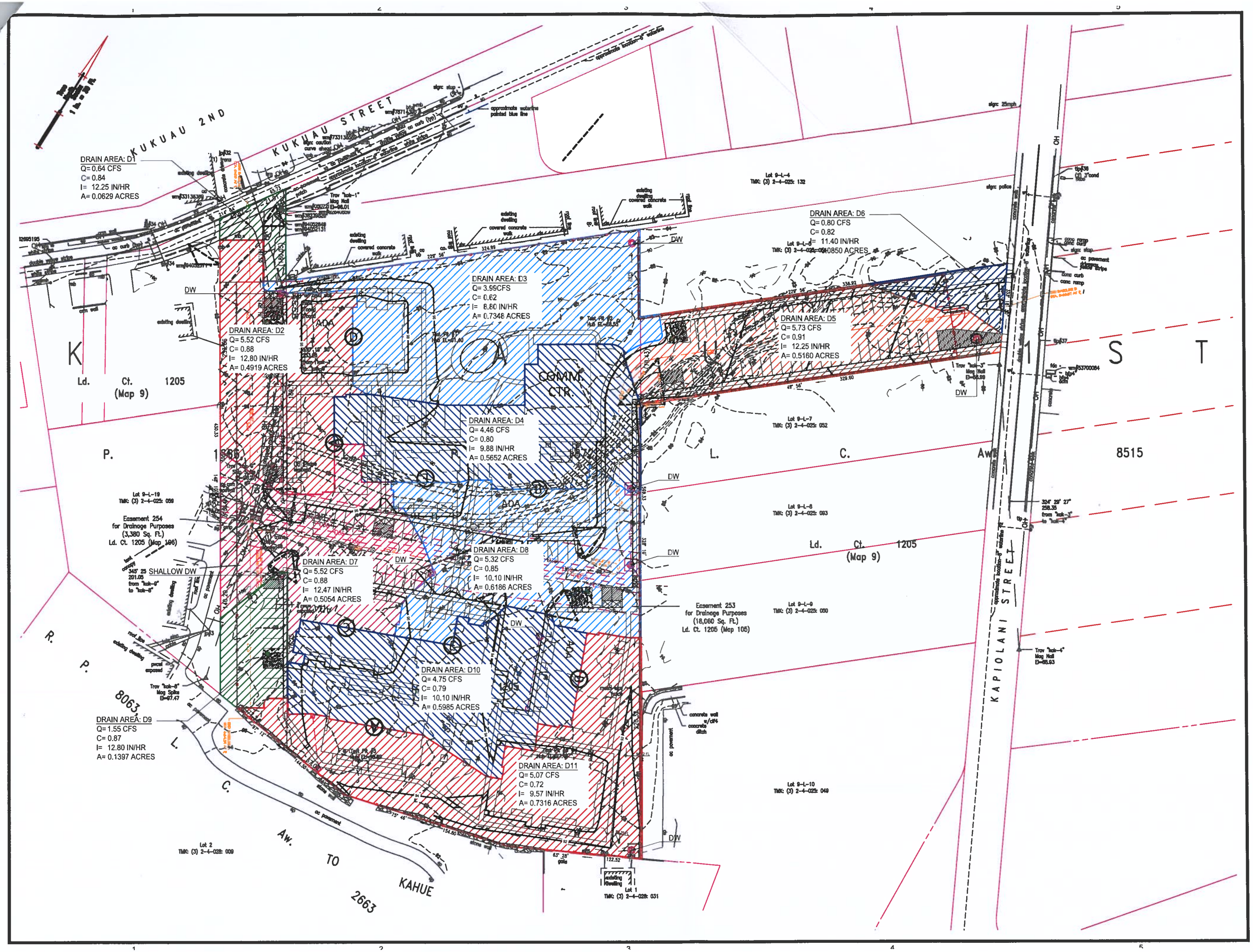
PRE-DEVELOPMENT DRAINAGE MAP

Project Number	Date	
18056	OCT 2020	
Drawn	Checked	Designed
JKO	DTI	DTI

Drawing Number

DM1

Sheet No 1 of 2



Design Partners Incorporated

Architecture
Planning
Interiors Design

Signature

April 30, 2020
Expiration Date of the License

This work was prepared by me or under my supervision and construction of this project will be under my observation.

Revision Number/Description

Project Name

Kaiaulu O Kapiolani

A0705 HILO LP

TMK : 2-4-025:48,53,80(POR)

Drawing Title

POST DEVELOPMENT DRAINAGE MAP

Project Number	Date
18056	NOV 2020

Drawn	Checked	Designed
UKO	DTI	DTI

Drawing Number

DM2

Sheet No 2 of 2

Exhibit 6: Contamination and Toxic Substances

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
Kaiaulu O Kapiolani
Hilo, Hawaii
TMK (3) 2-4-025:048, (3) 2-4-025:053, (3) 2-4-025:080

Prepared for:
A0705 Hilo, L.P.
2000 E. Fourth Street Ste 220
Santa Ana, CA 92705

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

February 2019

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Appendix F: Hawaii Electric Light Company Transformer Documentation
Appendix G: Site Reconnaissance Photographs

ACRONYMS

ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
DOD	Department of Defense
EAL	Environmental Action Level
EDR	Environmental Data Resources, Inc.
ERA	Environmental Risk Analysis, LLC
ESA	Environmental Site Assessment
HDOH	Hawai‘i Department of Health
HEER	HDOH Hazard Evaluation and Emergency Response
INST CONTROL	institutional controls
LUST	Leaking Underground Storage Tank
NFA	no further action
NPL	National Priorities List
PCB	polychlorinated biphenyl
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-TSDF	Resource Conservation and Recovery Act – treatment, storage, and disposal facilities
REC	Recognized Environmental Condition
SEMS	Superfund Enterprise Management System
SHWB	Solid and Hazardous Waste Branch
SHWS	State Hazardous Waste Sites List
TMK	Tax Map Key
TPH	Total Petroleum Hydrocarbons
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency

USGS	United States Geological Survey
UST	Underground Storage Tank

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 Keys TMK (3) 2-4-025:048, 053 & 080 located in Hilo, 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 all the 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: Senior Project Manager

Reviewed By:

Name: Russell Okoji

Title: Principal Scientist

EXECUTIVE SUMMARY

At the request of A0705 Hilo, L.P., Environmental Risk Analysis LLC (ERA) has performed a Phase I Environmental Site Assessment (ESA) for an undeveloped property located in Hilo, Hawaii (hereafter referred to as the Site). The Site is located on the west side of the island of Hawaii and is designated as Tax Map Keys (TMK) (3) 2-4-025:048, 053 & 080.

The purpose of this ESA was 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. Max Ulloa on February 10, 2019.

FINDINGS

The Site was located at an open, undeveloped, and heavily wooded property on Kapiolani Street, across from the County of Hawaii Civil Defense building in the town of Hilo, Hawaii. The property did not appear to be currently in use. The entrance to the property was through Hualalai Street and through a dirt road that ran through a small residential area located in the southern portion of the subject Site. The Site was heavily wooded and vegetated with no roads or public access. The Site was accessed through the dirt road starting at Hualalai Street on the southern portion of the Site and ending at Kukuau Street on the northern portion of the Site.

No indications of current or historical chemical use or storage were observed, and no indications of current or historical petroleum or hazardous material use, or storage were noted. There were no indicators of stressed vegetation, discolored, or disturbed soil areas. No discolored or polluted water was observed, including unusual or noxious odors. ERA did no observe any groundwater monitoring wells or floor drains on the Site.

Aerial photographs from 1954 through 2013, indicate that the Site has remained undeveloped throughout its recorded history. No RECs were identified in the review of the historic aerial photographs.

Electrical transformers may contain PCBs and all untested mineral oil transformers purchased prior to July 1, 1979, must be considered PCB-contaminated. RECs were not identified during the assessment of electrical transformers. ERA observed three poles each with a single electrical transformer mounted. HELCO was queried regarding if the PCB status of these transformers were known. HELCO responded that all three (3) observed pole mounted transformers were non-PCB containing. The Hawaiian Electric Company response is provided in Appendix F.

No fluorescent light fixtures were observed throughout the subject property.

ERA queried the EDR database to obtain information about federal and state environmental release listings. The Site was not listed on any federal or state environmental database. No sites in the vicinity of the subject Site were identified which would pose and environmental threat to the subject Site.

Table ES-1 Phase I ESA Summary	
Assessment Component	**TMK** (3) 2-4-025:048, 053 & 080
Historic Land Use (Section 2)	
Historical Aerial Photos/Maps	-
Land Lease/Ownership	-
Interviews	-
Regulatory Records Review	-
Site Reconnaissance (Section 4)	
Operations	-
Hazardous Materials Storage	-
Underground Storage Tanks	-
Aboveground Storage Tanks	-
Solid Waste	-
Wells	-
Asbestos	-
Lead Based Paint	-
Polychlorinated Biphenyls (PCB)	-
Regulatory Database Review (Section 5)	
Target Property	-
Surrounding Sites	-

Notes:

"-" = no ASTM RECs identified, no further investigation is required
R = ASTM defined REC observed
H = ASTM defined Historic REC observed
E = indicates *de minimus* or non ASTM REC

Reference numbers (i.e., R^1) are further discussed in the Executive Summary.

SUMMARY AND RECOMMENDATIONS

RECs - Site

- **No RECs Identified**

Additional Environmental Issues

- **No Additional Environmental Issues Identified**

SECTION 1: INTRODUCTION

This Phase I Environmental Site Assessment (ESA) report was prepared by Environmental Risk Analysis LLC (ERA) on behalf of A0705 Hilo, L.P. The subject of this Phase I ESA is an undeveloped 5.05-acre property subdivided into three (3) separate parcels designated by Tax Map Keys (TMKs) (3) 2-4-025:048, 053 & 080. The subject Site is located in the town of Hilo, on the east coast of the island of Hawaii.

1.1 PURPOSE

This Phase I ESA was requested by A0705 Hilo, L.P., 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 Recognized Environmental Conditions (REC) 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 approximately 219,978 square feet (5.05-acres) and is defined as TMKs (3) 2-4-025:048, 053 & 080 in the city of Hilo, 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

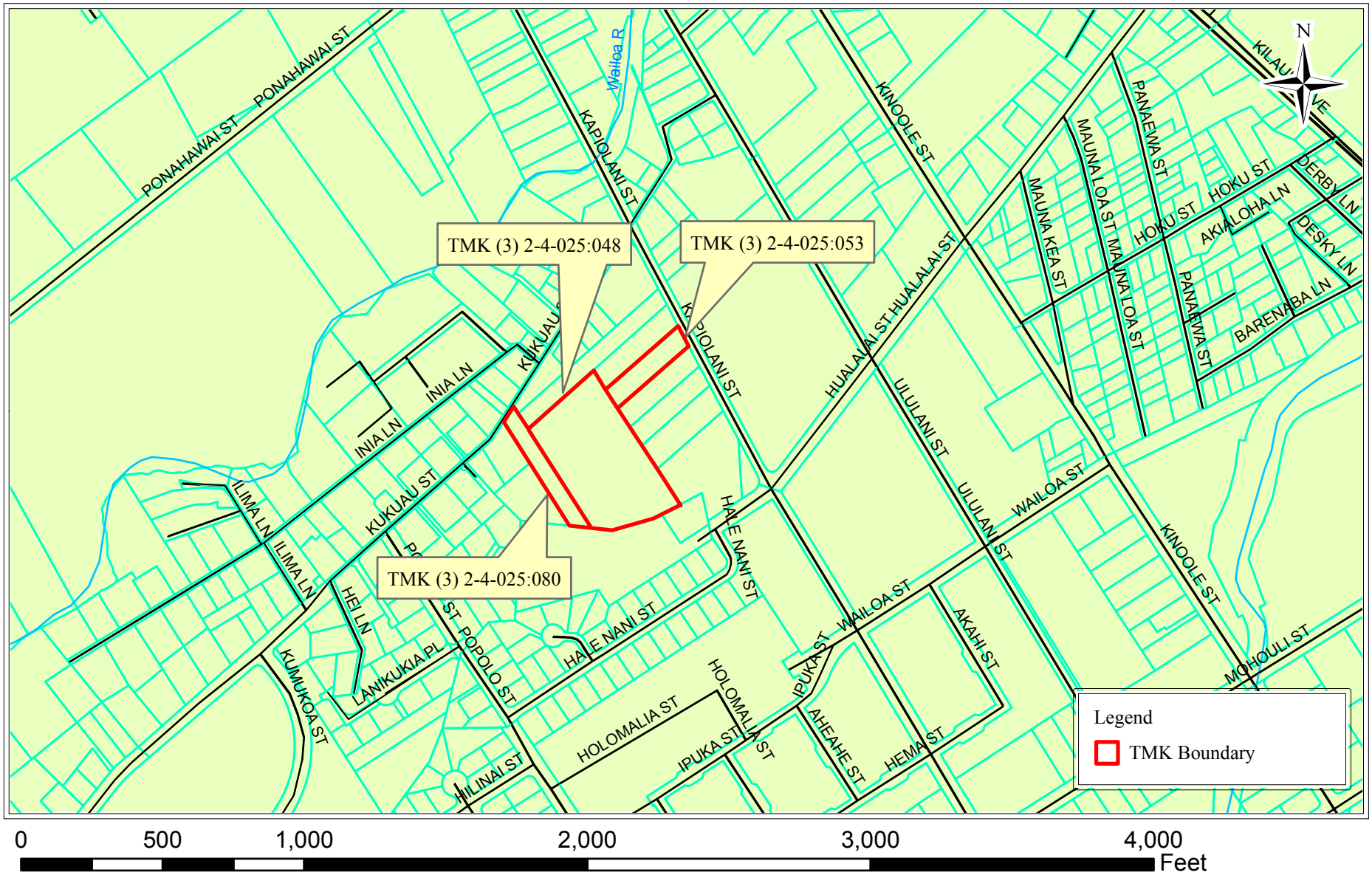
The Site is completely unpaved and heavily wooded with no traversing roads or public access.

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:

North:	Kukuau Street, Airbrush Exotic Tans tanning salon, and other residential structures.
South:	Hale Nani Street, Luscious Lash beauty salon, Quality Detailing car detailing service, and other residential structures.
East:	Kapiolani Street, Hilo Driving Licensing Station, and County of Hawaii Civil Defense.
West:	Kilika Lane, and other residential structures.

Environmental Risk Analysis	PROJECT NAME: Phase I Environmental Site Assessment Kaiaulu O Kapiolani Hilo, Hawaii TMK (3) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080	FIGURE TITLE: Site Location Map FIGURE NUMBER: 1



Environmental Risk Analysis	PROJECT NAME: Phase I Environmental Site Assessment Kaiaulu O Kapiolani Hilo, Hawaii TMK (3) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080	FIGURE TITLE: TMK Map FIGURE NUMBER: 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, 1975, 1977, 1985, 1992, and 2000 were obtained from EDR historical aerial maps (EDR, 2019a). A 2013 aerial photograph from Google Maps is included.

Based on a review of the historical aerial photographs spanning 1954 to 2013, the Site remains undeveloped. No ASTM defined RECs were 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 depicts the Site being undeveloped land, with no roads or structures visible on the property.

Adjacent Properties: Adjacent properties directly to the west of the site are undeveloped. The adjacent properties to the south and east are partially developed with visible structures. The adjacent properties to the north of the site are developed with residential structures.

1975

Site: The 1975 aerial photograph depicts the Site being undeveloped and heavily wooded land, with no roads or structures visible on the property.

Adjacent Properties: Adjacent properties directly to the west of the site are undeveloped. The adjacent properties to the south are fully developed with residential structures. The properties to the east are partially developed with visible commercial structures. The adjacent properties to the north of the site are developed with residential structures.

1977

Site: The 1977 aerial photograph depicts the Site being undeveloped and heavily wooded land, with no roads or structures visible on the property.

Adjacent Properties: Similar to the 1975 aerial photograph, adjacent properties directly to the west of the site are undeveloped. The adjacent properties to the south are fully developed with residential structures. The properties to the east are partially developed with visible commercial structures. The adjacent properties to the north of the site are developed with residential structures.

1985

Site: The 1985 aerial photograph depicts the Site being undeveloped and heavily wooded land, with no roads or structures visible on the property.

Adjacent Properties: The adjacent properties directly to the west of the site partially developed with residential structures. The adjacent properties to the south are fully developed with residential

structures. The properties to the east are developed with commercial structures. The adjacent properties to the north of the site are developed with residential structures.

1992

Site: The 1992 aerial photograph depicts the Site being undeveloped and heavily wooded land, with no roads or structures visible on the property.

Adjacent Properties: Similar to the 1985 aerial photograph, adjacent properties directly to the west of the site partially developed with residential structures. The adjacent properties to the south are fully developed with residential structures. The properties to the east are developed with commercial structures. The adjacent properties to the north of the site are developed with residential structures.

2000

Site: The 2000 aerial photograph depicts the Site being undeveloped and heavily wooded land, with no roads or structures visible on the property. The photograph depicts the Site as arid land, but it is believed to be the result of a red tint.

Adjacent Properties: Similar to the 1992 aerial photograph, adjacent properties directly to the west of the site partially developed with residential structures. The adjacent properties to the south are fully developed with residential structures. The properties to the east are developed with commercial structures. The adjacent properties to the north of the site are developed with residential structures.

2013

Site: The Site in the 2013 aerial from Google Maps appears as it exists today.

Adjacent Properties: Adjacent properties in the vicinity of the property are as they exists today.

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. Results indicate that the property is unmapped, and Sanborn Maps were unable to be found in the database search (EDR, 2019b).

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 were found for the years 1977, 1982, 1987, 1992, 1995, 2000, 2005, 2010, and 2014 (EDR, 2019c).

The 2014 City Directory does not list any business at the Site. Businesses listed on Kukuahu Street are Hamasaki Chalmers MD, Inc. on 251 Kukuahu Street and Elite Contracting LLC on 312 Kukuahu Street.

The 2010 City Directory does not list any business at the Site. Businesses listed on Kukuahu Street are Hamasaki Chalmers MD, Inc. on 251 Kukuahu Street, Sugar Shane Enterprises LLC on 287 Kukuahu Street, and Elite Contracting LLC on 312 Kukuahu Street.

The 2005 City Directory does not list any business at the Site. Businesses listed on Kukuahu Street are Hamasaki Chalmers MD, Inc. on 251 Kukuahu Street, Alans Art & Collectibles on 474 Kukuahu Street

The 2000 City Directory does not list any business at the Site. The only busines listed on Kukuahu Street is Hamasaki Chalmers MD, Inc. on 251 Kukuahu Street.

The 1995 City Directory does not list any business at or in the vicinity of the subject Site.

The 1992 City Directory does not list any business at or in the vicinity of the subject Site.

The 1987 City Directory does not list any business at the Site. Businesses listed in the vicinity of the subject Site were Hatada Bakery, Inc on 55 Kukuahu Street, Lee Construction, Inc., on 352 Kukuau Street, and Qualified Painting Service on 430 Kukuahu Street.

The 1982 City Directory does not list any business at the Site. Businesses listed in the vicinity of the subject Site were Hatada Bakery, Inc on 55 Kukuahu Street, Fantasia Pacific, Inc. on 138 Kukuau Street, Iyo Dry Goods on 228 Kukuau Street, Limited Home improvement Control on 278 Kukuahu Street, Lee Construction, Inc., on 352 Kukuau Street, Qualified Painting Service on 430 Kukuahu Street, and Miyamura Takeyuki Contractor on 596 Kukuahu Street.

Based on a review of the City Directory, the listed businesses were not identified as a potential environmental concern.

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, 2019d). Following are the observations made of listings provided for the years 1914, 1917, 1932 1963, 1980, 1981, 1995, and 2013 (most current year available). No ASTM defined RECs were noted from the review of the historic topographic maps.

1914 (7.5 Minute): Two structures of unknown nature were displayed on the Site. Alenaio Stream lies to the west of the Site and Waiakea Mill lies to the east.

1917 (7.5 Minute): Two structures of unknown nature were displayed on the Site. Alenaio Stream lies to the west of the Site and Waiakea Mill lies to the east. The topography is similar to the 1914 map.

1932 (7.5 Minute): Two structures of unknown nature were displayed on the Site. Alenaio Stream lies to the west of the Site and Waiakea Mill lies to the east. The Hilo town center appears fully developed. The topography is similar to the 1917 map.

1963, 1980 (7.5 Min.): The topography of the Site appears similar to the 1932 map. St. Joseph's High School and Kapiolani School appear in close vicinity to the Site. The Army Reserve Center and University of Hawaii at Hilo are located within a mile southeast of the Site. A Powerhouse Gaging Station is displayed a mile northwest of the Site. From 1980, the structures on the Site are no longer displayed.

1981, 1995 (7.5 Minute): The topography of the Site appears similar to the 1980 map.

2013 (7.5 Minute): The Site remains undeveloped. Similar to the 1995 topographic map, no structures are displayed on the Site. The topography remains unchanged from previous topographic maps.

2.6 TIER ONE VAPOR ENCROACHMENT SCREENING

Based on the EDR Vapor Encroachment screen there was one (1) incident of a LUST which may have been used to store gasoline from 1999. Halai Hill Radio Station located at the end of Ulili Street off Hina Street. A cleanup was conducted, and the subject site received a No Further Action (NFA) status. The subject site is thirty (30) feet upgradient about ¼-mile from the Site. Due to the nature of contamination at this site and the distance from the subject Site, the site is unlikely to pose a significant environmental threat to the subject Site.

2.7 LAND LEASES AND OWNERSHIP

The County of Hawaii lists the Fee Owner of the Site as Giampaolo Boschetti. This information is also listed on the County of Hawaii's Real Property Assessment and Tax Billing Information website. According to the County of Hawaii records.

Past ownership of the Site was queried from the Department of Land and Natural Resources (DLNR) Bureau of Conveyances records. The DLNR, Bureau of Conveyance record for the years 1951 to 1987 was found (Appendix D).

Past ownership records of the parcel with designated Tax Map Key TMK (3) 2-4-025:048 list the parcel being 362,493 square feet in 1951 and having the ownership of Akana A. Richardson (Kinoole Development Company, Ltd. In 1963 the was an amendment of trust to George, Richard, Julius Richardson, Thomas Guard and grandchildren. The termination of trust for George, Richard, Julius Richardson, Thomas Guard and grandchildren ended a year later. In 1964, there is a deed listed from Cooke Tr. Co Ltd to George, Richard, Julius Richardson, and Thomas Guard. In 1967, a deed is listed from Robert Richardson, et al to County of Hawaii. In 1969, there is a deed listed from the First National Bank of Hawaii to Fay I Linger, Robert and Julius Richardson, and Thomas Guard. In 1969, there is a deed listed from Robert Richardson, et al to Kinoole Dev Co, Ltd. In 1976, there is a deed listed from Robert Richardson to First Hawaiian Bank. In the year 1977, a transaction is listed from Suzanne Richardson to First Hawaiian Bank. In 1978, a deed is listed from Thomas Guard to Hawaiian Trust Company. In 1980, a deed is listed from John S Tolmie to JT Trading Company Ltd (20%), Auto Imports of Hawaii (20%), Farms & Ranches Inc (20%), Sea Gifts Corporation (20%), Siegfred S Kagawa (6%), Kason Inc (5%), Gek Corp (3%), Henlin Corp (3%), Katco Inc (3%). In 1980, a deed is listed from Sea Gifts Corp to Auto Imports of Hawaii, Inc (40%). In 1981, the parcel was subdivided down to 279,983 square feet.

Past ownership records of the parcel with designated Tax Map Key TMK (3) 2-4-025:053 list the parcel being 26,197 square feet. A transaction is also listed to Auto Imports of Hawaii, Inc (40%), Farms & Ranches Inc (20%), JT Trading Company Ltd (20%), Siegfred S Kagawa (6%), Kason Inc (5%), Gek Corp (3%), Henlin Corp (3%), Katco Inc (3%). In 1981, a deed is listed (Doc#: 1092388) to Hiroshi Kitsutani. In 1983 and 1985, two deeds are listed (Doc #s: 1189805 & 1328034) to Hiroshi Kitsutani and wife and to Kitsutani Family trust, respectively.

2.8 PREVIOUS INVESTIGATIONS

ERA queried Mr. Allen T Yap, Paynella Hawaii LLC, representative of the current owners concerning previous environmental investigations conducted at the Site. According to Mr. Yap, it is unknown if any previous investigation have been conducted at the Site. No record of any previous site assessment was found in the historical database review or HDOH records.

2.9 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 E.

- Allen T Yap, Paynella Hawaii LLC, representative of the current property owners, via questionnaire dated February 12, 2019
- Mr. Richard Takaba, DOH SHWS Office, via email on February 12 and 13, 2019.

Allen T Yap, Paynella Hawaii LLC, representative of the current owners

Mr. Allen T Yap, representative of the current owners of the target property, completed a Phase I ESA questionnaire dated February 12, 2019. Mr. Yap stated having no knowledge of any environmental liens filed against the property, nor was he aware of any activity use limitations for the property, such as engineering controls, land use restrictions or institutional controls. Mr. Yap responded no to paying fair market value, however, no contamination is known or believed to be present at the property. Mr. Yap was not familiar with the past uses of the property and were not aware of any environmental spills or releases that took place within the subject property or the neighboring parcels.

Mr. Richard Takaba, HDOH Solid and Hazardous Waste Branch (SHWB)

Mr. Richard Takaba of the HDOH Solid and Hazardous Waste Branch was queried about the Honokaa Federal Credit Union site as a release was reported in September 2017 and is listed on the HDOH LUST database. Honokaa Federal Credit Union, reported a release on 09/18/2017, and is noted as a Confirmed Release on the HDOH LUST database. Mr. Takaba provided file records and noted an unknown small UST was discovered and subsequently removed from the property. Consultants for the property owner noted the site was a former gas station in the 1920's and 1930's, and the UST appeared to date back to that period of time. Sampling was performed in September 2017 and analytes found in the Site soil were below applicable HDOH Unrestricted EALs. HDOH concluded no further investigation was warranted and requested a UST Closure report be prepared. HDOH is currently awaiting the closure report. The Honokaa Federal Credit Union is not considered a REC.

2.10 RECORDS REVIEW

HDOH Solid and Hazardous Waste Branch LUST Records

Honokaa Federal Credit Union site as a release was reported in September 2017 and is listed on the HDOH LUST database. Honokaa Federal Credit Union, reported a release on 09/18/2017, and is noted as a Confirmed Release on the HDOH LUST database. As stated above, Mr. Takaba provided file records and noted an unknown small UST was discovered and subsequently removed from the property. Consultants for the property owner noted the site was a former gas station in the 1920's and 1930's, and the UST appeared to date back to that period of time. Sampling was

performed in September 2017 and analytes found in the Site soil were below applicable HDOH Unrestricted EALs. HDOH concluded no further investigation was warranted and requested a UST Closure report be prepared. HDOH is currently awaiting the closure report. The Honokaa Federal Credit Union is not considered a REC.

2.11 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

An interview with the representative of the current owner of the property indicated there were no environmental liens or activity use limitations associated with the property.

2.12 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

Information regarding valuation of the subject Site was not provided. The County of Hawaii Real Property Assessment website lists the total market value and the total assessed value as $753,500. Real Property Assessment and Tax Billing Information lists the property class of TMK (3) 2-4-025:048 and (3) 2-4-025:080 as Residential, and TMK (3) 2-4-025-053 as Apartment (County of Hawaii, 2019).

SECTION 3: SITE CONDITIONS

The subject property is situated in Hilo 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 (SCS) classifies the type of soil within the Site as 100% Keaukaha-Urban land complex. It is classified as a Hydrologic Soil Group D with a typical profile consisting of highly decomposed plant material from 0 to 4 inches bgs and lithic bedrock from 4 to 14 inches bgs. These soils have a high runoff class, which indicates they are well drained. The depth to groundwater is more than 80 inches.

3.2 GROUNDWATER HYDROLOGY

The Site overlies the Hilo aquifer system of the Northeast Mauna Loa aquifer sector. The aquifer is a basal (fresh water in contact with sea water), unconfined (where water table is upper surface of saturated aquifer), flank aquifer. It is classified as currently used, drinking, irreplaceable, and highly vulnerable to contamination, that is fresh (<250 milligrams per liter [mg/l] chloride [Cl^-]) (Mink and Lau, 1992).

According to a 1-mile radius search from the Site, the EDR report listed two (2) United States Geological Survey (USGS) wells within a 1-mile radius of the Site (EDR, 2019e). The nearest Federal Public Water Supply (PWS) well is located within ¼-mile radius from the Site. The subject property of the well is located Mauka (i.e., toward the mountains) of the Underground Injection Control Line (UIC) therefore it is considered a potable water resource. The subject property of the other well is located Makai (i.e., toward the ocean) of the UIC therefore, not considered a potable water resource. Injection wells do require a UIC permit or permit exemption and permit limitations are imposed.

3.3 TOPOGRAPHY AND LAND COVER

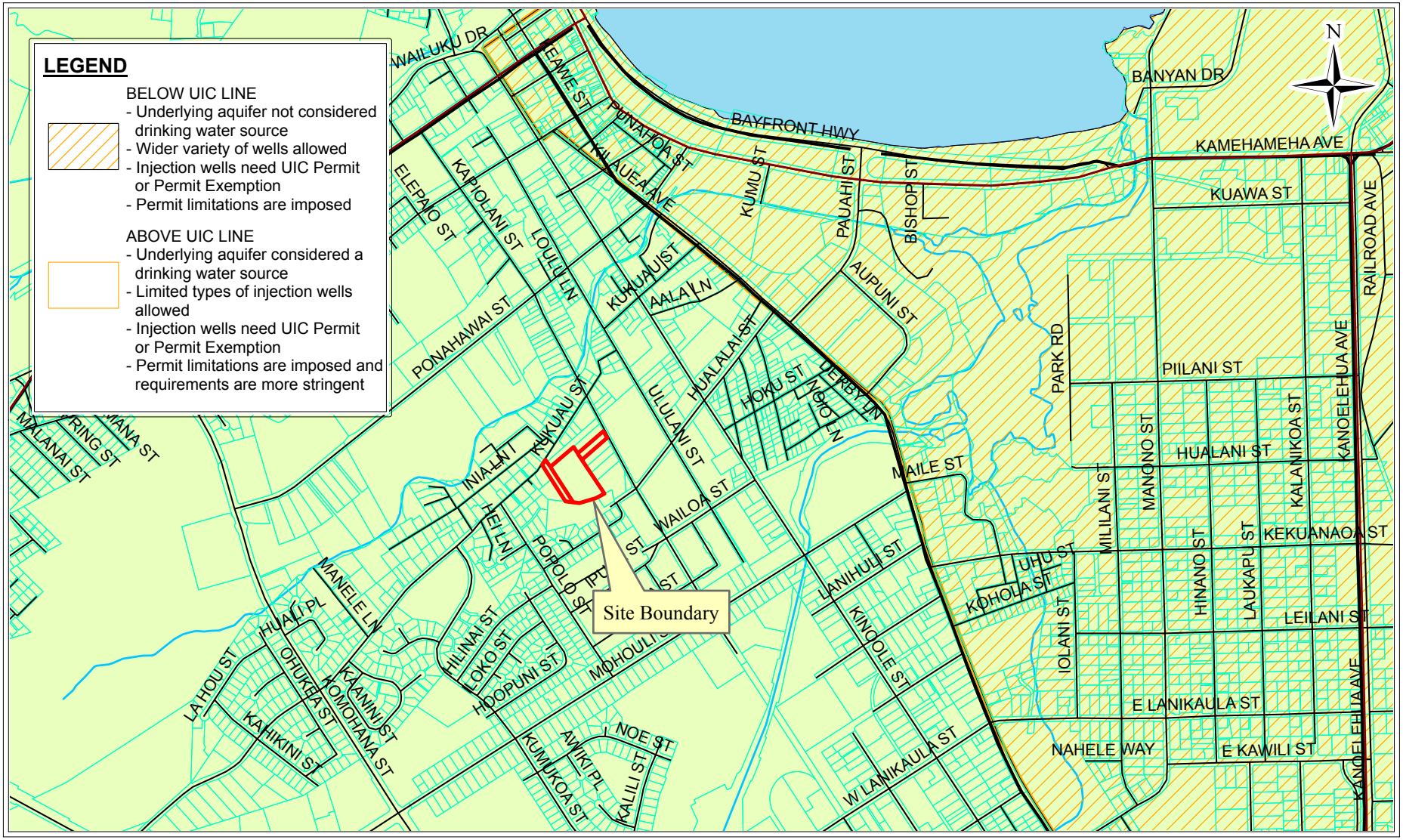
The Site is undeveloped and heavily wooded. According to the USGS, Honolulu, Hawaii, 7.5-minute topographic map, the subject property is located at -155.087087 - 155° 5’ 14” longitude and 19.71405 - 19° 42’ 51” latitude, approximately 91 feet above mean sea level (EDR, 2019e).

3.4 LOCAL ZONING

The County of Hawaii, Planning Division, indicates that the Comprehensive Zoning Ordinance designation for the Site is RM-1 – Multiple-Family Residential District with a required land area of 1,000 square feet for each dwelling unit, or for each separate rentable unit).

3.5 FLOOD ZONE DETERMINATION

According to FEMA Flood Insurance Rate Map (FIRM) #1551660736F, the subject property is located in Zone X, designated as an area outside the 0.2% annual chance floodplain and the flood potential for the subject property is minimal. The property is not within a tsunami or dam evacuation zone.



0 0.5 1 Miles

Environmental Risk Analysis	PROJECT NAME: Phase I Environmental Site Assessment Kaiaulu O Kapiolani Hilo, Hawaii TMK (3) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080	FIGURE TITLE: Underground Injection Control Map FIGURE NUMBER: 3

SECTION 4: SITE RECONNAISSANCE

The purpose of the site reconnaissance is 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. Max Ulloa of ERA conducted the site reconnaissance on February 10, 2019. The following sections present general observations of the Site and the surrounding area.

4.1 GENERAL OBSERVATIONS OF THE SITE

No visual evidence of hazardous substance release was noted during the site reconnaissance. Photos of the Site as it appeared on February 10, 2019 are provided in Appendix F.

General

The Site was located at an open, undeveloped, and heavily wooded property on Kapiolani Street, across from the County of Hawaii Civil Defense building in the town of Hilo, Hawaii. The property did not appear to be currently in use. The entrance to the property was through Hualalai Street and through a dirt road that ran through a small residential area located in the southern portion of the subject Site.

The Site was heavily wooded and vegetated with no roads or public access. The Site was accessed through the dirt road starting at Hualalai Street on the southern portion of the Site and ending at Kukuau Street on the northern portion of the Site.

No indications of current or historical chemical use or storage were observed, and no indications of current or historical petroleum or hazardous material use, or storage were noted. There were no indicators of stressed vegetation, discolored, or disturbed soil areas. No discolored or polluted water was observed, including unusual or noxious odors. ERA did not observe any groundwater monitoring wells or floor drains on the Site.

4.2 GENERAL OBSERVATIONS OF THE SURROUNDING AREA

ERA visually assessed areas adjacent to the Site from public thoroughfares. The following were observed for the surrounding area:

- North: Residential structures, Kukuau Street. More residential structures beyond Kukuau street.
- East: Kapiolani Street. Across Kapiolani Street is The County of Hawaii Civil Defense building, Hilo Driver Licensing Station, and the Hawaii Police Department. St. Joseph's School is also located to the southeast of the Site.
- South: Residential structures. Hualalai Street, and Hale Nani Street.
- West: Residential structures and Popolo Street.

The adjacent properties that were observed during inspection of the subject property mainly include residential properties, along with tanning salons, schools and government buildings. All adjacent properties that were inspected appeared to be well maintained and no indications of any potential for RECs were observed. No evidence of hazardous substance release was observed from any of the adjacent properties or other public thoroughfares.

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. ERA observed three (3) poles, each with a single electrical transformer located near the Site. Hawaii Electric Light Company (HELCO) was queried regarding if the PCB status of these transformers were known. HELCO responded that all three (3) observed pole mounted transformers were non-PCB containing. The HELCO response is provided in Appendix F.

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 was no observed potential ACBM and LCP at the Site. If additional materials are discovered during Site development, these materials may require testing prior to disposal.

4.5 ARSENIC

From the review of historic site use, the Site was not historically used for sugar cane cultivation; therefore, 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, 2019e). 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

- Federal CERCLIS No Further Remedial Action Planned (CERC-NFRAP) (½-mile) (now known as Superfund Enterprise Management System Archive [SEMS-ARCHIVE])
- Federal RCRA – small quantity generators (RCRA-SQG) (¼-mile)
- Federal RCRA – conditionally exempt small quantity generators (RCRA-CESQG) (property and adjoining properties) (¼-mile)
- State Hazardous Waste Sites List (SHWS) (1-mile)
- HDOH LUST Database (½-mile)
- HDOH Registered UST Database (property and adjoining properties) (¼-mile)
- State Sites with Institutional Controls (INST CONTROL) (property only) (½-mile)
- Voluntary Remediation Program and Brownfields Sites with Institutional Controls (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 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 Engineering Controls Sites (property only)
- Federal Sites with Institutional Controls (property only)
- Federal Emergency Response Notification System (property only)
- Permitted Landfills in the State of Hawai‘i (½-mile)
- State Voluntary Response Program Sites (½-mile)
- State Brownfields Sites (½-mile)

Additional Environmental Record Sources

- RCRA Non-Generator List
- Integrated Compliance Information System State List of Permitted Facilities Permitted Drycleaner Facility Listing
- EDR Proprietary Manufactured Gas Plants (MGP)

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)
- 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
- Indian Reservations
- Historical Auto Stations (¼-mile)
- 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. Potential environmental conditions at adjacent properties located within the vicinity of the Site are summarized below.

Standard Environmental Record Sources

Federal CERCLIS NFRAP Site List (SEMS-ARCHIVE)

Based on the EDR's database search (dated 12/13/2018), there is one (1) SEMS-ARCHIVE site within a ½- mile radius of the subject Site. SEMS-ARCHIVE tracks sites that have no further interest under the Federal Superfund Program based on available information. Details are listed below:

- Hilo Arsenic Spill Site is located at 33B Liliuokalani Lane. This property is not on the NPL list and does not qualify for NPL status. ERA opines that it is unlikely to pose a significant environmental threat to the subject Site.

RCRA-SQG Database

Based on the EDR's registered RCRA small quantity generator (SQG) database search (dated 03/01/2018), there is one (1) registered RCRA-SQG site within a ¼-mile radius of the Site. Details are listed below:

- Hamakua Sugar Co Inc with an address of 1 Sugar Lane, did not have any violations noted in the record. ERA opines that it is unlikely to pose a significant environmental threat to the subject Site.

Federal RCRA CESQG Generators List

Based on the EDR's registered RCRA-CESQG database search (dated 03/01/2018), there is one (1) registered RCRA-SQG site within a ¼-mile radius of the Site. Details are listed below:

- Hilo Quality Cleaners with an address of 865 Kinoole Street, did not have any violations noted in the record. ERA opines that it is unlikely to pose a significant environmental threat to the subject Site.

Solid and Hazardous Waste Sites (SHWS) Database

According to the SHWS records (dated 09/27/2018), there are 19 SHWS facilities located within a 1-mile radius of the Site. The sites are discussed below:

- Eight (8) sites received a NFA-Unrestricted Use.
    - SC Minor Kunieda is located at 470 W Lanikaula St, approximately 0.8 miles from the Site, and is relatively higher in elevation to the subject Site. The SHWS database indicates TPH-diesel and arsenic were found at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.
    - Hilo Macaroni Factory is located at 639 Kinoole St, approximately 0.2 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates TPH-diesel was found at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Sun Sun Lau Chop Suey House located at 1055 Kinoole St, approximately 0.3 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates there was a TPH-diesel release at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Larry's Chevron is located at 835 Kilauea Ave, approximately 0.5 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates petroleum contaminated soil was found at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Downtown Chevron Is located at 192 Kinoole St, approximately 0.6 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates petroleum and hydraulic fluid were found in the soil at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Keawe 76 Service Station is located at 210 Keawe St, approximately 0.6 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates TPH-oil was found at the site beneath hydraulic hoists. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Hilo Shopping Center is located at 1255bKilauea Ave, approximately 0.7 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates TPH-diesel was found at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Exempt UST Closure is located at 458 Kekuanoa St, approximately 1 mile from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates TPH-diesel was found at the site. This property was issued an NFA letter, unrestricted residential use. Therefore, this property is unlikely to have any impact on the subject Site.

- Two (2) sites received a Historic NFA-Incomplete Documentation.
    - Hilo Quality Cleaner located at 865 Kinoole St. – Hazard Undetermined. This property is unlikely to have any impact on the subject Site.
    - Roberts Bakery, Boiler UST Removal located at 374 Kinoole St. – Hazard Undetermined. This property is unlikely to have any impact on the subject Site.
- One (1) sites received a Historic NFA-Restricted Use.
    - Hilo Arsenic, with an address of 33B Liliuokalani Ln. – Hazard Managed with Controls. Arsenic in the soil (found in the first 12-18 inches) is covered with concrete. This property is unlikely to have any impact on the subject Site.
- Two (2) sites received a NFA-Restricted Use.
    - Western Auto Hydraulic Oil, with an address of 141 Haili St. – Hazard Managed with Controls. A petroleum release was reported for the property. The hazard is managed with controls. This property is unlikely to have any impact on the subject Site.
    - KHI Inc. DBA Bayside with an address of 774 Kamehameha Ave. – Hazard Managed with Controls. TPH-gasoline, TPH-diesel, TPH-oil, and xylene was present in subsurface soil. The hazard is managed with controls. This property is unlikely to have any impact on the subject Site.
- Four (4) sites are listed as Assessment Ongoing – Controls Required to Manage Contamination.
    - Lanakila Homes Phase 3B-4, located at 600 Wailoa St., is approximately 0.2 miles from the Site, and is relatively higher in elevation to the subject Site. The SHWS database indicates metals and pesticides were found in the soil. The hazard is managed with controls. Due to the nature of contamination documented in the database, this property is unlikely to have any impact on the subject Site.
    - Hilo Quality Washerette, located at 210 Hoku St., is approximately 0.3 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database

indicates TPH-diesel was found in the soil at the site. The hazard is managed with controls. Due to the nature of contamination documented in the database, this property is unlikely to have any impact on the subject Site.

- Old Hilo Canec Plant, located at Kekuanaoa St. and Mililani St., is approximately 1 mile from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates arsenic was found in the soil at the site. The hazard is managed with controls. Due to the nature of contamination documented in the database, this property is unlikely to have any impact on the subject Site.

- Waiakea Upland, located at the corner of Kekuanaoa St. and Mililani St., is approximately 1 mile from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates arsenic was found in the soil. The hazard is managed with controls. Due to the nature of contamination documented in the database, this property is unlikely to have any impact on the subject Site.

- One (1) site is listed as Assessment Ongoing – Hazard Undetermined.

  - UST Excavated Bishop and Kamehameha, located at Bishop St. and Kamehameha Ave., is approximately 0.8 miles from the Site, and is relatively lower in elevation to the subject Site. The SHWS database indicates a UST was excavated and the assessment is ongoing. The site is considered a low hazard priority. Due to the lower elevation of this site and low hazard priority, this property is unlikely to have any impact on the subject Site.

- One (1) site is listed as Response Ongoing – Hazard Managed with Controls.

  - Hatada Bakery (Former) is located at 555 Kukuau St, is approximately 0.3 miles from the Site, and is relatively lower in elevation. The SHWS database notes possible TPH-diesel, acenaphthene, fluoranthene, naphthalene, and possible benzo(a)pyrene in soil and possibly groundwater. The site will be further characterized in the future when the property is redeveloped. The hazard is managed with controls. Due to the lower elevation and distance to the subject Site, this property is unlikely to have any impact on the subject Site.

HDOH Leaking UST (LUST) Database

A search of the HDOH LUST Branch database records (dated 08/31/2018) resulted in 11 sites having reported a UST release within a ½-mile radius of the Site. According to the HDOH LUST database, of the eleven (11) LUST sites, nine (9) sites are recorded as Site Cleanup Completed and were issued an NFA. The remaining sites are discussed below.

- JC Penney Co., Inc. reported two (2) releases. One release is noted as Site Cleanup Completed with a NFA. The other release is noted as Site Cleanup Completed with EHE. JC Penney Co., Inc. is located approximately a ½-mile away, downgradient of the subject property. JC Penney Co., Inc. does not pose a significant environmental threat to the subject Site.

- Honokaa Federal Credit Union, reported a release on 09/18/2017, and is noted as a Confirmed Release on the HDOH LUST database. Records reviewed from HDOH and discussion with Mr. Richard Takaba of the HDOH Solid and Hazardous Waste Branch indicates an unknown small UST was removed from the property. Sampling was performed in September 2017 and analytes found in the Site soil were below applicable HDOH Unrestricted EALs. The Site was a former gas station in the 1920's and 1930's, and the UST appeared to date back to that period of time. HDOH concluded no further investigation was warranted and a UST Closure report be prepared. HDOH is currently awaiting the closure report. Honokaa Federal Credit Union does not pose a significant environmental threat to the subject Site.

The facilities listed on the HDOH LUST database do not pose a significant environmental threat to the subject Site.

HDOH Registered UST Database

A search of the HDOH UST Branch database records (dated 08/31/2018) resulted in seven (7) reported registered UST sites within a ¼-mile radius of the Site. Four (4) of the sites report their tanks as Permanently Out of Use. The remaining sites are described below:

- Halai Hill Radio Station site located at the end of Ulili St contains a currently in use 600-gallon UST and permanently out of use gasoline UST.

- The Hawaii County Police Department lists two (2) in use 8000-gallon gasohol tanks and two (2) permanently out of use 5000-gallon gasoline USTs.

- Honokaa Federal Credit Union lists a single UST in service. No further information was provided regarding size or contents of the UST.

The facilities listed on the HDOH UST database are located down-gradient at varying distances from the Site and does not pose a significant environmental threat to the subject Site.

ENG CONTROLS Database

Based on the EDR's ENG CONTROLS list (dated 09/27/2018), there is one (1) registered site within a ½-mile radius of the Site. Details are listed below:

- Hilo Arsenic located at 33B Liliuokalani Ln, is noted as Engineering Control Required. This site is listed in the SHWS database as having found arsenic in soil. Contaminated soil is bound by concrete slab on the site. Activities which may disturb the integrity of the capping system are prohibited. HDOH issued an NFA with restricted use. ERA opines that this property is unlikely to pose significant environmental threat to the subject Site.

INST CONTROL Database

Based on the EDR's INST CONTROL list (dated 09/27/2018), there are three (3) sites within a ½-mile radius of the Site. Details are listed below:

- Hilo Quality Washerette, located at 210 Hoku St., is noted as Hazard Managed with Controls. This property is listed in the SHWS database with found diesel in soil and hazards managed with controls. This property is unlikely to have any impact on the subject Site.

- Hatada Bakery (Former) is located at 555 Kukuau St, is noted as Hazard Managed with Controls. This site is listed in the SHWS databased with found TPH-diesel, acenaphthene, fluoranthene, naphthalene, and possible benzo(a)pyrene in soil and possibly groundwater. The site will be further characterized in the future when the property is redeveloped. The hazard is managed with controls. Due to the lower elevation and distance to the subject Site, this property is unlikely to have any impact on the subject Site.

- Hilo Arsenic located at 33B Liliuokalani Ln, is noted as Hazard Managed with Controls. Arsenic contaminated soil is bound by concrete slab on the site. Activities which may disturb the integrity of the capping system are prohibited. HDOH issued an NFA with restricted use. ERA opines that this property is unlikely to pose significant environmental threat to the subject Site.

RCRA NonGen / No Longer Regulated (NLR) Database

Based on the EDR's registered RCRA NonGen / NLR database search (dated 03/01/2018), there is one (1) registered RCRA NonGen / NLR sites within a ¼-mile radius of the Site. Details are listed below:

- Mr. K's Recycle and located at 815 Kinoole St, was subject to a Compliance Evaluation Inspection On-Site in June 2014 and received a Written Informal violation on 05/08/2014 with compliance achieved on 06/18/2014. The nature of the violation was not reported. No other violations were noted. ERA opines that this property is unlikely to pose significant environmental threat to the subject Site.

DRYCLEANERS

Based on the EDR's Drycleaners list (dated 12/31/2018), there is one (1) site within a ¼-mile radius of the Site. Details are listed below:

- Hilo Quality Cleaner located at 865 Kinoole St. This site is located approximately ¼-mile downgradient of the subject Site. ERA opines that this property is unlikely to pose significant environmental threat to the subject Site.

MGP List

Based on the EDR's MGP list, there is one (1) site within a 1-mile radius of the Site. Details are listed below:

- Hilo Gas Company Ltd located at 51-53 Ponahawai St., is approximately 0.5 miles away at a relatively lower elevation. No additional information was available. ERA opines that this property is unlikely to pose significant environmental threat to the subject Site.

Unmapped Sites due to Poor or Inadequate Address Information

There were nine (9) unmapped sites listed in EDR as having poor or inadequate address information in relation to the subject property. A summary of the listings is as follows:

- One (1) site (Hilo Bay Front Soccer Field) is listed on the SEMS-ARCHIVE (Superfund Enterprise Management System Archive) database. The SEMS-ARCHIVE tracks sites that have no further interest under the Federal Superfund Program based on available information.
- One (1) site (Kilauea Volcano Air Monitoring) is listed on the SEMS (Superfund Enterprise Management System) database. The site is greater than ½-mile away and is listed as Removal Only – No Site Assessment Needed.
- Five (5) sites are listed on the SHWS. Of these:
    - One (1) site (Mauna Kea Sugar – Hilo Sugar Pesticide) is greater than 1 mile away.
    - One (1) site (Hawaii County Kamehameha Avenue) is noted of interest. No other information is provided.
    - One (1) site (Waiakea Mill Company – Camp 1) received a NFA – Site Discovery Clearance.
    - One (1) site (HELCO Pole-Mounted Transformer) received a NFA – Unrestricted Use.
    - One (1) site (Wailoa River State Recreation Area) is listed as Assessment Ongoing for arsenic in soil Controls to Manage Contamination is noted.
- One (1) site (Hilo Judiciary Center Project) is listed on the SHWS, Eng Controls, and Inst Control databases. The site received a NFA – Restricted Use.
- The last site (Arsenic Mililani Street in Hilo) is listed on the SHWS, SPILLS, and Inst Control databases. The site received a NFA – Restricted Use.

These unmapped sites are not in close proximity to the subject Site and were determined not to pose a significant environmental threat.

SECTION 6: FINDINGS & RECOMMENDATIONS

At the request of A0705 Hilo, L.P., ERA performed a Phase I ESA for three parcels of land identified as TMK (3) 2-4-025:043, 053, and 080 in Hilo, Hawaii. 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 All Appropriate Inquiries Rule. The site reconnaissance visit was conducted by Mr. Max Ulloa on February 10, 2019.

Findings

The Site was located at an open, undeveloped, and heavily wooded property on Kapiolani Street, across from the County of Hawaii Civil Defense building in the town of Hilo, Hawaii. The property did not appear to be currently in use. The entrance to the property was through Hualalai Street and through a dirt road that ran through a small residential area located in the southern portion of the subject Site. The Site was heavily wooded and vegetated with no roads or public access. The Site was accessed through the dirt road starting at Hualalai Street on the southern portion of the Site and ending at Kukuau Street on the northern portion of the Site.

No indications of current or historical chemical use or storage were observed, and no indications of current or historical petroleum or hazardous material use, or storage were noted. There were no indicators of stressed vegetation, discolored, or disturbed soil areas. No discolored or polluted water was observed, including unusual or noxious odors. ERA did no observe any groundwater monitoring wells or floor drains on the Site.

Aerial photographs from 1954 through 2013, indicate that the Site has remained undeveloped throughout its recorded history. No RECs were identified in the review of the historic aerial photographs.

Electrical transformers may contain PCBs and all untested mineral oil transformers purchased prior to July 1, 1979, must be considered PCB-contaminated. RECs were not identified during the assessment of electrical transformers. ERA observed three poles each with a single electrical transformer mounted. HELCO was queried regarding if the PCB status of these transformers were

known. HELCO responded that all three (3) observed pole mounted transformers were non-PCB containing. The Hawaiian Electric Company response is provided in Appendix F.

No fluorescent light fixtures were observed throughout the subject property.

ERA queried the EDR database to obtain information about federal and state environmental release listings. The Site was not listed on any federal or state environmental database. No sites in the vicinity of the subject Site were identified which would pose and environmental threat to the subject Site.

SUMMARY AND RECOMMENDATIONS

RECs - Site

- **No RECs Identified**

List of Additional Environmental Issues

- **No Additional Environmental Issues Identified.**

SECTION 7: DEVIATIONS AND DATA GAPS

The following are data gaps encountered during the assessment:

- A valuation assessment comparing fair market value of the property was not performed as information regarding the fair market value and property purchase price was not available.

These data gaps are not considered significant.

SECTION 8: REPORT LIMITATIONS

The findings, observations, conclusions, and recommendations of this report are limited by the technical requirements specified in the contract between A0705 Hilo, 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 reasonable 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.

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 A0705 Hilo, 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

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Appendix **B**

AERIAL PHOTOGRAPHS

Environmental Risk Analysis	PROJECT NAME: Phase I Environmental Site Assessment Kaiaulu O Kapiolani Hilo, Hawaii TMK (3) 2-4-025:048, (3) 2-4-025:053, and (3) 2-4-025:080	FIGURE TITLE: 2013 Aerial Photograph FIGURE NUMBER: Appendix B

INQUIRY #: 5554368.8
YEAR: 2000
= 500'
N
EDR

INQUIRY #: 5554368.8
YEAR: 1992
= 500'
N
EDR

INQUIRY #: 5554368.8
YEAR: 1985
= 500'
N
EDR

INQUIRY #: 5554368.8

YEAR: 1977

= 500'

N

EDR

INQUIRY #: 5554368.8

YEAR: 1975

= 500'

N

EDR

INQUIRY #: 5554368.8

YEAR: 1954

= 500'

N

EDR

Appendix **C**

EDR Report, Sanborn Fire Insurance Maps, Historical Topographic Maps, Historical Aerial Photographs and City Directory

A0705 Hilo Kaiaulu O Kapiolani
Not Reported
Hilo, HI 96720

Inquiry Number: 5554368.2s
February 05, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
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

NOT REPORTED
HILO, HI 96720

COORDINATES

Latitude (North):	19.7140500 - 19˚ 42' 50.58''
Longitude (West):	155.0870870 - 155˚ 5' 13.51''
Universal Tranverse Mercator:	Zone 5
UTM X (Meters):	281247.3
UTM Y (Meters):	2181053.0
Elevation:	91 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5949390 HILO, HI
Version Date:	2013

MAPPED SITES SUMMARY

Target Property Address:
NOT REPORTED
HILO, HI 96720

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	HAWAII COUNTY POLICE	349 KAPIOLANI ST	UST, Financial Assurance, UIC	Lower	47, 0.009, NNE
2	HONOKAA FEDERAL CRED	379 ULULANI	LUST, UST	Lower	822, 0.156, NNE
3	LANAKILA HOMES PHASE	600 WAILOA ST	SHWS	Higher	880, 0.167, SSE
A4	RALPH'S 76 INC.	770 KINOOLE ST	UST, Financial Assurance	Lower	953, 0.180, NE
A5	MR. K'S RECYCLE AND	815 KINOOLE ST	RCRA NonGen / NLR	Lower	1086, 0.206, NE
A6	HAWAII PETROLEUM DIS	815 KINOOLE ST	UST	Lower	1086, 0.206, NE
B7	HILO QUALITY CLEANER	865 KINOOLE ST	RCRA-CESQG, SHWS, SPILLS, FINDS, ECHO, AIRS,...	Lower	1151, 0.218, ENE
B8	HILO QUALITY CLEANER	865 KINOOLE ST	LUST, UST	Lower	1151, 0.218, ENE
B9	CLOSED SHELL SERVICE	895 KINOOLE ST	UST	Lower	1179, 0.223, ENE
10	HILO MACARONI FACTOR	639 KINOOLE ST	SHWS, SPILLS	Lower	1270, 0.241, NNE
C11	HALAI HILL RADIO STA	END OF ULILI ST, OFF	LUST, UST, Financial Assurance	Higher	1308, 0.248, South
C12	HAMAKUA SUGAR CO INC	1 SUGAR LANE	RCRA-SQG, FINDS, ECHO	Higher	1308, 0.248, South
B13	HILO QUALITY WASHERE	210 HOKU ST	SHWS, INST CONTROL, SPILLS	Lower	1346, 0.255, ENE
14	SUN SUN LAU CHOP SUE	1055 KINOOLE ST	SHWS, SPILLS	Lower	1776, 0.336, East
D15	HATADA BAKERY (FORME	55 KUKUAU ST	SHWS, INST CONTROL, SPILLS	Lower	1815, 0.344, NNE
E16	HAWAII COUNTY CENTRA	466 KINOOLE ST	LUST, UST	Lower	1833, 0.347, North
E17	HILO ARSENIC SPILL S	33B LILIUOKALANI LAN	SEMS-ARCHIVE	Lower	2016, 0.382, NNE
E18	HILO ARSENIC	33B LILIUOKALANI LN	SHWS, ENG CONTROLS, INST CONTROL, SPILLS	Lower	2016, 0.382, NNE
D19	WONG'S 76 UNION L-38	376 KILAUEA AVE	LUST, UST, Financial Assurance	Lower	2058, 0.390, NNE
20	GOODYEAR TIRE & RUBB	475 KILAUEA AVE	LUST, UST	Lower	2158, 0.409, NE
21	THE MODERN CLEANERS	266 KILAUEA AVE	LUST, UST	Lower	2181, 0.413, NNE
F22	ROBERTS BAKERY, BOIL	374 KINOOLE ST	SHWS, SPILLS	Lower	2235, 0.423, North
F23	I. YAMADA FURNITURE	340 KINOOLE ST	LUST, UST	Lower	2367, 0.448, North
24	ALENAIO STREAM FLOOD	ALENAIO STREAM FLOOD	LUST, UST	Lower	2397, 0.454, NNE
25	J C PENNEY CO., INC.	777 KILAUEA AVE	LUST, UST, Financial Assurance	Lower	2511, 0.476, ENE
26	STANLEY I. HARA	EAST OF KILAUEA AVE	LUST, UST	Lower	2569, 0.487, North
27	HILO GAS COMPANY LTD	51-53 PONAHAWAI ST	EDR MGP	Lower	2707, 0.513, NNE
28	LARRY'S CHEVRON	835 KILAUEA AVE	SHWS, LUST, UST, Financial Assurance	Lower	2773, 0.525, ENE
G29	WESTERN AUTO HYDRAUL	141 HAILI ST	SHWS, LUST, INST CONTROL, SPILLS	Lower	3025, 0.573, North
G30	DOWNTOWN CHEVRON	192 KINOOLE ST	SHWS, LUST, UST, SPILLS, Financial Assurance	Lower	3121, 0.591, North
G31	KEAWE 76 SERVICE STA	210 KEAWE ST	SHWS, SPILLS	Lower	3243, 0.614, North
32	HILO SHOPPING CENTER	1255 KILAUEA AVE	SHWS, SPILLS	Lower	3533, 0.669, ESE
33	KHI INC. DBA BAYSIDE	774 KAMEHAMEHA AVE	SHWS, LUST, UST, INST CONTROL, SPILLS, Financial...	Lower	3611, 0.684, NE
34	SFC MINORU KUNIEDA U	470 W LANIKAULA ST	SHWS	Higher	4011, 0.760, SSE
35	UST EXCAVATED BISHOP	BISHOP ST AND KAMEHA	SHWS	Lower	4058, 0.769, NE
H36	EXEMPT UST CLOSURE A	458 KEKUANAOA ST	SHWS, SPILLS	Lower	5072, 0.961, East
H37	OLD HILO CANEC PLANT	KEKUANAOA ST AND MIL	SHWS	Lower	5163, 0.978, East
H38	WAIAKEA UPLAND ARSEN	CORNER OF MILILANI A	SHWS	Lower	5163, 0.978, East

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 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

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Permitted Landfills in the State of Hawaii

EXECUTIVE SUMMARY

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
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Response Program Sites

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
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

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

EXECUTIVE SUMMARY

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
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
AIRS	List of Permitted Facilities
Financial Assurance	Financial Assurance Information Listing
LEAD	LEAD
UIC	Underground Injection Wells Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

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.

EXECUTIVE SUMMARY

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

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: 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.

A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 12/13/2018 has revealed that there is 1 SEMS-ARCHIVE site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO ARSENIC SPILL S	33B LILIUOKALANI LAN	NNE 1/4 - 1/2 (0.382 mi.)	E17	33

Federal RCRA generators list

RCRA-SQG: 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.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HAMAKUA SUGAR CO INC EPA ID:: HID103901328	***1 SUGAR LANE***	***S 1/8 - 1/4 (0.248 mi.)***	***C12***	***25***

EXECUTIVE SUMMARY

RCRA-CESQG: 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.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO QUALITY CLEANER	***865 KINOOLE ST***	***ENE 1/8 - 1/4 (0.218 mi.)***	***B7***	***15***
EPA ID:: HID982436487				

State- and tribal - equivalent CERCLIS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the SHWS list, as provided by EDR, and dated 09/27/2018 has revealed that there are 19 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LANAKILA HOMES PHASE	600 WAILOA ST	SSE 1/8 - 1/4 (0.167 mi.)	3	10
SFC MINORU KUNIEDA U	470 W LANIKAULA ST	SSE 1/2 - 1 (0.760 mi.)	34	59

Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO QUALITY CLEANER	***865 KINOOLE ST***	***ENE 1/8 - 1/4 (0.218 mi.)***	***B7***	***15***
HILO MACARONI FACTOR	***639 KINOOLE ST***	***NNE 1/8 - 1/4 (0.241 mi.)***	***10***	***22***
HILO QUALITY WASHERE	***210 HOKU ST***	***ENE 1/4 - 1/2 (0.255 mi.)***	***B13***	***27***
SUN SUN LAU CHOP SUE	***1055 KINOOLE ST***	***E 1/4 - 1/2 (0.336 mi.)***	***14***	***29***
HATADA BAKERY (FORME	***55 KUKUAU ST***	***NNE 1/4 - 1/2 (0.344 mi.)***	***D15***	***30***
HILO ARSENIC	***33B LILIUOKALANI LN***	***NNE 1/4 - 1/2 (0.382 mi.)***	***E18***	***34***
ROBERTS BAKERY, BOIL	***374 KINOOLE ST***	***N 1/4 - 1/2 (0.423 mi.)***	***F22***	***39***
LARRY'S CHEVRON	***835 KILAUEA AVE***	***ENE 1/2 - 1 (0.525 mi.)***	***28***	***44***
WESTERN AUTO HYDRAUL	***141 HAILI ST***	***N 1/2 - 1 (0.573 mi.)***	***G29***	***46***
DOWNTOWN CHEVRON	***192 KINOOLE ST***	***N 1/2 - 1 (0.591 mi.)***	***G30***	***48***
KEAWE 76 SERVICE STA	***210 KEAWE ST***	***N 1/2 - 1 (0.614 mi.)***	***G31***	***51***
HILO SHOPPING CENTER	***1255 KILAUEA AVE***	***ESE 1/2 - 1 (0.669 mi.)***	***32***	***53***
KHI INC. DBA BAYSIDE	***774 KAMEHAMEHA AVE***	***NE 1/2 - 1 (0.684 mi.)***	***33***	***54***
UST EXCAVATED BISHOP	BISHOP ST AND KAMEHA	NE 1/2 - 1 (0.769 mi.)	35	60
EXEMPT UST CLOSURE A	***458 KEKUANAOA ST***	***E 1/2 - 1 (0.961 mi.)***	***H36***	***61***
OLD HILO CANEC PLANT	KEKUANAOA ST AND MIL	E 1/2 - 1 (0.978 mi.)	H37	62
WAIAKEA UPLAND ARSEN	CORNER OF MILILANI A	E 1/2 - 1 (0.978 mi.)	H38	63

EXECUTIVE SUMMARY

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 08/31/2018 has revealed that there are 11 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HALAI HILL RADIO STA Release ID: 990152 Facility Id: 9-600561 Facility Status: Site Cleanup Completed (NFA)	***END OF ULILI ST, OFF***	***S 1/8 - 1/4 (0.248 mi.)***	***C11***	***24***

Lower Elevation	Address	Direction / Distance	Map ID	Page
HONOKAA FEDERAL CRED Release ID: 180007 Facility Id: 9-603968 Facility Status: Confirmed Release	***379 ULULANI***	***NNE 1/8 - 1/4 (0.156 mi.)***	***2***	***10***
HILO QUALITY CLEANER Release ID: 900075 Facility Id: 9-601694 Facility Status: Site Cleanup Completed (NFA)	***865 KINOOLE ST***	***ENE 1/8 - 1/4 (0.218 mi.)***	***B8***	***20***
HAWAII COUNTY CENTRA Release ID: 950010 Facility Id: 9-601085 Facility Status: Site Cleanup Completed (NFA)	***466 KINOOLE ST***	***N 1/4 - 1/2 (0.347 mi.)***	***E16***	***32***
WONG'S 76 UNION L-38 Release ID: 020021 Facility Id: 9-600010 Facility Status: Site Cleanup Completed (NFA)	***376 KILAUEA AVE***	***NNE 1/4 - 1/2 (0.390 mi.)***	***D19***	***36***
GOODYEAR TIRE & RUBB Release ID: 930089 Facility Id: 9-601615 Facility Status: Site Cleanup Completed (NFA)	***475 KILAUEA AVE***	***NE 1/4 - 1/2 (0.409 mi.)***	***20***	***37***
THE MODERN CLEANERS Release ID: 010026 Facility Id: 9-603658 Facility Status: Site Cleanup Completed (NFA)	***266 KILAUEA AVE***	***NNE 1/4 - 1/2 (0.413 mi.)***	***21***	***38***
I. YAMADA FURNITURE Release ID: 920067 Facility Id: 9-601371 Facility Status: Site Cleanup Completed (NFA)	***340 KINOOLE ST***	***N 1/4 - 1/2 (0.448 mi.)***	***F23***	***40***
ALENAIO STREAM FLOOD Release ID: 990206 Facility Id: 9-603532 Facility Status: Site Cleanup Completed (NFA)	***ALENAIO STREAM FLOOD***	***NNE 1/4 - 1/2 (0.454 mi.)***	***24***	***41***
J C PENNEY CO., INC. Release ID: 900118	***777 KILAUEA AVE***	***ENE 1/4 - 1/2 (0.476 mi.)***	***25***	***41***

Release ID: 050022
Facility Id: 9-600456
Facility Status: Site Cleanup Completed (NFA)
Facility Status: Site Cleanup Completed with EHE

STANLEY I. HARA	***EAST OF KILAUEA AVE***	***N 1/4 - 1/2 (0.487 mi.)***	***26***	***43***

Release ID: 990085
Facility Id: 9-603459
Facility Status: Site Cleanup Completed (NFA)

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

A review of the UST list, as provided by EDR, and dated 08/31/2018 has revealed that there are 7 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HALAI HILL RADIO STA	***END OF ULILI ST, OFF***	***S 1/8 - 1/4 (0.248 mi.)***	***C11***	***24***

Tank Status: Permanently Out of Use
Tank Status: Currently in Use
Facility Id: 9-600561
Date Closed: 10/26/1998

Lower Elevation	Address	Direction / Distance	Map ID	Page
HAWAII COUNTY POLICE	***349 KAPIOLANI ST***	***NNE 0 - 1/8 (0.009 mi.)***	***1***	***8***

Tank Status: Permanently Out of Use
Tank Status: Currently In Use
Facility Id: 9-600458
Date Closed: 12/01/1993

HONOKAA FEDERAL CRED	***379 ULULANI***	***NNE 1/8 - 1/4 (0.156 mi.)***	***2***	***10***

Tank Status: Currently in Use
Facility Id: 9-603968

RALPH'S 76 INC.	***770 KINOOLE ST***	***NE 1/8 - 1/4 (0.180 mi.)***	***A4***	***11***

Tank Status: Permanently Out of Use
Facility Id: 9-601641
Date Closed: 03/20/1998

HAWAII PETROLEUM DIS	815 KINOOLE ST	NE 1/8 - 1/4 (0.206 mi.)	A6	14

Tank Status: Permanently Out of Use
Facility Id: 9-601622

HILO QUALITY CLEANER	***865 KINOOLE ST***	***ENE 1/8 - 1/4 (0.218 mi.)***	***B8***	***20***

Tank Status: Permanently Out of Use
Facility Id: 9-601694
Date Closed: 10/30/1990

CLOSED SHELL SERVICE	895 KINOOLE ST	ENE 1/8 - 1/4 (0.223 mi.)	B9	21

Tank Status: Permanently Out of Use
Facility Id: 9-600775

EXECUTIVE SUMMARY

State and tribal institutional control / engineering control registries

ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the ENG CONTROLS list, as provided by EDR, and dated 09/27/2018 has revealed that there is 1 ENG CONTROLS site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO ARSENIC	***33B LILIUOKALANI LN***	***NNE 1/4 - 1/2 (0.382 mi.)***	***E18***	***34***

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

A review of the INST CONTROL list, as provided by EDR, and dated 09/27/2018 has revealed that there are 3 INST CONTROL sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO QUALITY WASHERE	***210 HOKU ST***	***ENE 1/4 - 1/2 (0.255 mi.)***	***B13***	***27***
HATADA BAKERY (FORME	***55 KUKUAU ST***	***NNE 1/4 - 1/2 (0.344 mi.)***	***D15***	***30***
HILO ARSENIC	***33B LILIUOKALANI LN***	***NNE 1/4 - 1/2 (0.382 mi.)***	***E18***	***34***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: 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.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA NonGen / NLR site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MR. K'S RECYCLE AND EPA ID:: HIR000140368	815 KINOOLE ST	NE 1/8 - 1/4 (0.206 mi.)	A5	12

DRYCLEANERS: A listing of permitted drycleaner facilities in the state.

A review of the DRYCLEANERS list, as provided by EDR, and dated 12/31/2018 has revealed that there is 1 DRYCLEANERS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO QUALITY CLEANER Pernit Number: 0521-01-N	***865 KINOOLE ST***	***ENE 1/8 - 1/4 (0.218 mi.)***	***B7***	***15***

EXECUTIVE SUMMARY

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: 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.

A review of the EDR MGP list, as provided by EDR, has revealed that there is 1 EDR MGP site within approximately 1 mile of the target property.

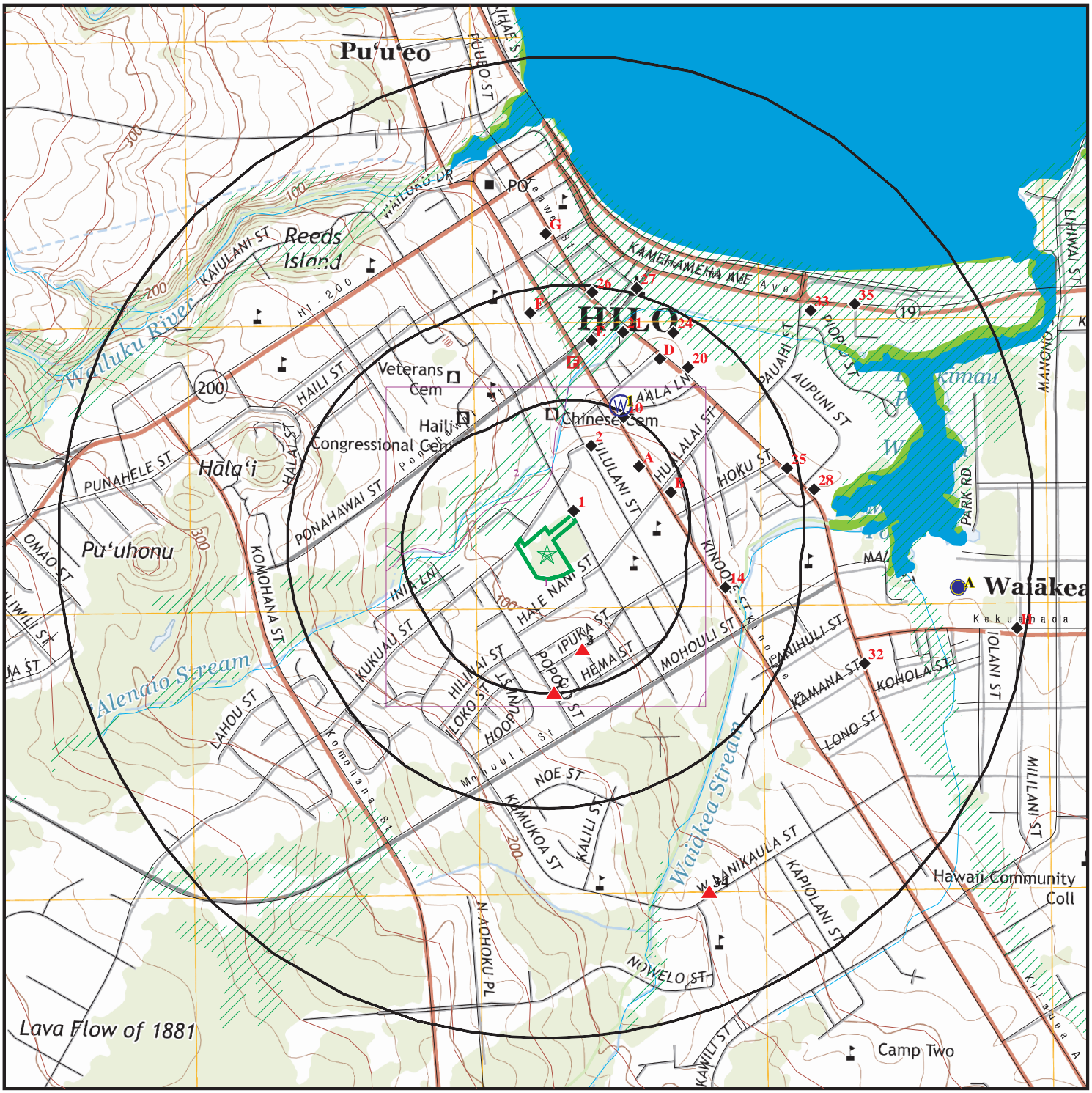
Lower Elevation	Address	Direction / Distance	Map ID	Page
HILO GAS COMPANY LTD	51-53 PONAHAWAI ST	NNE 1/2 - 1 (0.513 mi.)	27	44

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 9 records.

Site Name	Database(s)
HILO JUDICIARY CENTER PROJECT	SHWS, ENG CONTROLS, INST CONTROL
MAUNA KEA SUGAR - HILO SUGAR PESTI	SHWS
HAWAII COUNTY KAMEHAMEHA AVENUE IM	SHWS
WAIAKEA MILL COMPANY - CAMP 1	SHWS
ARSENIC MILILANI STREET IN HILO	SHWS, INST CONTROL, SPILLS
WAILOA RIVER STATE RECREATION AREA	SHWS
HELCO POLE-MOUNTED TRANSFORMER NO.	SHWS
KILAUEA VOLCANO AIR MONITORING	SEMS
HILO BAY FRONT SOCCER FIELD	SEMS-ARCHIVE

OVERVIEW MAP - 5554368.2S



- 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

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: A0705 Hilo Kaiaulu O Kapiolani	CLIENT: Environmental Risk Analysis. LLC
ADDRESS: Not Reported Hilo HI 96720	CONTACT: Maximiliano Ulloa
LAT/LONG: 19.71405 / 155.087087	INQUIRY #: 5554368.2s DATE: February 05, 2019 7:49 pm

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DETAIL MAP - 5554368.2S

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

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

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:	A0705 Hilo Kaiaulu O Kapiolani	CLIENT:	Environmental Risk Analysis. LLC
ADDRESS:	Not Reported Hilo HI 96720	CONTACT:	Maximiliano Ulloa
		INQUIRY #:	5554368.2s
LAT/LONG:	19.71405 / 155.087087	DATE:	February 05, 2019 7:50 pm

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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
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	1	NR	NR	1
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	1	NR	NR	NR	1
RCRA-CESQG	0.250		0	1	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
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
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000		0	3	5	11	NR	19
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	3	8	NR	NR	11
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
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		1	6	NR	NR	NR	7
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	1	NR	NR	1
INST CONTROL	0.500		0	0	3	NR	NR	3
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
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
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
SPILLS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	1	NR	NR	NR	1
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	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	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	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	0.001		0	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	1	NR	NR	NR	1
Financial Assurance	0.001		0	NR	NR	NR	NR	0
LEAD	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	1	NR	1
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	0.001		0	NR	NR	NR	NR	0
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	1	16	18	12	0	47

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

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 NNE < 1/8 0.009 mi. 47 ft. | **HAWAII COUNTY POLICE DEPARTMENT**
349 KAPIOLANI ST
HILO, HI 96720 | **UST**
Financial Assurance
UIC | **U001236879**
N/A

Relative: Lower

Actual: 85 ft.

UST:

Facility ID:	9-600458
Owner:	HAWAII COUNTY POLICE DEPT
Owner Address:	349 Kapiolani St.
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.715660
Longitude:	-155.085210
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	GPS

Tank ID:	1
Date Installed:	01/01/1994
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	8000
Substance:	Gasohol

Tank ID:	2
Date Installed:	01/01/1994
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	8000
Substance:	Gasohol

Tank ID:	R-A
Date Installed:	05/22/1975
Tank Status:	**Permanently Out of Use**
Date Closed:	12/01/1993
Tank Capacity:	5000
Substance:	Gasoline

Tank ID:	R-B
Date Installed:	05/22/1975
Tank Status:	**Permanently Out of Use**
Date Closed:	12/01/1993
Tank Capacity:	5000
Substance:	Gasoline

HI Financial Assurance:

Alt Facility ID:	9-600458
Tank Id:	R-B
Tank Status:	Permanently Out of Use
FRTYPE:	Other
Expiration Date:	12/31/2012

Alt Facility ID:	9-600458
Tank Id:	1
Tank Status:	Currently In Use
FRTYPE:	Other
Expiration Date:	12/31/2012

HAWAII COUNTY POLICE DEPARTMENT (Continued) **U001236879**

Alt Facility ID: 9-600458
Tank Id: R-A
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: 12/31/2012

Alt Facility ID: 9-600458
Tank Id: 2
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: 12/31/2012

Alt Facility ID: 9-600458
Tank Id: R-B
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: 12/31/2014

Alt Facility ID: 9-600458
Tank Id: 1
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: 12/31/2014

Alt Facility ID: 9-600458
Tank Id: 2
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: 12/31/2014

Alt Facility ID: 9-600458
Tank Id: R-A
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: 12/31/2014

UIC:
UIC Permit Number: UH-1545
Facility Id/Lat Long Minute Coordinates: 8-4305.07A
Central Latitude Of The Site: 19 43 08
Central Longitude Of The Site: 155 05 16
Flow In Gallons Per Day: Not reported
Total Number Of Inj. Well(S) On Permit: 1
Island: Hawaii
Location In Relation To UIC Line: Not reported
Facility Type: DW
Subclass: C
Facility Operator, Not Contract Opr: County of Hawaii - DPW
Operator Address: 25 Aupuni St., Hilo, HI 96720
Facility Owner: County of Hawaii
Owner Address: 25 Aupuni St., Hilo, HI 96720
Tax Map Key Number: 3:2-4-25:028
Owner Of Land Property On Leasehold: none
Consultant Serving The Application: County of Hawaii - DPW
Receipt Of Initial Application: 11/15/1988
Public Notice Date: Not reported
Approval-To-Construct Issuance Date: 11/1/1989

HAWAII COUNTY POLICE DEPARTMENT (Continued) **U001236879**

Exemption Issuance Date:	Not reported
1st Issuance Of Permit:	10/30/1989
Last Issuance Of Permit:	Not reported
Type:	Not reported
Permit Expiration Date:	10/30/1994
Date When File Is Closed:	Not reported
UIC Project Geologist:	CH
Remarks:	Not reported

2
NNE
1/8-1/4
0.156 mi.
822 ft.

HONOKAA FEDERAL CREDIT UNION **LUST** **U004276857**
379 ULULANI **UST** **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
65 ft.

LUST:

Facility ID:	9-603968
Facility Status:	Confirmed Release
Facility Status Date:	09/18/2017
Release ID:	180007
Project Officer:	Richard Takaba

UST:

Facility ID:	9-603968
Owner:	HFS Federal Credit Union
Owner Address:	379 Ululani St
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	Not reported
Longitude:	Not reported
Horizontal Reference Datum Name:	Not reported
Horizontal Collection Method Name:	Not reported
Tank ID:	1
Date Installed:	01/01/1920
Tank Status:	**Currently in Use**
Date Closed:	Not reported
Tank Capacity:	Not reported
Substance:	Not reported

3
SSE
1/8-1/4
0.167 mi.
880 ft.

LANAKILA HOMES PHASE 3B-4 **SHWS** **S117391475**
600 WAILOA ST **N/A**
HILO, HI 96720

Relative:
Higher

Actual:
107 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Lanakila Homes Phase 3B-4
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	John Peard
Hazard Priority:	Medium

LANAKILA HOMES PHASE 3B-4 (Continued) **S117391475**

Potential Hazards And Controls:	Hazard Present
Island:	Hawaii
SDAR Environmental Interest Name:	Lanakila Homes Phase 3B-4
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Present
Priority:	Medium
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: Metals and pesticides in soil.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	John Peard
Contact Information:	(808) 933-9921 Environmental Health Bldg, 1582 Kamehameha Ave, Hilo, HI 96720

A4 **RALPH'S 76 INC.** **UST** **U001237089**
NE **770 KINOOLE ST** **Financial Assurance** **N/A**
1/8-1/4 **HILO, HI 96720**
0.180 mi.
953 ft. **Site 1 of 3 in cluster A**

Relative:
Lower

Actual:
65 ft.

UST:

Facility ID:	9-601641
Owner:	RALPH'S 76 INC.
Owner Address:	770 KINOOLE ST
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	Not reported
Longitude:	Not reported
Horizontal Reference Datum Name:	Not reported
Horizontal Collection Method Name:	Not reported
Tank ID:	R-2
Date Installed:	05/05/1966
Tank Status:	**Permanently Out of Use**
Date Closed:	03/20/1998
Tank Capacity:	3000
Substance:	Gasoline
Tank ID:	R-3
Date Installed:	05/05/1966
Tank Status:	**Permanently Out of Use**
Date Closed:	03/20/1998
Tank Capacity:	3000
Substance:	Gasoline
Tank ID:	R-4

RALPH'S 76 INC. (Continued) **U001237089**

Date Installed:	05/05/1966
Tank Status:	**Permanently Out of Use**
Date Closed:	03/20/1998
Tank Capacity:	550
Substance:	Used Oil

Tank ID:	r-1
Date Installed:	05/05/1966
Tank Status:	**Permanently Out of Use**
Date Closed:	03/20/1998
Tank Capacity:	5000
Substance:	Gasoline

HI Financial Assurance:

Alt Facility ID:	9-601641
Tank Id:	R-3
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported

Alt Facility ID:	9-601641
Tank Id:	R-4
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported

Alt Facility ID:	9-601641
Tank Id:	r-1
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported

Alt Facility ID:	9-601641
Tank Id:	R-2
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	Not reported

A5 **MR. K'S RECYCLE AND REDEMPTION CENTER, INC.** **RCRA NonGen / NLR** **1014472039**
NE **815 KINOOLE ST** **HIR000140368**
1/8-1/4 **HILO, HI 96720**
0.206 mi.
1086 ft. **Site 2 of 3 in cluster A**

Relative:
Lower

Actual:
61 ft.

RCRA NonGen / NLR:

Date form received by agency:	07/07/2015
Facility name:	MR. K'S RECYCLE AND REDEMPTION CENTER, INC.
Facility address:	815 KINOOLE ST HILO, HI 96720
EPA ID:	HIR000140368
Contact:	ROY H KADOTA
Contact address:	815 KINOOLE ST HILO, HI 96720
Contact country:	US
Contact telephone:	808-895-4471
Contact email:	MRKSRECYCLE@HAWAII.RR.COM

MR. K'S RECYCLE AND REDEMPTION CENTER, INC. (Continued) **1014472039**

EPA Region:	09
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ROY H. KADOTA
Owner/operator address:	815 KINOOLE ST HILO, HI 96720
Owner/operator country:	US
Owner/operator telephone:	808-895-4471
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	05/04/2011
Owner/Op end date:	Not reported

Owner/operator name:	ROY H. KADOTA
Owner/operator address:	815 KINOOLE ST HILO, HI 96720
Owner/operator country:	US
Owner/operator telephone:	808-895-4471
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/04/2011
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Universal Waste Summary:

Waste type:	E
Accumulated waste on-site:	Yes
Generated waste on-site:	Not reported

Historical Generators:

MR. K'S RECYCLE AND REDEMPTION CENTER, INC. (Continued) **1014472039**

Date form received by agency: 05/04/2011
Site name: MR. K'S RECYCLE AND REDEMPTION CENTER, INC.
Classification: Not a generator, verified

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 05/08/2014
Date achieved compliance: 06/18/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/08/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 03/21/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 06/18/2014
Evaluation lead agency: State

A6 **HAWAII PETROLEUM DISTRIBUTION** **UST** **U001237072**
NE **815 KINOOLE ST** **N/A**
1/8-1/4 **HILO, HI 96720**
0.206 mi.
1086 ft. **Site 3 of 3 in cluster A**

Relative:
Lower
Actual:
61 ft.

UST:
Facility ID: 9-601622
Owner: TEXACO REFINING & MARKETING INC.
Owner Address: ENVIRONMENTAL SERVICES 800 SW FIRST AVE., SUITE 180
Owner City,St,Zip: Hilo, 96720 96720
Latitude: Not reported
Longitude: Not reported
Horizontal Reference Datum Name: Not reported
Horizontal Collection Method Name: Not reported

Tank ID: R-01
Date Installed: 07/07/1965
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: 550
Substance: Used Oil

Tank ID: R-02
Date Installed: 07/07/1965
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

HAWAII PETROLEUM DISTRIBUTION (Continued) **U001237072**

Tank ID:	R-03
Date Installed:	07/07/1965
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	4000
Substance:	Gasoline

Tank ID:	R-04
Date Installed:	07/07/1965
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	4000
Substance:	Gasoline

B7 **HILO QUALITY CLEANERS** **RCRA-CESQG** **1004688848**
ENE **865 KINOOLE ST** **SHWS** **HID982436487**
1/8-1/4 **HILO, HI 96720** **SPILLS**
0.218 mi. **FINDS**
1151 ft. **Site 1 of 4 in cluster B** **ECHO**
AIRS
Relative: **DRYCLEANERS**
Lower

Actual:
60 ft.

RCRA-CESQG:

Date form received by agency:	10/26/1990
Facility name:	HILO QUALITY CLEANERS
Facility address:	865 KINOOLE ST HILO, HI 96720
EPA ID:	HID982436487
Mailing address:	KINOOLE ST HILO, HI 96720
Contact:	RONALD JOHNSON
Contact address:	865 KINOOLE ST HILO, HI 96720
Contact country:	US
Contact telephone:	808-935-1620
Contact email:	Not reported
EPA Region:	09
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	HILO QUALITY CLEANERS
Owner/operator address:	NOT REQUIRED

HILO QUALITY CLEANERS (Continued) **1004688848**

	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Hilo Quality Cleaners
HID Number:	Not reported
Facility Registry Identifier:	110005726526
Lead Agency:	HEER
Program:	State
Project Manager:	Ross Kuge
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Island:	Hawaii
SDAR Environmental Interest Name:	Hilo Quality Cleaners

HILO QUALITY CLEANERS (Continued) **1004688848**

HID Number:	Not reported
Facility Registry Identifier:	110005726526
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Presumed: Unknown
Nature of Residual Contamination:	Unknown
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Historic NFA - Incomplete Documentation
Document Date:	07/17/1997
Document Number:	1997-250-RK
Document Subject:	Hazardous Waste Release Response Determination for Hilo Quality Cleaners, Facility at 865 Kinoole St, Hilo HI
Project Manager:	Ross Kuge
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19940111
HID Number:	Not reported
Facility Registry Id:	110005726526
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Cleaners oil impacted soils
Substances:	diesel #6 bunker
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Cleaners
Latitude:	19.669319999999999
Longitude:	-155.307075

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19940111
HID Number:	Not reported
Facility Registry Id:	110005726526
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Cleaners oil impacted soils
Substances:	diesel #6 bunker
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus

HILO QUALITY CLEANERS (Continued) **1004688848**

Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Cleaners
Latitude:	19.715910999999998
Longitude:	-155.082942

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19950111
HID Number:	Not reported
Facility Registry Id:	110005726526
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Cleaners tank removal
Substances:	Diesel #6 Bunker
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Cleaners
Latitude:	19.669319999999999
Longitude:	-155.307075

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19950111
HID Number:	Not reported
Facility Registry Id:	110005726526
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Cleaners tank removal
Substances:	Diesel #6 Bunker
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Cleaners
Latitude:	19.715910999999998
Longitude:	-155.082942

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19971018-1909
HID Number:	Not reported
Facility Registry Id:	110005726526
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Cleaners Diesel Spill
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	30

HILO QUALITY CLEANERS (Continued) **1004688848**

Units:	Gallons
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Hilo Quality Cleaners
Latitude:	19.715910999999998
Longitude:	-155.082942

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19971018-1909
HID Number:	Not reported
Facility Registry Id:	110005726526
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Cleaners Diesel Spill
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	30
Units:	Gallons
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Hilo Quality Cleaners
Latitude:	19.669319999999999
Longitude:	-155.307075

FINDS:

Registry ID: 110005726526

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004688848
Registry ID:	110005726526
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005726526

AIRS:

Facility Identifier:	0521-01-N
Island:	Hawaii
Mailing Address:	865 Kinoole Street

HILO QUALITY CLEANERS (Continued) **1004688848**

Locale:	Not reported
Mailing City:	Hilo
Contact Name:	Wayne Tajiri
Mailing State:	Hawaii
Mailing Zip:	96720
Contact Phone:	Engineer
Business Phone:	Not reported
Issue Date:	05/31/2013
Expiration Date:	05/30/2018
Closed Date:	Not reported
Description:	One (1) 150 hp Superior Boiler Works Boiler and One (1) 200 hp York-Shipley Boiler1. Attachment of this permit encompasses the following equipment and associated appurtenances:a.150 hp Superior Boiler Works Boiler, model no. S12-0-50-RM7840L-F7T-UL-CSD-1, serial no. 13537; andb.200 hp York-Shipley Boiler, series 564, serial no. 02-21314H-14833.

HI DRYCLEANERS:

Pernit Number:	0521-01-N
Island:	Hawaii
Issued Date:	05/31/2013
Phone Number:	Not reported
Responsible Official Name:	Wayne Tajiri
Responsible Official Title:	Engineer
Responsible Official Address:	865 Kinoole Street
Responsible Official City,St,Zip:	Hilo, HI 96720
Date Permit Expiration:	05/30/2018
Value:	Not reported
Last of Facility Description:	One (1) 150 hp Superior Boiler Works Boiler and One (1) 200 hp York-Shipley Boiler 1. Attachment of this permit encompasses the following equipment and associated appurtenances: a. 150 hp Superior Boiler Works Boiler, model no. S12-0-50-RM7840L-F7T-UL-CSD-1, serial no. 13537; and b. 200 hp York-Shipley Boiler, series 564, serial no. 02-21314H-14833.
Date Permit Closing:	Not reported

B8 **HILO QUALITY CLEANERS** **LUST** **1000473220**
ENE **865 KINOOLE ST** **UST** **N/A**
1/8-1/4 **HILO, HI 96720**
0.218 mi.
1151 ft. **Site 2 of 4 in cluster B**

Relative:
Lower

Actual:
60 ft.

LUST:

Facility ID:	9-601694
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	04/10/2002
Release ID:	900075
Project Officer:	Jose Ruiz

UST:

Facility ID:	9-601694
Owner:	HILO QUALITY CLEANERS, LTD
Owner Address:	865 KINOOLE ST
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.716066
Longitude:	-155.082942

HILO QUALITY CLEANERS (Continued) **1000473220**

Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: Address Matching

Tank ID: R-2
Date Installed: 10/23/1966
Tank Status: **Permanently Out of Use**
Date Closed: 10/30/1990
Tank Capacity: 1000
Substance: Other

Tank ID: R-3
Date Installed: 10/23/1966
Tank Status: **Permanently Out of Use**
Date Closed: 10/30/1990
Tank Capacity: 1000
Substance: Other

Tank ID: R-4
Date Installed: 10/24/1971
Tank Status: **Permanently Out of Use**
Date Closed: 10/30/1990
Tank Capacity: 6000
Substance: Other

B9 **CLOSED SHELL SERVICE STATION** **UST** **U001236982**
ENE **895 KINOOLE ST** **N/A**
1/8-1/4 **HILO, HI 96720**
0.223 mi.
1179 ft. **Site 3 of 4 in cluster B**

Relative:
Lower

Actual:
63 ft.

UST:
Facility ID: 9-600775
Owner: SHELL OIL COMPANY
Owner Address: 789 NIMITZ HWY
Owner City,St,Zip: Hilo, 96720 96720
Latitude: Not reported
Longitude: Not reported
Horizontal Reference Datum Name: Not reported
Horizontal Collection Method Name: Not reported

Tank ID: R-01
Date Installed: 04/18/1962
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: 3000
Substance: Gasoline

Tank ID: R-02
Date Installed: 04/18/1962
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

CLOSED SHELL SERVICE STATION (Continued) **U001236982**

Tank ID:	R-03
Date Installed:	04/18/1962
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	4000
Substance:	Gasoline

Tank ID:	R-04
Date Installed:	04/19/1971
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	6000
Substance:	Gasoline

Tank ID:	R-05
Date Installed:	04/18/1962
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	550
Substance:	Used Oil

10
NNE
1/8-1/4
0.241 mi.
1270 ft.

HILO MACARONI FACTORY **SHWS** **S106817724**
639 KINOOLE ST **SPILLS** **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
39 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Hilo Macaroni Factory
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Hilo Macaroni Factory
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Diesel
Nature of Residual Contamination:	Petroleum contaminated soil
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use

HILO MACARONI FACTORY (Continued) **S106817724**

Document Date:	04/22/2004
Document Number:	2004-178-MS
Document Subject:	Review of UST Closure Report, Former Hilo Macaroni Factory Ltd, Mar 2004
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	20030918-1149
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	1,000 gal diesel tank removal
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Unknown
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Hilo Macaroni Factory Ltd
Latitude:	19.669319999999999
Longitude:	-155.307075

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	20030918-1149
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	1,000 gal diesel tank removal
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Unknown
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	Not reported
Result:	SOSC NFA
File Under:	Hilo Macaroni Factory Ltd
Latitude:	19.718997000000002
Longitude:	-155.0849

C11 South 1/8-1/4 0.248 mi. 1308 ft. | **HALAI HILL RADIO STATION**
END OF ULILI ST, OFF HINA ST S HILO
HILO, HI 96720 | **LUST** **U003541909**
UST **N/A**
Financial Assurance

Site 1 of 2 in cluster C

Relative: Higher

Actual: 121 ft.

LUST:

Facility ID:	9-600561
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	08/23/1999
Release ID:	990152
Project Officer:	Jeffrey Ung

UST:

Facility ID:	9-600561
Owner:	Hawaiian Telcom
Owner Address:	1177 Bishop Street, Suite 20
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.709730
Longitude:	-155.086850
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	GPS

Tank ID:	M-2
Date Installed:	10/01/1998
Tank Status:	**Currently in Use**
Date Closed:	Not reported
Tank Capacity:	600
Substance:	Other

Tank ID:	R-1
Date Installed:	05/07/1982
Tank Status:	**Permanently Out of Use**
Date Closed:	10/26/1998
Tank Capacity:	280
Substance:	Gasoline

HI Financial Assurance:

Alt Facility ID:	9-600561
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Risk Retention Group
Expiration Date:	Not reported

Alt Facility ID:	9-600561
Tank Id:	M-2
Tank Status:	Currently in Use
FRTYPE:	Risk Retention Group
Expiration Date:	Not reported

Alt Facility ID:	9-600561
Tank Id:	M-2
Tank Status:	Currently in Use
FRTYPE:	Insurance
Expiration Date:	05/02/2010

Alt Facility ID:	9-600561

HALAI HILL RADIO STATION (Continued) **U003541909**

Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 05/02/2010

Alt Facility ID: 9-600561
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 05/02/2015

Alt Facility ID: 9-600561
Tank Id: M-2
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 05/02/2015

C12 South 1/8-1/4 0.248 mi. 1308 ft.

HAMAKUA SUGAR CO INC **RCRA-SQG** **1000147227**
1 SUGAR LANE **FINDS** **HID103901328**
PAAUILO, HI 96776 **ECHO**

Site 2 of 2 in cluster C

Relative: Higher
Actual: 121 ft.

RCRA-SQG:
Date form received by agency: 07/29/1993
Facility name: HAMAKUA SUGAR CO
Facility address: 1 SUGAR LANE
PAAUILO, HI 96776
EPA ID: HID103901328
Mailing address: P O BOX 250
PAAUILO, HI 96776
Contact: FRED GREEN
Contact address: 1 SUGAR LANE
PAAUILO, HI 96776
Contact country: US
Contact telephone: 808-776-1511
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: HAMAKUA SUGAR F MORGAN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported

HAMAKUA SUGAR CO INC (Continued) **1000147227**

Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: Yes
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110005723324

Environmental Interest/Information System
US EPA TRIS (Toxics Release Inventory System) contains information from facilities on the amounts of over 300 listed toxic chemicals that these facilities release directly to air, water, land, or that are transported off-site.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

HAMAKUA SUGAR CO INC (Continued) **1000147227**

ECHO:

Envid:	1000147227
Registry ID:	110005723324
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005723324

B13 **HILO QUALITY WASHERETTE** **SHWS** **1006820674**
ENE **210 HOKU ST** **INST CONTROL** **N/A**
1/4-1/2 **HILO, HI 96720** **SPILLS**
0.255 mi.
1346 ft. **Site 4 of 4 in cluster B**

Relative:
Lower

Actual:
58 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Hilo Quality Washerette
HID Number:	Not reported
Facility Registry Identifier:	110013786741
Lead Agency:	HEER
Program:	State
Project Manager:	Eric Sadoyama
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Managed With Controls
Island:	Hawaii
SDAR Environmental Interest Name:	Hilo Quality Washerette
HID Number:	Not reported
Facility Registry Identifier:	110013786741
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	Low
Assessment:	Response Necessary
Response:	Response Ongoing
Nature of Contamination:	Found: Diesel in soil
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Eric Sadoyama
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Hawaii
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported

HILO QUALITY WASHERETTE (Continued) **1006820674**

Case Number:	19960110-1425
HID Number:	Not reported
Facility Registry Id:	110013786741
Lead and Program:	HEER EP&R
ER:	No
Units:	Hilo Quality Washerette oil tank leaking diesel #2
Substances:	Diesel Fuel #2
Less Or Greater Than:	Not reported
Numerical Quantity:	200
Units:	Gallons
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Washerette
Latitude:	19.715371999999999
Longitude:	-155.08252999999999

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19960110-1425
HID Number:	Not reported
Facility Registry Id:	110013786741
Lead and Program:	HEER EP&R
ER:	No
Units:	Hilo Quality Washerette oil tank leaking diesel #2
Substances:	Diesel Fuel #2
Less Or Greater Than:	Not reported
Numerical Quantity:	200
Units:	Gallons
Activity Type:	Response
Activity Lead:	Not reported
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Washerette
Latitude:	19.669319999999999
Longitude:	-155.307075

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19960124-0225
HID Number:	Not reported
Facility Registry Id:	110013786741
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Washerette tank leaking diesel
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	200
Units:	Gallons
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Washerette
Latitude:	19.715371999999999
Longitude:	-155.08252999999999

HILO QUALITY WASHERETTE (Continued) **1006820674**

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19960124-0225
HID Number:	Not reported
Facility Registry Id:	110013786741
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Hilo Quality Washerette tank leaking diesel
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	200
Units:	Gallons
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Quality Washerette
Latitude:	19.669319999999999
Longitude:	-155.307075

14
East
1/4-1/2
0.336 mi.
1776 ft.

SUN SUN LAU CHOP SUEY HOUSE **SHWS** **S106820539**
1055 KINOOLE ST **SPILLS** **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
48 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Sun Sun Lau Chop Suey House (Report)
HID Number:	Not reported
Facility Registry Identifier:	110013778279
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Sun Sun Lau Chop Suey House (Report)
HID Number:	Not reported
Facility Registry Identifier:	110013778279
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Petroleum contaminated soil
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	04/28/2005
Document Number:	2005-223-MS
Document Subject:	NFA for diesel UST release

SUN SUN LAU CHOP SUEY HOUSE (Continued) **S106820539**

Project Manager: Mark Sutterfield
Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19951212-2
HID Number:	Not reported
Facility Registry Id:	110013778279
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Sun Sun Lau, Ltd.
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	150
Units:	Gallons
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Sun Sun Lau Chop Suey House
Latitude:	19.669319999999999
Longitude:	-155.307075

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19951212-2
HID Number:	Not reported
Facility Registry Id:	110013778279
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Sun Sun Lau, Ltd.
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	150
Units:	Gallons
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Sun Sun Lau Chop Suey House
Latitude:	19.712696999999999
Longitude:	-155.081073

D15 **HATADA BAKERY (FORMER)** **SHWS** **S106817321**
NNE **55 KUKUAU ST** **INST CONTROL** **N/A**
1/4-1/2 **HILO, HI 96720** **SPILLS**
0.344 mi.
1815 ft. **Site 1 of 2 in cluster D**

Relative:
Lower

Actual:
25 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Hatada Bakery, Former
HID Number:	Not reported
Facility Registry Identifier:	110013789258

HATADA BAKERY (FORMER) (Continued) **S106817321**

Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Managed With Controls
Island:	Hawaii
SDAR Environmental Interest Name:	Hatada Bakery, Former
HID Number:	Not reported
Facility Registry Identifier:	110013789258
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	Low
Assessment:	Response Necessary
Response:	Response Ongoing
Nature of Contamination:	Found: Soil- TPH-D, acenaphthene, fluoranthene, benzo[a]pyrene. water-sheen and petroleum odor, benzene, acenaphthene, naphthalene, benzo[a]pyrene
Nature of Residual Contamination:	TPH-D, acenaphthene, floranthene, naphthalene and possibly benzo[a]pyrene in soil and possibly groundwater
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Based on the site's tight working conditions, further site investigation is limited until demolition of the building or redevelopment of the property. Must resample when site is redeveloped.
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Hawaii
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19990108-1422
HID Number:	Not reported
Facility Registry Id:	110013789258
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Heating Oil Tank, Hatada Bakery
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported

HATADA BAKERY (FORMER) (Continued) **S106817321**

Result:	Refer to ISST
File Under:	Hatada Bakery
Latitude:	19.719821
Longitude:	-155.08401499999999
Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19990108-1422
HID Number:	Not reported
Facility Registry Id:	110013789258
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Heating Oil Tank, Hatada Bakery
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Terry Corpus
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hatada Bakery
Latitude:	19.669319999999999
Longitude:	-155.307075

E16 **HAWAII COUNTY CENTRAL FIRE STATION** **LUST** **U001237003**
North **466 KINOOLE ST** **UST** **N/A**
1/4-1/2 **HILO, HI 96720**
0.347 mi.
1833 ft. **Site 1 of 3 in cluster E**

Relative:
Lower

Actual:
18 ft.

LUST:

Facility ID:	9-601085
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	02/25/1997
Release ID:	950010
Project Officer:	Janet Sherrer

UST:

Facility ID:	9-601085
Owner:	COUNTY OF HAWAII - FIRE DEPT
Owner Address:	466 KINOOLE ST
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.720304
Longitude:	-155.086072
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Address Matching
Tank ID:	R-1
Date Installed:	05/13/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	10/17/1997
Tank Capacity:	2000
Substance:	Gasoline
Tank ID:	R-2

HAWAII COUNTY CENTRAL FIRE STATION (Continued) **U001237003**

Date Installed:	05/13/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	10/17/1994
Tank Capacity:	2000
Substance:	Diesel

Tank ID:	R-3
Date Installed:	01/01/1939
Tank Status:	**Permanently Out of Use**
Date Closed:	04/08/1992
Tank Capacity:	1000
Substance:	Diesel

E17 **HILO ARSENIC SPILL SITE** **SEMS-ARCHIVE** **1001032389**
NNE **33B LILIUOKALANI LANE** **HI0001290816**
1/4-1/2 **HILO, HI 96720**
0.382 mi.
2016 ft. **Site 2 of 3 in cluster E**

Relative:
Lower

Actual:
13 ft.

SEMS Archive:

Site ID:	0905305
EPA ID:	HI0001290816
Cong District:	02
FIPS Code:	15001
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information
Latitude:	19.725
Longitude:	-155.090000

SEMS Archive Detail:

Region:	09
Site ID:	0905305
EPA ID:	HI0001290816
Site Name:	HILO ARSENIC SPILL SITE
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	2013-11-08 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

Region:	09
Site ID:	0905305
EPA ID:	HI0001290816
Site Name:	HILO ARSENIC SPILL SITE
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1995-10-27 04:00:00

HILO ARSENIC SPILL SITE (Continued) **1001032389**

Finish Date:	1995-10-27 04:00:00
Qual:	Not reported
Current Action Lead:	St Perf
Region:	09
Site ID:	0905305
EPA ID:	HI0001290816
Site Name:	HILO ARSENIC SPILL SITE
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	Not reported
Finish Date:	2007-05-18 04:00:00
Qual:	N
Current Action Lead:	St Perf

E18
NNE
1/4-1/2
0.382 mi.
2016 ft.

HILO ARSENIC **SHWS** **S108008859**
33B LILIUOKALANI LN **ENG CONTROLS** **N/A**
HILO, HI 96720 **INST CONTROL**
SPILLS

Site 3 of 3 in cluster E

Relative:
Lower

Actual:
13 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Hilo Arsenic Spill Site
HID Number:	HI0001290816
Facility Registry Identifier:	110009278824
Lead Agency:	EPA
Program:	Preliminary Assessment/Site Inspection
Project Manager:	Laura Young
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Island:	Hawaii
SDAR Environmental Interest Name:	Hilo Arsenic Spill Site
HID Number:	HI0001290816
Facility Registry Identifier:	110009278824
Lead Agency:	EPA
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Arsenic in soil. Contaminated soil bound in concrete slab on site.
Nature of Residual Contamination:	Arsenic in soil. First 12-18 inches bound in concrete.
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Engineering Control Required
Description of Restrictions:	Prohibit Any Activity That May Disturb the Integrity of the Capping System
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Historic NFA - Restricted Use
Document Date:	09/04/1997

HILO ARSENIC (Continued) **S108008859**

Document Number: 1997-326-LY
Document Subject: NFA letter for Hilo Arsenic Site
Project Manager: Laura Young
Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

ENG CONTROLS:
Supplemental Location Text: Not reported
Zip Suffix: Not reported
Island: Hawaii
Potential Hazards And Controls: Hazard Managed With Controls
Engineering Control: Engineering Control Required

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Not reported
Zip Suffix: Not reported
Island: Hawaii
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

HI SPILLS:
Island: Hawaii
Supplemental Loc. Text: Not reported
Case Number: 19950509
HID Number: HI0001290816
Facility Registry Id: 110009278824
Lead and Program: HEER EP&R
ER: Yes
Units: Hilo Arsenic
Substances: Sodium Arsenate, lead and cadmium
Less Or Greater Than: Not reported
Numerical Quantity: 30
Units: Gallons
Activity Type: Response
Activity Lead: Mike Cripps
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Hilo Arsenic
Latitude: 19.719481999999999
Longitude: -155.08469199999999

Island: Hawaii
Supplemental Loc. Text: Not reported
Case Number: 19950509
HID Number: HI0001290816
Facility Registry Id: 110009278824
Lead and Program: HEER EP&R
ER: Yes
Units: Hilo Arsenic
Substances: Sodium Arsenate, lead and cadmium
Less Or Greater Than: Not reported
Numerical Quantity: 30
Units: Gallons
Activity Type: Response
Activity Lead: Mike Cripps
Assignment End Date: Not reported
Result: Refer to ISST

HILO ARSENIC (Continued) **S108008859**

File Under:	Hilo Arsenic
Latitude:	19.720400000000001
Longitude:	-155.08506
Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19950509
HID Number:	HI0001290816
Facility Registry Id:	110009278824
Lead and Program:	HEER EP&R
ER:	Yes
Units:	Hilo Arsenic
Substances:	Sodium Arsenate, lead and cadmium
Less Or Greater Than:	Not reported
Numerical Quantity:	30
Units:	Gallons
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Arsenic
Latitude:	19.669319999999999
Longitude:	-155.307075

D19 **WONG'S 76 UNION L-3865** **LUST** **U001236858**
NNE **376 KILAUEA AVE** **UST** **N/A**
1/4-1/2 **HILO, HI 96720** **Financial Assurance**
0.390 mi.
2058 ft. **Site 2 of 2 in cluster D**

Relative:
Lower

Actual:
24 ft.

LUST:

Facility ID:	9-600010
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	12/04/2002
Release ID:	020021
Project Officer:	Richard Takaba

UST:

Facility ID:	9-600010
Owner:	Tosco Marketing Company
Owner Address:	P. O. Box 25376
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.720137
Longitude:	-155.083509
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	GPS
Tank ID:	R-3865-1
Date Installed:	04/15/1985
Tank Status:	**Permanently Out of Use**
Date Closed:	12/10/2001
Tank Capacity:	12000
Substance:	Gasoline
Tank ID:	R-3865-2
Date Installed:	04/15/1985

WONG'S 76 UNION L-3865 (Continued) **U001236858**

Tank Status:	**Permanently Out of Use**
Date Closed:	12/10/2001
Tank Capacity:	12000
Substance:	Gasoline

Tank ID:	R-3865-3
Date Installed:	04/15/1985
Tank Status:	**Permanently Out of Use**
Date Closed:	12/10/2001
Tank Capacity:	6000
Substance:	Diesel

Tank ID:	R-3865-4
Date Installed:	04/15/1985
Tank Status:	**Permanently Out of Use**
Date Closed:	12/10/2001
Tank Capacity:	550
Substance:	Used Oil

HI Financial Assurance:

Alt Facility ID:	9-600010
Tank Id:	R-3865-1
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600010
Tank Id:	R-3865-4
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600010
Tank Id:	R-3865-2
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600010
Tank Id:	R-3865-3
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

---

20 NE 1/4-1/2 0.409 mi. 2158 ft. | **GOODYEAR TIRE & RUBBER CO**
475 KILAUEA AVE
HILO, HI 96720 | **LUST** **U001237066**
UST **N/A**

Relative: Lower
Actual: 15 ft.

LUST:

Facility ID:	9-601615
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	02/25/1994
Release ID:	930089

GOODYEAR TIRE & RUBBER CO (Continued) **U001237066**

Project Officer: Jose Ruiz

UST:

Facility ID:	9-601615
Owner:	GOODYEAR TIRE & RUBBER CO.
Owner Address:	Not reported
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.719618
Longitude:	-155.082039
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Address Matching
Tank ID:	R-1
Date Installed:	01/01/1972
Tank Status:	**Permanently Out of Use**
Date Closed:	05/04/1993
Tank Capacity:	550
Substance:	Used Oil

---

21 NNE 1/4-1/2 0.413 mi. 2181 ft. | **THE MODERN CLEANERS 266 KILAUEA AVE HILO, HI 96720** | **LUST UST** | **U003762161 N/A**

Relative: Lower

Actual: 12 ft.

LUST:

Facility ID:	9-603658
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	05/14/2001
Release ID:	010026
Project Officer:	Shumin Liu

UST:

Facility ID:	9-603658
Owner:	THE MODERN CLEANERS
Owner Address:	266 KILAUEA AVE
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.721187
Longitude:	-155.084512
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Address Matching
Tank ID:	R-A
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	11/04/2000
Tank Capacity:	250
Substance:	Diesel
Tank ID:	R-B
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	11/04/2000
Tank Capacity:	300
Substance:	Hazardous Substance

THE MODERN CLEANERS (Continued) **U003762161**

Tank ID:	R-C
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	11/04/2000
Tank Capacity:	300
Substance:	Diesel

Tank ID:	R-D
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	11/04/2000
Tank Capacity:	550
Substance:	Diesel

Tank ID:	R-E
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	11/04/2000
Tank Capacity:	550
Substance:	Diesel

F22 **ROBERTS BAKERY, BOILER UST REMOVAL** **SHWS** **S104657505**
North **374 KINOOLE ST** **SPILLS** **N/A**
1/4-1/2 **HILO, HI 96720**
0.423 mi.
2235 ft. **Site 1 of 2 in cluster F**

Relative:
Lower

Actual:
20 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Roberts Bakery Inc. Boiler UST Removal
HID Number:	Not reported
Facility Registry Identifier:	110013778689
Lead Agency:	HEER
Program:	State
Project Manager:	Unassigned
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Undetermined
Island:	Hawaii
SDAR Environmental Interest Name:	Roberts Bakery Inc. Boiler UST Removal
HID Number:	Not reported
Facility Registry Identifier:	110013778689
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Undetermined
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Historic NFA - Incomplete Documentation

ROBERTS BAKERY, BOILER UST REMOVAL (Continued) **S104657505**

Document Date:	12/26/1996
Document Number:	Not reported
Document Subject:	Site Screening Sheet for Robert's Bakery
Project Manager:	Unassigned
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19950629
HID Number:	Not reported
Facility Registry Id:	110013778689
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Roberts Bakery Inc.
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Title Holding Co.
Latitude:	19.669319999999999
Longitude:	-155.307075

F23 **I. YAMADA FURNITURE STORE, LTD.** **LUST** **U003155217**
North **340 KINOOLE ST** **UST** **N/A**
1/4-1/2 **HILO, HI 96720**
0.448 mi.
2367 ft. **Site 2 of 2 in cluster F**

Relative:
Lower

Actual:
34 ft.

LUST:

Facility ID:	9-601371
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	07/31/1997
Release ID:	920067
Project Officer:	Lene Ichinotsubo

UST:

Facility ID:	9-601371
Owner:	YAMADA FURNITURE
Owner Address:	340 KINOOLE St
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.721771
Longitude:	-155.087504
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Address Matching
Tank ID:	R-1
Date Installed:	05/07/1979
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	1000
Substance:	Gasoline

I. YAMADA FURNITURE STORE, LTD. (Continued) **U003155217**

Tank ID:	R-2
Date Installed:	05/06/1978
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	1000
Substance:	Gasoline

Tank ID:	R-3
Date Installed:	05/06/1978
Tank Status:	**Permanently Out of Use**
Date Closed:	Not reported
Tank Capacity:	500
Substance:	Gasoline

24
NNE
1/4-1/2
0.454 mi.
2397 ft.

ALENAIO STREAM FLOOD CONTROL PROJECT **LUST** **U004155574**
ALENAIO STREAM FLOOD CONTROL PROJECT **UST** **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
14 ft.

LUST:

Facility ID:	9-603532
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	06/25/1999
Release ID:	990206
Project Officer:	Renato Maniulit

UST:

Facility ID:	9-603532
Owner:	UNDETERMINED AT THIS TIME
Owner Address:	Address Unknown
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.721124
Longitude:	-155.082862
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Address Matching

Tank ID:	R-1
Date Installed:	Not reported
Tank Status:	**Permanently Out of Use**
Date Closed:	12/27/1996
Tank Capacity:	550
Substance:	Diesel

25
ENE
1/4-1/2
0.476 mi.
2511 ft.

J C PENNEY CO., INC. **LUST** **U003155159**
777 KILAUEA AVE **UST** **N/A**
HILO, HI 96720 **Financial Assurance**

Relative:
Lower

Actual:
25 ft.

LUST:

Facility ID:	9-600456
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	11/23/1993
Release ID:	900118

J C PENNEY CO., INC. (Continued) **U003155159**

Project Officer: Deena Kam

Facility ID: 9-600456
Facility Status: Site Cleanup Completed with EHE
Facility Status Date: 12/30/2011
Release ID: 050022
Project Officer: Deena Kam

UST:

Facility ID:	9-600456
Owner:	J.C. PENNEY
Owner Address:	P.O. BOX 10001
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.716536
Longitude:	-155.078921
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	Address Matching

Tank ID:	R-1
Date Installed:	03/30/1974
Tank Status:	**Permanently Out of Use**
Date Closed:	03/10/1992
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	R-2
Date Installed:	03/30/1974
Tank Status:	**Permanently Out of Use**
Date Closed:	03/10/1992
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	R-3
Date Installed:	03/26/1974
Tank Status:	**Permanently Out of Use**
Date Closed:	03/10/1992
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	R-4
Date Installed:	03/26/1974
Tank Status:	**Permanently Out of Use**
Date Closed:	03/11/1992
Tank Capacity:	500
Substance:	Used Oil

Tank ID:	r-5
Date Installed:	Not reported
Tank Status:	**Permanently out of Use**
Date Closed:	05/01/2005
Tank Capacity:	500
Substance:	Diesel

J C PENNEY CO., INC. (Continued) **U003155159**

HI Financial Assurance:

Alt Facility ID:	9-600456
Tank Id:	r-5
Tank Status:	Permanently out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600456
Tank Id:	R-4
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600456
Tank Id:	R-3
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600456
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-600456
Tank Id:	R-2
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

26
North
1/4-1/2
0.487 mi.
2569 ft.

STANLEY I. HARA **LUST** **U003402995**
EAST OF KILAUEA AVE AND MAMO ST TMK 2-3-09:09 **UST** **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
14 ft.

LUST:

Facility ID:	9-603459
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	07/20/1999
Release ID:	990085
Project Officer:	Jeffrey Ung

UST:

Facility ID:	9-603459
Owner:	STANLEY I. HARA
Owner Address:	203 KILAUEA AVE
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.722405
Longitude:	-155.085572
Horizontal Reference Datum Name:	Not reported
Horizontal Collection Method Name:	Not reported

Tank ID:	R-1
Date Installed:	01/01/1941
Tank Status:	**Permanently Out of Use**

STANLEY I. HARA (Continued) **U003402995**

Date Closed:	11/10/1998
Tank Capacity:	1000
Substance:	Gasoline

Tank ID:	R-2
Date Installed:	01/01/1940
Tank Status:	**Permanently Out of Use**
Date Closed:	11/10/1998
Tank Capacity:	1000
Substance:	Gasoline

Tank ID:	R-3
Date Installed:	01/01/1938
Tank Status:	**Permanently Out of Use**
Date Closed:	11/11/1998
Tank Capacity:	550
Substance:	Gasoline

Tank ID:	R-4
Date Installed:	01/01/1938
Tank Status:	**Permanently Out of Use**
Date Closed:	11/11/1998
Tank Capacity:	550
Substance:	Gasoline

27
NNE
1/2-1
0.513 mi.
2707 ft.

HILO GAS COMPANY LTD **EDR MGP** **1008409004**
51-53 PONAHAWAI ST **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
11 ft.

Manufactured Gas Plants:
No additional information available

28
ENE
1/2-1
0.525 mi.
2773 ft.

LARRY'S CHEVRON **SHWS** **U001237010**
835 KILAUEA AVE **LUST** **N/A**
HILO, HI 96720 **UST**
Financial Assurance

Relative:
Lower

Actual:
19 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Larry's Kaikoo Chevron
HID Number:	Not reported
Facility Registry Identifier:	110013772471
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA

LARRY'S CHEVRON (Continued) **U001237010**

Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Larry's Kaikoo Chevron
HID Number:	Not reported
Facility Registry Identifier:	110013772471
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Petroleum contaminated soil
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	06/30/2004
Document Number:	2004-252-MS
Document Subject:	NFA letter for Larry's Kilauea Chevron
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

LUST:

Facility ID:	9-601136
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	09/07/2004
Release ID:	030044
Project Officer:	Richard Takaba

UST:

Facility ID:	9-601136
Owner:	CHEVRON PRODUCTS COMPANY
Owner Address:	91-480 MALAKOLE ST.
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.716121
Longitude:	-155.078374
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	GPS
Tank ID:	R-1
Date Installed:	07/17/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	08/20/2003
Tank Capacity:	10000
Substance:	Gasoline
Tank ID:	R-2
Date Installed:	07/17/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	08/20/2003
Tank Capacity:	10000
Substance:	Gasoline

LARRY'S CHEVRON (Continued) **U001237010**

Tank ID:	R-3
Date Installed:	07/17/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	08/20/2003
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	R-4
Date Installed:	07/17/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	08/20/2003
Tank Capacity:	1000
Substance:	Used Oil

HI Financial Assurance:

Alt Facility ID:	9-601136
Tank Id:	R-4
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-601136
Tank Id:	R-3
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-601136
Tank Id:	R-2
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

Alt Facility ID:	9-601136
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Self Insured
Expiration Date:	Not reported

G29 **WESTERN AUTO HYDRAULIC OIL** **SHWS** **S106821132**
North **141 HAILI ST** **LUST** **N/A**
1/2-1 **HILO, HI 96720** **INST CONTROL**
0.573 mi. **SPILLS**
3025 ft. **Site 1 of 3 in cluster G**

Relative:
Lower

Actual:
32 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Western Auto Store Petroleum Release
HID Number:	Not reported
Facility Registry Identifier:	110005725581
Lead Agency:	HEER
Program:	State
Project Manager:	Clarence Callahan
Hazard Priority:	NFA

WESTERN AUTO HYDRAULIC OIL (Continued) **S106821132**

Potential Hazards And Controls:	Hazard Managed With Controls
Island:	Hawaii
SDAR Environmental Interest Name:	Western Auto Store Petroleum Release
HID Number:	Not reported
Facility Registry Identifier:	110005725581
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	06/20/2008
Document Number:	2008-415-CAC
Document Subject:	No Further Action
Project Manager:	Clarence Callahan
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

LUST:

Facility ID:	9-603900
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	08/02/2010
Release ID:	100022
Project Officer:	Richard Takaba

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Not reported
Zip Suffix:	Not reported
Island:	Hawaii
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	20000808-1222
HID Number:	Not reported
Facility Registry Id:	110005725581
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Western Auto Hydraulic oil
Substances:	Hydraulic Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	10
Units:	Gallons
Activity Type:	Response
Activity Lead:	Curtis Martin
Assignment End Date:	2017-01-31 00:00:00
Result:	Closed Incomplete Documentation
File Under:	Western Auto

WESTERN AUTO HYDRAULIC OIL (Continued) **S106821132**

Latitude:	19.723680999999999
Longitude:	-155.087279
Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	20000808-1222
HID Number:	Not reported
Facility Registry Id:	110005725581
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Western Auto Hydraulic oil
Substances:	Hydraulic Oil
Less Or Greater Than:	Not reported
Numerical Quantity:	10
Units:	Gallons
Activity Type:	Response
Activity Lead:	Curtis Martin
Assignment End Date:	2017-01-31 00:00:00
Result:	Closed Incomplete Documentation
File Under:	Western Auto
Latitude:	19.669319999999999
Longitude:	-155.307075

G30 **DOWNTOWN CHEVRON** **SHWS** **1000601381**
North **192 KINOOLE ST** **LUST** **N/A**
1/2-1 **HILO, HI 96720** **UST**
0.591 mi. **SPILLS**
3121 ft. **Site 2 of 3 in cluster G** **Financial Assurance**

Relative:
Lower

Actual:
44 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Duke's Downtown Chevron
HID Number:	Not reported
Facility Registry Identifier:	110005726679
Lead Agency:	HEER
Program:	State
Project Manager:	Anna Fernandez
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Duke's Downtown Chevron
HID Number:	Not reported
Facility Registry Identifier:	110005726679
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Petroleum and hydraulic fluid in soil.
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use

DOWNTOWN CHEVRON (Continued) **1000601381**

Document Date: 03/30/2006
Document Number: 2006-193-AF
Document Subject: NFA for Release ID 20040511-1411
Project Manager: Anna Fernandez
Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

LUST:

Facility ID: 9-601223
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 05/03/2006
Release ID: 040042
Project Officer: Josh Nagashima

Facility ID: 9-601223
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 12/05/2008
Release ID: 050032
Project Officer: Josh Nagashima

Facility ID: 9-601223
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 12/15/1998
Release ID: 980089
Project Officer: Josh Nagashima

UST:

Facility ID: 9-601223
Owner: K&V Properties LLC
Owner Address: 192 Kinoole St
Owner City,St,Zip: Hilo, 96720 96720
Latitude: 19.723570
Longitude: -155.088170
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: GPS

Tank ID: 87
Date Installed: 07/19/1983
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: 89
Date Installed: 07/19/1983
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: 92
Date Installed: 07/19/1983
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 10000

DOWNTOWN CHEVRON (Continued) **1000601381**

Substance: Gasohol

Tank ID: R-4
Date Installed: 07/19/1983
Tank Status: Permanently Out of Use
Date Closed: 05/04/2005
Tank Capacity: 1000
Substance: Used Oil

HI SPILLS:
Island: Hawaii
Supplemental Loc. Text: Not reported
Case Number: 20040511-1411
HID Number: Not reported
Facility Registry Id: 110005726679
Lead and Program: HEER EP&R
ER: Not reported
Units: Baseline, found unidentified diesel and oil
Substances: Diesel Fuel
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Curtis Martin
Assignment End Date: 2004-06-14 00:00:00
Result: SOSC NFA
File Under: Chevron Products Company
Latitude: 19.723378
Longitude: -155.08830399999999

Island: Hawaii
Supplemental Loc. Text: Not reported
Case Number: 20040511-1411
HID Number: Not reported
Facility Registry Id: 110005726679
Lead and Program: HEER EP&R
ER: Not reported
Units: Baseline, found unidentified diesel and oil
Substances: Diesel Fuel
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Curtis Martin
Assignment End Date: 2004-06-14 00:00:00
Result: SOSC NFA
File Under: Chevron Products Company
Latitude: 19.669319999999999
Longitude: -155.307075

HI Financial Assurance:
Alt Facility ID: 9-601223
Tank Id: 92
Tank Status: Currently in Use
FRTYPE: Insurance

DOWNTOWN CHEVRON (Continued) **1000601381**

Expiration Date: 02/01/2010

Alt Facility ID: 9-601223
Tank Id: 87
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 02/01/2010

Alt Facility ID: 9-601223
Tank Id: 89
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 02/01/2010

Alt Facility ID: 9-601223
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 02/01/2010

Alt Facility ID: 9-601223
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 02/01/2015

Alt Facility ID: 9-601223
Tank Id: 89
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 02/01/2015

Alt Facility ID: 9-601223
Tank Id: 87
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 02/01/2015

Alt Facility ID: 9-601223
Tank Id: 92
Tank Status: Currently in Use
FRTYPE: Insurance
Expiration Date: 02/01/2015

G31 **KEAWE 76 SERVICE STATION NO. 202** **SHWS** **S115488707**
North **210 KEAWE ST** **SPILLS** **N/A**
1/2-1 **HILO, HI 96720**
0.614 mi.
3243 ft. **Site 3 of 3 in cluster G**

Relative:
Lower

Actual:
24 ft.

SHWS:
Organization: Not reported
Supplemental Location: Not reported
Island: Hawaii
Environmental Interest: Keawe 76 Service Station No. 202
HID Number: Not reported
Facility Registry Identifier: Not reported
Lead Agency: HEER and SHWB

KEAWE 76 SERVICE STATION NO. 202 (Continued) **S115488707**

Program:	State
Project Manager:	Cal Miyahara
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Keawe 76 Service Station No. 202
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER and SHWB
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: TPH-O found in soil beneath both hydraulic hoists.
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	08/21/2013
Document Number:	2013-432-CMM
Document Subject:	NFA letter for the Hydraulic Hoist Closure and Closure Assessment Keawe 76 Service Station 210 Keawe St Hilo, Hawaii 96720 Mid Pac Petroleum Station No. 202, TMK 3-2-3-006-009
Project Manager:	Cal Miyahara
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	From 76 Station Service Bay
Case Number:	20130613-1200
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	None
Units:	Hydraulic Oil Contaminated Soil in Hilo
Substances:	Hydrolic Oil
Less Or Greater Than:	<
Numerical Quantity:	25
Units:	Gallons
Activity Type:	Response
Activity Lead:	Adam Teekell
Assignment End Date:	2013-06-17 00:00:00
Result:	SOSC NFA
File Under:	Mid Pac Petroleum
Latitude:	Not reported
Longitude:	Not reported

32 ESE 1/2-1 0.669 mi. 3533 ft. | **HILO SHOPPING CENTER**
1255 KILAUEA AVE
HILO, HI 96720 | **SHWS** | **S106817730**
SPILLS | **N/A**

Relative: Lower

Actual: 35 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Hilo Shopping Center
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Hilo Shopping Center
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Diesel in soil
Nature of Residual Contamination:	Petroleum contaminated soil
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	10/03/2005
Document Number:	2005-508-MS
Document Subject:	NFA for 550-gallon diesel UST
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	20040510-1040
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	No
Units:	Hilo Shopping Center non-regulated UST release
Substances:	Diesel Fuel
Less Or Greater Than:	<
Numerical Quantity:	25
Units:	Gallons
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Shopping Center

HILO SHOPPING CENTER (Continued) **S106817730**

Latitude:	19.710069000000001
Longitude:	-155.07633899999999
Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	20040510-1040
HID Number:	Not reported
Facility Registry Id:	Not reported
Lead and Program:	HEER EP&R
ER:	No
Units:	Hilo Shopping Center non-regulated UST release
Substances:	Diesel Fuel
Less Or Greater Than:	<
Numerical Quantity:	25
Units:	Gallons
Activity Type:	Response
Activity Lead:	Liz Galvez
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Hilo Shopping Center
Latitude:	19.669319999999999
Longitude:	-155.307075

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33 **KHI INC. DBA BAYSIDE CHEVRON** **SHWS** **U001237007**
NE **774 KAMEHAMEHA AVE** **LUST** **N/A**
1/2-1 **HILO, HI 96720** **UST**
0.684 mi. **INST CONTROL**
3611 ft. **SPILLS**
Financial Assurance

Relative:
Lower

Actual:
4 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Kamehameha and Pauahi Street, SE corner
Island:	Hawaii
Environmental Interest:	Bayside Chevron Service
HID Number:	Not reported
Facility Registry Identifier:	110013783646
Lead Agency:	HEER
Program:	State
Project Manager:	Anna Fernandez
Hazard Priority:	NFA
Potential Hazards And Controls:	Hazard Managed With Controls
Island:	Hawaii
SDAR Environmental Interest Name:	Bayside Chevron Service
HID Number:	Not reported
Facility Registry Identifier:	110013783646
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Managed With Controls
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: TPH-O of 0.736 mg/l in groundwater in MW-3
Nature of Residual Contamination:	Subsurface soil with TPH-G, UH-d, UH-o and total xylene concentrations exceeding HDOH EALs remains on site 3 feet below the station building.
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	A soil management plan is required.
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

KHI INC. DBA BAYSIDE CHEVRON (Continued) **U001237007**

Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Restricted Use
Document Date:	04/27/2007
Document Number:	2007-269-AF
Document Subject:	No Further Action with Institutional Controls Determination
Project Manager:	Anna Fernandez
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

LUST:

Facility ID:	9-601133
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	02/01/1999
Release ID:	970106
Project Officer:	Richard Takaba

Facility ID:	9-601133
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	04/20/2004
Release ID:	040017
Project Officer:	Richard Takaba

UST:

Facility ID:	9-601133
Owner:	KHI dba Bayside Chevron
Owner Address:	774 Kamehameha Ave
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.721900
Longitude:	-155.078450
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	GPS

Tank ID:	1
Date Installed:	08/21/1983
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	10000
Substance:	Gasoline

Tank ID:	2
Date Installed:	08/21/1983
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	10000
Substance:	Gasohol

Tank ID:	3
Date Installed:	08/21/1983
Tank Status:	**Currently In Use**
Date Closed:	Not reported
Tank Capacity:	10000
Substance:	Gasohol

Tank ID:	R-005

KHI INC. DBA BAYSIDE CHEVRON (Continued) **U001237007**

Date Installed:	08/20/1969
Tank Status:	**Permanently Out of Use**
Date Closed:	09/01/1983
Tank Capacity:	1000
Substance:	Used Oil

Tank ID:	R-4
Date Installed:	08/21/1983
Tank Status:	**Permanently Out of Use**
Date Closed:	04/03/1997
Tank Capacity:	1000
Substance:	Used Oil

INST CONTROL:

Potential hazards and controls:	Hazard Managed With Controls
Supplemental Location:	Kamehameha and Pauahi Street, SE corner
Zip Suffix:	Not reported
Island:	Hawaii
Institutional Control:	Government - Hawaii Dept. of Health Letter Issued

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Kamehameha and Pauahi Street, SE corner
Case Number:	20040629-1542
HID Number:	Not reported
Facility Registry Id:	110013783646
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Bayside Chevron Contaminated Soil
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Mike Cripps
Assignment End Date:	2005-08-30 00:00:00
Result:	Refer to ISST
File Under:	Chevron Products Company
Latitude:	19.722125999999999
Longitude:	-155.07945599999999

Island:	Hawaii
Supplemental Loc. Text:	Kamehameha and Pauahi Street, SE corner
Case Number:	20040629-1542
HID Number:	Not reported
Facility Registry Id:	110013783646
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Bayside Chevron Contaminated Soil
Substances:	Not reported
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Mike Cripps

KHI INC. DBA BAYSIDE CHEVRON (Continued) **U001237007**

Assignment End Date: 2005-08-30 00:00:00
Result: Refer to ISST
File Under: Chevron Products Company
Latitude: 19.669319999999999
Longitude: -155.307075

HI Financial Assurance:
Alt Facility ID: 9-601133
Tank Id: 2
Tank Status: Currently In Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Guarantee
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: R-005
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: R-005
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: R-005
Tank Status: Permanently Out of Use
FRTYPE: Guarantee
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 3
Tank Status: Currently In Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 3
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 3

KHI INC. DBA BAYSIDE CHEVRON (Continued) **U001237007**

Tank Status: Currently In Use
FRTYPE: Guarantee
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 2
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 1
Tank Status: Currently In Use
FRTYPE: Guarantee
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 2
Tank Status: Currently In Use
FRTYPE: Guarantee
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 1
Tank Status: Currently In Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 1
Tank Status: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-601133
Tank Id: 1
Tank Status: Currently In Use
FRTYPE: Insurance
Expiration Date: 05/09/2010

Alt Facility ID: 9-601133
Tank Id: 3
Tank Status: Currently In Use
FRTYPE: Insurance
Expiration Date: 05/09/2010

Alt Facility ID: 9-601133
Tank Id: R-4
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: 05/09/2010

KHI INC. DBA BAYSIDE CHEVRON (Continued) **U001237007**

Alt Facility ID:	9-601133
Tank Id:	R-005
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	05/09/2010

Alt Facility ID:	9-601133
Tank Id:	2
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	05/09/2010

Alt Facility ID:	9-601133
Tank Id:	R-005
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	05/09/2016

Alt Facility ID:	9-601133
Tank Id:	R-4
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	05/09/2016

Alt Facility ID:	9-601133
Tank Id:	3
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	05/09/2016

Alt Facility ID:	9-601133
Tank Id:	2
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	05/09/2016

Alt Facility ID:	9-601133
Tank Id:	1
Tank Status:	Currently In Use
FRTYPE:	Insurance
Expiration Date:	05/09/2016

34
SSE
1/2-1
0.760 mi.
4011 ft.

SFC MINORU KUNIEDA U.S. ARMY RESERVE CENTER **SHWS** **S113230517**
470 W LANIKAULA ST **N/A**
HILO, HI 96720

Relative:
Higher

Actual:
136 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	SFC Minoru Kunieda U.S. Army Reserve Center
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	Steve Mow

SFC MINORU KUNIEDA U.S. ARMY RESERVE CENTER (Continued) **S113230517**

Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	SFC Minoru Kunieda U.S. Army Reserve Center
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Arsenic, TPH-D
Nature of Residual Contamination:	Not reported
Use Restrictions:	No Hazard Present For Unrestricted Residential Use
Engineering Control:	No Engineering Control Required
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	09/14/2012
Document Number:	2012-527-SPM
Document Subject:	No Further Action Determination with for SFC Minoru Kunieda U.S. Army Reserve Center
Project Manager:	Steve Mow
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

35
NE
1/2-1
0.769 mi.
4058 ft.

UST EXCAVATED BISHOP AND KAMEHAMEHA **SHWS** **S118943724**
BISHOP ST AND KAMEHAMEHA AVE **N/A**
HILO, HI 96720

Relative:
Lower

Actual:
4 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	UST excavated Bishop and Kamehameha
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	John Peard
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Undetermined
Island:	Hawaii
SDAR Environmental Interest Name:	UST excavated Bishop and Kamehameha
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Undetermined
Priority:	Low
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Not reported
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported

UST EXCAVATED BISHOP AND KAMEHAMEHA (Continued) **S118943724**

Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	John Peard
Contact Information:	(808) 933-9921 Environmental Health Bldg, 1582 Kamehameha Ave, Hilo, HI 96720

H36 **EXEMPT UST CLOSURE AT EXCELSIOR DAIRY** **SHWS** **1006820203**
East **458 KEKUANAOA ST** **SPILLS** **N/A**
1/2-1 **HILO, HI 96720**
0.961 mi.
5072 ft. **Site 1 of 3 in cluster H**

Relative:
Lower

Actual:
20 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Exempt UST Closure at Excelsior Dairy
HID Number:	Not reported
Facility Registry Identifier:	110013781201
Lead Agency:	HEER
Program:	State
Project Manager:	Mark Sutterfield
Hazard Priority:	NFA
Potential Hazards And Controls:	No Hazard
Island:	Hawaii
SDAR Environmental Interest Name:	Exempt UST Closure at Excelsior Dairy
HID Number:	Not reported
Facility Registry Identifier:	110013781201
Lead Agency:	HEER
Potential Hazard And Controls:	No Hazard
Priority:	NFA
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Diesel
Nature of Residual Contamination:	Diesel
Use Restrictions:	No Hazard Present for Unrestricted Residential Use
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	No Further Action Letter - Unrestricted Residential Use
Document Date:	12/19/2005
Document Number:	2005-671-MS
Document Subject:	NFA letter for diesel UST at Excelsior Dairy Hilo
Project Manager:	Mark Sutterfield
Contact Information:	(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

HI SPILLS:

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19991112-1052
HID Number:	Not reported
Facility Registry Id:	110013781201

EXEMPT UST CLOSURE AT EXCELSIOR DAIRY (Continued) **1006820203**

Lead and Program:	HEER EP&R
ER:	No
Units:	Exempt UST Closure @ Excelsior Dairy
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Excelsior Dairy, Inc.
Latitude:	19.669319999999999
Longitude:	-155.307075

Island:	Hawaii
Supplemental Loc. Text:	Not reported
Case Number:	19991112-1052
HID Number:	Not reported
Facility Registry Id:	110013781201
Lead and Program:	HEER EP&R
ER:	No
Units:	Exempt UST Closure @ Excelsior Dairy
Substances:	Diesel Fuel
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported
Activity Type:	Response
Activity Lead:	Bill Perry
Assignment End Date:	Not reported
Result:	Refer to ISST
File Under:	Excelsior Dairy, Inc.
Latitude:	19.711480000000002
Longitude:	-155.071966

H37 **OLD HILO CANEC PLANT** **SHWS** **S123106617**
East **KEKUANAOA ST AND MILILANI ST** **N/A**
1/2-1 **HILO, HI 96720**
0.978 mi.
5163 ft. **Site 2 of 3 in cluster H**

Relative:
Lower

Actual:
19 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Not reported
Island:	Hawaii
Environmental Interest:	Old Hilo Canec Plant
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER
Program:	State
Project Manager:	John Peard
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Present
Island:	Hawaii
SDAR Environmental Interest Name:	Old Hilo Canec Plant
HID Number:	Not reported
Facility Registry Identifier:	Not reported
Lead Agency:	HEER

OLD HILO CANEC PLANT (Continued) **S123106617**

Potential Hazard And Controls:	Hazard Present
Priority:	Low
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: Arsenic in soil.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	John Peard
Contact Information:	(808) 933-9921 Environmental Health Bldg, 1582 Kamehameha Ave, Hilo, HI 96720

H38 **WAIAKEA UPLAND ARSENIC SITE** **SHWS** **S110061849**
East **CORNER OF MILILANI AND KEKUANAO STREETS** **N/A**
1/2-1 **HILO, HI 96720**
0.978 mi.
5163 ft. **Site 3 of 3 in cluster H**

Relative:
Lower

Actual:
19 ft.

SHWS:

Organization:	Not reported
Supplemental Location:	Portion of Hawaii Cane Products site
Island:	Hawaii
Environmental Interest:	Waiakea Upland Arsenic Site
HID Number:	Not reported
Facility Registry Identifier:	110013775619
Lead Agency:	HEER
Program:	State
Project Manager:	John Peard
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Present
Island:	Hawaii
SDAR Environmental Interest Name:	Waiakea Upland Arsenic Site
HID Number:	Not reported
Facility Registry Identifier:	110013775619
Lead Agency:	HEER
Potential Hazard And Controls:	Hazard Present
Priority:	Low
Assessment:	Assessment Ongoing
Response:	Not reported
Nature of Contamination:	Found: Arsenic in soil.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Controls Required to Manage Contamination
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	John Peard

WAIAKEA UPLAND ARSENIC SITE (Continued) **S110061849**

Contact Information: (808) 933-9921 Environmental Health Bldg, 1582 Kamehameha Ave, Hilo, HI 96720

Count: 9 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HILO	S113230477	MAUNA KEA SUGAR - HILO SUGAR PESTI	AMAUULU RD	96720	SHWS
HILO	S118943674	HAWAII COUNTY KAMEHAMEHA AVENUE IM	KAMEHAMEHA AVE	96720	SHWS
HILO	1011487908	KILAUEA VOLCANO AIR MONITORING	KILAUEA VOLCANO		SEMS
HILO	S107022566	HILO JUDICIARY CENTER PROJECT	KILAUEA AVE	96720	SHWS, ENG CONTROLS, INST CONT
HILO	S118943725	WAIAKEA MILL COMPANY - CAMP 1	KOHOLA, UHU, MANINI, KOLE STRE	96720	SHWS
HILO	S115554812	ARSENIC MILILANI STREET IN HILO	MILILANI ST	96720	SHWS, INST CONTROL, SPILLS
HILO	1003879704	HILO BAY FRONT SOCCER FIELD	OFF KAMEHAMEHA AVE. BET PAUAHI	96720	SEMS-ARCHIVE
HILO	S118943731	WAILOA RIVER STATE RECREATION AREA	PIILANI ST, KAMEHAMEHA AVE, BI	96720	SHWS
HILO	S113230450	HELCO POLE-MOUNTED TRANSFORMER NO.	POLE 7, KAUMANA DR	96720	SHWS

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: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
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: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
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
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

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: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
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
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 04/15/2019
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: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

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: 12/13/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/29/2019
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: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
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: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
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: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

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: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
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: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
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: 10/17/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 43

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 02/25/2019
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: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 03/11/2019
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: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

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: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 45

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 04/08/2019
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: 09/27/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 12/04/2018
Number of Days to Update: 15

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 12/27/2018
Next Scheduled EDR Contact: 04/08/2019
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: 08/31/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 10/10/2018
Number of Days to Update: 29

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Semi-Annually

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: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

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: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

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
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/08/2019
Next Scheduled EDR Contact: 04/22/2019
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: 08/31/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 10/10/2018
Number of Days to Update: 29

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Semi-Annually

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: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

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: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

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: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 09/27/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 12/04/2018
Number of Days to Update: 15

Source: Department of Health
Telephone: 404-586-4249
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 09/27/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 12/04/2018
Number of Days to Update: 15

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

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
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
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: 09/27/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 12/04/2018
Number of Days to Update: 15

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 09/27/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 12/04/2018
Number of Days to Update: 15

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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: 12/17/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/18/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

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: 01/29/2019
Next Scheduled EDR Contact: 05/13/2019
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: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
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 Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 05/13/2019
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: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
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: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

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: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
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: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 05/06/2019
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
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/08/2019
Next Scheduled EDR Contact: 04/08/2019
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: 08/14/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/11/2018
Number of Days to Update: 21

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/11/2013
Number of Days to Update: 39

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

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: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
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
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
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
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
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
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
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
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 02/25/2019
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.

Date of Government Version: 08/31/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 04/08/2019
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: 11/05/2018
Next Scheduled EDR Contact: 02/18/2019
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: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/09/2018
Next Scheduled EDR Contact: 02/18/2019
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: 12/21/2018
Next Scheduled EDR Contact: 04/01/2019
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: 11/16/2018
Next Scheduled EDR Contact: 03/04/2019
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.

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: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 03/18/2019
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: 10/26/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
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: 08/13/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 36

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 02/18/2019
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.

Date of Government Version: 09/14/2018
Date Data Arrived at EDR: 10/11/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 57

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
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: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
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: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
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: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
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.

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: 12/03/2018
Next Scheduled EDR Contact: 03/18/2019
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: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
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: 10/02/2018
Date Data Arrived at EDR: 10/03/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/03/2019
Next Scheduled EDR Contact: 04/15/2019
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 Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 10/01/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 01/18/2019
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

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: 09/30/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 56

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
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
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/04/2019
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
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
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: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
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
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 12/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 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
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
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
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
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
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
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: 08/01/2018
Date Data Arrived at EDR: 08/29/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 37

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
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
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
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
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

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: 09/10/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 03/25/2019
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: 11/15/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 87

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

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.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

AIRS: List of Permitted Facilities
A listing of permitted facilities in the state.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 01/25/2019
Number of Days to Update: 21

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

DRYCLEANERS: Permitted Drycleaner Facility Listing
A listing of permitted drycleaner facilities in the state.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 01/25/2019
Number of Days to Update: 21

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
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: 12/21/2018
Date Data Arrived at EDR: 12/26/2018
Date Made Active in Reports: 01/25/2019
Number of Days to Update: 30

Source: Department of Health
Telephone: 808-586-4226
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

LEAD: Lead Inspection Listing
Lead inspections

Date of Government Version: 12/07/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/25/2019
Number of Days to Update: 45

Source: Department of Health
Telephone: 808-586-5800
Last EDR Contact: 12/07/2018
Next Scheduled EDR Contact: 03/25/2019
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: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
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.

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

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.

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 ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

A0705 HILO KAIAULU O KAPIOLANI
NOT REPORTED
HILO, HI 96720

TARGET PROPERTY COORDINATES

Latitude (North):	19.71405 - 19˚ 42' 50.58''
Longitude (West):	155.087087 - 155˚ 5' 13.51''
Universal Tranverse Mercator:	Zone 5
UTM X (Meters):	281247.3
UTM Y (Meters):	2181053.0
Elevation:	91 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5949390 HILO, 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 principle 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).

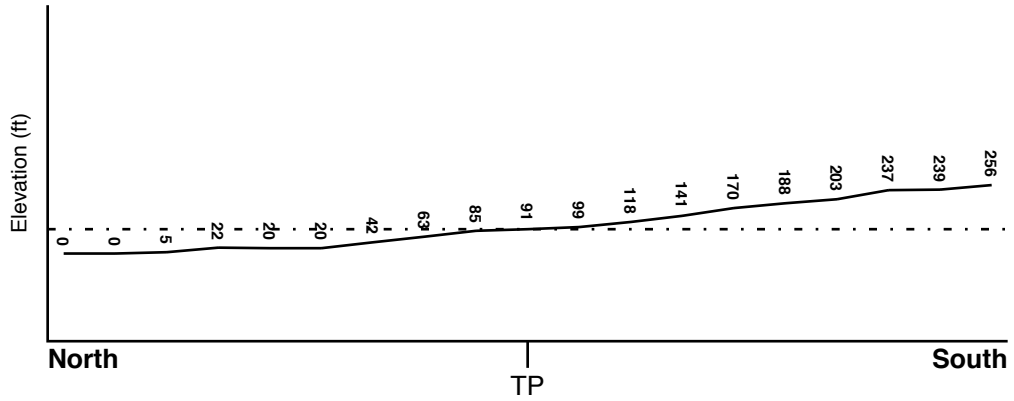
TOPOGRAPHIC INFORMATION

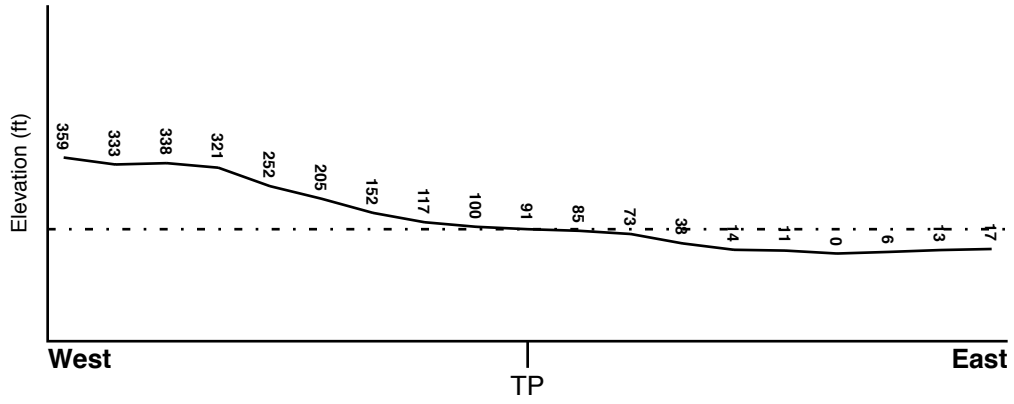
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 91 ft.

0 1/2 1 Miles

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

Flood Plain Panel at Target Property	FEMA Source Type
1551660880C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
HILO	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.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
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

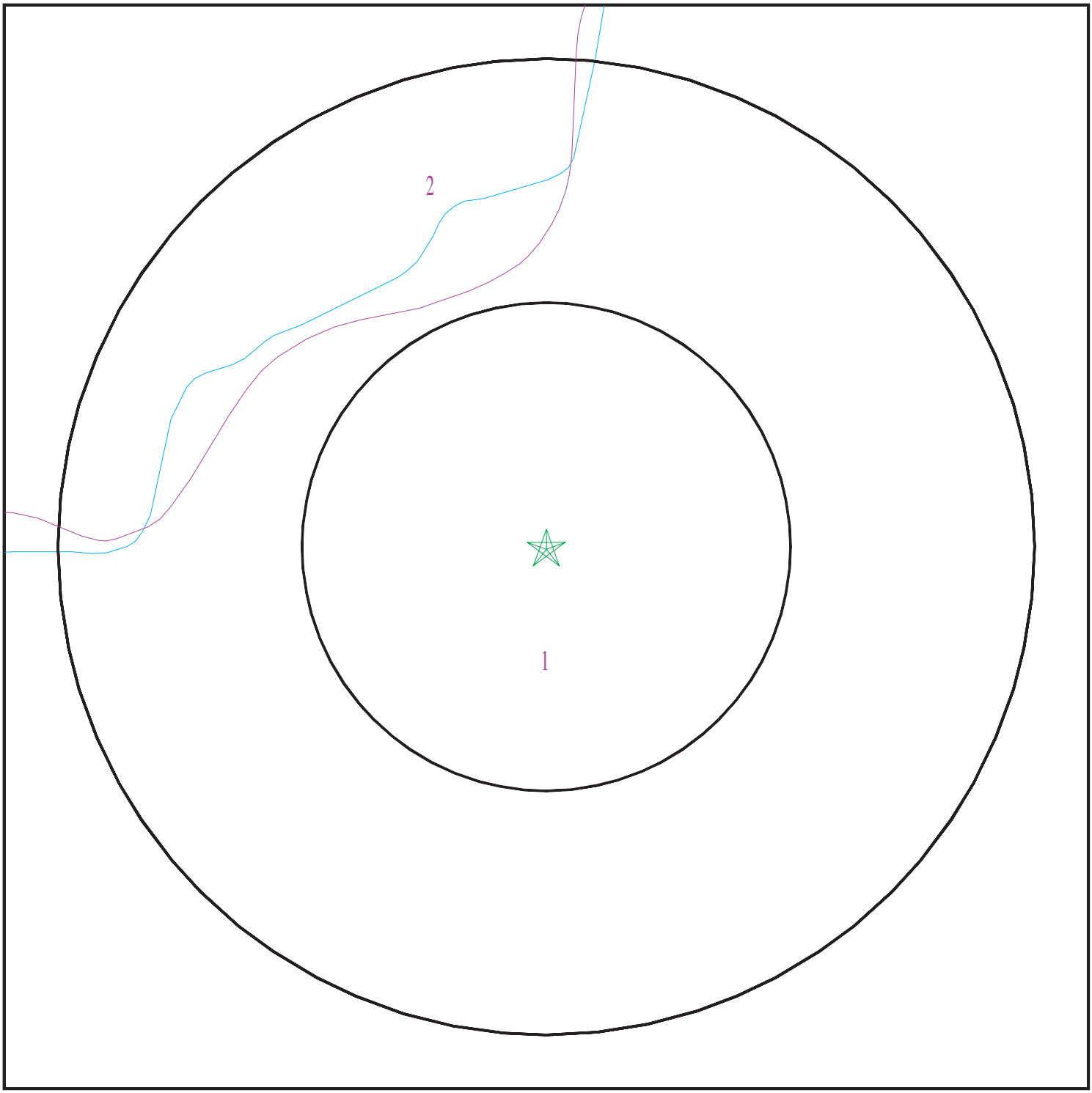
Era:	-
System:	-
Series:	-
Code:	N/A *(decoded above as Era, System & Series)*

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 - 5554368.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	A0705 Hilo Kaiaulu O Kapiolani	CLIENT:	Environmental Risk Analysis. LLC
ADDRESS:	Not Reported Hilo HI 96720	CONTACT:	Maximiliano Ulloa
		INQUIRY #:	5554368.2s
LAT/LONG:	19.71405 / 155.087087	DATE:	February 05, 2019 7:50 pm

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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: Keaukaha

Soil Surface Texture: muck

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	muck	A-8	Not reported	Max: 0.42 Min: 0.02	Max: Min:
2	7 inches	18 inches	bedrock	A-8	Not reported	Max: 0.42 Min: 0.02	Max: Min:

Soil Map ID: 2

Soil Component Name: Hilo

Soil Surface Texture: silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	OH-T (proposed)	Max: 4.23 Min: 0.42	Max: 6.5 Min: 5.6
2	11 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	OH-T (proposed)	Max: 4.23 Min: 0.42	Max: 6.5 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.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000268579	1/2 - 1 Mile East

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

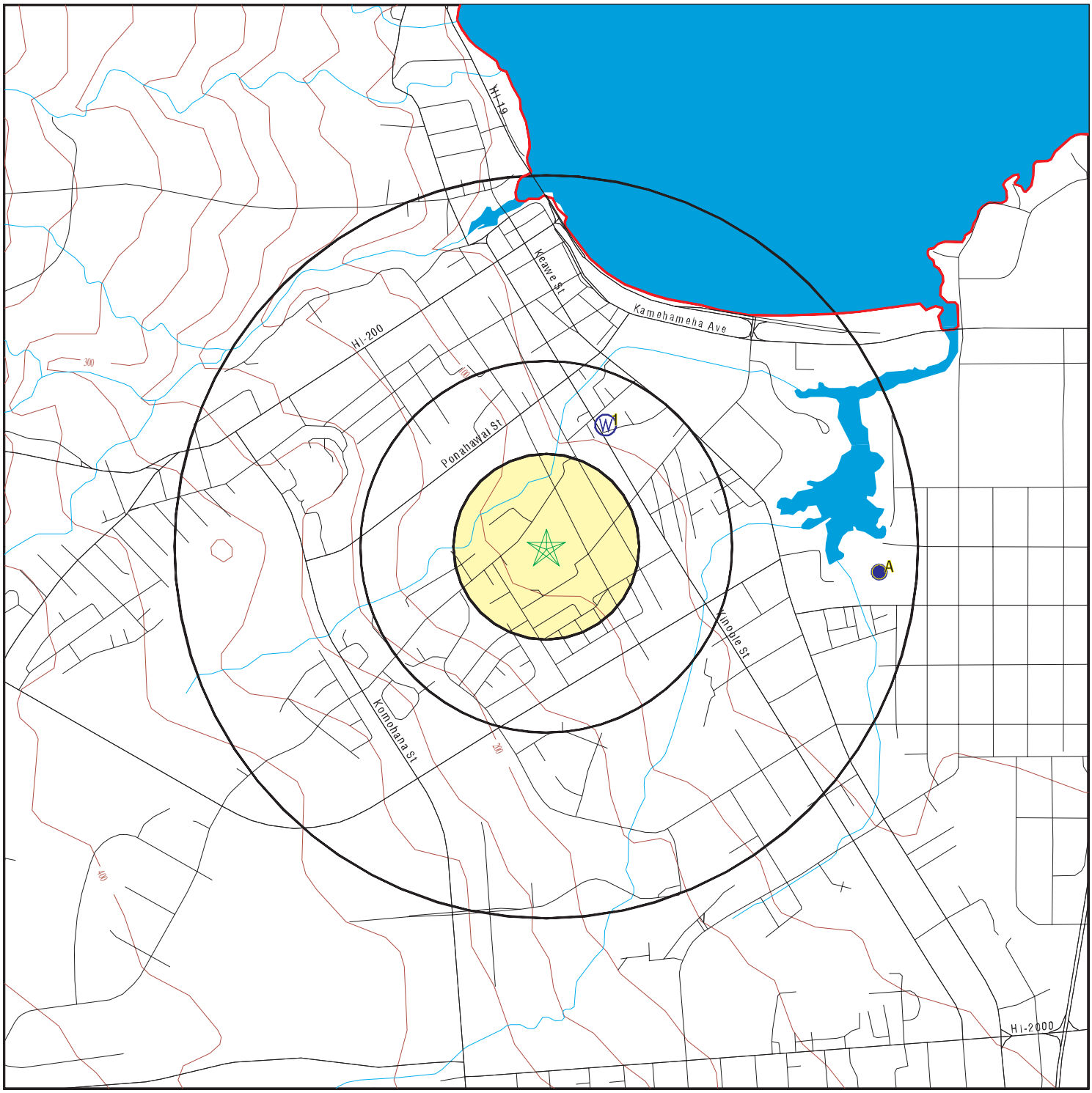
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	HI1100000004527	1/4 - 1/2 Mile NNE
A3	HI1100000004508	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 5554368.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME:	A0705 Hilo Kaiaulu O Kapiolani	CLIENT:	Environmental Risk Analysis. LLC
ADDRESS:	Not Reported Hilo HI 96720	CONTACT:	Maximiliano Ulloa
		INQUIRY #:	5554368.2s
LAT/LONG:	19.71405 / 155.087087	DATE:	February 05, 2019 7:50 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
1 **NNE** **1/4 - 1/2 Mile** **Lower**	**HI WELLS**	**HI1100000004527**

Well ID:	8-4305-002	Well Name:	Del Mar II
Well Owner:	HJC Development Corporation		
Land Owner:	HJC Development Corporation		
Pump Rate (g/m):	60	Year Drillled:	2014
Original Well Name:	Not Reported		
Driller:	Derrick's Well Drilling & Pump Services, LLC		
Well Construction Type:	Rotary	Casing Diameter (in):	6
Ground Elevation (ft):	40	Well Depth (ft):	52
Solid Casing Depth:	42	Perforated Casing Depth:	52
Major Well Use:	Single and Multi Low-Rise and High-Rise Households		
Inital Water Level (ft):	1.6	Water Level After Drilling:	1.6
Water Level After Install:	1.6	Chloride Content (mg/L):	20
Date Tested:	Not Reported	Test Pump Rate (g/m):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Test Chloride Content (MG/L):	Not Reported
Test Water Temp:	Not Reported	Temp Unit:	Not Reported
Max Chloride Level:	Not Reported	Minimum Chloride Level:	Not Reported
Draft Year:	Not Reported	Hole Bottom Elevation:	-12
Solid Casing Bottom Elevation:	-2	Year Installed:	2014
Pump Capacity (MM gal/day):	0.086	Pump Intake Depth:	47.6
Latest Head:	Not Reported	Latest WCR1 Report:	2/9/2015
Latest WCR2 Report:	2/9/2015	Transmissivity:	Not Reported
Min to pump 5 volumes:	10.0360795313		

A2 **East** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS40000268579**

Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center
Monitor Location:	8-4204-01 WAIAKEA VILLAGE	Type:	Well
Description:	Not Reported	HUC:	20010000
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19710101
Well Depth:	35	Well Depth Units:	ft
Well Hole Depth:	35	Well Hole Depth Units:	ft

A3 **East** **1/2 - 1 Mile** **Lower**	**HI WELLS**	**HI1100000004508**

Well ID:	8-4204-001	Well Name:	Waiakea Village
Well Owner:	Waiakea Villas	Land Owner:	Waiakea Villas
Pump Rate (g/m):	700	Year Drillled:	1971
Original Well Name:	Not Reported	Driller:	Roscoe Moss Hawaii Inc
Well Construction Type:	Percussion	Casing Diameter (in):	14
Ground Elevation (ft):	Not Reported	Well Depth (ft):	35
Solid Casing Depth:	25	Perforated Casing Depth:	35
Major Well Use:	Industrial	Inital Water Level (ft):	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Water Level After Drilling:	Not Reported	Water Level After Install:	Not Reported
Chloride Content (mg/L):	0	Date Tested:	Not Reported
Test Pump Rate (g/m):	1250	Test Drawdown Rate (ft):	2.4
Test Chloride Content (MG/L):	Not Reported	Test Water Temp:	Not Reported
Temp Unit:	Not Reported	Max Chloride Level:	Not Reported
Minimum Chloride Level:	Not Reported	Draft Year:	Not Reported
Hole Bottom Elevation:	Not Reported	Solid Casing Bottom Elevation:	Not Reported
Year Installed:	Not Reported	Pump Capacity (MM gal/day):	1.008
Pump Intake Depth:	Not Reported	Latest Head:	Not Reported
Latest WCR1 Report:	8/6/1971	Latest WCR2 Report:	Not Reported
Transmissivity:	Not Reported	Min to pump 5 volumes:	Not Reported

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 Zip Code: 96720

Number of sites tested: 43

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.112 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	-0.106 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[R] 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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A0705 Hilo Kaiaulu O Kapiolani

Not Reported

Hilo, HI 96720

Inquiry Number: 5554368.3

February 05, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/05/19

Site Name:	Client Name:
A0705 Hilo Kaiaulu O Kapiolan	Environmental Risk Analysis. LLC
Not Reported	905A Makahiki Way
Hilo, HI 96720	HONOLULU, HI 96826
EDR Inquiry # 5554368.3	Contact: Maximiliano Ulloa

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.

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 # 03EF-4CB9-861E

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 #: 03EF-4CB9-861E

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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A0705 Hilo Kaiaulu O Kapiolani

Not Reported

Hilo, HI 96720

Inquiry Number: 5554368.4

February 05, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

02/05/19

Site Name:	Client Name:
A0705 Hilo Kaiaulu O Kapiolan	Environmental Risk Analysis. LLC
Not Reported	905A Makahiki Way
Hilo, HI 96720	HONOLULU, HI 96826
EDR Inquiry # 5554368.4	Contact: Maximiliano Ulloa

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. EDRs 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	**Latitude:**	19.71405 19° 42' 51" North
Project:	NA	**Longitude:**	-155.087087 -155° 5' 14" West
		UTM Zone:	Zone 5 North
		UTM X Meters:	281250.65
		UTM Y Meters:	2181182.96
		Elevation:	91.30' above sea level

Maps Provided:

2013
1995
1981
1980
1963
1932
1917
1914

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2013 Source Sheets

Hilo

7.5-minute, 24000

1995 Source Sheets

Hilo

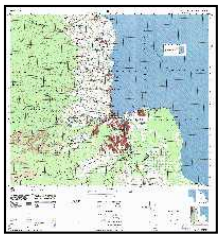
7.5-minute, 24000
Aerial Photo Revised 1995

1981 Source Sheets

Hilo

7.5-minute, 24000
Aerial Photo Revised 1977

1980 Source Sheets



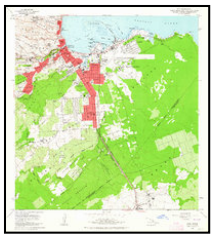
HILO

15-minute, 50000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

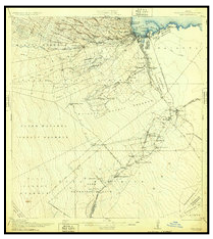
1963 Source Sheets



Hilo

7.5-minute, 24000
Aerial Photo Revised 1961

1932 Source Sheets



Hilo

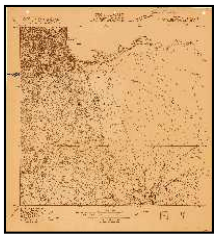
15-minute, 62500

1917 Source Sheets

Hilo

15-minute, 62500

1914 Source Sheets

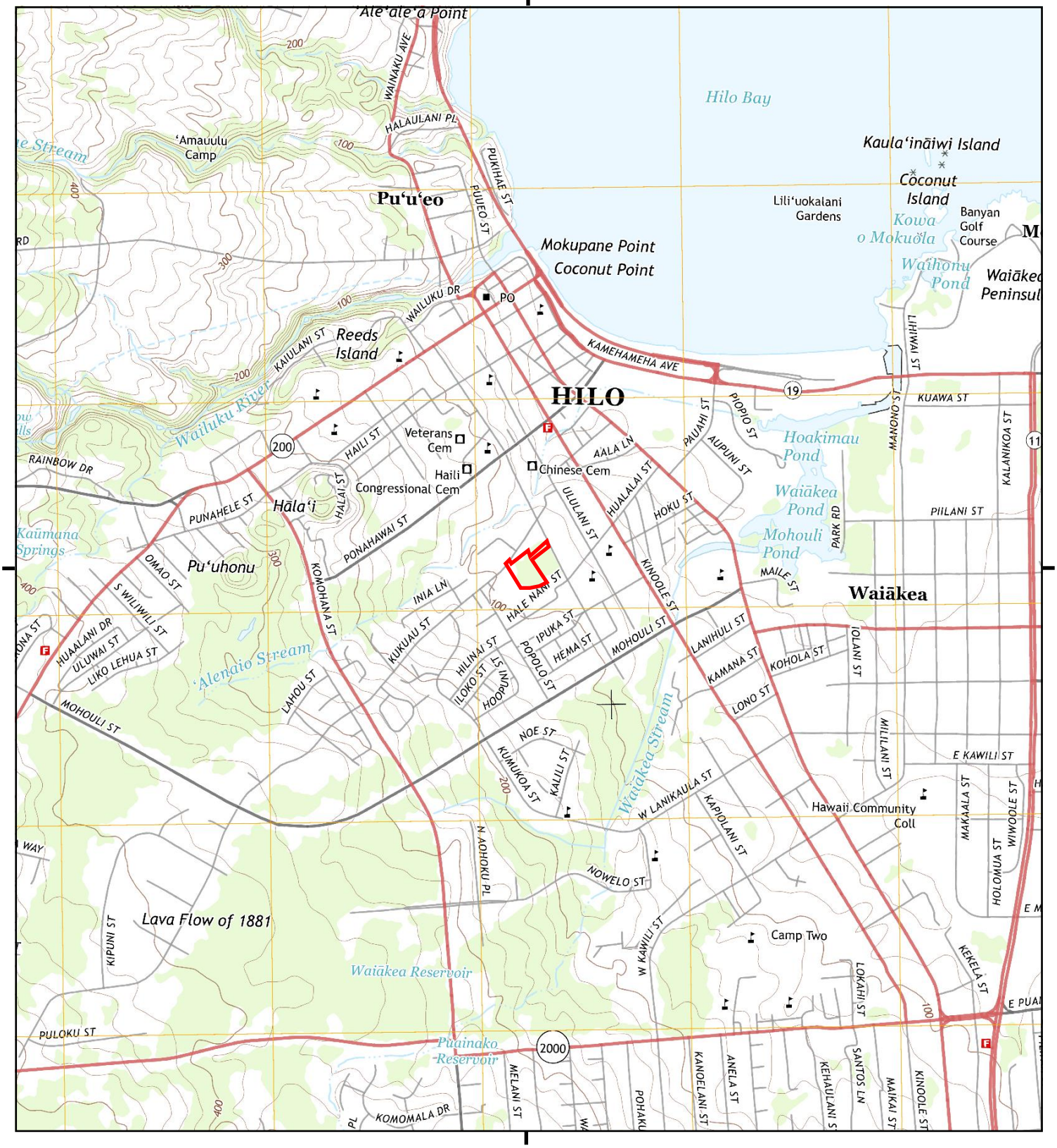


WAIAKEA

7.5-minute, 31680

Historical Topo Map

2013



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

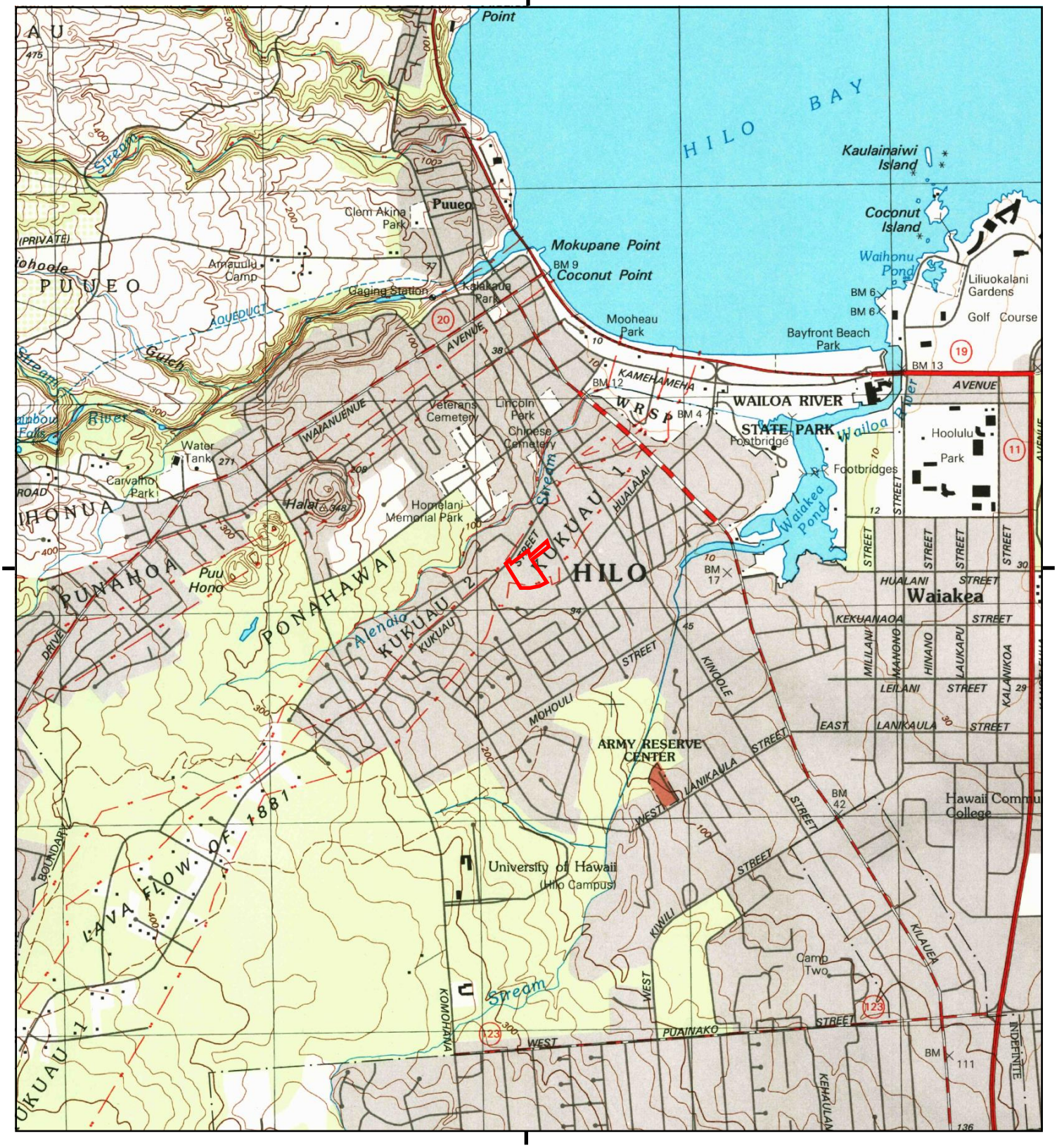
TP, Hilo, 2013, 7.5-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1995



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

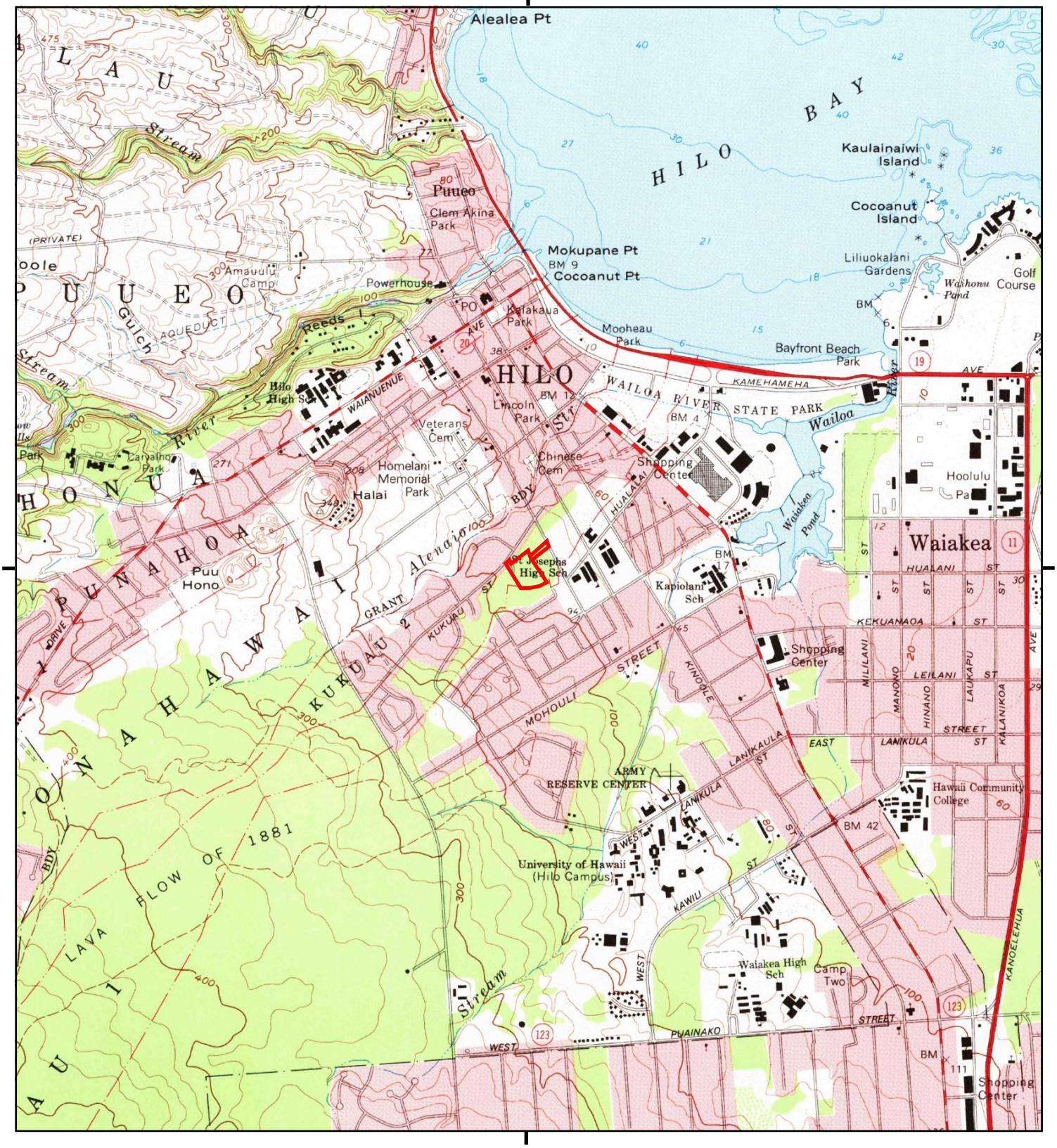
TP, Hilo, 1995, 7.5-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1981



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

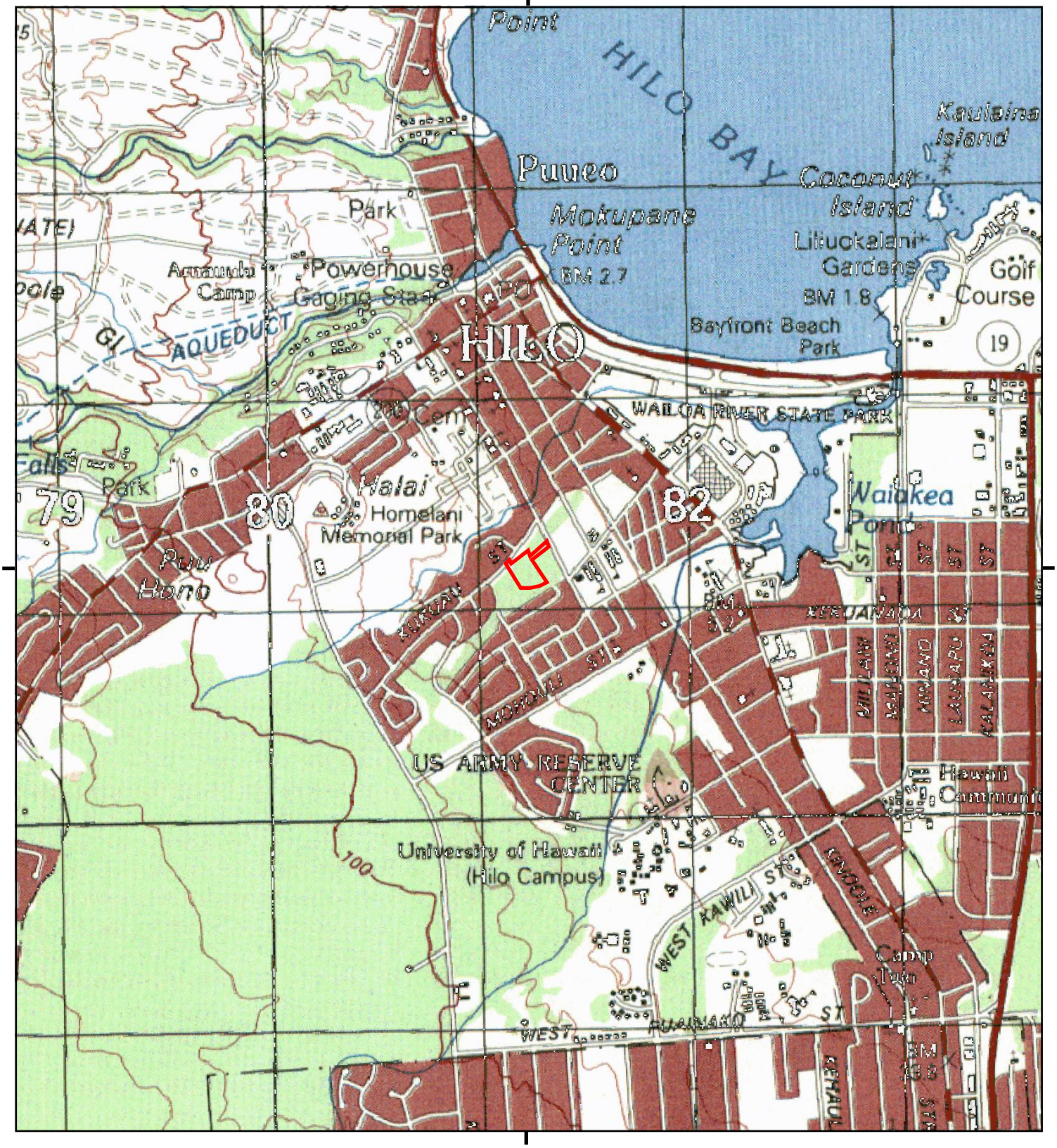
TP, Hilo, 1981, 7.5-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1980



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

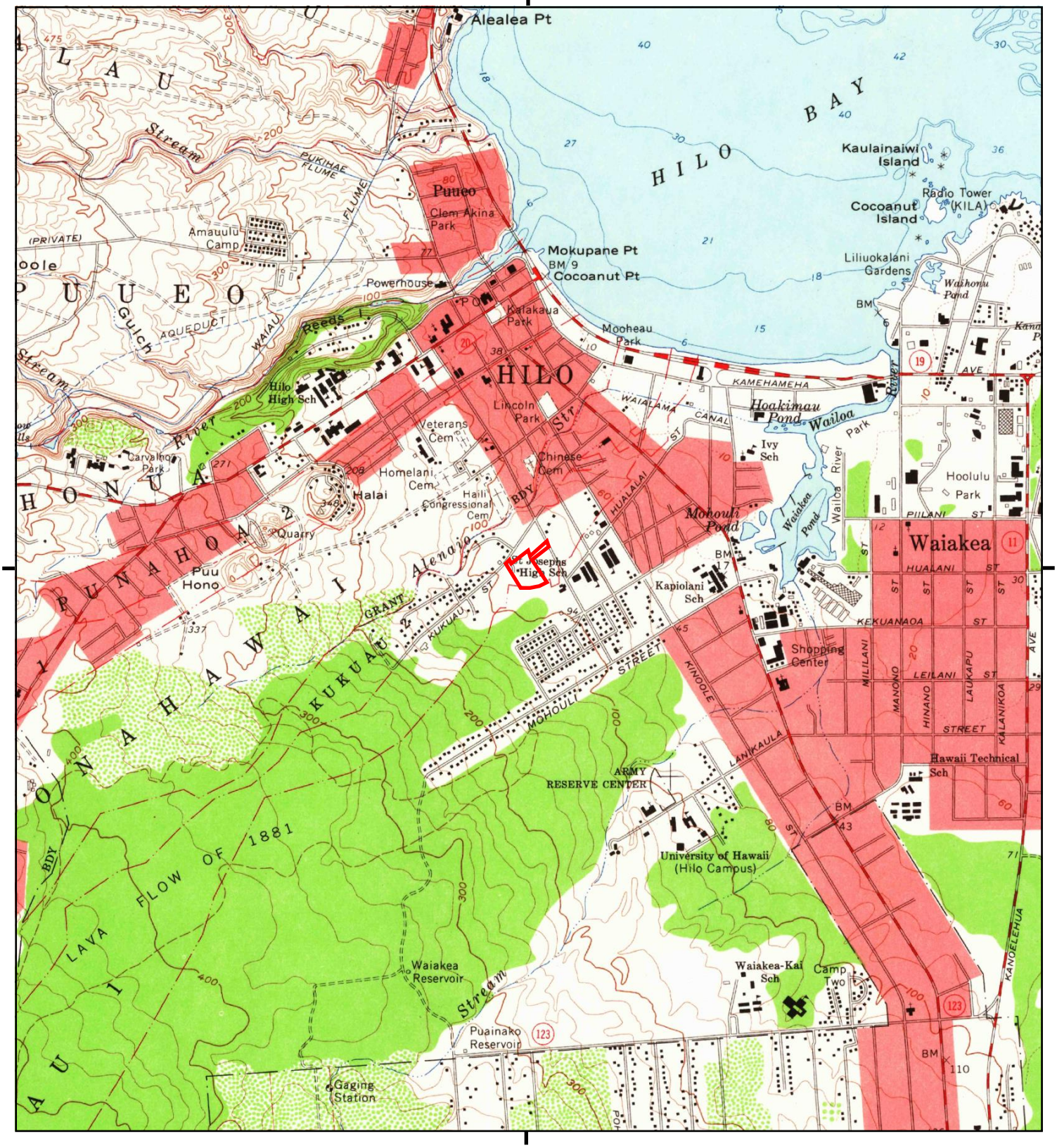
TP, HILO, 1980, 15-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1963



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hilo, 1963, 7.5-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1932

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hilo, 1932, 15-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1917

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hilo, 1917, 15-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

Historical Topo Map

1914

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, WAIAKEA, 1914, 7.5-minute

SITE NAME: A0705 Hilo Kaiaulu O Kapiolani
ADDRESS: Not Reported
Hilo, HI 96720
CLIENT: Environmental Risk Analysis. LLC

N

A0705 Hilo Kaiaulu O Kapiolani

Not Reported

Hilo, HI 96720

Inquiry Number: 5554368.8

February 06, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

02/06/19

Site Name:

A0705 Hilo Kaiaulu O Kapiolan
Not Reported
Hilo, HI 96720
EDR Inquiry # 5554368.8

Client Name:

Environmental Risk Analysis. LLC
905A Makahiki Way
HONOLULU, HI 96826
Contact: Maximiliano Ulloa

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:

Year	*Scale*	*Details*	*Source*
2000	1"=500'	Acquisition Date: June 16, 2000	USGS/DOQQ
1992	1"=500'	Flight Date: September 30, 1992	USGS
1985	1"=500'	Flight Date: March 11, 1985	USGS
1977	1"=500'	Flight Date: January 03, 1977	USGS
1975	1"=500'	Flight Date: July 17, 1975	USGS
1954	1"=500'	Flight Date: April 10, 1954	USGS

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INQUIRY #: 5554368.8
YEAR: 2000
= 500'
N
EDR

INQUIRY #: 5554368.8
YEAR: 1992
= 500'
N
EDR

INQUIRY #: 5554368.8
YEAR: 1985
= 500'
N
EDR

INQUIRY #: 5554368.8

YEAR: 1977

= 500'

N

EDR

INQUIRY #: 5554368.8

YEAR: 1975

= 500'

N

EDR

INQUIRY #: 5554368.8

YEAR: 1954

= 500'

N

EDR

A0705 Hilo Kaiaulu O Kapiolani
Not Reported
Hilo, HI 96720

Inquiry Number: 5554368.5
February 08, 2019

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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SECTION

Executive Summary

Findings

City Directory Images

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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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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.

Year	Target Street	Cross Street	Source
2014	☐	☑	EDR Digital Archive
2010	☐	☑	EDR Digital Archive
2005	☐	☑	EDR Digital Archive
2000	☐	☑	EDR Digital Archive
1995	☐	☑	EDR Digital Archive
1992	☐	☑	EDR Digital Archive
1987	☐	☑	EDR Digital Archive
1982	☐	☑	EDR Digital Archive
1977	☐	☑	EDR Digital Archive

FINDINGS

TARGET PROPERTY STREET

Not Reported
Hilo, HI 96720

No Addresses Found

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*

KUKUAU ST

2014	pg. A2	EDR Digital Archive
2010	pg. A5	EDR Digital Archive
2005	pg. A8	EDR Digital Archive
2000	pg. A10	EDR Digital Archive
1995	pg. A12	EDR Digital Archive
1992	pg. A14	EDR Digital Archive
1987	pg. A16	EDR Digital Archive
1982	pg. A17	EDR Digital Archive
1977	pg. A18	EDR Digital Archive

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2014

211	ANHOLT, WILLIAM J
	ASUNCION, EDWARD B
	CARRIAGA, ALEXANDER R
	KIM, YONG A
	KOBAYASHI, WADE M
222	GONO, NORA E
228	COVELL, MARK
	HANOA, JOLENE S
	IYO, RUSSELL M
233	KURUHARA, RAYMOND S
237	MIGUEL, FLOYD A
251	HAMASAKI CHALMERS K MD INC
	HAMASAKI, CHALMERS K
252	MATSUI, DEXTER Y
258	HY, BINH Q
272	MITSUDA, TOMMY
277	HEFFNER, MARCUS
	IDICA, RONALD A
	KANDA, KINUE N
	LOPEZ, VIOLET S
	QUIRIT, IGNACIO
	VILLAS, SUNSET
278	ALVAREZ, ARIEL
	KANEHAILUA, CHEYENNE
	MARTINS, MAYDEAN
	NAKAYAMA, IRIS Y
	OCCUPANT UNKNOWN,
	TEER, ROSS
282	KIYAN, EMMA
	LEE, DAISON
	OCCUPANT UNKNOWN,
	ORNONG, DOLORES O
	SMITH, ASHLEY D
287	FUKUMOTO, YOSHIE
	GOTA, FRANCIS M
	MANARPAAC, JINEANE
	MATSUI, CORA L
	SIMON, SUSAN
294	NERVEVA, CAITLIN
	OCCUPANT UNKNOWN,
	PHANG, PAUL C
	ROSE, JOHN
	TAKARA, DONNA
298	HOWARD, LOUIS R
299	TEXEIRA, MICHAEL J
300	KOREYASU, COLBY R
303	RABAGO, GEORGIANA N
312	ELITE CONTRACTING LLC
	PAO, KILILA K
	TOMINAGA, MICHAEL M

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2014 (Cont'd)

315	GALINATO, WEYLAND D
316	MADRIAGA, GENERALISIMO B
320	ROMERO, CARTER L
322	KAHELE, PATRICK X
	NEVILLE, TIHANI
	OCCUPANT UNKNOWN,
	PEDRO, PATRICK P
326	CANION, JEFF R
	HESS, BRENT C
	KIHARA, ITSUKO N
	OCCUPANT UNKNOWN,
	VICENTE, SABRINA
328	KIHARA, BRADLEY K
	OCCUPANT UNKNOWN,
332	CASTANEDA, BENITO E
	MIYAZAKI, KAMAN T
	OCCUPANT UNKNOWN,
342	BEHLE, CHRISTIAN D
343	VELASQUEZ, DAVID L
349	GARCIA, EVELYN M
	PAIVA, RICHARD J
352	DONAHOE, MIKE B
	VINORAY, O R
	WILLOUGHBY, DONA
357	CORDEIRO, SANDY
365	CHAL, CHARLA
366	DOWNIE, SHAUN J
369	BARAJAS, LEHUA K
	GALARIO, LYNETTE
	UTA, WAYNE
370	NISHIMOTO, MYLES T
374	NISHIMOTO, HANAE
388	MCLEMORE, LISA
	SAKAMOTO, EDITH Y
391	EBANEZ, MARSHALL
	HUNG, ASHLEY M
	MAA, KENNETH
394	SMITH, LISA
405	OCCUPANT UNKNOWN,
408	IKAWA, DAVID S
412	CORREA, MICHELE
	OCCUPANT UNKNOWN,
	PAYAO, DEBRA
415	KIMURA, BEN H
	LOPEZ, HENSLEY K
	MIYASAKI, ERNEST M
	OCCUPANT UNKNOWN,
418	PORZEL, LYNNE
421	GACULA, ALEX A
	GONZAGA, LETICIA S

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2014 (Cont'd)

421	OCCUPANT UNKNOWN,
423	CACHO, GERALD P
429	PALIS, CATHERINE S
430	QUALIFIED PAINTING SERVICE
433	EBANEZ, R
	OCCUPANT UNKNOWN,
	POMROY, MOANI
440	CABRAL, LAURA
	CIRVELLO, PATRIC M
	DUMARAN, NATASHA
	OCCUPANT UNKNOWN,
443	TAK, HELEN
444	FONSECA, LOIS
	KANASAKU, ALDEN Y
	KANESHIRO, HARVARD K
	MOORE, DAVID R
	TOKUUKE, JONI T
446	JARDINE, ADELE
451	OCCUPANT UNKNOWN,
452	GODOY, RENEE D
456	KAWAOKA, KIYOSHI
	OCCUPANT UNKNOWN,
457	MATTOS, JUSTINA T
460	JARDINE, DOMINGA D
464	HAMASAKI, JOYCE E
466	OCCUPANT UNKNOWN,
474	MUNOZ, MIGUEL
	OCCUPANT UNKNOWN,
484	CARVALHO, RACHAEL O
485	HOOTA, SHELBY K
490	BECKER, CATHERINE B
492	GOUVEIA, WALTER
499	WROBLESKI, RHEMA
516	HAYASHI, LILLIAN K

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2010

211	ANHOLT, WILLIAM J
	ASUNCION, EDWARD B
	FRANCIS, RAYRAY
	MURANAKA, WALLACE K
	SADO, MELGIE
222	OCCUPANT UNKNOWN,
228	IYO, RAYMOND H
	OCCUPANT UNKNOWN,
237	UHLMANN, DAVID R
251	HAMASAKI CHALMERS K MD INC
252	MATSUI, VICTOIYA A
258	HY THAP A
	HY, THAP A
272	MITSUDA, GLENN J
277	BABAS, FERDINAND G
	KANDA, KENNETH S
	LAX, BOBBIE J
	LOPEZ, VIOLET S
	QUILAUSING, DANETTE M
	QUIRIT, IGNACIO
278	ABEYTA, KATE
	HANOHANO, EDWARD K
	KANEHAILUA, CHEYENNE
	KEANE, M
	RAHMAN, SYED
	TEER, ROSS
282	MEDEIROS, DENISE L
	NAKAYAMA, IRIS
	OCCUPANT UNKNOWN,
	ONO, HUGH Y
287	FUKUMOTO, YOSHIE
	GOTA, FRANCIS M
	GUERRERO, K
	KUOHA, IVY K
	LAX, BOBBIE J
	SUGAR SHANE ENTERPRISES LLC
	WITHEE, MARGARET
294	PHANG, PAUL C
	ROSE, JOHN
	WILLIAMS, FREDERICK A
298	HOWARD, LOUIS R
299	TEXEIRA, MICHAEL J
300	KOREYASU, COLBY R
303	RABAGO, GEORGIANA N
306	MADRIAGA, GENERALISIMO B
312	ELITE CONTRACTING LLC
	PAO, KILILA K
	TOMINAGA, ROBERT M
315	GALINATO WEYLAND M SR
	GALINATO, WEYLAND D

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2010 (Cont'd)

316	OCCUPANT UNKNOWN,
320	ROMERO CARTER MASONRY
	ROMERO, CARTER L
326	KIHARA, ITSUKO N
	LOPEZ, JEANA M
	SEGAWA, CLYDE M
328	GARCIA, THOMAS
	KIHARA, KUMIO
	KIHARA, MORRIS I
	OCCUPANT UNKNOWN,
332	ICHIN, DARA
	OCCUPANT UNKNOWN,
343	VESPERAS, CHERYL
349	GARCIA, EVELYN M
	OCCUPANT UNKNOWN,
352	DONAHOE, MIKE B
357	LAM MUI S
	OCCUPANT UNKNOWN,
365	CHAI, CHARLA
366	DOWNIE, BEVERLY R
369	CARRON, VALERIE S
	NOBLE, SHANELLE E
370	NISHIMOTO, MYLES T
374	NISHIMOTO, HANAE
388	SAKAMOTO, EDITH Y
391	MAA, KENNETH
	OCCUPANT UNKNOWN,
	YASSO, MALIA K
404	VALENZUELA, NAOMI
405	OCCUPANT UNKNOWN,
408	IKAWA, DAVID S
412	KAMAU, BENSON K
	OCCUPANT UNKNOWN,
	PAYAO, RANDAL M
415	KIMURA, BEN H
	LOPEZ, HENSLEY K
	MAHI, DARNELL
	OCCUPANT UNKNOWN,
418	DAMASCO, GERALDINE
421	GACULA, ALEX A
	GONZAGA, LETICIA S
	OCCUPANT UNKNOWN,
423	CACHO, GERALD P
429	KOBAYASHI, SATOKO
	OCCUPANT UNKNOWN,
430	QUALIFIED PAINTING SERVICE
433	EBANEZ, ROSS B
436	SOUZA, JONAH
440	GOMES, VALARIE
	KAHIKINA, KAHEA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2010 (Cont'd)

440	MARCIEL, ROBERT
	OCCUPANT UNKNOWN,
443	HESS, R
444	DODO, MAX E
	KANESHIRO, SUSAN A
	KAWAOKA, KAZUO
	MOORE, DAVID R
	TOKUUKE, RALPH S
446	JARDINE, ADELE
451	KANNASS, MOUHAMED M
452	GODOY, RENEE D
456	KAWAOKA, KIYOSHI
	OCCUPANT UNKNOWN,
457	MATTOS, JUSTINA T
460	JARDINE, DOMINGA D
	OCCUPANT UNKNOWN,
464	BARKHOFF HARALD
	HAMASAKI, JOYCE E
466	OCCUPANT UNKNOWN,
474	ALAMEIDA, CHERMANE M
	ALANS ART & COLLECTIBLES
	OCCUPANT UNKNOWN,
484	COCHRAN, MICHAEL H
485	HOOTA, DON J
490	JENSEN, ROBERT
492	OCCUPANT UNKNOWN,
499	WROBLESKI, RHEMA
516	HAYASHI, LILLIAN K

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2005

211	KOBAYASHI, WADE M
	UMAYAS, LYDIA
	YAMAMOTO, RODNEY K
228	IYO, RAYMOND
237	UHLMANN, DAVID R
251	HAMASAKI CHALMERS K MD INC
	HAMASAKI, CHALMERS K
252	MATSUI, DEXTER Y
258	OCCUPANT UNKNOWN,
272	MITSUDA, GLENN J
277	BABAS, FERDINAND G
	FUJIMOTO, ALAN E
	LAX, BOBBIE J
	QUIRIT, IGNACIO
	TAKABA, JAMIE
278	BASILIO, FRECIA
	HILLER, VIOLET
282	KUILIPULE, SHAINE
287	FUKUI, LORIANNE
	FUKUMOTO, YOSHIE
	GUERRERO, K
	HASHIRD, COLIN K
	KANEOKA, MASAYO
	NAGAO, CLIFFORD K
294	PETROWSKI, DEREK
	PHANG, PAUL C
	SCOTT, BETTY J
	WILLIAMS, HELEN P
298	HOWARD, LOUIS R
299	TEXEIRA, MICHAEL J
306	MADRIAGA, LILY K
312	BENSON, RICK J
	SERRAO, LLOYD L
	TOMINAGA, ROBERT M
315	GALINATO WEYLAND M SR
	GALINATO, AUDREY L
316	OCCUPANT UNKNOWN,
322	GRAVELA, TRACY A
	LEE, BRUCE J
	OCCUPANT UNKNOWN,
326	FUJIOKA, JEANA M
	KIHARA, HITOSHI
	LOPEZ, JEANA M
	WEAVER, QUINN
328	JOHNSON, PENELOPE A
	KIHARA, KUMIO
332	MIYAZAKI, KAMAN T
342	OCCUPANT UNKNOWN,
349	OCCUPANT UNKNOWN,
	PAIVA, ICHARD J

KUKUAU ST 2005 (Cont'd)

352	THELEN, ALLISON
365	BIGTAS, JANICE L
369	JUVIK, JEENA
	NOBLE, SHANELLE E
	PRUDENCIO, CRYSTAL
391	MAA, KENNETH
	OCCUPANT UNKNOWN,
	TADIO, JAMES
394	UEMURA, ISAMU S
402	OCCUPANT UNKNOWN,
404	ANDRES, ALICIA
	JENNINGS, SCOTT J
	RITHER, CHRIS G
405	OCCUPANT UNKNOWN,
408	IKAWA, DAVID S
412	DAMASCO, GERALDINE R
415	KIMURA, BEN H
	MIYASAKI, ERNEST M
	OCCUPANT UNKNOWN,
	PAGAN, DESIREE A
421	GACULA, ALEX A
	OCCUPANT UNKNOWN,
423	OCCUPANT UNKNOWN,
429	OCCUPANT UNKNOWN,
430	QUALIFIED PAINTING SERVICE
433	PARANADA, EDGAR A
436	SOUZA, JONAH
440	CASTILLAS, SHIRLEY A
	OCCUPANT UNKNOWN,
443	LEHMAN, DEBRA L
444	DODO, MAX E
	KAWAOKA, KAZUO
	TOKUUKE, SHIGERU
446	OCCUPANT UNKNOWN,
451	OCCUPANT UNKNOWN,
456	KAWAOKA, KIYOSHI
	OCCUPANT UNKNOWN,
457	MATTOS, JUSTINA T
460	OCCUPANT UNKNOWN,
464	HAMASAKI, JOYCE E
	MCCUNE WESTON EDWARD & JAN CH
466	CHARTRAND, N
474	ALANS ART & COLLECTIBLES
	OSHIMA, G M
484	COCHRAN, MICHAEL H
490	FRANKEL, MOLLY
492	BADUA, VERNA M
516	HAYASHI, LILLIAM K

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2000

211	KAWAHARA, C
	KOBAYASHI, WADE
	RIOS, FRANK
	YAMAMOTO, SHAWN M
228	IYO, RAYMOND
233	KURUHARA, ED S
237	MIGUEL, FLOYD A
251	HAMASAKI CHALMERS K MD INC
	OCCUPANT UNKNOWN,
252	KANEMOTO, MASAO
	MATSUI, DEXTER Y
272	MITSUDA, TOMMY
277	BOYCE, D T
	LEBLANC, R A
278	CHANG, C K
	HILLER, V
	KIM, H A
282	GRILL, C
	JOHANNISSON, P H
	MONTIFALCON, FRANCES
	ONEILL, PEGGY B
	WOODWARD, ROBERT B
287	FUKUMOTO, YOSHIE
	HASHIRO, COLIN
294	WILLIAMS, H P
298	OCCUPANT UNKNOWN,
299	TEXEIRA, MICHAEL J
300	LUCAS, ALFRED
303	OCCUPANT UNKNOWN,
312	TOMINAGA, ROBERT
315	GALINATO, AUDREY
316	OCCUPANT UNKNOWN,
322	KIHARA, JOHN T
326	CALICDAN, COREY
	KIHARA, HITOSHI
	LAI, SEAN
	TANIMOTO, TAKAO
	YAMAMOTO, EARL N
328	ILER, DOUG
	KIHARA, K
	MACK, KELLIE A
342	OCCUPANT UNKNOWN,
349	PAIVA, GEORGE
352	LEE, JERRY
365	BIGTAS, JANICE L
366	DOWNIE, WILLIAM R
369	MCCARLEY, CLAUDE
388	SAKAMOTO, Y
394	UEMURA, ISAMU
402	SEBOROWSKI, FRANK

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 2000 (Cont'd)

404	OCCUPANT UNKNOWN,
405	MEREDITH, JULIA P
408	IKAWA, DAVID S
412	DAMASCO, G
415	PAGAN, DESIREE
421	GACULA, ALEX A
423	OCCUPANT UNKNOWN,
429	KOBAYASHI, SATOKO
430	CLYDE, I
	QUALIFIED PAINTING SERVICE
433	MATAS, GERRY
	PARANADA, EDGAR A
436	OCCUPANT UNKNOWN,
440	CASTILLAS, SHIRLEY
443	OCCUPANT UNKNOWN,
444	KAWAOKA, KAZUO
	TOKUUKE, PAUL M
451	OCCUPANT UNKNOWN,
456	KAWAOKA, KIYOSHI
457	OCCUPANT UNKNOWN,
458	OCCUPANT UNKNOWN,
460	JARDINE, DOMINGA D
464	MCCUNE, WESTON E
517	KOBAYASHI, AKIKO

Target Street	Cross Street	Source
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KUKUAU ST 1995

211	ANDRADE, KAREN L
	CALIG, WILLIAM E
	KOBAYASHI, WADE
	NISHIURA, KELVIN Y
	REALPE, J
	REALPE, JOHN
	ROLLNY, ANDREAS
	SEWAKE, SANDRA M
222	OCCUPANT UNKNOWNN
228	IYO, RAYMOND
233	KURUHARA, ED S
237	MIGUEL, FLOYD A
252	KANEMOTO, MASAO
	MATSUI, TAMOTSU
258	FISH, WILLIAM S
272	MITSUDA, TOMMY
277	INAFUKU, PETE A
	LEBLANC, R A
278	HILLER, V
	KAMAU, BENSON K
	KIM, H A
	KOSHKO, C
	VICTORINO, JOY
282	KOKUBUN, JOHN S
	NAKAYAMA, Y
287	FUKUMOTO, YOSHIE
294	HEINZ, DEBRA
	KANESHIRO, GLADYS
	PINCHAK, K
	WILLIAMS, H P
298	OCCUPANT UNKNOWNN
299	TEXEIRA, MICHAEL J
303	RABAGO, SAMUEL F
306	OCCUPANT UNKNOWNN
311	OCCUPANT UNKNOWNN
312	SAKAGUCHI, ERIC
	SAKAI, KIMIKO
	TOMINAGA, ROBERT
315	GALINATO, AUDREY
316	OCCUPANT UNKNOWNN
322	IGNACIO, JAY M
326	KIHARA, HITOSHI
	LAI, SEAN
	MCDONOUGH, SHARON
	MIYASAKI, ARNOLD I
	PHILLIPS, C
	TANIMOTO, TAKAO
328	AYALA, WILLIAM J
	KAAUAMO, B
	KIHARA, KUMIO

KUKUAU ST 1995 (Cont'd)

328	VALDEZ, M
342	LEWIS, KENNETH E
349	DOBASHI, ROBERT
352	LEE, JERRY
357	OCCUPANT UNKNOWNN
366	DOWNIE, WILLIAM R
388	SAKAMOTO, Y
394	UEMURA, ISAMU
402	SEBOROWSKI, FRANK
	TUCKER, KENDALL G
404	PAYAO, DEBRA D
405	SNAP ON TOOLS DEALER
	WILSON, RICHARD
408	IKAWA, DAVID S
412	DAMASCO, BERNARD
415	FUJITA, LLOYD E
421	GACULA, ALEX A
423	CAGAT, BETTY P
430	IMAIZUMI, M
	QUALIFIED PAINTING SERVICE
433	LEOPOLDINO, ROXANNE L
	PARANADA, EDGAR A
436	OCCUPANT UNKNOWNN
440	CASTILLAS, SHIRLEY
443	SHON, LARRY L
444	DODO, JASMINE
	KAWAOKA, KAZUO
	TOKUUKE, PAUL M
446	JARDINE, ADELE
451	OCCUPANT UNKNOWNN
456	KAWAOKA, KIYOSHI
458	YEH, BARBARA S
460	JARDINE, DOMINGA D
464	WILLIAMS, BOB
466	KODANI, ASAWO
474	MCCUNE, WESTON
484	OCCUPANT UNKNOWNN
486	OCCUPANT UNKNOWNN
490	OCCUPANT UNKNOWNN
492	OCCUPANT UNKNOWNN
506	KOBATAKE, MASATO

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 1992

211	REALPE, J
	SIMAO, WILLIAM
	TORRES, RAYMOND II
228	IYO, RAYMOND
233	KURUHARA, ED S
237	MIGUEL, FLOYD A
252	KANEMOTO, MASAO
	MATSUI, TAMOTSU
258	FISH, WILLIAM S
272	MITSUDA, TOMMY
278	GABRIELLA, SARKA
	HILLER, V
	KIM, H A
	WONG, NELSON
282	AFALAVA, ALDEN
	CHRISTIANSEN, MICHAEL L
	GABONIA, RONALD J
	HANASHIRO, CLYDE
	NAKAYAMA, Y
294	LAZAROW, ARLINE
	WILLIAMS, H P
299	TEXEIRA, MICHAEL J
311	PERRY, LARRY
312	SAKAGUCHI, ERIC
	SAKAI, KIMIKO
	TOMINAGA, ROBERT
315	GALINATO, AUDREY
322	CASTRO, WENDELL R
	IGNACIO, JAY M
	JOSEPH, MICHAEL G
326	KIHARA, HITOSHI
	MIYASAKI, ARNOLD I
	TANIMOTO, TAKAO
	YOUNG, CLYDE
328	AYALA, WILLIAM J
	INABA, JASON
	KIHARA, KUMIO
349	DOBASHI, ROBERT
352	LEE, JERRY
366	DOWNIE, WILLIAM R
388	SAKAMOTO, Y
394	UEMURA, ISAMU
402	SEBOROWSKI, FRANK
405	WILSON, RICHARD
408	IKAWA, DAVID S
412	DAMASCO, BERNARD
421	GACULA, ALEX A
423	CACHO, GERMAN
430	IMAIZUMI, M
	QUALIFIED PAINTING SERVICE

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 1992 (Cont'd)

433	KOIDE, GEORGE
	PARANADA, EDGAR A
436	ESCRITOR, THOMAS
440	CASTILLAS, SHIRLEY
443	SHON, LARRY L
444	KAWAOKA, KAZUO
	TOKUUKE, PAUL M
446	JARDINE, ADELE
451	MULVIHILL, JOSEPH
456	KAWAOKA, KIYOSHI
466	KODANI, ASAWO
474	JARDIN, V
490	DUPUIS, C
506	KOBATAKE, MASATO

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 1987

55	HATADA BAKERY INC
352	LEE CONSTRUCTION INC
430	QUALIFIED PAINTING SERVICE*

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 1982

55	HATADA BAKERY INC
138	FANTASIA PACIFIC INC
228	IYO DRY GOODS
278	LIMITED HOME IMPROVEMENT CONTR
352	LEE CONSTRUCTION INC
430	QUALIFIED PAINTING SERVICE
596	MIYAMURA TAKEYUKI CONTRACTOR

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

KUKUAU ST 1977

55	HATADA BAKERY INC
138	FANTASIA PACIFIC INC
228	IYO DRY GOODS
278	LIMITED HOME IMPROVEMENT CONTR
539	MENEHUNE MAINTENANCE INC
596	MIYAMURA TAKEYUKI CONTRACTOR

A0705 Hilo Kaiaulu O Kapiolani
Not Reported
Hilo, HI 96720

Inquiry Number: 5554368.2s
February 12, 2019

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by EDR. The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600).

STANDARD ENVIRONMENTAL RECORDS	Default Area of Concern (Miles)*	property	1/10	> 1/10
Federal NPL site list	1.0	0	0	0
Federal Delisted NPL site list	1.0	0	0	0
Federal CERCLIS list	0.5	0	0	0
Federal CERCLIS NFRAP site list	0.5	0	0	0
Federal RCRA CORRACTS facilities list	1.0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list	0.5	0	0	0
Federal RCRA generators list	0.25	0	0	0
Federal institutional controls / engineering controls registries	0.5	0	0	0
Federal ERNS list	0.001	0	0	-
State- and tribal - equivalent NPL	not searched	-	-	-
State- and tribal - equivalent CERCLIS	1.0	0	0	0
State and tribal landfill and/or solid waste disposal site lists	0.5	0	0	0
State and tribal leaking storage tank lists	0.5	0	0	1
State and tribal registered storage tank lists	0.25	0	0	1
State and tribal institutional control / engineering control registries	0.5	0	0	0
State and tribal voluntary cleanup sites	0.5	0	0	0
State and tribal Brownfields sites	0.5	0	0	0

ADDITIONAL ENVIRONMENTAL RECORDS				
Local Brownfield lists	0.5	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites	0.5	0	0	0
Local Lists of Hazardous waste / Contaminated Sites	0.001	0	0	-
Local Lists of Registered Storage Tanks	not searched	-	-	-
Local Land Records	0.001	0	0	-
Records of Emergency Release Reports	0.001	0	0	-
Other Ascertainable Records	1.0	0	0	1

EDR HIGH RISK HISTORICAL RECORDS				
EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

*The Default Area of Concern may be adjusted by the environmental professional using experience and professional judgement. Each category may include several databases, and each database may have a different distance. A list of individual databases is provided at the back of this report.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

A0705 HILO KAIAULU O KAPIOLANI
NOT REPORTED
HILO, HI 96720

COORDINATES

Latitude (North):	19.71405 - 19° 42′ 50.581055″
Longitude (West):	155.087087 - 155° 5′ 13.494873″
Elevation:	91 ft. above sea level

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
HALAI HILL RADIO STATION	END OF ULILI ST, OFF HINA ST S HILO	1/10 - 1/3 S	▲ 1	8
UST: UST Financial Assurance: Financial Assurance LUST: LUST				

ADDITIONAL ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
HALAI HILL RADIO STATION	END OF ULILI ST, OFF HINA ST S HILO	1/10 - 1/3 S	▲ 1	8
UST: UST Financial Assurance: Financial Assurance LUST: LUST				

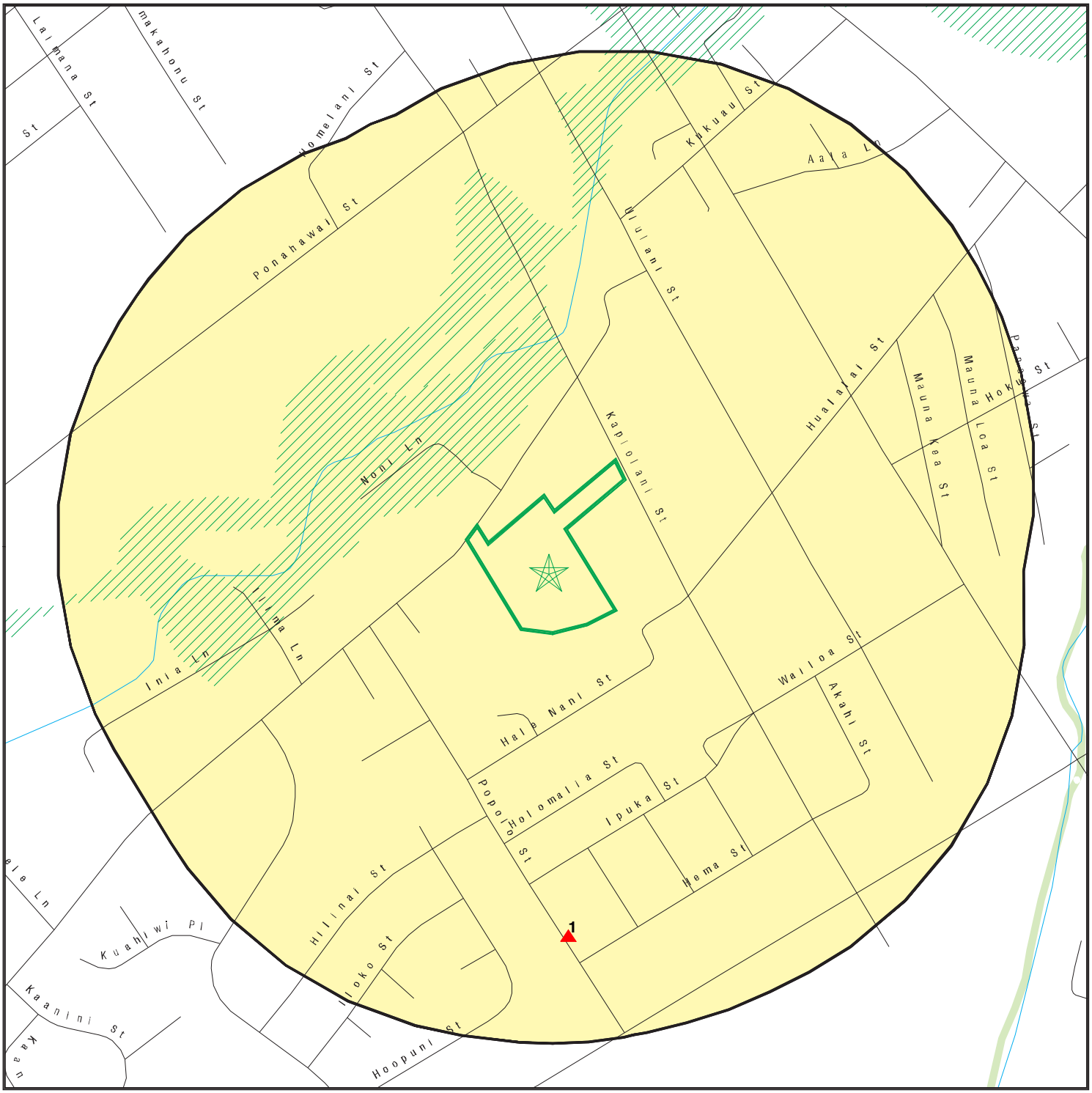
EDR HIGH RISK HISTORICAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

EDR RECOVERED GOVERNMENT ARCHIVES

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 5554368.2S



0 300 1/3 Miles

- 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

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: A0705 Hilo Kaiaulu O Kapiolani ADDRESS: Not Reported Hilo HI 96720 LAT/LONG: 19.71405 / 155.087087	CLIENT: Environmental Risk Analysis. LLC CONTACT: Maximiliano Ulloa INQUIRY #: 5554368.2s DATE: February 05, 2019 7:49 pm

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SECONDARY MAP - 5554368.2S

0 1/3 1/2 1 Miles

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: A0705 Hilo Kaiaulu O Kapiolani ADDRESS: Not Reported Hilo HI 96720 LAT/LONG: 19.71405 / 155.087087	CLIENT: Environmental Risk Analysis. LLC CONTACT: Maximiliano Ulloa INQUIRY #: 5554368.2s DATE: February 05, 2019 7:48 pm

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LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**			EDR SITE ID NUMBER
◆ **MAP ID#**	Direction Distance Range Relative Elevation	(Distance feet / miles) Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.

Worksheet:

Comments:
Comments may be added on the online Vapor Encroachment Worksheet.

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

HALAI HILL RADIO STATION END OF ULILI ST, OFF HINA ST S HILO, HILO, HI, 96720			U003541909
▲ 1	S 1/10 - 1/3	(1308 ft. / 0.248 mi.)	State and tribal leaking storage tank lists State and tribal registered storage tank lists Other Ascertainable Records
	30 ft. Higher Elevation	121 ft. Above Sea Level	

Worksheet:

LUST: State and tribal leaking storage tank lists

Facility ID:	9-600561
Facility Status:	Site Cleanup Completed (NFA)
Facility Status Date:	08/23/1999
Release ID:	990152
Project Officer:	Jeffrey Ung

UST: State and tribal registered storage tank lists

Facility ID:	9-600561
Owner:	Hawaiian Telcom
Owner Address:	1177 Bishop Street, Suite 20
Owner City,St,Zip:	Hilo, 96720 96720
Latitude:	19.709730
Longitude:	-155.086850
Horizontal Reference Datum Name:	NAD83
Horizontal Collection Method Name:	GPS
Tank ID:	M-2
Date Installed:	10/01/1998
Tank Status:	**Currently in Use**
Date Closed:	Not Reported
Tank Capacity:	600
Substance:	Other
Tank ID:	R-1

HALAI HILL RADIO STATION, END OF ULILI ST, OFF HINA ST S HILO, HILO, HI 96720 (Continued)

Date Installed:	05/07/1982
Tank Status:	**Permanently Out of Use**
Date Closed:	10/26/1998
Tank Capacity:	280
Substance:	Gasoline

HI Financial Assurance: Other Ascertainable Records

Alt Facility ID:	9-600561
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Risk Retention Group
Expiration Date:	Not Reported

Alt Facility ID:	9-600561
Tank Id:	M-2
Tank Status:	Currently in Use
FRTYPE:	Risk Retention Group
Expiration Date:	Not Reported

Alt Facility ID:	9-600561
Tank Id:	M-2
Tank Status:	Currently in Use
FRTYPE:	Insurance
Expiration Date:	05/02/2010

Alt Facility ID:	9-600561
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	05/02/2010

Alt Facility ID:	9-600561
Tank Id:	R-1
Tank Status:	Permanently Out of Use
FRTYPE:	Insurance
Expiration Date:	05/02/2015

Alt Facility ID:	9-600561
Tank Id:	M-2
Tank Status:	Currently in Use
FRTYPE:	Insurance
Expiration Date:	05/02/2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
ENVIRONMENTAL RECORDS						
Federal NPL site list						
US	NPL	National Priority List	EPA	12/12/2018	12/28/2018	01/11/2019
US	Proposed NPL	Proposed National Priority List Sites	EPA	12/12/2018	12/28/2018	01/11/2019
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
Federal CERCLIS list						
US	SEMS	Superfund Enterprise Management System	EPA	12/12/2018	12/28/2018	01/11/2019
Federal RCRA CORRACTS facilities list						
US	CORRACTS	Corrective Action Report	EPA	03/01/2018	03/28/2018	06/22/2018
Federal RCRA TSD facilities list						
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
Federal RCRA generators list						
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
Federal institutional controls / engineering controls registries						
US	LUCIS	Land Use Control Information System	Department of the Navy	10/17/2018	10/25/2018	12/07/2018
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	07/31/2018	08/28/2018	09/14/2018
US	US INST CONTROL	Sites with Institutional Controls	Environmental Protection Agency	07/31/2018	08/28/2018	09/14/2018
Federal ERNS list						
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	09/24/2018	09/25/2018	11/09/2018
State and tribal - equivalent CERCLIS						
HI	SHWS	Sites List	Department of Health	09/27/2018	11/19/2018	12/04/2018
State and tribal landfill / solid waste disposal						
HI	SWF/LF	Permitted Landfills in the State of Hawaii	Department of Health	09/17/2012	04/03/2013	05/10/2013
State and tribal leaking storage tank lists						
HI	LUST	Leaking Underground Storage Tank Database	Department of Health	08/31/2018	09/11/2018	10/10/2018
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	04/10/2018	05/18/2018	07/20/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
State and tribal registered storage tank lists						
HI	UST	Underground Storage Tank Database	Department of Health	08/31/2018	09/11/2018	10/10/2018
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	04/10/2018	05/18/2018	07/20/2018
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	FEMA UST	Underground Storage Tank Listing	FEMA	05/15/2017	05/30/2017	10/13/2017
State and tribal institutional control / engineering control registries						
HI	ENG CONTROLS	Engineering Control Sites	Department of Health	09/27/2018	11/19/2018	12/04/2018
HI	INST CONTROL	Sites with Institutional Controls	Department of Health	09/27/2018	11/19/2018	12/04/2018
State and tribal voluntary cleanup sites						
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
HI	VCP	Voluntary Response Program Sites	Department of Health	09/27/2018	11/19/2018	12/04/2018
State and tribal Brownfields sites						
HI	BROWNFIELDS	Brownfields Sites	Department of Health	09/27/2018	11/19/2018	12/04/2018
Other Records						
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	09/30/2018	10/12/2018	12/07/2018
US	ROD	Records Of Decision	EPA	12/12/2018	12/28/2018	01/11/2019
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	12/12/2018	12/28/2018	01/11/2019
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	12/12/2018	12/28/2018	01/11/2019
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	05/24/2017	11/30/2017	12/15/2017
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	08/08/2017	09/11/2018	09/14/2018
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	08/31/2018	09/25/2018	11/09/2018
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2005	08/07/2009	10/22/2009
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	07/01/2014	09/10/2014	10/20/2014
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	09/21/2018	09/21/2018	11/09/2018
US	Delisted NPL	National Priority List Deletions	EPA	12/12/2018	12/28/2018	01/11/2019
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	12/13/2018	12/28/2018	01/11/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	03/26/2018	03/27/2018	06/08/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	10/01/2018	10/30/2018	01/18/2019
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	09/21/2018	09/21/2018	11/09/2018
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	12/17/2018	12/18/2018	01/11/2019
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	12/31/2005	02/06/2006	01/11/2007
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	01/31/2015	07/08/2015	10/13/2015
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	06/23/2017	10/11/2017	11/03/2017
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	08/01/2018	08/29/2018	10/05/2018
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	12/05/2005	02/29/2008	04/18/2008
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	PRP	Potentially Responsible Parties	EPA	08/13/2018	10/04/2018	11/09/2018
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2016	01/10/2018	01/12/2018
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/21/2017	01/05/2018
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	SSTS	Section 7 Tracking Systems	EPA	12/31/2009	12/10/2010	02/25/2011
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	PADS	PCB Activity Database System	EPA	09/14/2018	10/11/2018	12/07/2018
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	08/30/2016	09/08/2016	10/21/2016
US	RADINFO	Radiation Information Database	Environmental Protection Agency	10/02/2018	10/03/2018	11/09/2018
US	FINDS	Facility Index System/Facility Registry System	EPA	11/15/2018	12/05/2018	01/11/2019
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RMP	Risk Management Plans	Environmental Protection Agency	10/26/2018	11/06/2018	01/11/2019
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2015	02/22/2017	09/28/2017
US	PWS	Public Water System Data	EPA	12/17/2013	01/09/2014	10/15/2014
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
HI	AIRS	List of Permitted Facilities	Department of Health	12/31/2018	01/04/2019	01/25/2019
HI	CDL	Clandestine Drug Lab Listing	Department of Health	08/04/2010	09/10/2010	10/22/2010
HI	DRYCLEANERS	Permitted Drycleaner Facility Listing	Department of Health	12/31/2018	01/04/2019	01/25/2019
HI	Financial Assurance	Financial Assurance Information Listing	Department of Health	12/21/2018	12/26/2018	01/25/2019
HI	LEAD	Lead Inspection Listing	Department of Health	12/07/2018	12/11/2018	01/25/2019
HI	SPILLS	Release Notifications	Department of Health	08/14/2018	08/21/2018	09/11/2018
HI	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	03/10/2012	01/03/2013	02/11/2013
HI	UIC	Underground Injection Wells Listing	Department of Health	02/07/2013	02/12/2013	04/09/2013
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	UXO	Unexploded Ordnance Sites	Department of Defense	09/30/2017	06/19/2018	09/14/2018
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/31/2018	07/26/2018	10/05/2018
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	09/02/2018	09/05/2018	09/14/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	09/10/2018	09/11/2018	09/14/2018
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	08/22/2018	08/22/2018	10/05/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
HISTORICAL USE RECORDS						
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
HI	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Health		07/01/2013	01/08/2014
HI	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Health		07/01/2013	01/17/2014
HI	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Health		07/01/2013	01/03/2014

STREET AND ADDRESS INFORMATION

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Appendix **D**

BUREAU OF CONVEYANCE DOCUMENTATION

TERRITORY OF HAWAII
TAX COMMISSIONER
TAXATION MAPS BUREAU

SOURCE:	LOC. & TITLE:			DIV
BY TSA/ely DATE 2/14/51	DEED, ETC. ROUTE SLIP	TMB NO. ✓	1980	2 4 25 48
BY DATE				

NO.	GRANTOR	TMB AREA	GRANTEE
1	R/S: New, 362,493 6, See M-308 '50 2425-3 2/12/51	362,493 6	Akana A Richardson Tr Est (Kinoole Development Co Ltd)-le
2.	See reverse side	362,493 6	ditto
3.	TMB 3936'62(2204-34 etc) RYT/sy 2/19/63 Amendment of Trust: George G Richardson, Robert M Richardson, Julius C Richardson & Thomas R Guard, grandchildrren, Doc 300207 C-22629 11/19/62 12/10/62 Amend paragraph 2 of agrmt, etc. KEYED ONLY	do	do
4.	TMB 3937'62(2204-34 etc) RYT/sy 2/19/63 Termination of Trust: George G Richardson, settlor, To: Hawn Trust Co Ltd, Trustee Doc 300208 C-22629 11/27/62 12/10/62 settlor terminate & cancel trust, etc. KEYED ONLY	do	do
5.	TMB 3938'62(2204-34 etc) RYT/sy 2/19/63 Termination of Trust: Robert M Richardson, settlor, To: Hawn Trust Co Ltd, Trustee Doc 300 209 C-22629 11/19/62 12/10/62 Settlor terminate & cancel trust, etc. KEYED ONL Y	do	do

(Unlimited)

NOTE LAST AREA & GRANTEE FINAL DATA AS SHOWN ON TAX MAPS.

2269

SOURCE:	LOC. & TITLE: S. Hilo		2 4 25 48
	LCApp 1205		
BY DATE	DEED, ETC.:	TMB NO.	
BY DATE			

NO	PAGE 2 GRANTOR ETC	AREA OF PARCEL	GRANTEE ETC
6.	TMB 3939'62(2204-34 etc) RYT/sy 2/19/63		
	Termination of Trust: Julius C Richardson	362,493 ℘	Akana A Richardson Trust Estate
	settlor, To: Hawn Trust Co Ltd, Trustee		(Kinoole Development Co Ltd)Le
	Doc 300210 C-22629 12/1/62 12/10/62		
	Settlor terminate & cancel trust, etc.		
	KEYED ONLY		
7.	TMB 3940'62(2204-34 etc) RYT/sy 2/19/63		
	Termination of Trust: Thomas R Guard,	do	do
	settlor, To: Hawn Trust Co Ltd, Trustee		
	Doc 300211 C-22629 12/4/62 12/10/62		
	Settlor terminate & cancel trust, etc.		
	KEYED ONLY		
8.	TMB 4369'64 (2209-letc)RYT/pl 11/20/64		
	D: Cooke Tr. Co., Ltd. Trustee under will	do	Robert M Richardson 1/4
	& Est of Akana Amalia Richardson, dec'd		Julius C Richardson Tr. 1/4
	Doc 345312 C-100190 Cons:Termination of		George G Richardson Tr. 1/4
	Trust 10/23/64 10/23/64.		Thomas R Guard 1/4-T/C
			(Kinoole Development Co.Ltd)le
9.	TMB 100'67 LB/yc 1/19/67		
	D: 2425-48 por (5,069 ℘) dropped into Rd.	357,424 ℘	do
	Robert M Richardson etal To: County of Hawaii		
	Doc 408559 C-113158 Cons:$1. 11/18/66 1/10/67		
	F/D: 2425-48: Area & bdry		
	(continued)		
		NOTE: LAST AREA & GRANTEE FINAL DATA AS SHOWN ON TAX MAPS.	

TERRITORY OF HAWAII
TAX COMMISSIONER
TAXATION MAPS BUREAU

TMB 100 3 TITLE HISTORY & RECAP SHEET

2
2
6
8

STATE OF HAWAII DEPARTMENT OF TAXATION
PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH

FORM P-19 HISTORY SHEET

TAX MAPS BRANCH HISTORY SHEET

DATE: 10/19/67

LOCATION: Naiakea

TITLE: LCApp 1205

DIV. Z	S	PLAT	PAR
2	4	25	48

NO.	PAGE 3 GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
10.	TMB 4393'67 (2209-1 etc) LB/js 10/18/67		
	LD CT ORD 27613: C-100190 10/4/67	357,424 ⊕	Robert M Richardson 1/4
	10/11/67 Death of George G Richardson		Julius C Richardson Tr 1/4
	on 12/26/65		Thomas R Guard 1/4
			George G Richardson Tr Est 1/4
			- T/C
	TMB 1952'68 (2209-1,etc) RYT/jo 3/21/68		(Kinoole Development Co Ltd) Le
	D: First National Bank of Haw Succ/Tr To:	do	To: Fay I Linger -1/4
	Fay I Linger Und 1/4 int in Doc 438885		Robert M Richardson -1/4
	C-119426 SCT-$00 2/27/68 3/11/68		Julius C Richardson
	Subj: Encumbrance		Trust -1/4
			Thomas R Guard -1/4 -T/C
12	TMB 759'69 (2209-1,etc) RYT/jo 2/20/69		(Kinoole Dev Co Ltd) Le
	Amd/L: Robert M Richardson etal, succ/tr.	do	do
	etal To: Kinoole Dev Co Ltd Doc 464926		
	C-100190 & 119426 SCT-$00 5/17/68 1/24/69		
	Primary rental shall be reduced.....		
	KEYED ONLY		

CONTINUED

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

2267

STATE OF HAWAII DEPARTMENT OF TAXATION
PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH

FORM P-10 HISTORY SHEET

TAX MAPS BRANCH HISTORY SHEET

DATE:					
LOCATION:	South Hilo				
TITLE:	Lot 9-2-5 etc LCApp 1205				

DIV. Z	S	PLAT	PAR
2	4	25	48

NO.	PAGE 4 GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
13	D: Robert M Richardson to: First Hawn	357,424 [1]	To: Robert M Richardson Trust. -1/4
	Bank, Trustee Doc 786623 C-186313 SCT$00		Other Owners & Ints - No Change
	9/22/76 10/22/76 Und 1/4 int in		(Le, Suble & Sub-suble -- No Change
	(TK 2209-1 etc)		
14	R/S: Est of Thomas Richardson Guard, dec'd	do	Thomas R Guard Estate -1/4
	Probate No. 38808, 1st Cir Died: 1/1/77		Other Owners & Ints - No Change
	Info per Inventory List fr I.T.U. 4/18/77		(Le, Suble & Sub-suble --No Change
	(TK 2209-1 etc)		
15	Quitclaim Dower Int: Suzanne Richardson	do	do
	to: First Hawn Bank, Sucr Tr Doc 829797		
	G-100190 SCT$00 6/28/77 8/10/77 KEYED ONLY		
	(TK 2209-1 etc)		
16	D: Hawn Tr Co Ltd, Pers Rep of Est of	do	To: Hawaiian Trust Co Ltd -1/4
	Thomas R Guard, dec'd Probate No. 38808,		Other Owners:
	1st Cir Doc 871513 C-199542 SCT$00		Robert M Richardson Trust -1/4
	4/14/78 4/25/78 (TK 2209-1 etc)		Julius C Richardson Trust -1/4
			Fay I Linger -1/4
			(Le, Suble & Sub-suble--No Change
17	D: First Hawn Bank, Tr, Fay I Linger &	do	To: Siegfied S Kagawa(m)
	Hawn Tr Co Ltd, Trustee Doc 975197		~~John Stratton Tolmie (m)~~
	~~C-218435 SCT$3450 10/1/79 11/2/79~~		~~Auto Imports of Hawaii Inc~~
	~~NOTE: Lease & various subles or parcels~~		Farms & Ranches Inc
	~~noted expired on or about 12/31/77.~~		Sea Gifts Corporation - T/C
	(TK 2209-1 etc)		

CONTINUED

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

STATE OF HAWAII DEPARTMENT OF TAXATION
PROPERTY ASSESSMENT DIVISION
MAPS BRANCH

FORM P-10 HISTORY SHEET

TAX MAPS BRANCH HISTORY SHEET

DATE:

LOCATION: South Hilo

TITLE: Lot 9-L-5 etc. LCApp 1205

DIV. Z	S	PLAT	PAR
2	4	25	48

NO.	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
	PAGE 5		
18	D: Siegfred S Kagawa	357,424	J T Trading Co Ltd -20%
	etal - Und 20% Doc 1014388 C-224491		Auto Imports of Hawaii, Inc -20%
	SCT$00 5/15/80 5/28/80 (2209-1etc)		Farms & Ranches Inc -20%
	D: John S Tolmie To: J T Trading Co Ltd		Sea Gifts Corporation -20%
	Und 20% int Doc 1014389 C-224492		Siegfred S Kagawa - 6%
	SCT$00 4/29/80 5/28/80 (2209-1etc)		Kasons Inc - 5%
	F/D: Owners & Int		Gek Corp - 3%
			Henlin Corp - 3%
			Katco Inc - 3%
19	D: Sea Gifts Corp. Doc 1034227 C-228023	do	To: Auto Imports of Hawaii, Inc. -
	SCT$0 9/29/80 10/1/80 (TK 2209-1 etc)		40%
			OTHER OWNERS & INT - NO CHANGE
20	TMB 18029'80 WK/mm 1/21/81	332,377	do
	D: (25,047, Lot 9-L-8) dropped into new		
	parcel 2425-93		
	F/D: Area, bdry		
21	TMB 3327'81 GS/mm 4/23/81	306,755	do
	D: 25,622, dropped into 2425-52(new)		
	F/D: Area & bdry		
22	TMB 3707'81 GS/mm 4/23/81	279,983	do
	D: 26,772 dropped into 2425-54(new)		
	F/D: Area & bdry		

CONTINUED

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STATE OF HAWAII DEPARTMENT OF TAXATION
PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH

FORM P-19 HISTORY SHEET

TAX MAPS BRANCH HISTORY SHEET

DATE:

LOCATION: South Hilo

TITLE: Lot 9-L-5 etc LCApp 1205

DIV. Z	S	PLAT	PAR
2	4	25	48

NO.	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
	Page 6		
23	TMB 14968'81 GN/mm 10/16/81	156,618 ▯	To: Auto Imports of Hawaii, Inc. -
	A/S: (66,240▯, Lot 9-L-10) drpd into 2425-49		40%
	(30,928▯, Lot 9-L-9) drpd into 2425-50		J T Trading Co., Ltd. - 20%
	(26,197▯, Lot 9-L-6) drpd into 2425-53		Farms & Ranches, Inc. - 20%
	F/D: Area & bdry; Lot 9-L-12		Siegfred S Kagawa - 6%
			Kasons, Inc. - 5%
			Gek, Corp. - 3%
			Henlin, Corp. - 3%
			Katco, Inc. - 3%
24	Q/D: Siegfred S Kagawa etal Doc 1142022	do	To: Lands of Kukuau
	C-244554 SCT$0 11/17/82 12/3/82		
	(TK 2209-1 etc)		
25	D: Doc 1464982 C-296784 SCT$0 5/12/87	do	To: John Stratton Tolmie Jr &wf
	5/21/87 TK 2425-48, 80		Linda Ann T/E

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

STATE OF HAWAII DEPARTMENT OF TAXATION
PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH

FORM P-19 HISTORY SHEET

TAX MAPS BRANCH HISTORY SHEET

DATE:		Z	S	PLAT	DIV. PAR
LOCATION:	South Hilo	2	4	25	53
TITLE:	Lot 9-L-6 Map 9 LCApp 1205				

NO.	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
1	TMB 14968'81 GN/mm 10/16/81	26,197 ¢	To: Auto Imports of Hawaii, Inc. -
	A/S: From 2425-48(23) 26,197¢, Lot 9-L-6,		40%
	new		J T Trading Co., Ltd. - 20%
			Farms & Ranches, Inc. - 20%
			Siegfred S Kagawa - 6%
			Kasons, Inc. - 5%
			Gek, Corp. - 3%
			Henlin, Corp. - 3%
			Katco, Inc. - 3%
2.	D: Doc 1092388 C-236771 SCT: $16.25	do	To: Hiroshi Kitsutani
	10/21/81 11/2/81		
3	D: Doc 1189805 C-252267 SCT$0	do	To: Hiroshi Kitsutani &wf
	8/30/83 9/6/83		Setsuko T/E
4	D: Doc 1328034 C-276058 SCT$0 10/3/85	do	To: Kitsutani Family Trust
	10/11/85		

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

2
2
7
4

Appendix E

INTERVIEW DOCUMENTATION

Environmental Risk Analysis

Name: Allen T. Yap
Company: Payneria Hawaii LLC
Relation to the Property: Owner's Rep
Date: February 12, 2019

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

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

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

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?

   NO

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.

   a. Do you know the past uses of the property?

      NO

   b. Do you know of specific chemicals that are present or once were present at the property?

      No

   c. Do you know of spills or other chemical releases that have taken place at the property?

      NO

   d. Do you know of any environmental cleanups that have taken place at the property?

      NO

   e. Are or were there any above or below ground storage tanks at the property?

      NO

f. Are there any previous environmental site assessments (Phase I ESAs), environmental studies, hazardous materials surveys, etc. that have been performed for the property?

unKnown

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.

a. Do you know the past uses of surrounding properties?

Residential

b. Do you know of specific chemicals that are present or once were present at surrounding properties?

NO

c. Do you know of spills or other chemical releases that have taken place at surrounding properties?

NO

d. Do you know of any environmental cleanups that have taken place at surrounding properties?

No

e. Are or were there any above or below ground storage tanks at surrounding properties?

No

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.

No

8. Current/Past Owners and Contact Information:

Name Current Owner	Company	Contact Information
Giampaolo Boschetti	955 Prague St.	
	San Francisco, CA 94112	

9. Surrounding Properties - Current/Past Tenants and Contact Information:

Name	Company	Contact Information

10. Additional Information/Comments: None

Appendix **F**

HAWAII ELECTRIC LIGHT COMPANY TRANSFORMER DOCUMENTATION

TSC 2.5.1 (Hawai'i Electric Light)
Due Diligence Inquiries

February 14, 2019

Max Ulloa
Environmental Risk Analysis, LLC.
905A Makahiki Way
Honolulu, HI 96826
Transmitted via email: maxulloa@environmentalriskhawaii.com

Dear Mr. Max Ulloa:

Subject: Transformer Information
Kapiolani Street and
Kukuau Street
Hilo, Hawaii Island, Hawaii
TMK 2-4-025:043, 053, and 080

In response to your request for information regarding Hawai'i Electric Light transformers in the vicinity of the above referenced location, we are providing the following information:

Pole / Vault Number	Transformer Number	Type	Address	Date Purchased	PCB Status
151615	41840	Pole-Mount	2-4-025:080	10/13/2009	Non-PCB
127301	38564	Pole-Mount	2-4-025:080	05/05/2006	Non-PCB
127300	23008	Pole-Mount	346 Kukuau Street	06/28/1991	Non-PCB

If you have any other questions, please contact me at (808) 969-0266 or cchunhoo@hawaiielectriclight.com.

Sincerely,

Christopher Chun-Hoon
Environmental Compliance Coordinator

Appendix F

SITE RECONNAISSANCE PHOTOGRAPHS

Photograph #1

Description of Photograph:

Parcel 053 from Kapiolani Street

Photograph Date:
February 10, 2019

Photograph #2

Description of Photograph:

Across Kapiolani Street is the Hawaii Public Safety Building.

Photograph Date:
February 10, 2019

Photograph #3

Description of Photograph:

Adjacent residential structures along the northern border of parcel 048.

Photograph Date:
February 10, 2019

Photograph #4

Description of Photograph:

Some of the transformers observed near the Site.

Photograph Date:
February 10, 2019

Photograph #5

Description of Photograph:

Other residential structures located along the northwestern boundary of parcel 048.

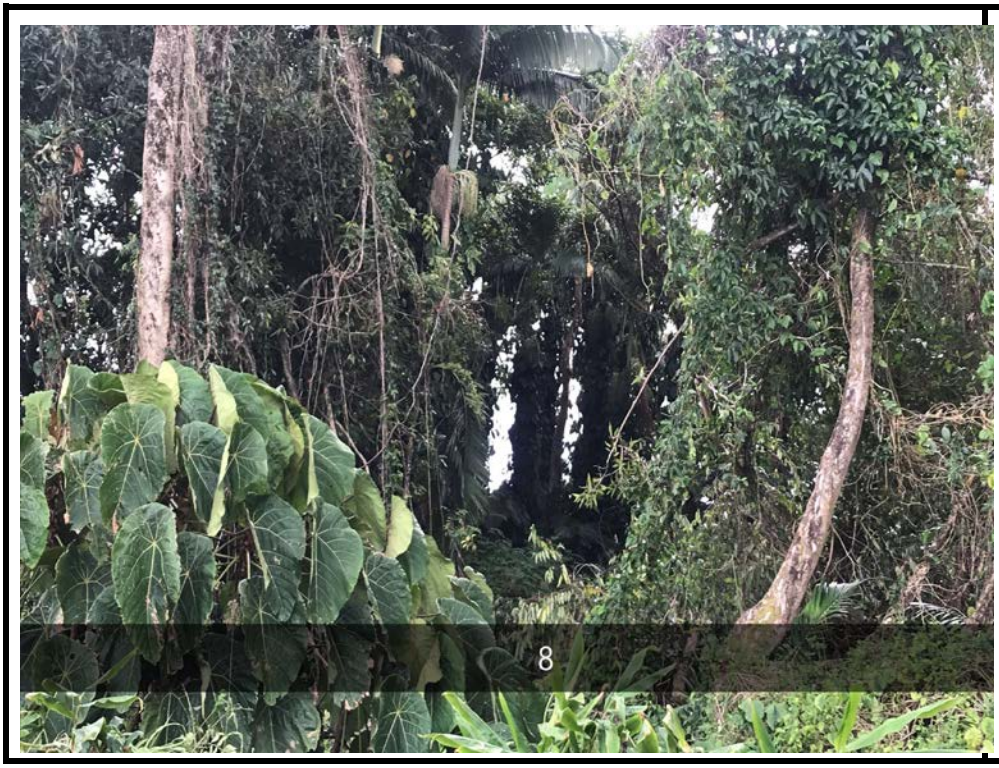
Photograph Date:
February 10, 2019

Photograph #6

Description of Photograph:

Inside parcel 053 near the northwestern corner looking toward the center of the parcel.

Photograph Date:
February 10, 2019



Photograph #7

Description of Photograph:

Inside parcel 053 near the southeastern corner looking toward the center of the parcel.

Photograph Date:
February 10, 2019

Photograph #8

Description of Photograph:

Hualalai Street: entrance to the residential structures along the southern edge of the Site (near parcel 080).

Photograph Date:
February 10, 2019

Photograph #9

Description of Photograph:

Structures across Kukuau Street in the northern edge of the Site.

Photograph Date:
February 10, 2019

Photograph #10

Description of Photograph:

Low laying grass in the center of the Site (Parcel 53)

Photograph Date:
February 10, 2019

Exhibit 7: Endangered Species

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 *et seq*.); particularly section 7 (16 USC 1536).	50 CFR Part 402
References		
https://www.hudexchange.info/environmental-review/endangered-species		

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 construct ion 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:

<u>Worksheet Summary</u>
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
Honolulu, Hawai'i 96850

In Reply Refer To:
01EPIF00-2021-SL-0372

July 19, 2021

Rachel Okoji
Environmental Risk Analysis, LLC
905A Makahiki Way
Honolulu, Hawai'i 96826

Subject: Species List for the Kaiaulu O Kapiolani Housing Development, Hilo, Hawai'i

Dear Rachel Okoji:

Thank you for your email of June 25th requesting comment for the development of a Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development, Hilo, Hawai'i. We further appreciate your July 12, 2021 email including the link to the Draft Environmental Assessment. The regulatory requirements of 24 CFR 58.4 require units of local governments to assume the responsibility for environmental review, decision-making, and actions that would otherwise apply to the Department of Housing and Human Development (HUD) under the provisions of NEPA and other provisions of law that further the purposes of NEPA as "responsible entities". This includes section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended. The U.S. Fish and Wildlife Service (Service) understands that the County of Hawai'i will administer Federal funding from HUD in support of this project and will therefore act as the responsible entity on behalf of HUD as it pertains to section 7 consultation with the Service.

The proposed development site (TMKs [3] 2-4-025:048,053,080) is an undeveloped lot encompassing 5.05 acres in Hilo, on the island of Hawai'i. The project proponent, A0705 Hilo, L.P., proposes to develop an affordable rental complex of 64 units, consisting of 32 two-bedroom units, an estimated 24 three-bedroom units, and an estimated 8 four-bedroom units in Hilo. The development will include a community center for resident use and at least 80 parking stalls. This location is already zoned for multi-family dwelling units. Habitat consists mostly of nonnative trees and shrubs.

This letter has been prepared under the authority of, and in accordance with, provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*) as amended (ESA). We have reviewed

the information you provided and pertinent information in our files, as it pertains to listed species in accordance with section 7 of the ESA. The Service provides the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation and construction.

Our data indicate the following federally listed species may occur or transit through the vicinity of the proposed project area: the threatened Hawaiian goose or nēnē (*Branta sandvicensis*), the endangered Hawaiian hoary bat or ʻopeʻapeʻa (*Lasiurus cinereus semotus*), the endangered Hawaiian petrel or ʻuaʻu (*Pterodroma sandwicensis*), the endangered Hawaiʻi distinct population segment of the band-rumped storm-petrel or ʻakeʻake (*Oceanodroma castro*), the threatened Newell's shearwater or ʻaʻo (*Puffinus auricularis newelli*), the endangered Hawaiian stilt or aeʻo (*Himantopus mexicanus knudseni*), the endangered Hawaiian coot or ʻalae keʻokeʻo (*Fulica alai*), and the endangered Blackburn's sphinx moth (*Manduca blackburni*). The Hawaiian petrel, band-rumped storm-petrel, and Newell's shearwater will hereafter, collectively be referred to as "Hawaiian seabirds," and the Hawaiian stilt and Hawaiian coot will be referred to as "Hawaiian waterbirds." There is no critical habitat for listed species in the vicinity of this proposed project.

The Hawaiian hawk or ʻio (*Buteo solitarius*), a species that was recently removed from the Federal list of threatened and endangered species, is known to occur in the area. While the Service no longer consults on the Hawaiian hawk, this species is still protected under Hawaiian state regulations (H.R.S. §195D-4) and the Migratory Bird Treaty Act (16 U.S.C. 703-712). Please see our recommendations below and reference the aforementioned regulations for any additional consultation or mitigation requirements.

Hawaiian goose

The Hawaiian goose is found on the islands of Hawaiʻi, Maui, Molokaʻi, and Kauaʻi. 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 energy facilities, and vehicle strikes.

To avoid and minimize potential project impacts to the Hawaiian goose we recommend you incorporate the following measures into your project plan:

- Do not approach, feed, or disturb the Hawaiian goose.
- If a Hawaiian goose is observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with Hawaiian goose nesting behavior 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 (ft) of proposed project, or a previously undiscovered nest is found within the 150-ft radius after work begins.
- In areas where Hawaiian goose 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 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 ft 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 ft to higher than 500 ft 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 plan:

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

Hawaiian seabirds

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 light attraction.

To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following measures into your project plan:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- 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.

Hawaiian waterbirds

Hawaiian waterbirds are currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, *Colocasia esculenta* (kalo or taro) lo'i or patches, irrigation ditches, sewage treatment ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. Threats to these species include nonnative predators, habitat loss, and habitat degradation.

Based on the project details provided, your project may result in the creation of standing water or open water that could attract Hawaiian waterbirds to the project site. In particular, the Hawaiian stilt is known to nest in sub-optimal locations (e.g., any ponding water), if water is present. Hawaiian waterbirds attracted to sub-optimal habitat may suffer adverse impacts, such as predation and reduced reproductive success, and thus the project may create an attractive nuisance. Therefore, we recommend you work with our office during project planning so that we

may assist you in developing measures to avoid impacts to listed species (e.g., fencing, vegetation control, predator management).

To avoid and minimize potential project impacts to Hawaiian waterbirds we recommend you incorporate the following applicable measures into your project plan:

- In areas where waterbirds 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.
- If water resources are located within or adjacent to the project site, incorporate applicable best management practices regarding work in aquatic environments into the project design (see enclosed Aquatic Best Management Practices).
- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. Repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found:
    - Contact the Service within 48 hours for further guidance.
    - Establish and maintain a 100-ft buffer around all active nests and/or broods until the chicks have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
    - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

Blackburn's sphinx moth

The adult Blackburn's sphinx moth feeds on nectar from native plants, including *Ipomoea pes-caprae* (beach morning glory), *Plumbago zeylanica* ('ilie'e), *Capparis sandwichiana* (maiapilo), and others. Blackburn's sphinx moth larvae feed on nonnative *Nicotiana glauca* (tree tobacco), and native, federally listed, *Nothocestrum* spp. ('aiea). To pupate, the larvae burrow into the soil and can remain in a state of torpor for 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 occurs 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 plants prior to work initiation.
    - Surveys should be conducted during the wettest portion of the year (usually November-to-April or several weeks after a significant rain) and within 4-to-6 weeks prior to construction.
    - Surveys should include searches for adults, eggs, larvae, and signs of larval feeding (i.e., chewed stems, frass, or leaf damage).
    - If moths, eggs, larvae, or native 'aiea or tree tobacco over 3-ft tall, are found during the survey, please contact the Service for additional guidance to avoid impacts to this species.

If no Blackburn's sphinx moth, 'aiea, or tree tobacco are found during surveys, it is imperative that measures be taken to avoid attraction of Blackburn's sphinx moth to the project location and prohibit tree tobacco from entering the site. Tree tobacco can grow greater than 3-ft tall in approximately 6 weeks. If it grows over 3-ft tall, the plants may become a host plant for Blackburn's sphinx moth. We therefore recommend that you:

- Remove any tree tobacco less than 3-ft tall.
- Monitor the site every 4-to-6 weeks for new tree tobacco growth before, during, and after the proposed ground-disturbing activity.
    - 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.

Hawaiian hawk

The Hawaiian hawk was recently federally delisted but remains a listed species under Hawai'i State law. The Hawaiian hawk is known to occur across a broad range of forest habitats throughout the island of Hawai'i. Loud, irregular and unpredictable activities, such as using heavy equipment or building a structure, near an endangered Hawaiian hawk nest may cause nest failure. Harassment of Hawaiian hawk nesting sites can alter feeding and breeding patterns or result in nest or chick abandonment. Nest disturbance can also increase exposure of chicks and juveniles to inclement weather or predators.

To avoid and minimize impacts to Hawaiian hawks we recommend you incorporate the following applicable measures into your project plan:

- If work must be conducted between March 1 through September 30, during the Hawaiian hawk breeding season, have a biologist familiar with the species conduct a nest search of the project footprint and surrounding areas immediately prior to the start of construction activities.
    - Pre-disturbance surveys for Hawaiian hawks are only valid for 14 days. If disturbance for the specific location does not occur within 14 days of the survey, conduct another survey.
- Clearing of vegetation or construction activities should not occur within 1,600 ft of any active Hawaiian hawk nest during the breeding season until the young have fledged.
- Regardless of the time of year, avoid trimming or cutting trees containing a hawk nest, as nests may be re-used during consecutive breeding seasons.

Other Measures to Reduce Mortality of Listed Animal Species

Additional measures for housing developments common to all listed animal species that will reduce mortality or predation include the following:

- Post and enforce low speed limits to reduce vehicle collisions with wildlife.
- Require all pets, including cats and dogs, to be on leash at all times outside.
- Require garbage cans with lids to reduce populations of rats and mongoose, which are invasive species and prey upon native and endangered species.
- Provide signage instructing residents and visitors to avoid approaching, feeding, or disturbing wildlife.

The Service recommends incorporating all applicable avoidance and minimization measures into your project design to avoid and minimize effects on protected species. If you determine 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 ESA compliance. We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Melissa Cady, Fish and Wildlife Biologist at 808-933-6963 or melissa_cady@fws.gov. When referring to this project, please include this reference number: 01EPIF00-2021-SL-0372.

Sincerely,

CHELSIE JAVAR-SALAS

Digitally signed by CHELSIE JAVAR-SALAS
Date: 2021.07.19 13:23:51 -10'00'

Island Team Manager
Maui Nui and Hawai'i Island

Enclosure (1): Aquatic Best Management Practices

cc: Desiree Moore, Hawai'i County
Janice Takahashi, HHFDC
Pacific Islands Fish and Wildlife Service Field Office Adminstrative Staff

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

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

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.

2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.

3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see https://www.fws.gov/policy/A1750fw1.html) can help to prevent attraction and introduction of non-native species.

5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (*e.g.*, with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

Exhibit 8: Explosive and Flammable Hazards

July 16, 2019

State of Hawaii
Department of Defense
3949 Diamond Head Road
Honolulu, Hawaii 96816

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

These units will address the critical housing shortage issue on the island of Hawaii, and specifically to the city of Hilo. Due to the overwhelming demand for affordable housing, A0705 Hilo, L.P. (project proponent) proposes the Kaiaulu O Kapiolani project for the potential to improve the quality of life for residents that cannot afford homes in the area. As the proposed project is in a developed area and has a low potential for adverse environmental impacts, ERA anticipates a Finding of No Significant Impact.

Please forward any comments, questions, or concerns within 30 calendar days. Comments can be submitted via email to kristen@enviroriskhawaii.com, or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Kapiolani Housing Development.

Sincerely,

Rachel Okoji, M.S.
President

Exhibit 9: Farmland Protection

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,280 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 5N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Island of 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.

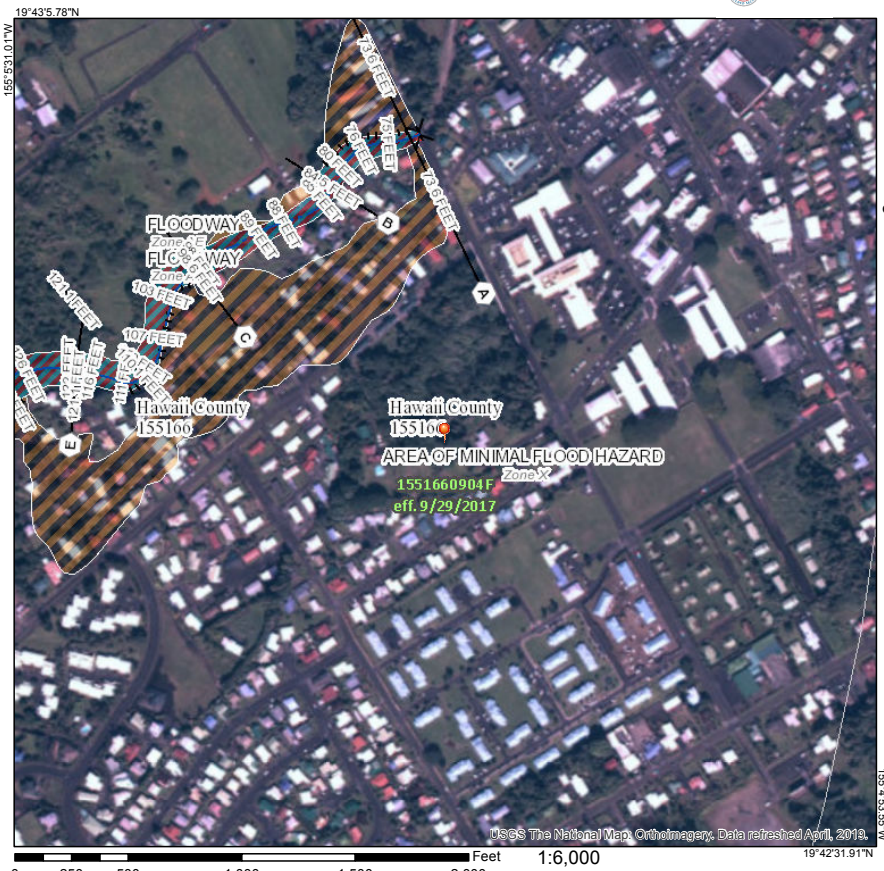
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
639	Keaukaha-Urban land complex, 2 to 10 percent slopes	13.9	100.0%
Totals for Area of Interest		**13.9**	**100.0%**

Exhibit 10: Floodplain Management

National Flood Hazard Layer FIRMette

FEMA



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Area 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
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represe 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 8/8/2019 at 6:10:37 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.

Exhibit 11: Historic Preservation

SCS Project Number 2340-2

AN ARCHAEOLOGICAL ASSESSMENT REPORT FOR A 0.6447-ACRE PROPERTY IN KŪKŪAU 1ST AHUPUA‘A, SOUTH HILO DISTRICT, HAWAI‘I ISLAND, HAWAI‘I [TMK: (3) 2-4-025:080]

Prepared By:
Glenn G. Escott, M.A.

MAY 2022
FINAL

Prepared for:
Urban Housing Communities, LLC
2000 E. Fourth Street, Suite 205
Santa Ana, CA 92705

SCIENTIFIC CONSULTANT SERVICES Inc.
1357 Kapi‘olani Boulevard, Suite 850 Honolulu, HI 96814
Hawai‘i Island Office: PO Box 155 Kea‘au, HI 96749

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EXECUTIVE SUMMARY

Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey (AIS) of a 0.6447-acre parcel [TMK: (3) 2-4-025:080] in Kūkūau 1st Ahupaʻa, South Hilo District, Hawaiʻi Island to identify historic properties within the project area. Parcel 080 is an easement located southeast of Kūkūau Street that is bounded to the north by Kūkūau Street, to the east by undeveloped land (Parcel 048), and by residential properties to the south and west.

The AIS was conducted as supporting documentation required for the proposed Office of Housing and Community Development (OHCD) Kaiāulu o Kapiʻolani Affordable Housing Project within TMK: (3) 2-4-025: 048, 053 and 080. The development will include nine residential buildings containing 32 two-bedroom units, 24 three-bedroom units, and 8 four-bedroom units, access roads, and a community center and 117-stall parking lot. The proposed undertaking will include grubbing, grading and trenching for utilities.

The proposed project is a private project undertaken on private land, using private funding, under the direction of the OHCD, requiring County of Hawaiʻi and Hawaiʻi state approvals/permits, and is subject to Hawaiʻi Revised Statutes (HRS) 6E-42 historic preservation review.

The proposed OHCD project will receive partial federal funding from the U.S. Department of Housing and Urban Development (HUD) and is considered a federal action and undertaking, as defined in Title 36 of the Code of Federal Regulations (CFR) Part 800.16(y) and is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006). Under 24 CFR Part 58 Section 5 of 1998, as amended (2003), OHCD is the entity responsible for compliance with environmental requirements including those relating to NHPA and Section 106.

A pedestrian survey of TMK: (3) 2-4-025:080 was conducted on July 11, 2019 by SCS Senior Archaeologists Glenn Escott M.A. and Suzan Escott, B.A. There were no historic properties identified within TMK: (3) 2-4-025:080.

As there were no archaeological sites identified within the current project area (TMK: (3) 2-4-025:080), and Site 25547 previously recorded within TMK: (3) 2-4-025:048 was adequately documented during the Nelson et al. (2006) AIS study and no further work was recommended for Site 25547 (Nelson et al. 2006:18), these findings support a project effect determination of no historic properties directly affected the proposed affordable housing.

Given that the project area is surrounded by existing rental housing, modern residential neighborhoods, the police station, businesses, paved roads, sidewalks, and overhead utility lines, these findings support a project determination of no added visual effect on the existing historic properties located within one-half mile of the project area.

These findings support a project effect determination of "No historic properties affected" pursuant to HAR §13-284-7(a)(1) and *no historic properties affected* pursuant to 36 CFR 800.4(d)(1).

INTRODUCTION

PROJECT AREA DESCRIPTION

Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey (AIS) of a 0.6447-acre parcel [TMK: (3) 2-4-025:080] in Kūkūau 1st Ahupaʻa, South Hilo District, Hawaiʻi Island to identify historic properties within the project area (Figures 1 through 4). Parcel 080 is an easement located southeast of Kūkūau Street and is owned by Giampaolo Boschetti. Parcel 080 is bounded to the north by Kūkūau Street, to the east by undeveloped land (Parcel 048), and by residential properties to the south and west. Parcel 080 is situated at 95 feet (29 meters) above mean sea level on level land. The AIS was conducted under contract to Urban Housing Communities, LLC.

In response to Hawaiʻi Island's affordable housing needs, the Office of Housing and Community Development (OHCD) and the developer are proposing to build a 64-unit low-income housing development on TMK: (3) 2-4-025: 048, 053 and 080 (Figure 5). The development will include nine residential buildings containing 32 two-bedroom units, 24 three-bedroom units, and 8 four-bedroom units, access roads, and a community center and 117-stall parking lot. The proposed undertaking will include grubbing, grading and trenching for utilities.

The proposed project is a private project undertaken on private land, using private funding, under the direction of the OHCD, requiring County of Hawaiʻi and Hawaiʻi state approvals/permits, and is subject to Hawaiʻi Revised Statutes (HRS) 6E-42 historic preservation review.

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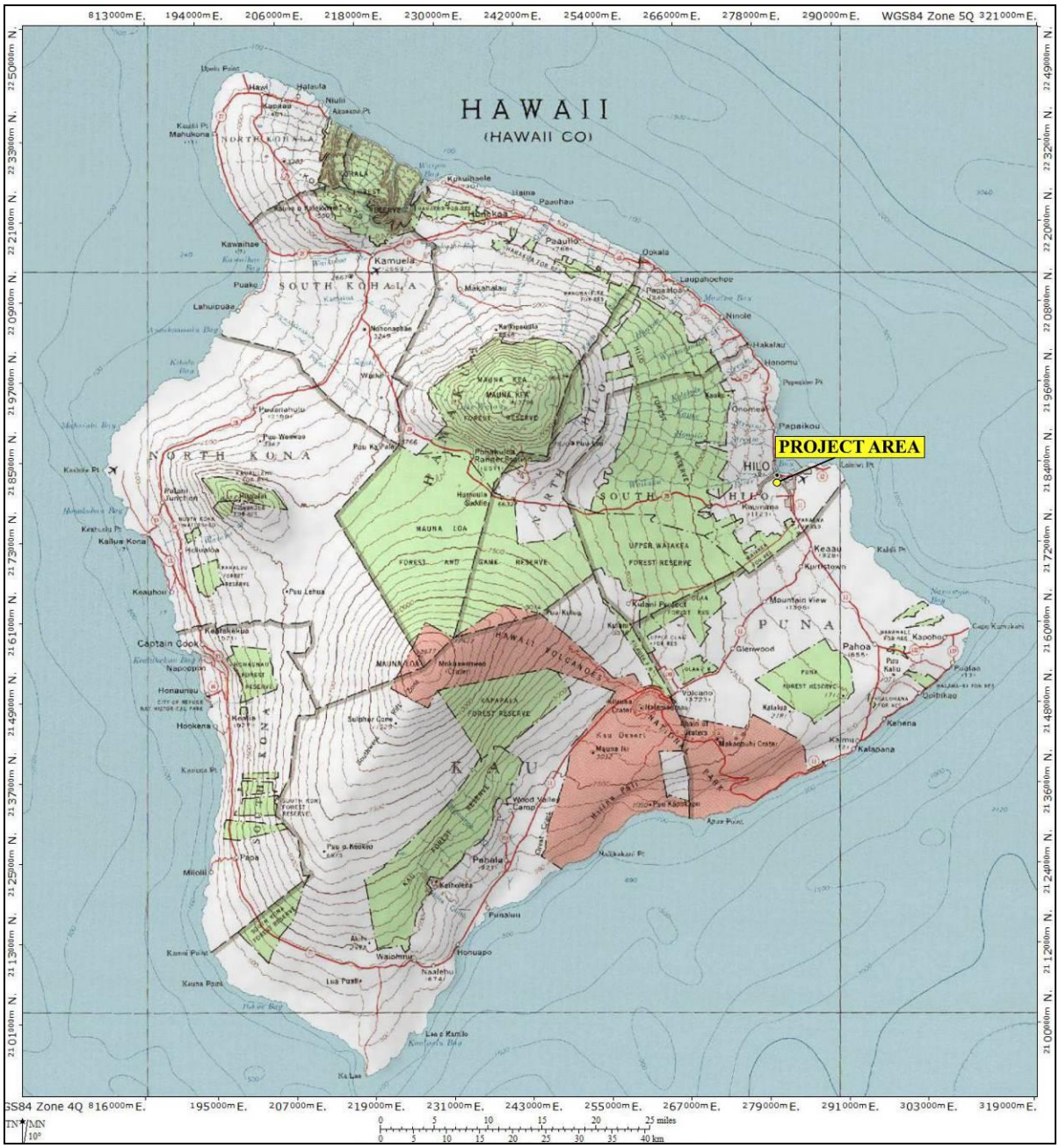

Figure 1: 5,500 K-Series Map of Hawai‘i Showing Location of Project Area (National Geographic Topo!, 2003. Data Sources: National Geographic Society, USGS).

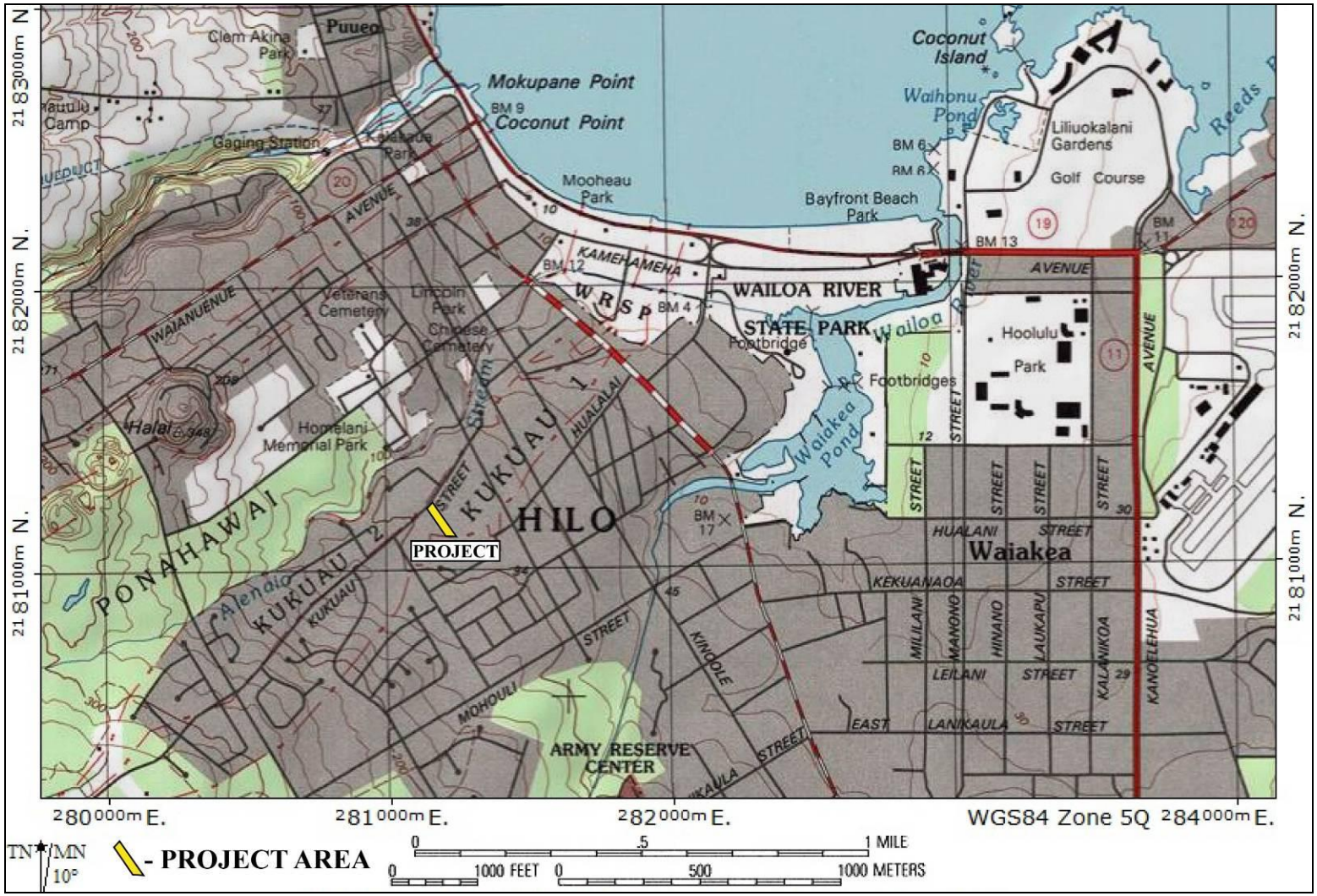

Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

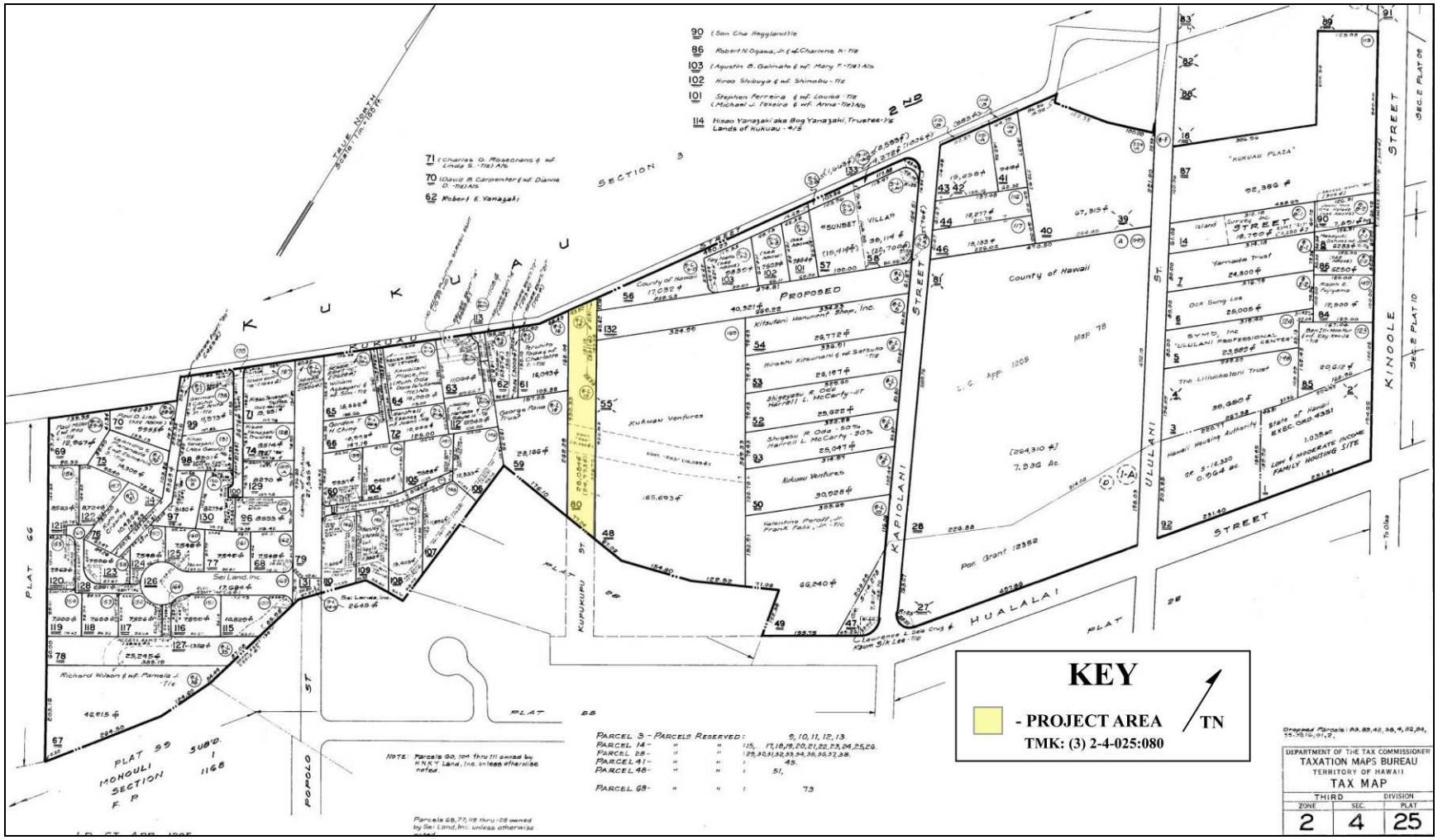

Figure 3: TMK: (3) 2-4-025 Map Showing Location of Project Area (County of Hawai‘i Planning Department, 2019).

Figure 4: Aerial Photograph Showing Project Area, Hilo, HI, Zone 5 North, 281222 m E, 2181166 m N. (Google Earth, 2013 Image. Data Sources: Digital Globe, GeoEye, Earthstar, USDA, and USGS).

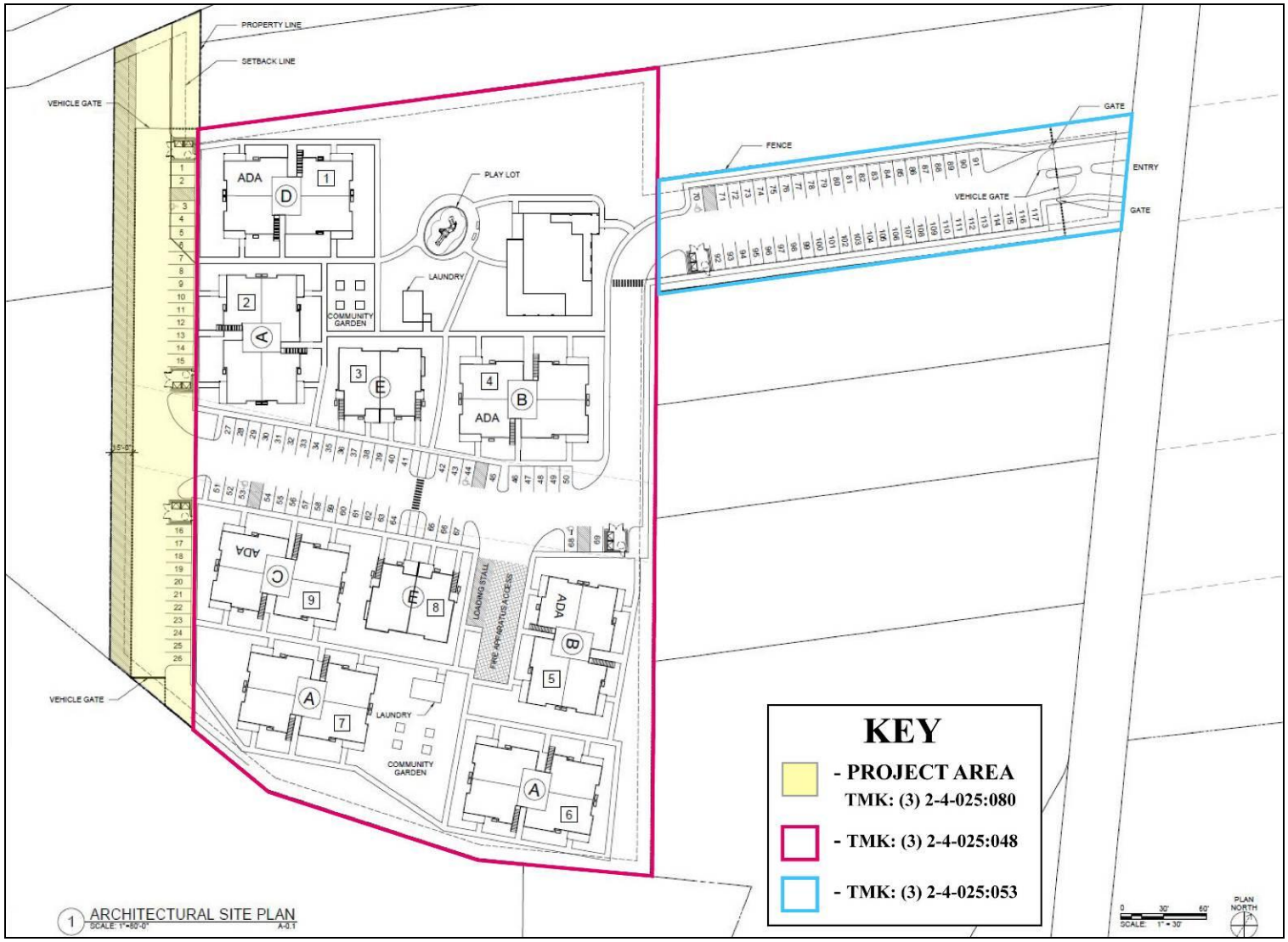

Figure 5: Proposed Kaiāulu o Kapiʻolani Affordable Housing Project Site Plan Showing AA Project Area.

Rechtman Consulting, LLC conducted an AIS within TMK: (3) 3-2-4-025:048, 050, 052, 053, 059 (por.), 078 (por.), 080 (por.), 093, 106 (por.), 107 (por.), 108 (por.), 109 (por.), 110 (por.), 115 (por.), and 129 (por.) Parcels 048 and 053 (Nelson et al. 2006). The Nelson et al. (2006) AIS project area included the entirety of parcels 048 and 053, and a narrow corridor bisecting Parcel 080 (see Figure 6). The proposed affordable housing project area includes all of parcels 048, 053 and 080.

No historic properties were identified within Parcel 080 during the current AIS fieldwork. The negative findings are presented in this Archaeological Assessment Report (AA) pursuant to HAR §13-284-5 that includes summaries of study methods, a project area description and maps, environmental background, cultural and historical background research, previous archaeological studies, project area study findings, significance and integrity assessments, and recommendations. The negative findings support a project effect determination of "No historic properties affected" pursuant to HAR §13-284-7(a)(1).

METHODS

The archaeological inventory survey was undertaken in accordance with Hawai‘i Administrative Rules 13§13-284 and was performed in compliance with the Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports contained in Hawai‘i Administrative Rules 13§13-276.

The investigation included the following procedures:

1. SCS conducted historical and archaeological archival research including a search of historic maps, aerial photos, written records, Land Commission Award documents, State and County Planning and Tax Records documents, and previous archaeological reports.
2. SCS carried out a 100% pedestrian survey of the project area.
3. SCS documented the results of all research and fieldwork in this report.

Prior to fieldwork, a search of geological maps, aerial photos, historical maps, historical documents, land-use records, and previous archaeological reports was conducted at the SHPD Hilo office library, the University of Hawai‘i – Hilo Mookini library, the County of Hawai‘i Planning Department website, the County of Hawai‘i Real Property Tax Office website, and the Hawai‘i Department of Accounting and General Services map website.

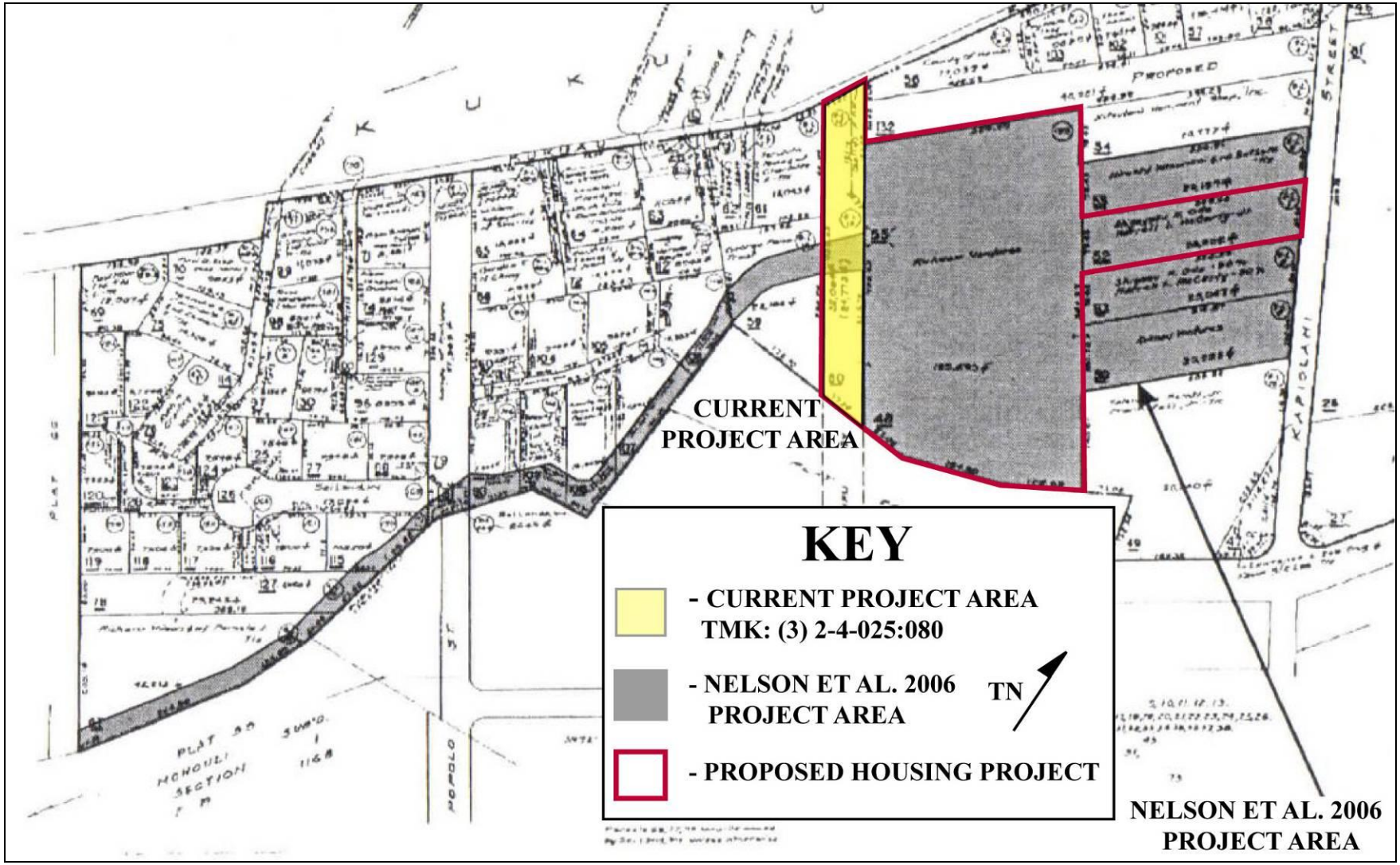

Figure 6: TMK: (3) 2-4-025 Map Showing Location of Nelson et al. (2006) Project Area and Current Project Area (Adapted from Nelson et al. 2006: 3).

A pedestrian survey was conducted on July 11, 2019 by SCS Senior Archaeologists Glenn Escott M.A. and Suzan Escott, B.A. The fieldwork took a total of 14 person-hours to complete. A series of northeast/southwest transects spaced one meter apart were walked across the entire project area. Ground cover consisted of mown grass, trees and some low ferns and bushes. Ground visibility was fair. Glenn Escott was the principal investigator and project director for the current study.

This report contains background information outlining the project area environmental and cultural contexts, a presentation of previous archaeological work within the study area and in the immediate vicinity, current survey expectations based on the previous work, and survey results.

ENVIRONMENTAL SETTING

The project area is situated on level to moderately sloping land at 95 feet (29 meters) above mean sea level (amsl). The project area substrate is a Mauna Loa lava flow dated between 750 and 1,500 years ago (Wolfe and Morris 1996). Soil in the project area is Keaukaha Series (rKFD) extremely rocky muck overlaying pāhoehoe lava (Sato 1973:27). The soil is thin and well drained with 6% to 20% slopes. Annual rainfall ranges from 120 to 160 inches and drains toward the east (Giambelluca et al. 2013). There is a narrow drainage area that bisects the middle of the property.

Plant communities in the project are dominated by trees, grasses, ferns, and bushes. Tree species include gunpowder (*Trema orientalis*), autograph (*Clusia rosea*), banyan (*Ficus* sp.), guava (*Psidium* sp.), and bingabing (*Macaranga mappa*).

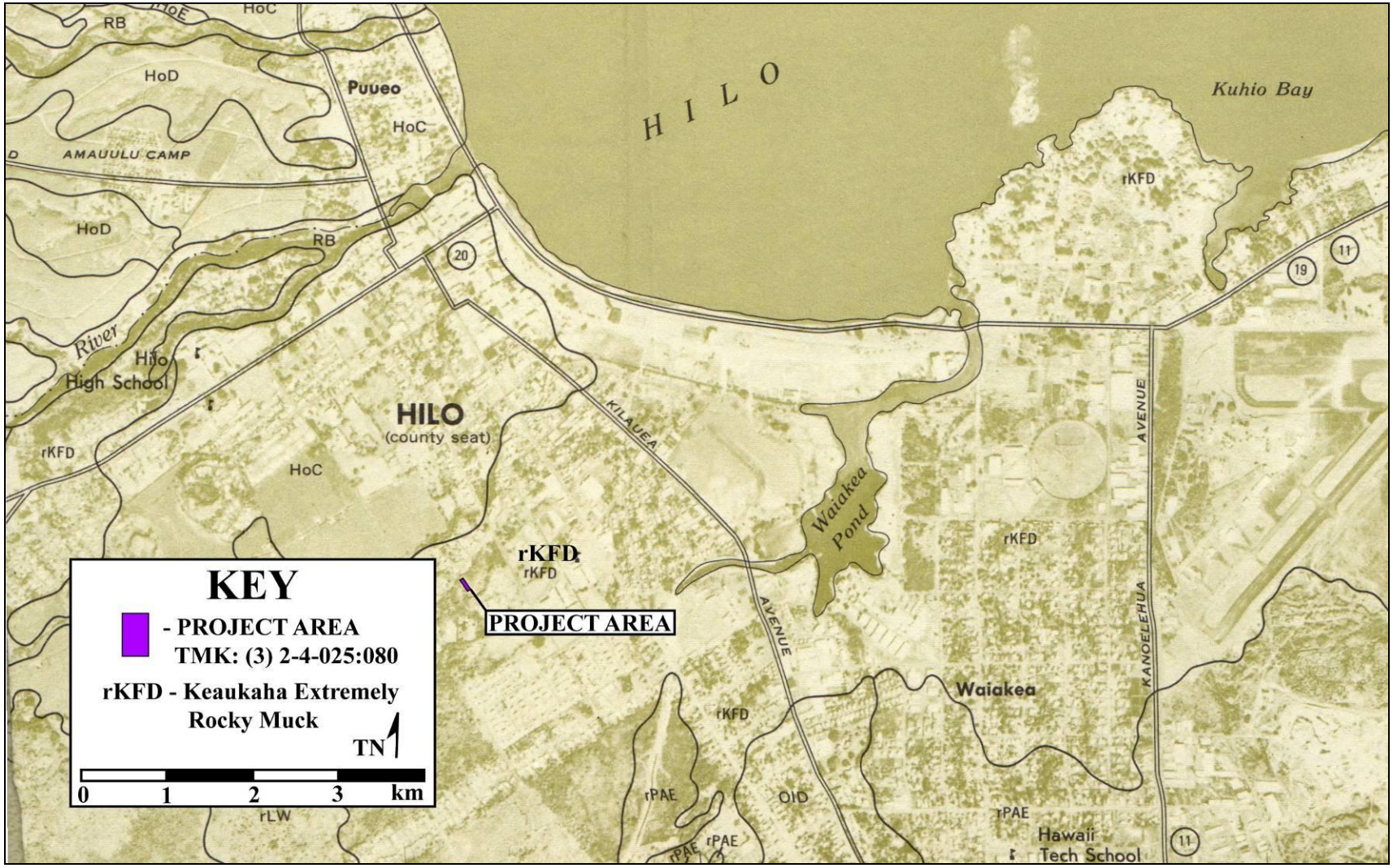

Figure 7: Hawai‘i Island Soil Survey Map Showing Location of Project Area and Soil Series Types (Adapted from Sato et al. 1973, Plate 74).

HISTORICAL AND CULTURAL CONTEXTS

Many archaeologists believe that Hawai‘i Island was first settled around A.D. 1,000 by people sailing from the Marquesas (Athens et al. 2014; Dye 2011; Kahn et al. 2014; Kirch 2011; Kirch and McCoy 2007; Mulrooney et al. 2011; Reith et al. 2011; Wilmhurst et al. 2011a and 2011b). An article published in the Journal of Archaeological Science reviewing radiocarbon dates recovered at archaeological sites on the Island of Hawai‘i suggests that, by relying on only carbon samples from short-lived plant remains, the most reliable dates point to initial Polynesian colonization of Hawai‘i Island occurring between A.D. 1220 and 1261 (Rieth et al. 2011:2747). Hilo was, by most estimates, one of the first settlements on the Island of Hawai‘i.

The rich marine resources of the Hilo Bay area and the gently sloping forests of Mauna Loa and Mauna Kea provided abundant resources. Fresh water was available from the Wailoa and Wailuku rivers and smaller streams such as Waiākea, Waiolama, Pukihae, and ‘Alenaio.

PRE-CONTACT ACCOUNTS OF HILO AND PUNA DISTRICTS

The earliest account of the Hilo Bay area appears in ‘Umi-a-Liloa’s (1600–1620) conquest of the Island of Hawai‘i, which establishes Hilo as a royal center by the sixteenth century. In the account, ‘Umi-a-Liloa began his conquest of the Island of Hawai‘i by defeating chief Kulukulu‘ā, who lived in Waiākea, and the other chiefs of Hilo (Kamakau 1992:16–17). ‘Umi-a-Liloa’s second son, Keawe-nui-a-‘Umi, ruled Hāmākua, Hilo, and Puna from his residence at Hilo (*ibid*: 34). It was from Hilo that he waged war on the Kona chiefs and unified the island. Keawe-nui-a-‘Umi’s descendants single handedly continued rule for many generations from Hilo.

After the death of Keawe-nui-a-‘Umi the kingdom was divided into three parts and was established under warring chiefs; Hilo was ruled by Kumalae-nui-pu`awa-lau and his son Makua (Kamakau 1992: 45). It was during the period of time that Kamehameha I was born. Kalani‘ōpu‘u’s grandson, Keoua Kuahu‘ula and nephew Kamehameha vied for control over the six chiefdoms constituting the island kingdom and Keoua conquered Hilo chief Keawe-mau-hili and harvested the benefits for a short time only to be killed by Kamehameha late in 1791. Kamehameha’s son Liholiho was born in Hilo in November 1797 (*ibid*:22).

EARLY HISTORIC ACCOUNTS OF HILO

Early accounts of settlements along the windward shores describe the area as divided into several distinct environmental regions (Ellis 1963: 291-292). At Hilo Bay, from the coast to a distance of five or six miles inland, scattered subsistence agriculture was evident, followed by a region of tall fern and bracken, flanked at higher elevations by a forest region between 10 and 20 miles wide, beyond which was an expanse of grass and lava (*Ibid*:403). A map of Hilo Bay drawn by Malden in 1825 shows an area of agricultural fields inland of the bay (Figure 8)

The American Missionary C.S. Stewart wrote in 1825, "the first four miles of the country is open and uneven, and beautifully sprinkled with clumps, groves, and single trees of the bread-fruit, pandanus, and candle tree" (Stewart 1970:361-363). The majority of inhabitants in 1825 lived within this coastal region. Taro, plantains, bananas, coconuts, sweet potatoes, and breadfruit were grown individually or in small garden plots. Fish, pig, dog, and birds were also raised and captured for consumption. Wood, such as *ʻōhiʻa* and *koa* for house construction, canoe building, and fires was obtained from the upland agricultural zone (McEldowney 1979:18-19), and from the dense forests above (Ellis 1963:236).

THE MĀHELE OF 1848 AND LAND COMMISSION AWARDS

Article IV of the Board of Commissioners to Quiet Land Titles was passed in December 1845 and began the legal process of private land ownership. The Māhele (1848-1850) established a board of five commissioners to oversee land claims and to issue patents and leases for valid claims. Many scholars believe that Kauikeaouli (Kamehameha III) established laws intended to protect Hawaiian sovereignty and crown lands from foreigners who had already begun claiming ownership of land they were granted permission to use for homes and business interests (Daws 1968:111; Kameʻeleihiwa 1992: 169-70, 176; Kelly 1983: 45; Kuykendall 1938(1): 145 footnote 47, 152, 165-6, 170). Among other things, the foreigners were demanding private ownership of land to secure their island investments, particularly agricultural and ranching ventures (Kuykendall 1938(1): 138, 145, 178, 184, 202, 206, 271; Kameʻeleihiwa 1992: 178).

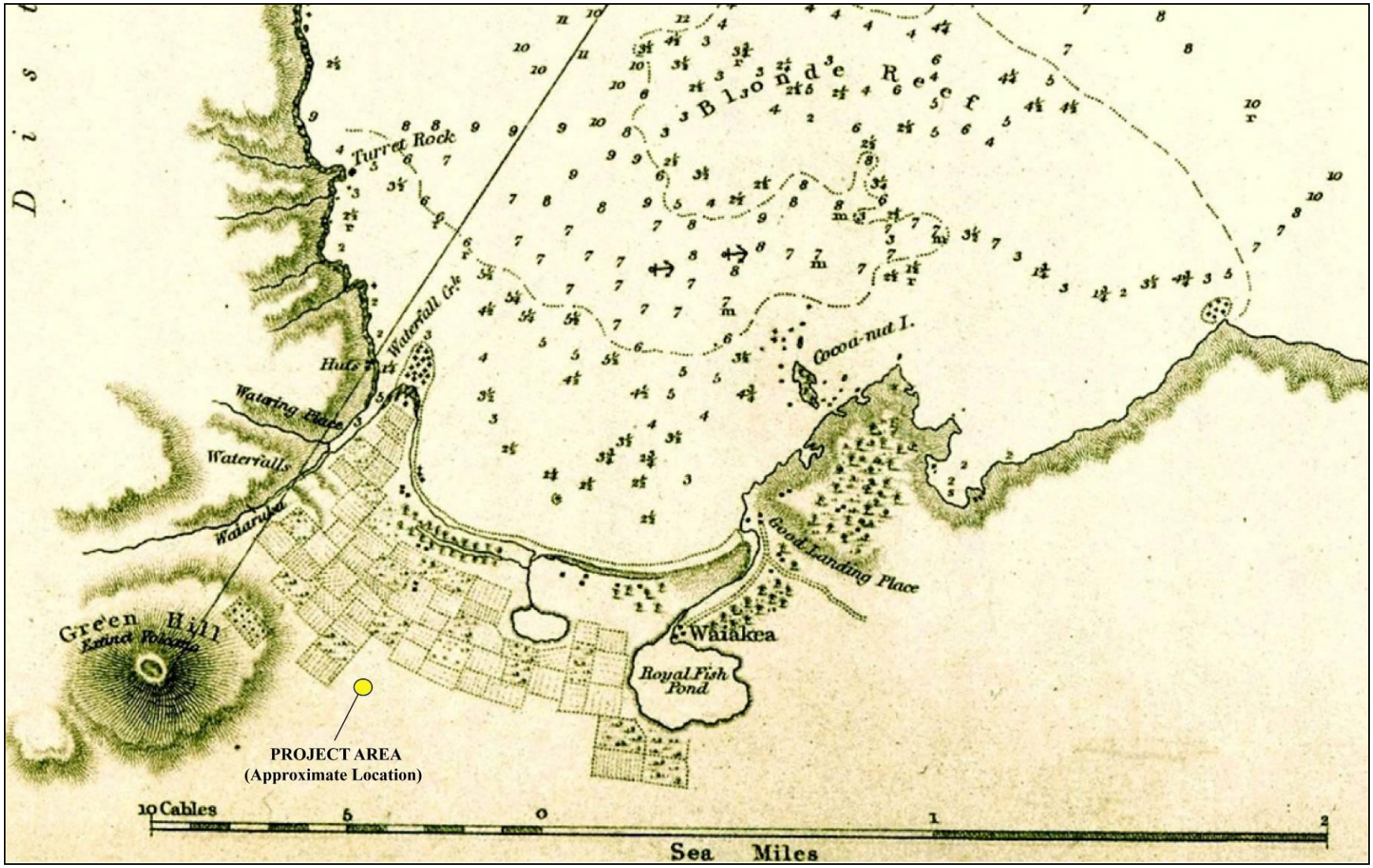

Figure 8: Portion of 1825 Map of Hilo Bay and Project Area Location (Malden 1825).

As legal statutes defining the Māhele continued to be enacted from 1845 to 1850, the lands of the kingdom of Hawai‘i were divided among the king (crown lands), the *ali‘i* and *konohiki*, and the government. Once lands were thus divided and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living as stipulated in the *Kuleana* Act (1850). These claims, however, could not include any previously cultivated or presently fallow land, ‘*okipu‘u* (forest clearing created to allow sunlight to reach the forest floor), stream fisheries, or many other resources traditionally necessary for survival (Kame‘eleihiwa 1992:295; Kelly 1983:45-76; Kirch and Sahlins 1992 vol.1:3, 135-137, and vol. 2:2).

The right of claimants to land was based on the written testimony of at least two witnesses who could corroborate the claimant’s long-standing occupation and use of the lot(s) in question. The claimant was then awarded a patent for the property, subsequently called Land Commission Awards (LCAs) (Chinen 1961:16).

Prior to the Māhele, Kūkūau 1st Ahupua‘a belonged to King Kamehameha I and was Crown Lands during the Māhele of 1848. John Young’s son Keoni Ana was awarded 9,360 acres of land within Kūkūau 1st in 1851 as part of Land Commission Award (LCA) 8515. Nine smaller LCAs were awarded within Kūkūau 1st Ahupua‘a (Table 1 and Figure 9).

Table 1: Land Commission Awards in Waiākea Ahupua‘a.

Award To	LCA	Description
Papa	00513	2 houses
Puniono	02606	0.93 acres, 2 house lots & 1 cultivated plot
Kahue	02663	3.75 acres
Kahue	02664	0.34 acres
Aiko	03205	2 lots: 0.55 acres and 0.46 acres
Haoleopunui	03206	2.48 acres
Hoomoo	03993	2.06 acres, 1 house
Ana	08815	9,360 acres
Kanakaole	11045B	3 houses
Ouluihi, wahine	11144	1 ‘apana

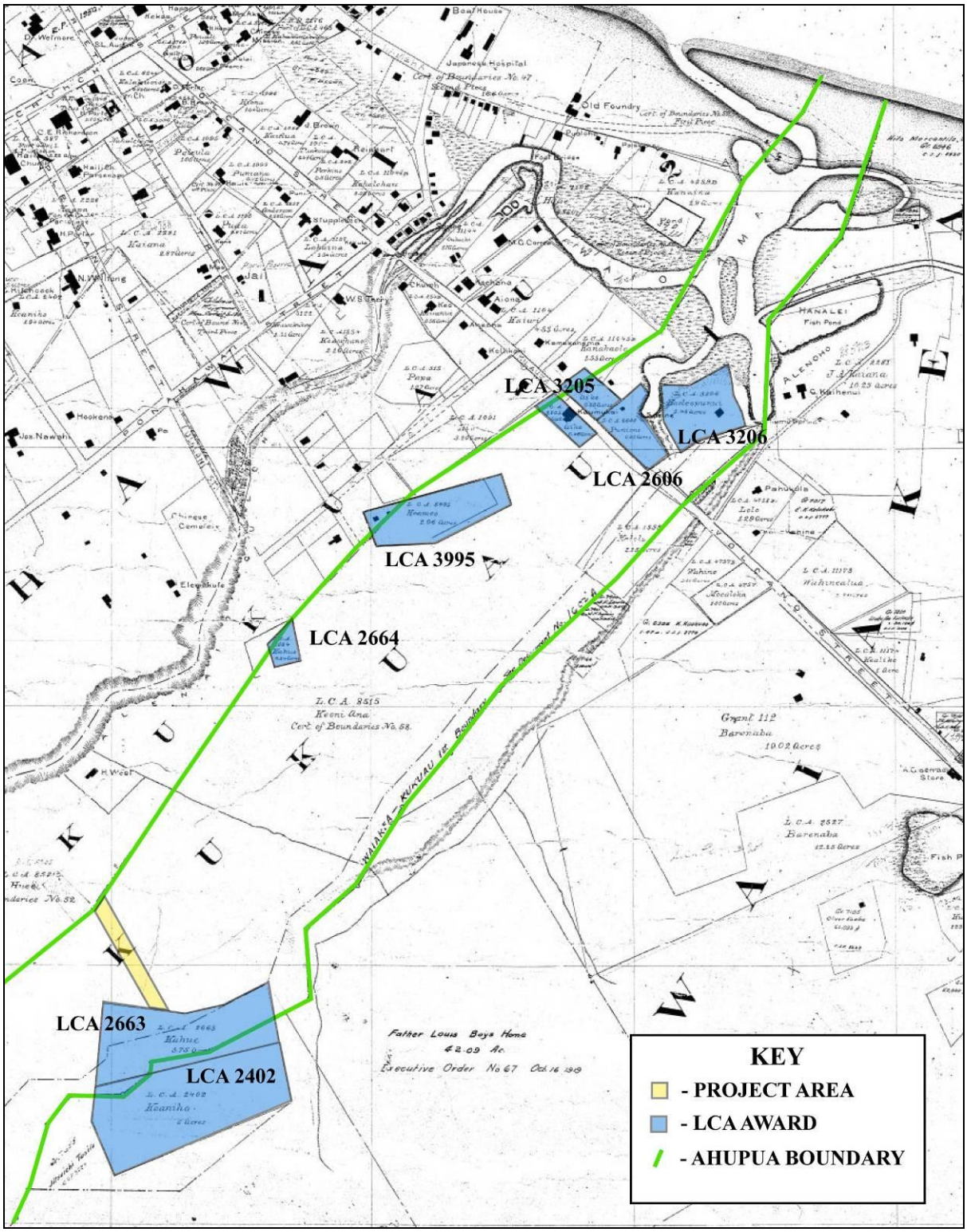

Figure 9: Portion of 1891 Hilo Property Title Map Showing Project Area Location and Eastern Kūkūau 1st Ahupuaʻa Land Commission Awards (Baldwin 1891).

The Land Commission awards were small in area, between 0.34 and 3.75 acres, and the majority of awards were made to native claimants. Most of the awards are *makai* (east) of the current project area. The project area parcel is not associated with any LCA. The LCAs closest to the project area were awarded in Kūkūau 1st Ahupuaʻa and Waiākea Ahupuaʻa, just south of the current project area (see Figure 9). From testimony given by LCA claimants, it is clear that the awards included house lots and agricultural lots under cultivation. The only references to cultigens given in the testimonies are *hala* (*Pandanus tectorius*) and *kalo* (*Colocasia esculenta*). There are also references to uncultivated "wastelands" of pāhoehoe lava in the region of the project area lands.

CHANGING RESIDENTIAL AND LAND-USE PATTERNS (1845-1865)

Between 1845 and 1865 traditional land-use and residential patterns underwent a dramatic change. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugar cane cultivation all brought about changes in settlement patterns and long-established land-use patterns (Kelly *et al*. 1981). Hilo became the center of population and settlements in outlying regions declined or disappeared.

The area of Hilo continued to develop as a commercial port throughout the twentieth century. Hilo Bay Front area became a store front venue, while the outlying regions were developed as industrial parks, shopping malls, and residential neighborhoods.

The historical events at Hilo have received significant attention and presentation elsewhere (Desha 2000; Kelly *et al.* 1981; George 1948; Leithead 1974). Those events and trends that do or may relate directly to the project area are synthesized below. A synthesis of research into relevant newspaper articles conducted by Kent Warshauer provides a chronology of historical events associated with the project area (Table 1).

Sandalwood was being shipped out of Hilo Bay in the first 20 years of the 19th century (Kelly *et al.* 1981:25). In April of 1822, the first missionary, Auna, a Tahitian, preached in Hilo. Many other missionaries soon followed. Whaling ships are documented as docking at Hilo by at least 1824. Whaling declined precipitously in the mid 1800s due to depredations by the U.S. Confederate fleet, increased use worldwide of

kerosene, and increased cost of outfitting, among other things (George 1948:32). Whaling hobbled on in the islands, and the wreck of the Tamerlane in 1892 marks the end of commercial whaling in the area (Rogers 1999).

Table 2: Events Associated with the Project Area.

Date	Event	Warshauer Article
1986	200 foot rock groin built at Kanukuokamanu	2004:F2
1963	Mouth of Wailoa River configured to current way	2004:F2
1963	Mouth of Wailoa River dredged to 12 feet deep	2004:F2
1952	Mouth of Wailoa River dredged to 8 feet deep	2004:F2
1946	Tsunami April 1, destroyed Railroad (RR) bridge	2002c:23
1940	Seawalls built at mouth of Wailoa River	2004b:F2
1938	Fifth Wailoa Bridge built	2002a:18
1935	Current Hilo Iron Works current building built	2003:28
1923	RR swing bridge replaces temporary bridge there	2002c:23
1922	RR bridge damaged by tsunami	2002c:23
1922	Tsunami November 16	2002c:23
1918	Tsunami September 18	2002c:23
1916	RR wharf closed down due to conditions	2002d:35
1913	Hilo Iron Works starts up at current place	2003:28
1910	First Sampan	2004b:F2
1907	Suisan started	2004b:F2
1903	RR wharf open for business	2002d:35
1903	Fourth Wailoa Bridge built	2002a:18
1903	First RR rotating bridge built	2002c:21
1903	First seawall, Puna side	2004b:F2
1901	Jetty expanded into bay	2004b:F2
1897	First jetty built	2004b:F2
1892	Third Wailoa Bridge built	2002a:18
1885	First steam powered vessel	2004b:F2
1880	Second Wailoa Bridge built	2002a:17
1879	Waiākea Sugar Mill built	2004b:F2
1877	Tsunami destroys Spencer's wharf	2001:7
1877	Tsunami May 10	2001:7
1861	Spencer built his wharf in Waiākea	2001:7
1859	First Wailoa Bridge built	2002a:17

Due to economic, cultural and natural forces, the focus of habitation had fully shifted from the Wailoa River side of Hilo Bay to the Wailuku River side of the bay by 1885. "Hilo in 1885 was a small settlement with only a few hundred inhabitants. Waiākea had no frame buildings, just a few grass homes (after the tidal wave of 1877)" (Leithead 1974:59). The industrial and commercial concerns began to expand in the Wailoa River vicinity. Markets, landings, agriculture, and milling soon flourished in the Waiākea side of the bay (Kelly *et al.* 1981; Leithead 1974). Habitation then increased in the Waiākea area on the heels of the industrial developments in the late 1800s and early 1900s.

By 1901 sugar dominated the island's industry, and Hilo was the epicenter of production and export. Railroads connected sugar factors along the Hāmākua and Puna coasts to the mills and wharves at Hilo. An important spur of the railroad line connected the switch yard to the wharf. The first pier at Kuhio Wharf was built between 1912 and 1916 (Kelly *et al.* 1981:194). A second was added in 1923.

The railroad began operation in the Hilo area in 1899, and was abandoned in 1946 (Kelly *et al.* 1981). The first railroad to wharf connection was at the mouth of the Wailoa River. Railroad and sugar expansion coincided with one another, although not always productively (Kelly *et al.* 1981:154). The tsunami of 1946 struck Hilo Bay just as one train was passing through the project area.

The Alenaio canal was created to facilitate the filling of the lowlands near the ocean that had once been fishponds and taro fields just to the west and beyond the project area. It was upgraded with stone walls in 1917 (Kelly *et al.* 1981:220). Black sand from the beach was pumped up into the Waiolama swamps to fill them (Kelly *et al.* 1981:223). Removing beach sand to Waiolama swamp partially undermined the railroad. When the sand dredging started for the nearby Ponahawai taro and pond filling, the railroad company complained, and the dredging stopped (Kelly *et al.* 1981:224). Dredging started up again in 1922, and 31,763 cubic yards of black sand was then taken from the shoreline and placed in the Ponahawai drainage (Kelly *et al.* 1981:225). "Altogether, between the years 1917 to 1923, a total or roughly 250,000 cubic yards of fine black-lava sand from the beach at Hilo Bay was pumped…" into the interior wetlands (Kelly *et al.* 1981:225).

Banyan Drive was built in the early 1930's, and soon thereafter banyan trees were planted in regular intervals on both sides of the drive (Warshauer 2003b, 2004). The first banyan tree was planted in 1933 (Warshauer 2003b) The last tree was planted in 1972 by Mrs. Richard Nixon to replace one that was planted previously in 1952, but that had been destroyed by "seismic sea wave" in 1952 (Warshauer 2004:D3). Some trees that have been destroyed have not been replanted.

PREVIOUS ARCHAEOLOGICAL STUDIES

At least fourteen archaeological studies were conducted in the area near the current project area (Figure 10 and Table 2). Six studies included portions of Kūkūau 1st Ahupuaʻa (Kelly & Athens 1982, Nelson et al. 2006, Rosendahl 1988, Rechtman 2009, Wickler & Ward 1992, and Wilkinson et al. 2012). There were no archaeological sites identified in the vast majority of previous archaeological studies. This is not surprising since much of the area within Hilo town has been developed. It is likely that many archaeological remains have been disturbed and obscured by construction activities associated with modern development (Hudson 1932:226).

Thrum (1907) and Stokes and Dye (1991) documented *heiau* located on the Island of Hawaiʻi. Many of the *heiau* in the Hilo area had been dismantled by the time Thrum conducted his study. There were no *heiau* remaining in Kūkūau 1st Ahupuaʻa when Thrum conducted his study.

Only five of the fourteen previous archaeology studies documented a few archaeological sites (see Table 2). Walker and Rosendahl (1996) recorded five historic sugarcane sites, including Waiakea Sugar Plantation field features and remains from the old Hilo Sugar Company mill. Pre-Contact era to early post-Contact era artifacts were recovered from one feature, indicating a pre-Contact to early post-Contact component. No radiocarbon samples were dated. The plantation field features and artifacts were identified south of Hālaʻi Hill in Ponahawai Ahupuaʻa, outside of the current project area (see Figure 10). The old Hilo Sugar Company mill site is north of the current project area, though the mill is no longer present, and more modern structures have been built over the site.

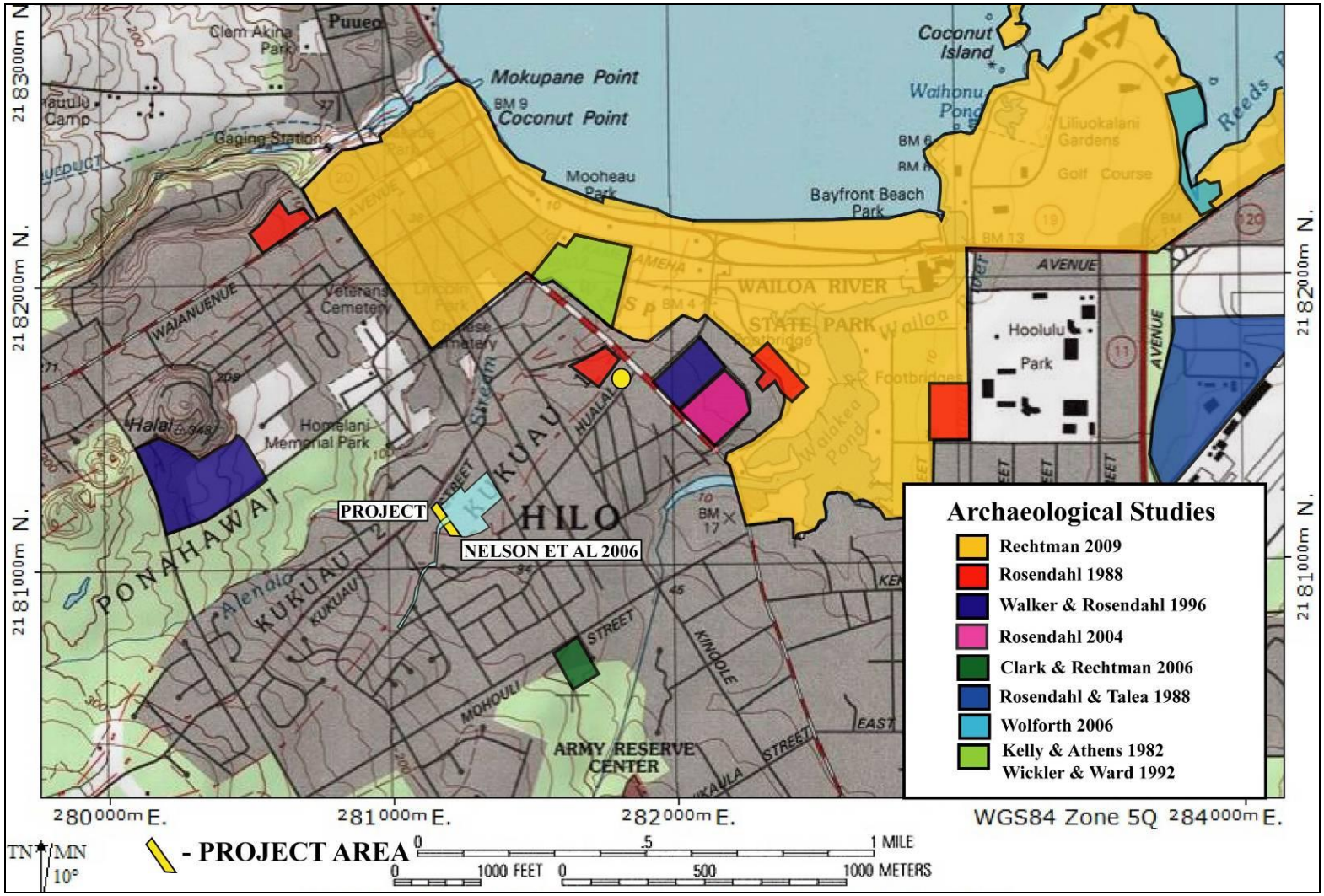

Figure 10: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow and Previous Archaeological Studies (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

Table 3: Previous Archaeological Studies Near the Project Area.

Study Reference	Study Type	Location	Results
Thrum 1907	*Heiau* Survey	Hawaiian Island	No *Heiau* in Kūkūau 1st Ahupaʻa
Hudson 1932	Survey	East Hawaii	Very Few Sites in Hilo Area
Kelly & Athens 1982	Cultural Resources Reconnaissance	Wailoa River	No Archaeological Sites at Wailoa River
Rosendahl & Talea 1988	Archaeological Reconnaissance Survey	Hilo Airport	No Archaeological Sites
Rosendahl 1988	Archaeological Reconnaissance Survey	Four Locations in Hilo, One Just North of Current Project	No Archaeological Sites
Smith & Tourtellotte 1988	Burial Discovery	Mouth of Wailoa River	Single Burial
Stokes and Dye 1991	*Heiau* Survey	Hawaiian Island	No *Heiau* in Kūkūau 1st Ahupaʻa
Wickler & Ward 1992	Archaeological Investigation	ʻAlenaio Stream	Historic Artifacts Only, No Sites
Walker & Rosendahl 1996	Archaeological Assessment	Hilo Judicial Complex	Five Historic Sites
Rosendahl 2004	Archaeological Assessment	Hilo Judicial Complex	No Archaeological Sites
Wolforth 2006	AIS	Reed's Bay Beach Park	Two Pre-Contact and Three Historic Sites
Nelson et al. 2006	AIS	Kūkūau 1st Ahupaʻa	Historic Era Enclosure
Clark & Rechtman 2006	Section 106	Mohouli Street	One Historic Era Rock Mound
Rechtman 2009	Archaeological Assessment	Hilo Bay Front to Reed's Bay	No Archaeological Sites

Clark and Rechtman (2006) also recorded a single sugarcane era rock mound south of the current project area. Wolforth (2006) recorded the Kanakea Fishpond, pecked basins, and three historic sites, all of which north of the current project area.

A single set of burial remains were identified by Smith and Tourtellotte (1988) 2.0km northeast of the current project area, at the mouth of the Wailoa River. The burial site location is not plotted on Figure 10 as it is a culturally sensitive site. None of the previously identified archaeological sites will be affected by the current undertaking.

Rechtman Consulting, LLC conducted an AIS study (Nelson et al. 2006) adjacent to the current project area that included a narrow study corridor bisecting the current project area (see Figure 1 and Figure 11). A single archaeological site (Site #50-10-35-25547) was recorded within TMK: (3) 2-4-025: 048 (Figure 12 and Figure 13). Site 25547 is a 24.0 m long (NE/SW) by 2.0 m wide by 2.0 m high Historic era linear enclosure constructed along a naturally occurring crack in a raised pāhoehoe bedrock outcrop (Nelson et al. 2006:12). The bedrock crack has been modified in three locations by stacking cobbles along the sides and across the middle of the crack (see Figure 13). The enclosure was likely constructed to keep animals. Site 25547 appeared to be unaltered and was in good condition.

Site 25547 was assessed as significant under Criterion d, as having, or likely to yield information important to Historic era animal husbandry features. The integrity of Site 25547 was not assessed in the Nelson et al (2006) AIS report. It was determined that Site 25547 was adequately documented during the Nelson et al. (2006) study and, thus, no further work was recommended for Site 25547 (Nelson et al. 2006:18). The AIS report was approved by the Hawai‘i State Historic Division (SHPD) (Log No. 2006.3275, Doc. No. 0609JT83, Approval Letter dated September 28, 2006).

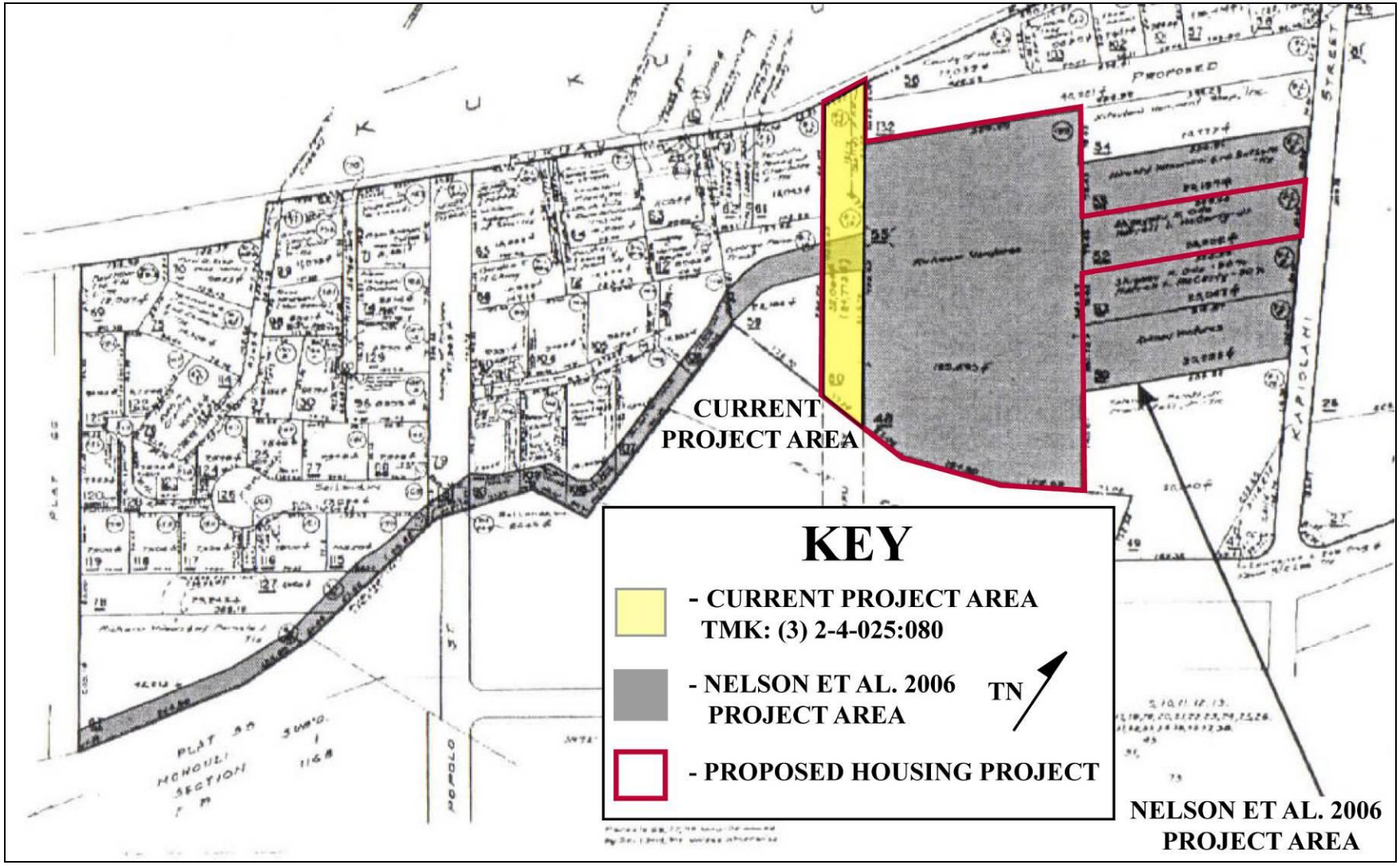

Figure 11: TMK: (3) 2-4-025 Map Showing Location of Nelson et al. (2006) Project Area and Current Project Area (Adapted from Nelson et al. 2006: 3).

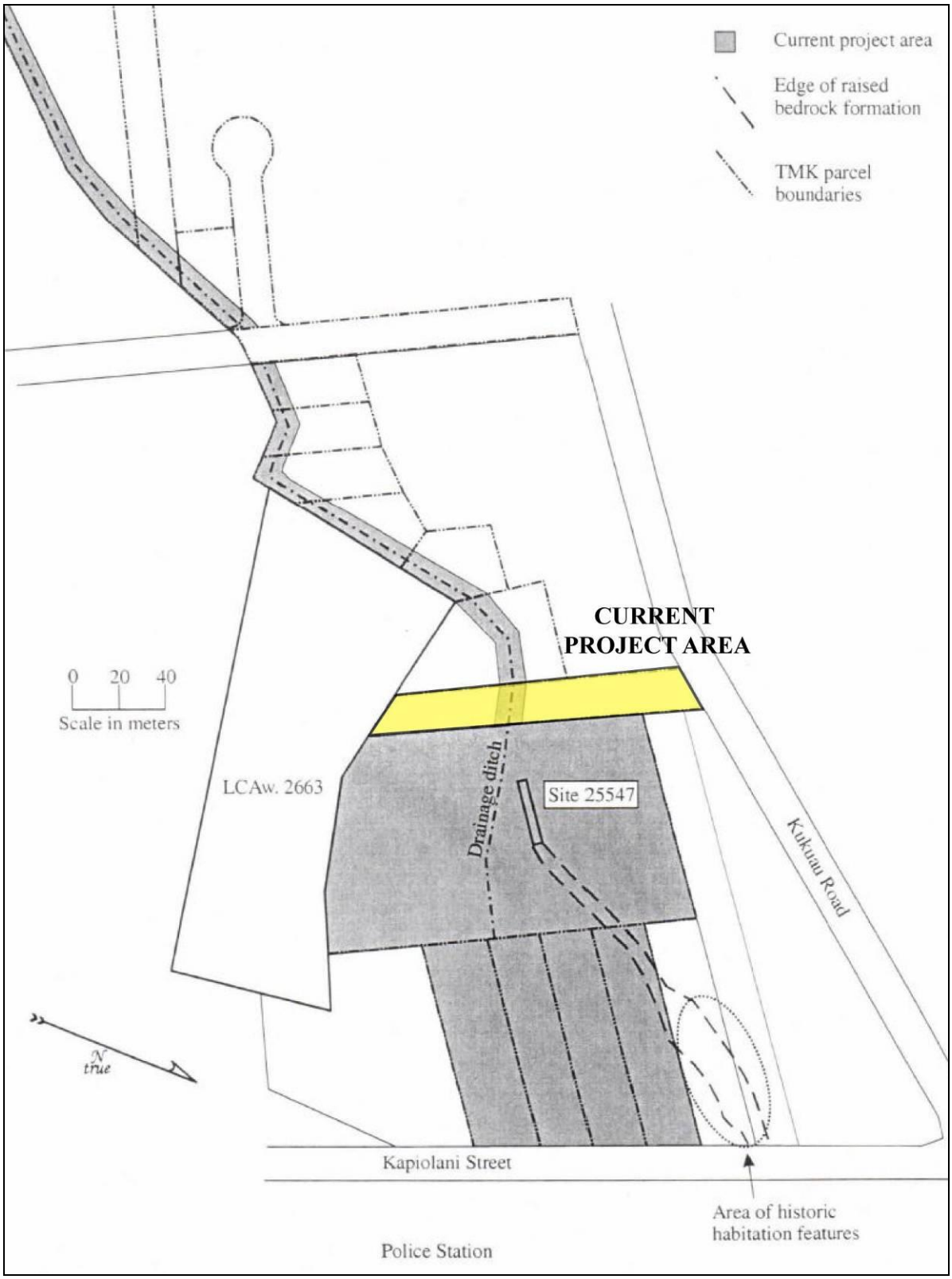

Figure 12: Map Showing Location of Site 25547, Nelson et al. (2006) Project Area and Current Project Area (Adapted from Nelson et al. 2006: 13).

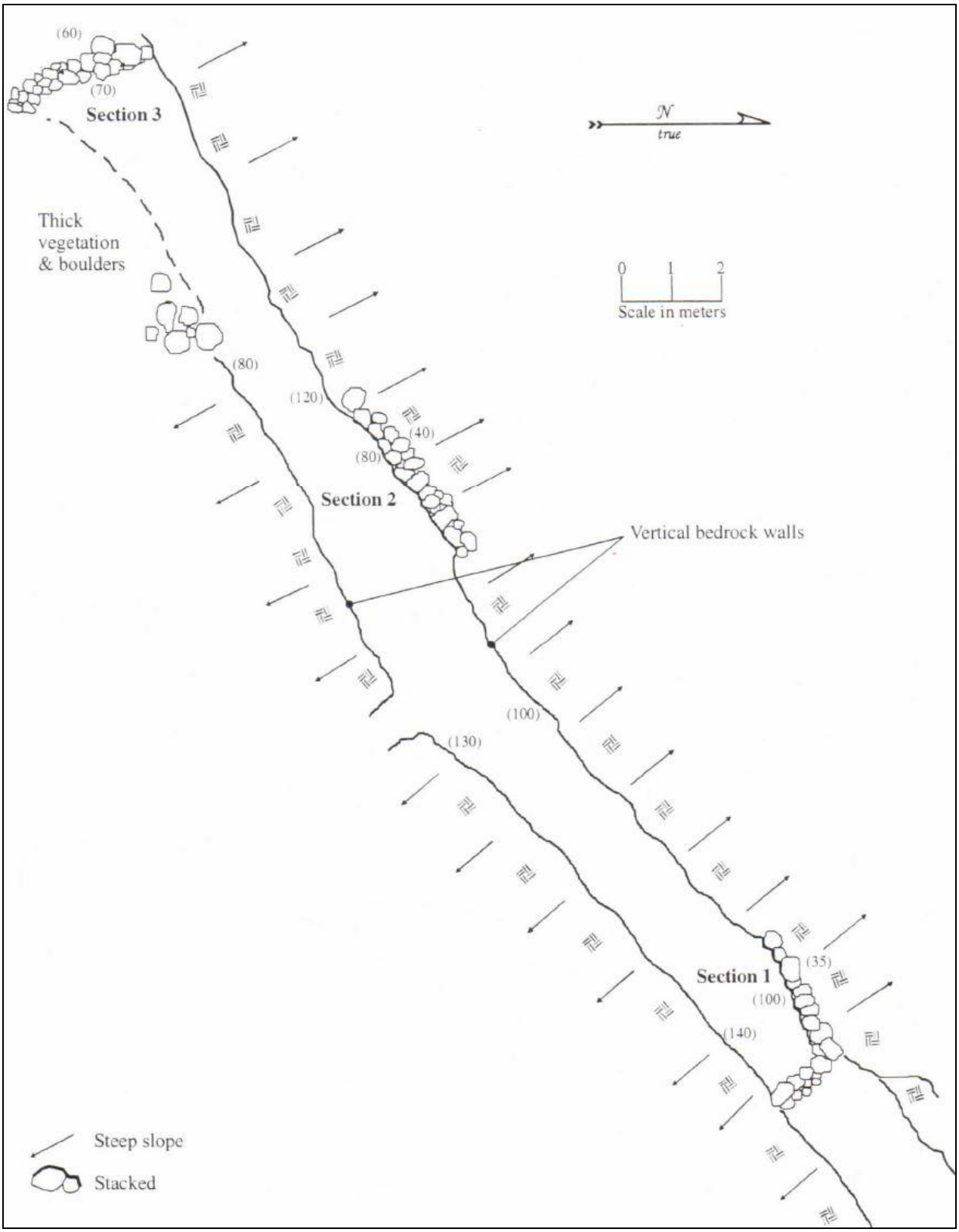

Figure 13: Site 25547 Plan View Map (Nelson et al. 2006: 14).

RECORDS SEARCH RESULTS

As the project has been determined by OHCD to be a federal undertaking as defined in 36 CFR 800.16(y) and, thus, is subject to historic preservation review per 36 CFR 800, in addition to review per HRS 6E-42, SCS conducted a records search to identify historic properties within a 0.5-mile radius of the project area/ APE to evaluate the potential for the project to have an adverse effect on one or more historic properties listed or eligible for listing in the National Register of Historic Places (NRHP). The records search was conducted at the SHPD Hilo office.

The results of the records search indicate that there are nineteen historic properties listed on the Hawai‘i Register of Historic Places (HRHP) (Table 3 and Figure 14). Two of those sites are also listed on the NRHP. The historic properties include two historic districts, several church buildings, schools, commercial buildings, homes, and a Portuguese oven. Many of the buildings are characteristic of period style architecture.

Table 4: Inventory of Registered Historic Properties Within a 0.5 Mile Search Radius.

State Site No.	Site Name	Hawai‘i Register	National Register
50-10-35-07417	Waiakea Mission or Haili Church	17-Nov-01	23-Apr-02
50-10-35-07418	Bay Front Historic District	NA	
50-10-35-07420	S. Hata Building	14-Jan-89	27-Aug-91
50-10-35-07422	Central Christian Church	1-Jan-92	
50-10-35-07436	Serrao Winery	1-Jan-92	
50-10-35-07445	Ling Hing Society	1-Jan-92	
50-10-35-07446	Konko-Kyo Daijin	1-Jan-92	
50-10-35-07447	Villa Franca District	1-Jan-92	
50-10-35-07449	Prudencio Portuguese Oven	1-Jan-92	
50-10-35-07456	Hilo Hongwanji	1-Jan-92	
50-10-35-07458	Old Chinese Language School	1-Jan-92	
50-10-35-07459	United Community Church	1-Jan-92	
50-10-35-07480	Waiakea Mill Camp Housing	1-Jan-92	
50-10-35-07481	Hilo House Type #6	1-Jan-92	
50-10-35-07483	Former Souza-Matsumura House	1-Jan-92	
50-10-35-07487	Hilo House Type #7	1-Jan-92	
50-10-35-07490	Hilo House Type #9	1-Jan-92	
50-10-35-07474	Cannon-Hill Boarding School	1-Jan-92	
50-10-35-07475	Hilo Boarding School Site	1-Jan-92	

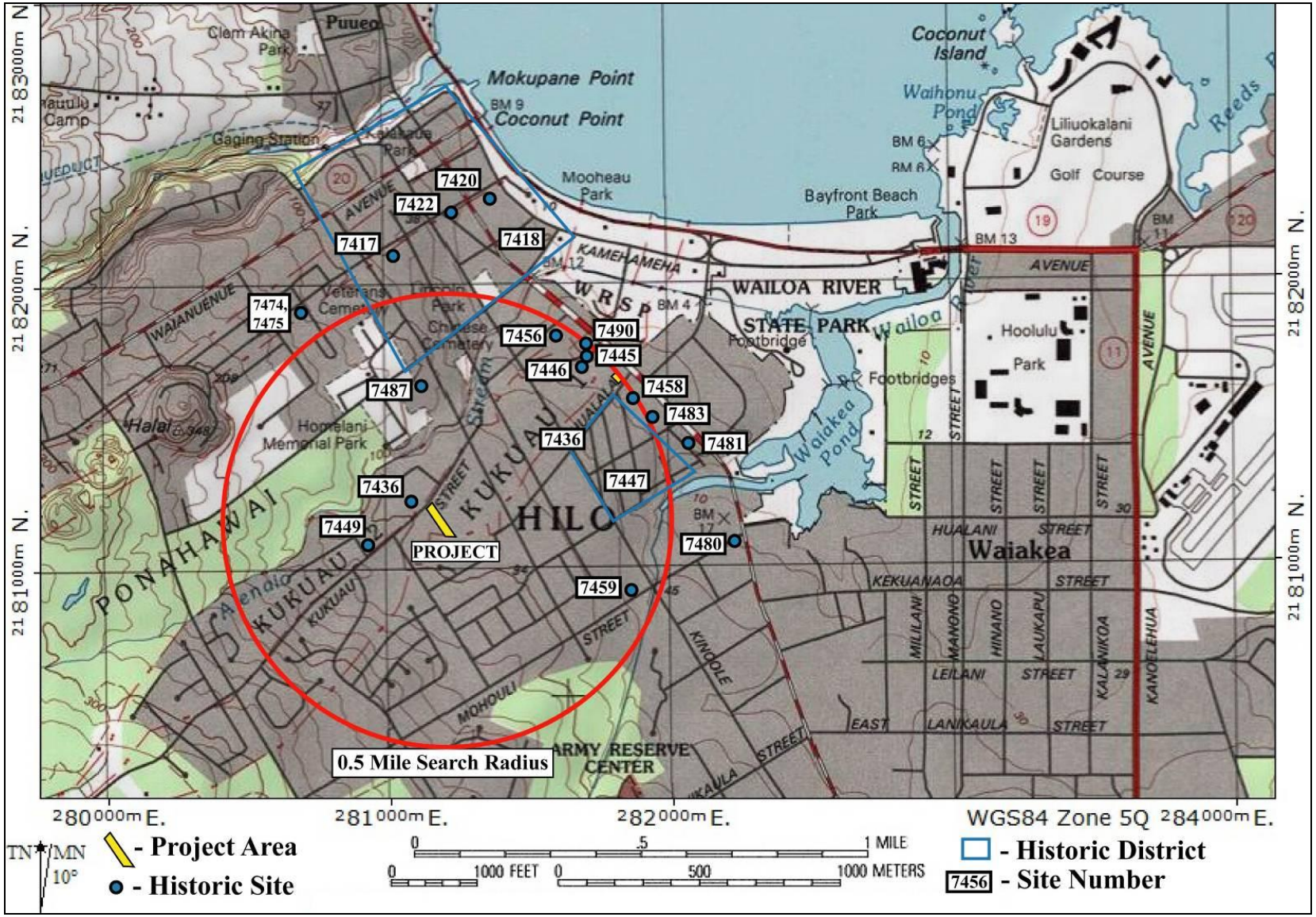

Figure 14: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow and Sites Listed on the HRHP and/or NRHP Within One Half Mile Radius (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

The closest sites are Site #50-10-35-07436, the Serrao Winery, (see Figure 14) and Site #50-10-35-07449 (the Prudencio Portuguese Oven). The Serrao Winery building is constructed of stone (Figure 15). All of the sites listed on the HRHP and the NRHP within 0.5-mile radius of the project area/ APE are surrounded by the modern built environment including private residential neighborhoods, condominiums and rental housing, commercial businesses, paved roads, sidewalks and utility poles and lines (Figure 16). The proposed affordable housing buildings will not be larger in area or height than nearby existing buildings. Given that the project area is surrounded by existing condominium and rental housing, commercial businesses, the Hilo police station and Department of Motor Vehicle offices, modern residential neighborhoods, paved roads, sidewalks, and overhead utility lines, it is likely that the proposed affordable housing project will have **no added visual effect** on the existing historic properties located within one-half mile of the project area.

EXPECTED ARCHAEOLOGICAL PATTERNS

Based on previous archaeological studies, historical research, and land-use records, site types on the current project can be predicted to consist primarily of pre-Contact era to Historic era agricultural features including agricultural rock clearing mounds, rock walls, and agricultural terraces. Habitation features, such as enclosures and platforms are less likely to be located on the current project area. Though, it is possible that traditional Hawaiian pre-Contact era sites might have existed in the region, previous archaeological investigations have shown that Historic era to Modern era activities have often removed them from the landscape.

PEDESTRIAN SURVEY RESULTS

A pedestrian survey was conducted on July 11, 2019 by SCS Senior Archaeologists Glenn Escott M.A. and Suzan Escott, B.A. A series of northeast/southwest transects spaced one meter apart were walked across the entire project area. Most of Parcel 080 is a partially paved dirt road with vegetation along the edges and within the southern portion of the parcel where there is no road. Ground cover consisted of mown grass, trees and some low ferns and bushes (Figure 17 through Figure 20). It was possible to see the ground surface beneath the ferns where vegetation existed. Ground visibility was fair.

Figure 15: Photograph of Site #50-10-35-07436 Serrao Winery Building Looking Northwest.

Figure 16: Aerial Photograph Showing Project Area and Surrounding Land-Use, Hilo, HI, Zone 5 North, 281420 m E, 2181994 m N. (Google Earth, 2013 Image. Data Sources: Digital Globe, GeoEye, Earthstar, USDA, and USGS). Un-shaded Structures are Residential Dwellings.

TMK: (3) 2-4-025:080 is a private access easement with a partially paved driveway down the center of the parcel. The driveway provides access for residential homes on property along the west and south boundaries of Parcel 080. There is a modern drainage culvert constructed in the 1970s that crosses the center of Parcel 080 from the west to east. The culvert is constructed of three 36 inch diameter galvanized pipes within rock and cement foundation (Figure 19). No archaeological sites or features were located within the project area.

CONCLUSION

As there were no archaeological sites identified within the current project area (TMK: (3) 2-4-025:080), and as Site 25547 located within TMK: (3) 2-4-025:048 was adequately documented during the Nelson et al. (2006) study and no further work was recommended for Site 25547 (Nelson et al. 2006:18), these findings support a project effect determination of no historic properties directly affected the proposed affordable housing.

All of the sites listed on the HRHP and the NRHP within 0.5-mile radius of the project area/ APE are surrounded by the modern built environment that including private residential neighborhoods, rental housing, businesses, paved roads, sidewalks and utility poles and lines. The proposed affordable housing buildings will not be larger in area or height than nearby existing buildings. Given that the project area is surrounded by existing rental housing, modern residential neighborhoods, the police station, businesses, paved roads, sidewalks, and overhead utility lines (See Figure 16), these findings support a project determination of no added visual effect on the existing historic properties located within one-half mile of the project area.

These findings support a project effect determination of "No historic properties affected" pursuant to HAR §13-284-7(a)(1) and *no historic properties affected* pursuant to 36 CFR 800.4(d)(1).

Figure 17: Photograph of Northwest Corner of Project Area Looking Southeast.

Figure 18: Photograph of Near Center of Project Area Looking Northeast.

Figure 19: Photograph of Near South End of Project Area Looking Northeast.

Figure 20: Photograph of Modern Culvert at Center of Project Area Looking Southwest.

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A CULTURAL IMPACT ASSESSMENT FOR A 0.6447-ACRE PROPERTY IN KŪKŪAU 1ST AHUPUA‘A, SOUTH HILO DISTRICT, HAWAI‘I ISLAND, HAWAI‘I [TMK: (3) 2-4-025:080]

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INTRODUCTION

Under contract to Urban Housing Communities, LLC, Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment (CIA) for the lands of TMK: (3) 2-4-025: 048, 053 and 080 located in Kūkūau 1st Ahupuaʻa, South Hilo District, Hawaiʻi Island (Figure 1 through Figure 4). The 5.049-acre project area is located approximately one kilometer southwest the coast of Hilo Bay Front and is bordered Kūkūau Street to the west and by Kapiʻolani Street to the north. The south and east property boundaries are bordered by undeveloped residential lots. The project area is currently undeveloped. The project area property is owned by Giampaolo Boschetti.

Urban Housing Communities, LLC is applying for grubbing and grading permits for the proposed construction of residential homes on TMK: (3) 2-4-025: 048, 053 and 080. Urban Housing Communities, LLC is managing the proposed construction of residential homes on the project area. The point of contact is Mr. James Rock at Urban Housing Communities, LLC. Mr. Rock's mailing address is 2000 E. Fourth Street, Suite 205 Santa Ana, CA 92705. Mr. Rock can be contacted by email at jrock@uhcllc.net or by telephone 714-835-3955 x108.

The Constitution of the State of Hawaiʻi clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupuaʻa* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778" (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the people's traditional right to subsistence.

As a result, in 1850 the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupuaʻa* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiʻi Revised Statutes (HRS) 7-1. In 1992, the State of Hawaiʻi Supreme Court, reaffirmed HRS 7-1 and expanded it to include, "native Hawaiian rights…may extend beyond the *ahupuaʻa* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

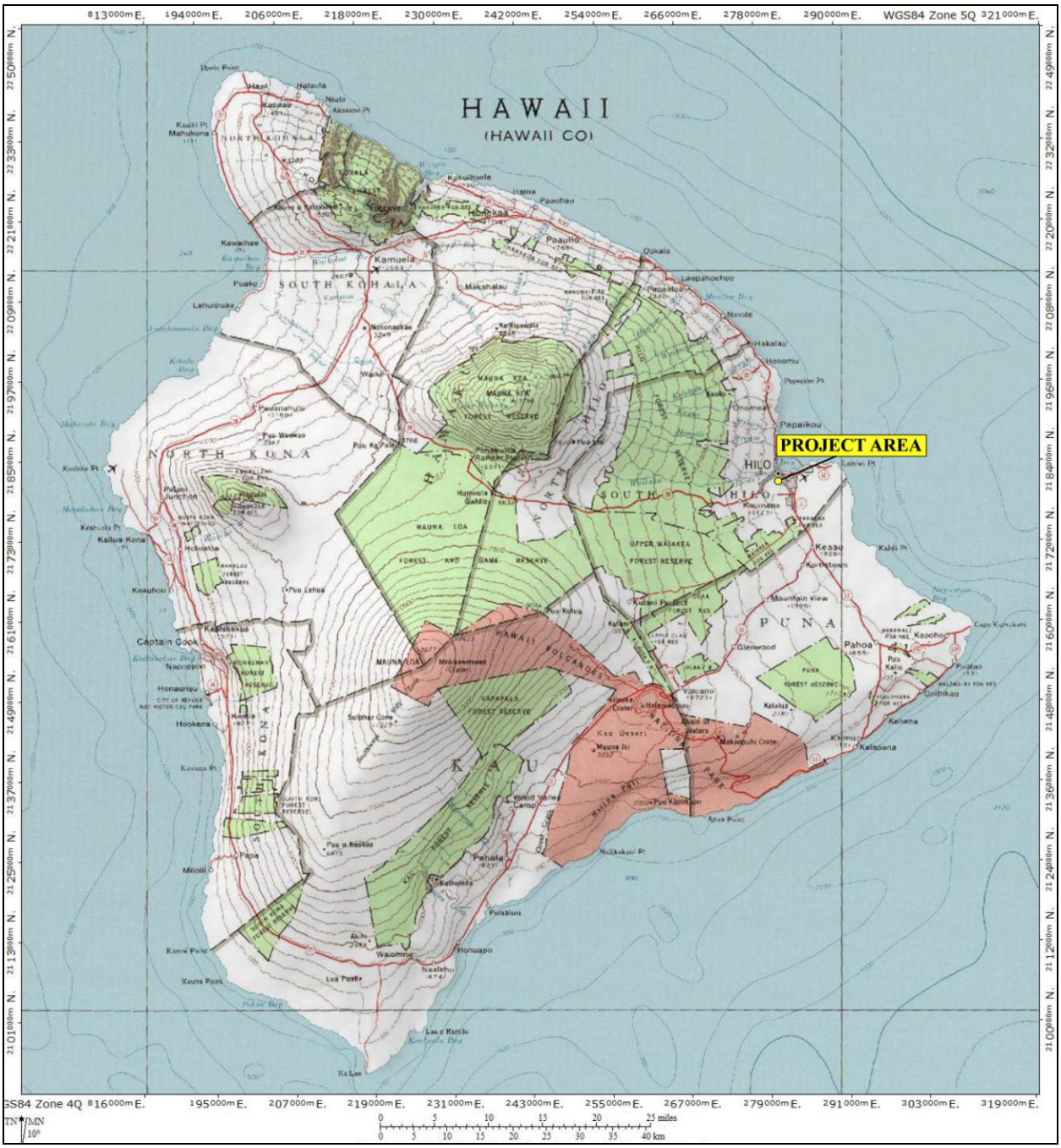

Figure 1: 5,500 K-Series Map of Hawai‘i Showing Location of Project Area (National Geographic Topo!, 2003. Sources: National Geographic Society, USGS).

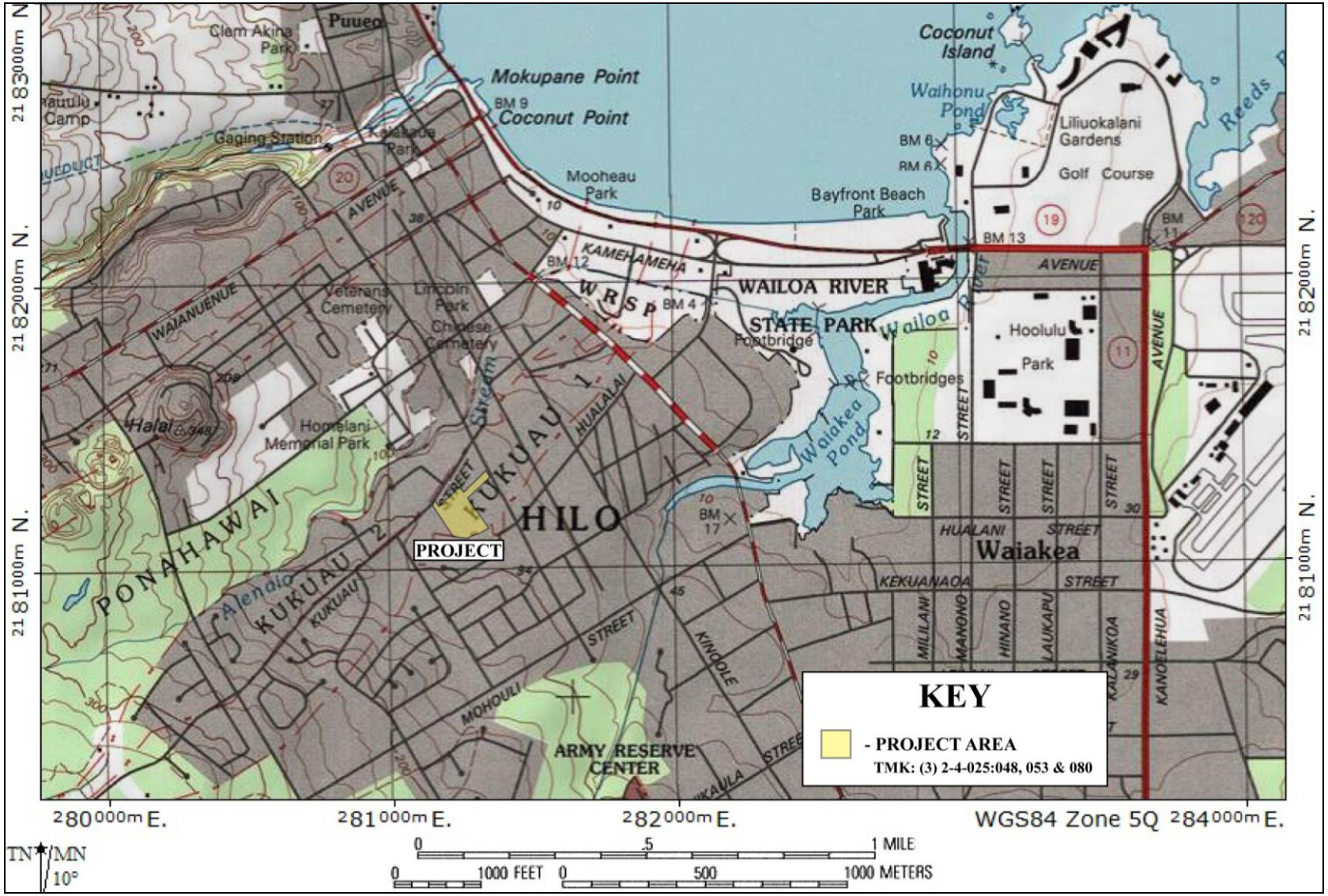

Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

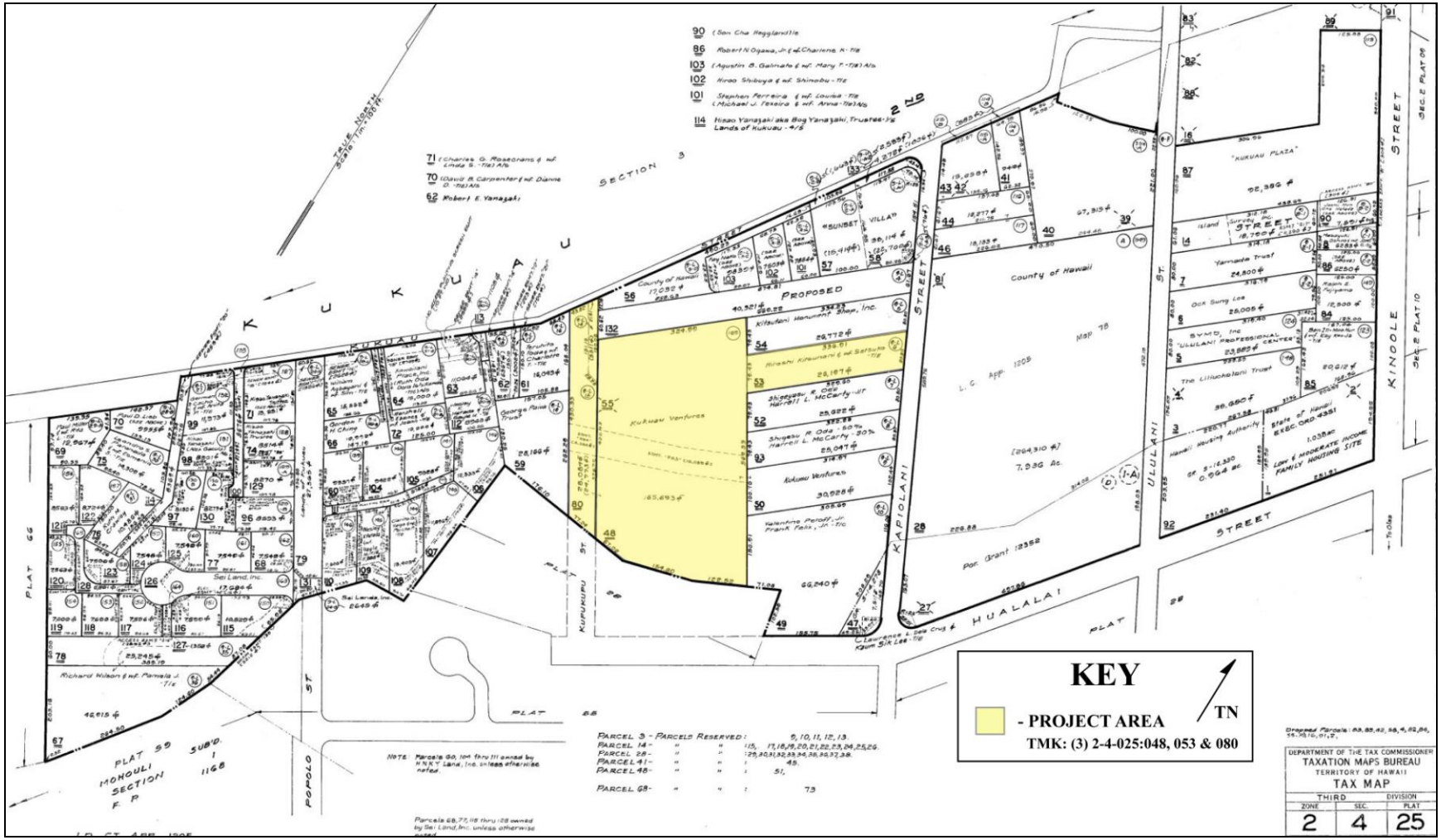

Figure 3: TMK: (3) 2-4-025 Map Showing Location of Project Area (County of Hawai‘i Planning Department, 2019).

Figure 4: Aerial Photograph Showing Project Areas, Kea‘au, HI, Zone 5 North, 281109 m E, 2181236 m N. (Google Earth, 2013 Image. Data Sources: Digital Globe, GeoEye, Earthstar, USDA, and USGS).

Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

> …there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai‘i’s culture, and traditional and customary rights… [H.B. NO. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shoreline developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 environmental review process (2001).

Its purpose has broadened, “to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of ‘significant effect’ to be re-defined as “the sum of effects on the quality of the environment including actions that are…contrary to the State’s environmental policies…or adversely affect the economic welfare, social welfare, or cultural practices of the community and State” (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, “the broad geographical area, e.g. district or *ahupua‘a*” (OEQC 1997). It was decided that the process should identify ‘anthropological’ cultural practices, rather than ‘social’ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice. According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control:

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs (OEQC 1997).

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC states: …information may be obtained through scoping, community meetings, ethnographic interviews and oral histories… (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations with might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views,

and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with applicable state laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the

project area are invited to share their relevant information. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupuaʻa*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, letters with maps and descriptions the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from Kamaile Puluole-Mitchell, Office of Hawaiian Affairs (OHA) East Hawaiʻi Island Representative; Jordan Kea Calpito, SHPD Burial Sites Specialist; Sean Naleimaile, State Historic Preservation Division (SHPD) Hawaiʻi Island Archaeologist; and Kalena Blakemore, Hawaiʻi Island Burial Council (HIBC) Member. If cultural resources are identified based on the information received from these organizations and/or additional informants, an assessment of the potential effects on the identified cultural resources in the project area and recommendations for mitigation of these effects can be proposed. Public notices (Appendix A) were placed in the September 2019 issue of the Office of Hawaiian Affairs (OHA) Ka Wai Ola Newspaper. Public notices were also published in the Honolulu Star-Advertiser, and the Hawaiʻi Tribune Herald on August 14th, 15th, and 18th.

PROJECT AREA NATURAL ENVIRONMENT

The project area is situated on level to moderately sloping land at 95 feet (29 meters) above mean sea level (amsl). The project area substrate is a Mauna Loa lava flow dated between 750 and 1,500 years ago (Wolfe and Morris 1996). Soil in the project area is Keaukaha Series (rKFD) extremely rocky muck overlaying pāhoehoe lava (Sato 1973:27). The soil is thin and well drained with 6% to 20% slopes. Annual rainfall ranges from 120 to 160 inches and drains toward the east. There is a narrow drainage area that bisects the middle of the property.

Plant communities in the project are dominated by trees, grasses, ferns, and bushes. Tree species include gunpowder (*Trema orientalis*), autograph (*Clusia rosea*), banyan (*Ficus* sp.), guava (*Psidium* sp.), and bingabing (*Macaranga mappa*).

HISTORICAL AND CULTURAL CONTEXTS

Many archaeologists believe that Hawai‘i Island was first settled around A.D. 1,000 by people sailing from the Marquesas (Athens et al. 2014; Dye 2011; Kahn et al. 2014; Kirch 2011; Kirch and McCoy 2007; Mulrooney et al. 2011; Reith et al. 2011; Wilmhurst et al. 2011a and 2011b). An article published in the Journal of Archaeological Science reviewing radiocarbon dates recovered at archaeological sites on the Island of Hawai‘i suggests that, by relying on only carbon samples from short-lived plant remains, the most reliable dates point to initial Polynesian colonization of Hawai‘i Island occurring between A.D. 1220 and 1261 (Rieth et al. 2011:2747). Hilo was, by most estimates, one of the first settlements on the Island of Hawai‘i.

Early settlers established settlements on the windward shores in likely places such as Waipi‘o, Waimanu, and Hilo Bay. People at these locations were able to sustain themselves through inshore and pelagic fishing, gathering shellfish from the shore and strand, plant and animal husbandry, and the utilization of natural terrestrial flora and fauna (Kirch and Kelly 1975; Pearson *et al.* 1971; Kirch 1985). The rich marine resources of Hilo Bay and the gently sloping forests of Mauna Loa and Mauna Kea provided abundant resources. Fresh water was available from the Wailoa and Wailuku rivers and smaller streams such as Waiākea, Waiolama, Pukihae, and ‘Alenaio. Settlement is thought to have consisted of widely spaced, permanent homes that gradually expanded to form a nearly continuous zone of settlement.

PRE-CONTACT ACCOUNTS OF HILO

Hilo is likely one of the first two main settlement areas on the island (Kirch 1985), due to its calm and sizable bay, permanent supply of fresh water and fertile and arable soils near the bay. Indeed, one of the early Polynesian travelers to Hawai‘i was named Hiro, or Hilo (Beckwith 1970; Henry 1995), and the attachment of his namesakes to this place supplies some circumstantial evidence to the early occupation here.

The coming of Pa‘ao to Hawai‘i is commemorated in a legend associated with Hilo. Pa‘ao is said to have made his first home in Hawai‘i on a rock at the mouth of the Wailuku River (Reed 1987; Westervelt 1977). The subsequent history retained through oral history over the centuries is anchored on the events, often romantic and violent, of the struggle for power. Pa‘ao affected the overthrown of the ancient lineages of power and supplanted them with the new Pili line by intrigues and warfare in Hilo (Westervelt 1977).

There is another story associated with Hilo that relates directly to the struggle between the old lineages of authority (Nanaula) versus the new ones represented by Pa‘ao and Pili. Kaupe‘epe‘e, from the older Nanaula line, resisted the authority of the newcomers (Kalākaua 1990:84). He traveled to Hilo and captured a chiefess from her home in Hilo Bay, and returned to Moloka‘i. A series of phenomenal battles transpired at his Moloka‘i fortress, leading eventually to the return of the chiefess to her home (Beckwith 1970:464-466; Fornander 1996: 32; Pukui *et al.* 1974:42). This set of legendary events emphasizes the place of power that Hilo had during this pivotal time in Hawaiian history.

The chronology of developments in Hilo is portrayed in the oral traditions that were written down in the 19th century regarding struggles for power. Chiefs from Hilo and Puna banded together to raid O‘ahu. They were slaughtered in Kipapa Gulch in ‘Ewa, where "the head of Hilo was cut off and carried in triumph to Honouliuli, and stuck up at a place still called Poo-Hilo” (Fornander 1996:90). That did not deter Kulukulua, a subsequent Hilo chief, from successfully attacking O‘ahu forces to retrieve a loved one (Elbert 1959:288-290). Not long after that, ‘Umi spent time in Hilo soon after becoming ruler of the island, and before he was widely recognized as such. A lack of understanding with the Hilo chief Kulukulua was the purported reason for his attacking Hilo, but his subsequent actions, that of traveling around the island with his forces, indicates that ‘Umi

merely started his campaign of asserting his military authority over the entire island at the important seat of power of Hilo (Kamakau 1961:17).

The chiefs of Hilo fought those from Kona for "several centuries" (Kamakau 1961:62). "It is said that the cause which started the war between the chiefs of Hilo and Kona was the cruel treatment of Kuaʻana, chief of Hilo, by the chiefs of Kona. He was the son of ʻI…" (Kamakau 1961:62). Sometimes the victory went to the chiefs of Kona, but more often to the chiefs of Hilo. Locations of these battles are not disclosed in the written histories.

Hilo played a prominent role in the long campaign of conquest of the islands by Kamehameha. The first major battle campaign after the ascendance of Kamehameha at Mokuʻōhai took place at Hilo, and is referred to as the Battle of the Bitter Rains.

Kamehameha went by land from Kona to Hilo, and descended upon Keawemaʻuhili at Pūʻāinakō for three days of battle. Forces from Maui in support of Keawemaʻuhili joined in the battle, and armies fought over the uplands and shoreline of Hilo for three more days. "Kamehameha's forces were badly used in these battles. Ka-lani-malokulolu-i-ke-poʻo-ka-lani was almost killed at Halaʻi. The army was saved only by getting to the sea and going aboard Keʻe-au-moku's fleet" (Kamakau 1961:125).

Years later, Keawemaʻuhili became an ally of Kamehameha. While Kamehameha was battling for control over Maui, Kamehameha's Hawaiʻi island nemesis, Keōuakūʻahuʻula, made a decisive move on Hilo.

When *Keouakuahuula* heard of the assistance in men and canoes which *Keawemauhili* of Hilo had furnished to *Kamehameha* on his expedition to Maui, he was greatly irritated, and considered it as a breach of the agreement between them to jointly oppose *Kamehameha's* pretensions to sovereignty. To punish, therefore, his former ally, *Keoua* invaded Hilo. A battle was fought at Alae in Hilo-paliku, in which *Keawemauhili* was killed, and *Keoua* added the district of Hilo to his own possessions of Puna and Kau [Fornander 1996:240].

After another series of later battles in Hamakua between Kamehameha and Keōua, "Keoua retired to Hilo; Kamehameha went back to Waipiʻo and Kohala" (Kamakau 1961:151-152). Keōua "stayed at Piʻopiʻo for two days and on the third day

he returned to Puna. From Puna he announced that he was the *mōʻi* of all of Hawaiʻi Kuauli…" (Desha 2000:271). It was immediately following this episode that a significant portion of Keōua's forces were destroyed by rock and ash spewing from the volcano Kilauea during their trek to Kaʻū.

Kamehameha selected Hilo as his base of operations in preparation for launching an attack on Oʻahu and the western islands. Upon one trip to Hilo "(i)t is thought that there were as many as seven *mano* [twenty eight thousand] people who gathered at the shore at Kaipalaoa when the *aliʻi* landed in their regal garments" (Desha 2000:369). Kamehameha developed a rapport with Vancouver. During one of Vancouver's visits to Hilo "he sent Lieutenant Puget ashore with a red British flag on a wooden staff to wave in the breezes of Hilo. By that flag, the island of Hawaiʻi was to escape being troubled by other governmental powers" (Desha 2000:379).

Even after Kamehameha was successful in subduing Oʻahu at the battle of Nuʻuanu, events in Hilo required his attention. A tabu chief from Maui named Namakehaʻ fomented rebellion in the eastern half of the island of Hawaiʻi while Kamehameha was in Oʻahu.

Kamehameha returned to Hawaii to make war on Na-makehaʻ and his followers. The battle took place at Hilo. Na-makehaʻ was defeated, fled, and hid in the bush until he was captured. He was made a mock of by his enemies, and in January, 1797, with the consent of Kamehameha, he was offered in sacrifice to the gods in the heiau of Kaipalaoa in Piʻihonua, Hilo…This was the last of the battles fought by Kamehameha to unite the islands [Kamakau 1961:174]. The last battle that Kamehameha ever fought was in Hilo.

Hilo continued to be place of power after the death of Kamehameha and after the breaking of the *kapu*. Kalākaua had a residence in Hilo, as did Governess Ruth Keʻeilikolani (Zambucka 1992). Kamehameha III visited in 1829 and 1830 (Kelly *et al.* 1981). Governor Kuakini had a mill in Ponahawai. Several of the *ahupuaʻa* fronting Hilo Bay were personal lands of Kamehameha I (Kelly *et al.* 1981:40).

Waiākea, which had been retained as a personal land by Kamehameha I … was at some later time held by the chiefess Ka-unu-o-hua, a granddaughter of Keawe-mau-hili … She surrendered it in the Māhele of 1848 and it became a Crown Land (Indices … 1929:26) (Kelly *et al.* 1981:40).

The Maka‘āinana

Rulers and would-be rulers would come and go, but the *maka‘āinana*, the common folk, lived on and farmed the land and fished for generations in the Hilo area. The settlement in Hilo Bay was concentrated in the eastern portion of the shoreline, with perhaps 2,000 people living in 400 houses there in 1823 (Ellis 1917:253, cited in Kelly *et al.* 1981:19). Other habitations were distributed throughout the coastline well beyond the east and west limits of the bay. The map from Byron depicts the position of the shoreline further to the west than it is today (Figure 5).

The larger *heiau* were concentrated on the western portion of Hilo Bay (Stokes 1991). This may suggest a segregation between ceremonial and mundane precincts in the Hilo region, with the former being concentrated at the mouth of the Wailuku and the latter at the mouth of the Wailoa River. *Heiau* were also located along the Waiākea coast. These were smaller, or perhaps not as ceremonially prominent, and consequently went unreported to Stokes. One is on the east coast of Reed’s Bay (Kam 1983), and this is the only *heiau* in the Hilo vicinity that still has observable architecture. Another *heiau* once existed at Leleiwi point to the east of the project area. This *heiau* was a "fish *heiau (heiau ho‘oulu i‘a)*, named Pū-hala (pandanas tree)" (Pukui *et al.* 1974:131).

There is a local variant of the popular legend regarding the growth of a plant from a person after their burial, particularly as it relates to sustaining a starving population (Beckwith 1970:98). A man named ‘Ulu lived in Waiākea. He died of famine. Priests directed that his body be buried near a running stream, and an *‘ulu* tree sprouted at that location the next day. The fruits of that tree saved the people from further starvation.

Fishponds for the Ali‘i and the Maka‘āinana

Kikuchi (1973) recognized the variations and complexities of fishpond design, and devised a classificatory system that recognizes 7 variants of *loko kuapā*, 3 variants of *loko pu‘uone*, 4 variants of *loko wai*, 1 *loko i‘a kalo*, 12 variants of *loko ‘ume‘iki*, 2 variants of *kaheka*, and 2 variants of *kahē paniwai* (Kikuchi 1973:227-232). Royal fishponds are situated northeast of the project area (see Figure 5).

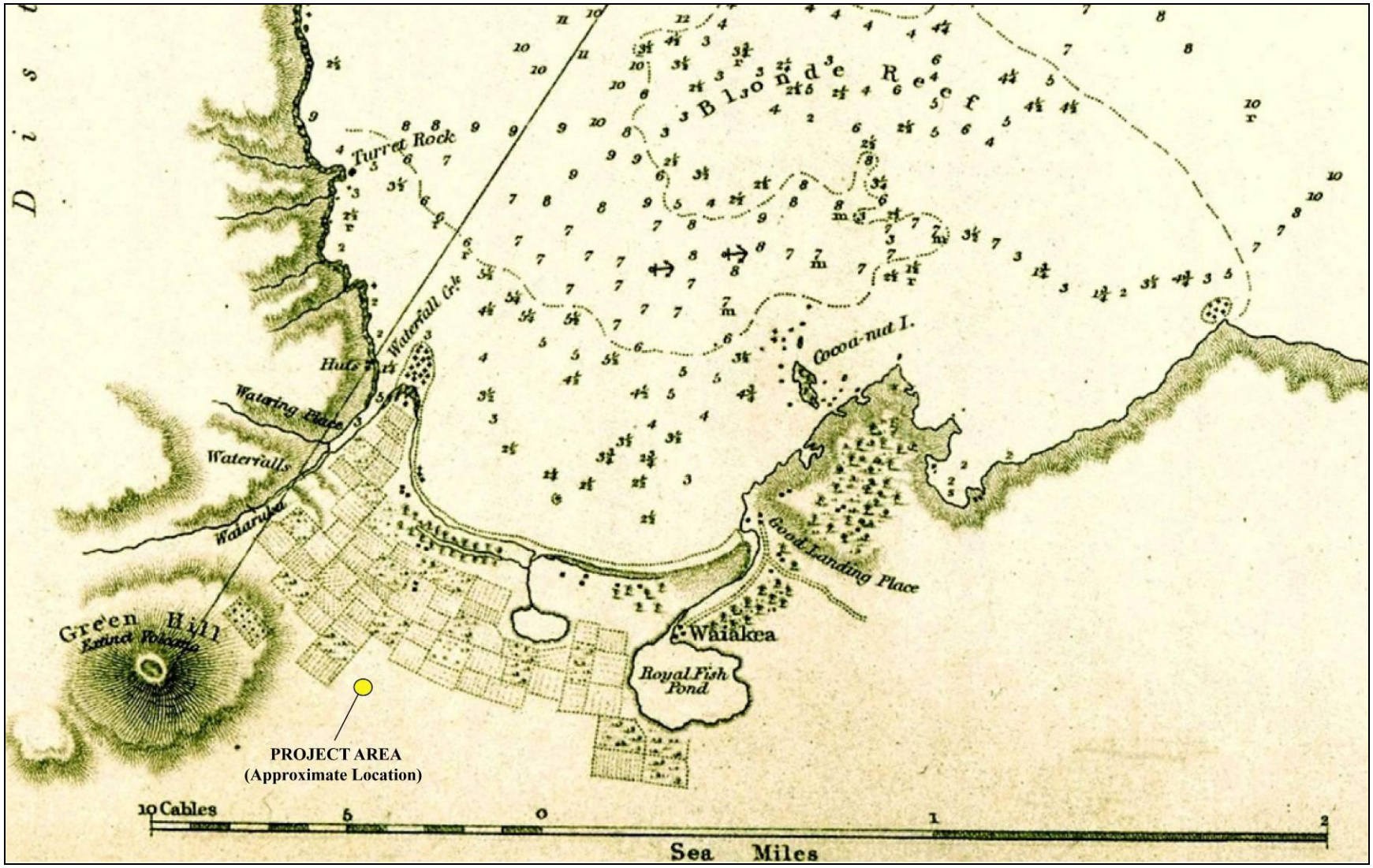

Figure 5: Portion of 1825 Map of Hilo Bay and Project Area Location (Malden 1825).

Loko kuapā were controlled by the *ali‘i*, and built by the local inhabitants (Summers 1964). Mullet (*‘ama‘ama*) and milkfish (*awa*) were the most common fish kept in this type of pond, in part, because their food (microbenthos) grew best in brackish water. Other fish raised and kept in ponds are *awa‘aua, kaku, aholehole, ‘o‘opu, ‘opae* and *puhi* (Summers 1964; Titcomb 1952). Pond caretakers could eat these as they wished, but “those kinds reserved for the chiefs they would eat secretly” (Kamakau, cited in Summers 1964:11). Ponds were built at least as early as the 1400s (Summers 1964:12), and probably many were built earlier than that. One fishpond on the West Loch of Pearl Harbor has been securely dated with radiocarbon assay to circa 1000 AD (Wolforth *et al.* 1997).

Royal fishponds were located in the western boundary of Waiākea (Kamakau 1961:152) with fish from these ponds being reserved for the *ali‘i*. These ponds were said to be favorites of Hi‘iaka and Pele. This was invoked as one possible explanation for the volcanic eruption that decimated Keōua's marching army across Kilauea. Keōua had apparently not treated the Waiolama ponds with their due respect as he was passing through after a battle against chief Kamehameha (Desha 2000).

In 1823 Ellis observed small huts alongside the Waiākea ponds for the pond caretakers. In addition, it "was custom to build small watch houses from which to guard the fish from being stolen at high tide, of from being killed by pigs and dogs; when the tides receded the fish would return to the middle of the pond out of reach of thieves" (Kamakau 1976:48).

In addition to the royal ponds, there were *pu‘uone* ponds that belonged to the commoners, and other non-royal inhabitants (Kamakau 1976:49). The *pu‘uone* ponds near the sea (*loko kai pu‘uone*) were much desired by farmers, and these ponds they stocked (*ho‘oholo*) with fish. *Pu‘uone* ponds were close to shore ponds, *loko kuapo*, or to the seashore, and next to the mouths (*nuku*) of streams. The farmer cleared away the *mokae* sedges, *‘aka‘akai* bulrushes, and the weeds, and deepened the pond, piling up the muck on the sides, until he had a clean pond. Then he stocked it with *awa* and fish fry, *pua i‘a* - two or three gourds full - until the pond was full of fish [Kamakau 1976:49].

There were at least two shore ponds within the bay area at Hilo, but no early information on them has been found. These ponds, Waihonu and Kanakea, were natural indentations of the shoreline and required little in the way of rock walls that characterize the typical shore ponds (Kamakau 1976:47-48: Summers 1964:2-12). Ponds such as these were called *loko iʻa*, and were used for storing excess fish rather than for fish culture (Summers 1964:I) [Kelly *et al.* 1981:15].

Kamakau refers to the shore ponds as *loko kuapa*. He uses *loko iʻa* as the generic term for all types of fishponds (Kamakau 1976:47-49). There are approximately 10 other fishponds to the east of Hilo along the Keaukaha shoreline (Kikuchi 1973: 34). One, the large pond named Lokowaka, is associated with the *moʻo* Waka (Kikuchi 1973:262). "Waka, a *moʻo*, dived into the pool to escape Pele who was jealous of Waka's interest in a man" (Pukui *et al.* 1974:134).

The project area is southwest of the royal fishpond called Piʻopiʻo, "a place of residence of chiefs from ancient times" (Desha 2000:76) (see Figure 5). There is one historical development that involves three generations of island *mōʻī* at Piʻopiʻo. While the young Kamehameha was staying there in 1752 with the current *mōʻī* Alapaʻinui, Kalaniopuʻu attempted, and failed, to abduct Kamehameha. This precipitated an attack on the warriors of Kalaniopuʻu at Kalepolepo "by Alapai's men, who had followed Kalaniopuʻu from Hilo. First the warriors from the lowland gained, then those from the upland, until night fell and the battle was postponed until the next day" (Iʻi 1959:3). Later when Kalaniopuʻu became the island ruler, he had a house in Piʻopiʻo, and that is where he died (Fornander 1996:142, 201).

Piʻopiʻo was under *aliʻi* control for centuries prior to modern land ownership codes and regulations were implemented in Hawaiʻi during the Māhele in the middle 1800s. The land between the royal fishponds and the ocean (the project area) was given to Victoria Kamamalu during the Māhele. Victoria Kamamalu, then, was granddaughter of Kamehameha I. Her brothers by same parents (Kinaʻu and Kekuanaoʻa) were Alexander Liholiho (who became Kamehameha IV), and Lot (who became Kamehameha V).

EARLY HISTORIC ACCOUNTS OF HILO

Early accounts of settlements along the windward shores describe the area as divided into several distinct environmental regions (Ellis 1963: 291-292). At Hilo Bay, from the coast to a distance of five or six miles inland, scattered subsistence agriculture was evident, followed by a region of tall fern and bracken, flanked at higher elevations by a forest region between 10 and 20 miles wide, beyond which was an expanse of grass and lava (Ellis 1963:403). A map of Hilo Bay drawn by Malden in 1825 shows an area of agricultural fields inland of the bay (see Figure 4).

The American Missionary C.S. Stewart wrote in 1825, "the first four miles of the country is open and uneven, and beautifully sprinkled with clumps, groves, and single trees of the bread-fruit, pandanus, and candle tree" (Stewart 1970:361-363). The majority of inhabitants in 1825 lived within this coastal region.

Taro, plantains, bananas, coconuts, sweet potatoes, and breadfruit were grown individually or in small garden plots. Fish, pig, dog, and birds were also raised and captured for consumption. Wood, such as *ʻōhiʻa* and *koa* for house construction, canoe building, and fires was obtained from the upland agricultural zone (McEldowney 1979:18-19), and from the dense forests above (Ellis 1963:236).

Hilo quickly became a port of call for both whalers and merchant ships. It also became a point of entry for missionaries and travelers. Wooden homes and businesses began to pop up in the area along Hilo Bay amidst the traditional homes and agricultural fields. For their part in aiding King Kamehameha, he gave John Young the *ahupuaʻa* of Kūkūau 1 and he gave the *ahupuaʻa* of Kūkūau 2 to Isaac Davis (Kelly *et al.* 1981:11).

THE MĀHELE OF 1848 AND LAND COMMISSION AWARDS

With the Māhele of 1848 and the two Acts of 1850, authorizing the sale of land in fee simple to resident aliens and the award of *kuleana* lands to native tenants, land tenure in Hawaiʻi arrived at a significant turning point (Chinen 1961:13). Prior to the Māhele, Kūkūau 1st Ahupuaʻa belonged to King Kamehameha and were Crown Lands during the Māhele of 1848. John Young's son Keoni Ana was awarded 9,360 acres of land within Kūkūau 1st as Land Commission award (LCA) 8515. Nine smaller LCAs were awarded within Kūkūau 1st Ahupuaʻa (Table 1 and Figure 6).

Table 1: Land Commission Awards in Waiākea Ahupuaʻa.

Award To	LCA	Description
Papa	00513	2 houses
Puniono	02606	0.93 acres, 2 house lots & 1 cultivated plot
Kahue	02663	3.75 acres
Kahue	02664	0.34 acres
Aiko	03205	2 lots: 0.55 acres and 0.46 acres
Haoleopunui	03206	2.48 acres
Hoomoo	03993	2.06 acres, 1 house
Ana	08815	9,360 acres
Kanakaole	11045B	3 houses
Ouluihi, wahine	11144	1 ʻapana

The Land Commission awards were small in area, between 0.34 and 3.75 acres, and the majority of awards were made to native claimants. Most of the awards are *makai* (east) of the current project area. The project area parcel is not associated with any LCA. The LCAs closest LCAs were awarded in Kūkūau 1st Ahupuaʻa and Waiākea Ahupuaʻa, just south of the current project area (see Figure 6). From testimony given by LCA claimants, it is clear that the awards included house lots and agricultural lots under cultivation. The only references to cultigens given in the testimonies are *hala* (*Pandanus tectorius*) and *kalo* (*Colocasia esculenta*). There are also references to uncultivated "wastelands" of pāhoehoe lava in the region of the project area lands.

CHANGING RESIDENTIAL AND LAND-USE PATTERNS (1845-1865)

Between 1845 and 1865 traditional land-use and residential patterns underwent a dramatic change. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugar cane cultivation all brought about changes in settlement patterns and long-established land-use patterns (Kelly *et al.* 1981). Hilo became the center of population and settlements in outlying regions declined or disappeared.

The area of Hilo continued to develop as a commercial port throughout the twentieth century. Hilo Bay Front area became a store front venue, while the outlying regions were developed as industrial parks, shopping malls, and residential neighborhoods.

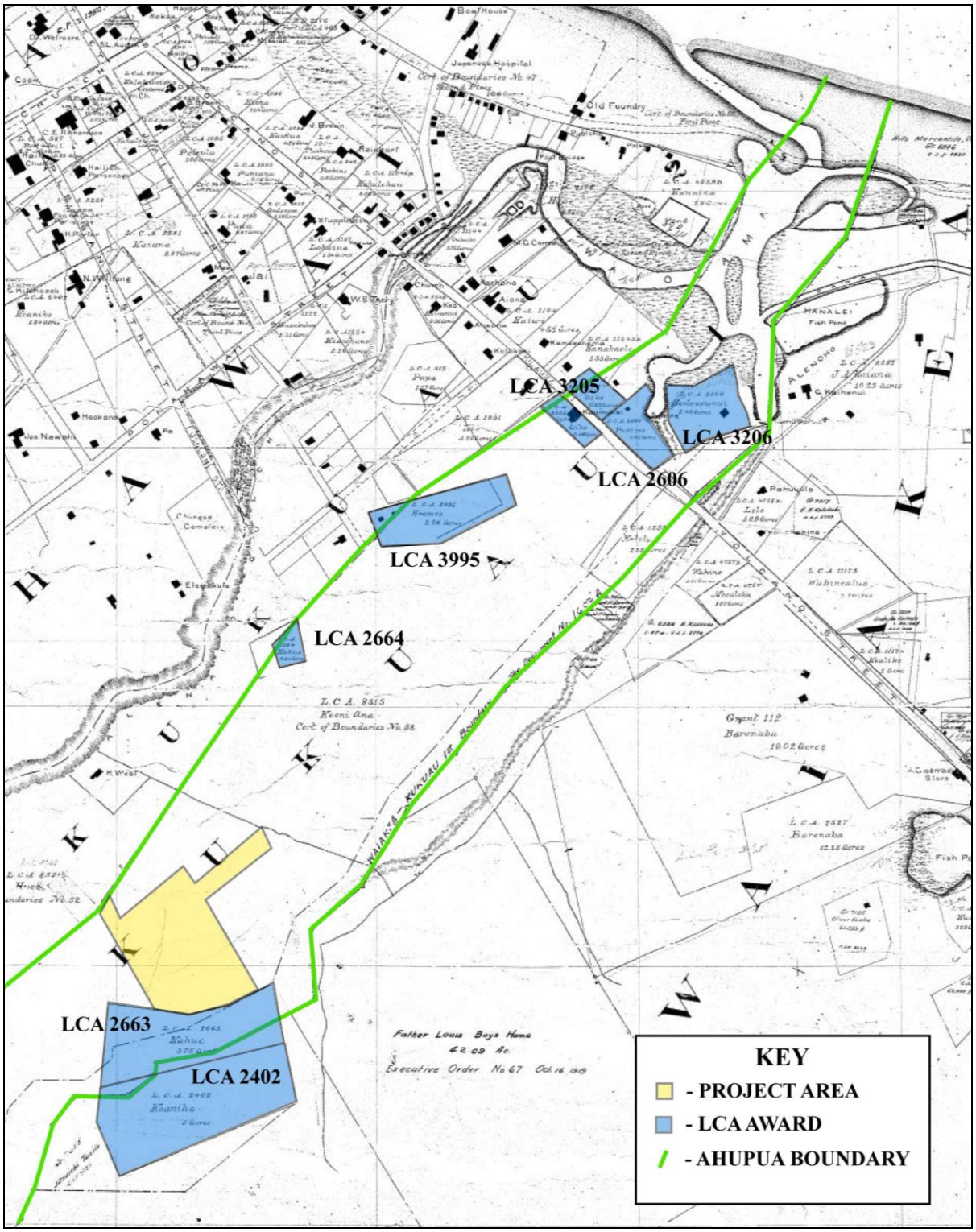

Figure 6: Portion of 1891 Hilo Property Title Map Showing Project Area Location and Eastern Kūkūau 1st Ahupuaʻa Land Commission Awards (Baldwin 1891).

The historical events at Hilo have received significant attention and presentation elsewhere (Desha 2000; Kelly *et al.* 1981; George 1948; Leithead 1974). Those events and trends that do or may relate generally to the project area are synthesized below.

Sandalwood was being shipped out of Hilo Bay in the first 20 years of the 19th century (Kelly *et al.* 1981:25). In April of 1822, the first missionary, Auna, a Tahitian, preached in Hilo. Many other missionaries soon followed. Whaling ships are documented as docking at Hilo by at least 1824. Whaling declined precipitously in the mid 1800s due to depredations by the U.S. Confederate fleet, increased use worldwide of kerosene, and increased cost of outfitting, among other things (George 1948:32). Whaling hobbled on in the islands, and the wreck of the Tamerlane in 1892 marks the end of commercial whaling in the area (Rogers 1999).

Due to economic, cultural and natural forces, the focus of habitation had fully shifted from the Wailoa River side of Hilo Bay to the Wailuku River side of the bay by 1885. "Hilo in 1885 was a small settlement with only a few hundred inhabitants. Waiākea had no frame buildings, just a few grass homes (after the tidal wave of 1877)" (Leithead 1974:59). The industrial and commercial concerns began to expand in the Wailoa River vicinity. Markets, landings, agriculture, and milling soon flourished in the Waiākea side of the bay (Kelly *et al.* 1981; Leithead 1974). Habitation then increased in the Waiākea area on the heels of the industrial developments in the late 1800s and early 1900s.

By 1901 sugar dominated the island's industry, and Hilo was the epicenter of production and export. Railroads connected sugar factors along the Hāmākua and Puna coasts to the mills and wharves at Hilo. An important spur of the railroad line connected the switch yard to the wharf. The first pier at Kuhio Wharf was built between 1912 and 1916 (Kelly *et al.* 1981:194). A second was added in 1923.

The railroad began operation in the Hilo area in 1899, and was abandoned in 1946 (Kelly *et al.* 1981). The first railroad to wharf connection was at the mouth of the Wailoa River. Railroad and sugar expansion coincided with one another, although not always productively (Kelly *et al.* 1981:154). The tsunami of 1946 struck Hilo Bay just as one train was passing through the project area.

The Alenaio canal was created to facilitate the filling of the lowlands near the ocean that had once been fishponds and taro fields just to the west and beyond the project area. It was upgraded with stone walls in 1917 (Kelly *et al.* 1981:220). Black sand from the beach was pumped up into the Waiolama swamps to fill them (Kelly *et al.* 1981:223). Removing beach sand to Waiolama swamp partially undermined the railroad. When the sand dredging started for the nearby Ponahawai taro and pond filling, the railroad company complained, and the dredging stopped (Kelly *et al.* 1981:224). Dredging started up again in 1922, and 31,763 cubic yards of black sand was then taken from the shoreline and placed in the Ponahawai drainage (Kelly *et al.* 1981:225). "Altogether, between the years 1917 to 1923, a total or roughly 250,000 cubic yards of fine black-lava sand from the beach at Hilo Bay was pumped…" into the interior wetlands (Kelly *et al.* 1981:225).

With the growth in industry and population in the latter half of the 1800s, the Minister of the Interior of the Provisional Government focused attention on the Waiākea side of the bay for the development of a new wharf (Kelly *et al.* 1981:104). While the Isbell Point wharf continued to be used in the 1890s, the government began building a "boat landing" just south of Kalauiiokukui in 1897 (Kelly *et al.* 1981:105). "Difficulties in obtaining a lease for this location, delayed the start of construction until October 1897, when a lease agreement was reached" (Kelly *et al.* 1981:105). But this boat landing turned out to be inadequate, and was then leased to Hackfeld & Co. for use as warehouse and landing (Kelly *et al.* 1981:107). The "boat landing" is identified as being immediately adjacent and to the south of Kalauiiokukui point on a U.S. Engineer Office map dated July 16, 1920 (in Kelly *et al.* 1981:201, Figure 84).

The government initiated construction in 1897 of a larger wharf just north of Reed's Landing known as the Government Ship Wharf (Kelly *et al.* 1981:107). Soon thereafter plans were made to increase the size of the wharf (Kelly *et al.* 1981:178), but efforts quickly changed to construction of the "railroad wharf" just to the south (over old Reed's Landing). The railroad wharf was completed in 1893, and after that this "new railroad wharf accommodated all vessels coming into Hilo Harbor" (Kelly *et al.* 1981:178). During this period larger steam vessels with deeper drafts were rapidly replacing sailing ships. Many large steam ships could not be accommodated by the railroad wharf.

By 1909 the only workable wharves were the railroad wharf and the territorial wharf [the Government Wharf], which was in "a condition of decay and beyond repair" (Kelly *et al.* 1981:184). And by this time the breakwater at Hilo Bay was under construction. The old government wharf was finally removed in February, 1912 (Kelly *et al.* 1981:185). Simultaneously, a considerable effort was expended to building a new wharf that would eventually become known as Kuhio Wharf. By 1916 Kuhio Wharf was busy to capacity.

Buildings

Hilo Iron Works building and railroad spur was built and began operations in 1913 (Warshauer 2003:28). Two acres of "swamp land" was sucked up from the Wailoa River into molds to pour concrete as foundations for expanding the Iron Works in 1919. The building that still stands today (just beyond the project area) was built in 1935. The foundry at the Iron Works closed in 1958. Other fabrication continued there until finally closing completely in 1983.

FISHING PRACTICES

Ellis' descriptions of the people he met and the villages he travelled through along the Puna coast in 1823 illustrate the long and well developed Hawaiian traditions of fishing and collecting food from the ocean. This orientation to the coast and the traditional practices developed in Hawai'i are still passed down generation to generation and persist today (Maly and Maly 2004).

Many fishermen, whether they use a hand-line or rod and reel, use knowledge and techniques of past fishermen to select fishing locations, proper bait, and technique. Fishermen throw net, fish by rod and reel, or spear fish at different locations along the shoreline to catch specific fish such as *āholehole, 'āweoweo, kala, kole, kūmū, manini, mamo, moana, moi, mū, palani, ta'ape, uhu, 'ū'ū, uouoa, weke'ā, and weke'ula*. Many people still fish with rod and along the shore at Hilo Bay, or fish by boat offshore for *akule, kawele'ā, mahimahi, ono, 'ōpakapaka, 'ula'ula*, and other species. In addition, the traditional collection of *'ōpihi, 'a'ama, and limu* along the rocky shoreline is still practiced. Traditional Hawaiian fishing practices, shoreline gathering practices, and ocean access are protected by state law.

Traditional Cultural Practices at Hilo Bay

Fishing, canoeing surfing are recognized past and ongoing cultural activities practiced along the coast at Hilo Bay. These coastal cultural practices are still conducted today at various spots along Hilo Bay Front and are protected by law. Considering all of the historical documentation, previous archaeology, past discussions with the public, and previous interviews conducted regarding Hilo Bay, fishing and canoeing can be considered as cultural practices conducted roughly one kilometer northeast of the current project area. Fishermen and Canoers have used this area into pre-Contact times. Other old style recreational activities conducted here include surfing, and the games of *kilu*, *pahenehene*, and others associated with *lōkū*. Those activities are documented to have been conducted here for a long time prior to European contact. Although the latter traditional games are no longer practiced, and have not been practiced here for some time, fishing and canoeing are still conducted.

TRADITIONAL CULTURAL PRACTICES AT HĀLAʻI, PUʻUHONU, ʻŌPEʻAPEʻA, AND KAMALIʻI

There is a collection of traditional Hawaiian legends that are set on the three hills in Ponahawai and Punahoa Ahupuaʻa (Figure 7). Hālaʻi hill is the largest, is furthest *makai*, and is approximately 0.75 kilometers southwest of the current project area. The middle hill and the *mauka* hill have been referred to in legend as Puʻuhonu, ʻŌpeʻapeʻa, and Puʻu o Kamaliʻi. The confusion in the names of the latter two hills continued into the early post-Contact era when cartographers gave these two cinder cones different names on their maps. Furthermore, the middle hill was excavated from the mid 1940s through the 1960s for cinder to supply various construction projects. Modern maps depict the large hill to the northeast as Hālaʻi, the small hill to the southwest as Puʻuhonu, and the middle hill is no longer present (see Figure 7).

The best treatment of the legends surrounding the three hills can be found in a study of the oral traditions and archival records of Ponahawai and Punahoa Ahupuaʻa written by Kepa and Onaona Maly (Maly and Maly 2003:14-19). Their work relied heavily on that of W.D. Westervelt (1910, reprinted in 1987) who published a collection of traditional stories about the goddesses called Hina and the demi-god Maui.

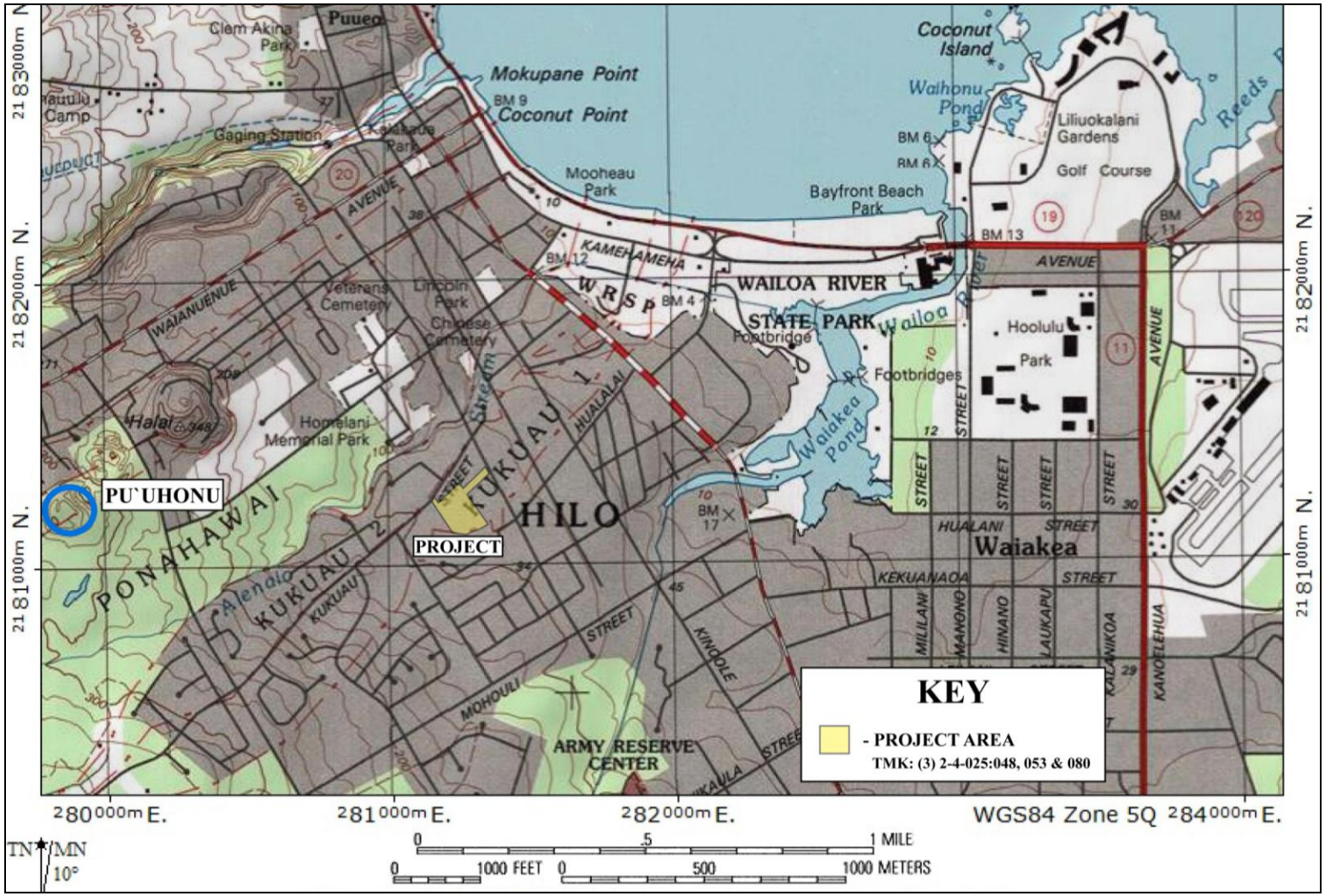

Figure 7: 7.5-Minute Series USGS Topographic Map Showing Location of Hāla‘i and Pu‘u Honu (USGS Hilo Quad, 2013. Source: National Geographic Society).

Regarding the traditions of Hina and the Hāla‘i Hills, Westervelt (reprinted in 1987) wrote:

Ghosts of the Hilo Hills

The Legends about Hina and her famous son Maui, and her less widely known daughters, are common property among the natives of the beautiful little city of Hilo. One of these legends of more than ordinary interest finds its location in the three small hills back of Hilo toward the mountains.

These hills are small craters connected with some ancient lava flow of unusual violence. The eruption must have started far up on the slopes of Mauna Loa. As it sped down toward the sea, it met some obstruction which, although overwhelmed, checked the flow and caused a great mass of cinders and ashes to be thrown out until a large hill with a hollow crater was built up, covering many acres of ground.

Soon the lava found another vent and then another obstruction and a second, and then a third, hill were formed nearer the sea. These hills or extinct craters bear the names Halai, Opeapea, and Puu Honu. They are not far from the Wailuku River, famous for its picturesque waterfalls and also for the legends which are told along its banks.

Hina had several daughters, four of whose names are given: Hina Keahi, Hina Kekai, Hina Mahuia, and Hina Kuluua. Each name marked the peculiar *mana* or divine gift which Hina, the mother, had bestowed upon her daughters.

Hina Keahi meant the Hina who had control of fire. This name is sometimes given to Hina the mother. Hina Kekai was the daughter who had power over the sea. She was said to have been in a canoe with her brother Maui when he fished up Coconut Island [Mokuola], his line breaking before he could pull it up to the mainland and make it fast. Hina Kuluua was the mistress over the forces of rain. The winds and the storms were supposed to obey her will. Hina Mahuia is peculiarly a name

connected with the legends of the other island groups of the Pacific; Mahuia or Mafuie was a god or goddess of fire all through Polynesia.

The legend of the Hilo hills pertains especially to Hina Keahi and Hina Kuluua. Hina the mother gave the hill Halai to Hina Keahi and the hill Puuhonu to Hina Kuluua for their families and dependents.

The hills were of rich soil and there was much rain. Therefore, for a long time, the two daughters had plenty of food for themselves and their people. But at last the days were like fire and the sky had no rain to it. The taro planted on the hillsides died. The bananas and sugar cane and sweet potatoes withered and the fruit on the trees was blasted. The people were faint because of hunger, and the shadow of death was over the land.

Hina Keahi pitied her suffering friends and determined to provide food for them. Slowly her people labored at her command. Over they went to the banks of the river course, which was only the bed of an ancient lava stream, over which no water was flowing. The famished laborers toiled. gathering and carrying back whatever wood they could find, then went up the mountainside to the great *koa* and *ohia* forests, gathering their burdens of fuel according to the wishes of the chiefess.

Their sorcerers planted charms along the way and uttered incantations to ward off the danger of failure. The priests offered sacrifices and prayers for the safe and successful return of the burden bearers. After many days, the great quantity of wood desired by the goddess was piled up by the side of the Halai Hill.

Then came the days of digging out the hill and making a great *imu* or cooking oven, and preparing it with stones and wood. Large quantities of wood were thrown into the place. Stones best fitted for retaining heat were gathered and the fires kindled. When the stones were hot, Hina Keahi directed the people to arrange the *imu* in its proper order for cooking the materials for a great feast. A place was made for sweet potatoes, another for taro, another for pigs, and another for dogs. All the forms of preparing the food for cooking were passed through, but no real food was laid on the stones.

Then Hina told them to make a place in the *imu* for a human sacrifice. Probably, out of every *imu* of the long ago, a small part of the food was offered to the gods, and there may have been a special place in the *imu* for that part of the food to be cooked. At any rate, Hina had this oven so built that the people understood that a remarkable sacrifice would be offered in it to the gods, who for some reason had sent the famine upon the people.

Therefore it was in quiet despair that the workmen obeyed Hina Keahi and prepared the place for sacrifice.

It might mean their own holocaust as an offering to the gods. At last Hina Keahi bade the laborers cease their work and stand by the side of the oven, ready to cover it with the dirt which had been thrown out and piled up by the side. The people stood by, not knowing upon whom the blow might fall.

But Hina Keahi was "Hina the Kind," and although she stood before them robed in royal majesty and power. still her face was full of pity and love. Her voice melted the hearts of her retainers as she bade them carefully follow her directions.

"O my people! Where are you? Will you obey and do as I command? This *imu* is my *imu.* I shall lie down in its bed of burning stones. I shall sleep under its cover. But deeply cover me, or I may perish. Quickly throw the dirt over my body. Fear not the fire. Watch for three days. A woman will stand by the *imu.* Obey her will."

Hina Keahi was very beautiful, and her eyes flashed light like fire as she stepped into the great pit and lay down on the burning stones. A great smoke arose and gathered over the *imu.* The men toiled rapidly, placing the *imu* mats over their chiefess and throwing the dirt back into the oven until it was all thoroughly covered and the smoke was quenched.

Then they waited for the strange, mysterious thing which must fallow the sacrifice of this divine chiefess.

Halai hill trembled and earthquakes shook the land round about. The great heat of the fire in the *imu* withered the little life that was still left from the

famine. Meanwhile, Hina Keahi was carrying out her plan for securing aid for her people. She could not be injured by the heat, for she was a goddess of fire. The waves of heat raged around her as she sank down through the stones of the *imu* into the underground paths which belonged to the spirit world.

The legend says that Hina made her appearance in the form of a gushing stream of water which would always supply the wants of her adherents. The second day passed. Hina was still journeying underground, but this time she came to the surface as a pool named Moe-waa (Canoe Sleep), much nearer the sea. The third day came and Hina caused a great spring of sweet water to burst forth from the seashore in the very path of the ocean surf. This received the name of Auauwai. Here Hina washed away all traces of her journey through the depths.

This was the last of the series of earthquakes and the appearance of new water springs. The people waited, feeling that some more wonderful event must follow the remarkable experience of the three days. Soon a woman stood by the *imu*, who commanded the laborers to dig away the dirt and remove the mats. When this was done, the hungry people found a very great abundance of food, enough to supply their wants until the food plants should have time to ripen and the days of the famine should be over.

The joy of the people was great when they knew that their chiefess had escaped death and would still dwell among them in comfort. Many were the songs sung and stories told about the great famine and the success of the goddess of fire.

The second sister, Hina Kuluua, the goddess of rain, was always very jealous of her beautiful sister Hina Keahi, and many times sent rain to put out fires which her sister tried to kindle. Hina Keahi could not stand the rain and so fled with her people to a home by the seaside.

Hina Kuluua could control rain and storms, but for some reason failed to provide a food supply for her people, and the famine wrought havoc among them. She thought of the stories told and songs sung about her

Sister, and wished for the same honor for herself. She commanded her people to make a great *imu* for her in the hill Puu Honu. She knew that a strange power belonged to her and yet, blinded by jealousy, forgot that rain and fire could not work together. She planned to furnish a great supply of food for her people in the same way in which her sister had worked.

The oven was dug. Stones and wood were collected and the same ghostly array of potatoes, taro, pig and dog prepared as had been done before by her sister.

The kahunas or priests knew that Hina Kuluua was going out of her province in trying to do as her sister had done, but there was no use in attempting to change her plans. Jealousy is self-willed and obstinate, and no amount of reasoning from her dependents could have any influence over her. The ordinary incantations were observed, and Hina Kuluua gave the same directions as those her sister had given. The *imu* was to be well heated. The make-believe food was to be put in and a place left for her body. It was the goddess of rain making ready to lie down on a bed prepared for the goddess of fire. When all was ready, she lay down on the heated stones and the oven mats were thrown over her and the ghostly provisions. Then the covering of dirt was thrown back upon the mats and heated stones, filling the pit which had been dug. The goddess of rain was left to prepare a feast for her people as the goddess of fire had done for her followers.

Some of the legends have introduced the demi-god Maui into this story. The natives say that Maui came to "burn or cook the rain" and that he made the oven very hot, but that the goddess of rain escaped and hung over the hill in the form of a cloud. At least this is what the people saw - not a cloud of smoke over the *imu,* but a rain cloud. They waited and watched for such evidences of underground labor as attended the passage of Hina Keahi through the earth from the hill to the sea, but the only strange appearance was the dark rain cloud. They waited three days and looked for their chiefess to come in the form of a woman. They waited another day and still another, and no signs or wonders were manifest.

Meanwhile, Maui, changing himself into a white bird, flew up into the sky to catch the ghost of the goddess of rain that had escaped from the burning oven. Having caught this spirit, he rolled it in some *kapa* cloth that he kept for food to be placed in an oven, and carried it to a place in the forest on the mountainside, where again the attempt was made to "bum the rain"; but a great drop escaped and sped upward into the sky.

Again Maui caught the ghost of the goddess and carried it to a *pali* or precipice below the great volcano Kilauea, where he again tried to destroy it in the heat of a great lava oven. But this time the spirit escaped and found a safe refuge among *kukui* trees on the mountainside. from which she sometimes rises in clouds that the natives say are the sure sign of rain.

The ghosts of Hina Keahi and Hina Kuluua sometimes draw near to the old hills in the form of the fire of flowing lava or clouds of rain, while the old men and women tell the story of the Hinas, the sisters of Maui, who were laid upon the burning stones of the imus of a famine. [Westervelt 1987:25-31]

While Theodore Kelsey was working with *kūpuna* of Hilo (1921), they shared with him descriptions the Ponahawai-Punahoa landscape that were of cultural and historical importance. Among their stories was that of Hina-a-ke-ahi and Hina-kulu-ua, similar to that above. They also told him of an important event that took place on a small hill above Hāla‘i in 1881. Though late in the history of these lands, this event was one that stood out in the native mind as being of great importance to the well-being of Hilo. In a series of letters from Kelsey to Thomas Thrum (in the collection of Bernice Pauahi Bishop Museum), Kelsey wrote of the famed hills of Hala‘i, Pu‘u Honu and Pu'u a Kamali‘i, the latter being the hill to which Princess Ruth Ke‘elikolani (Governess of Hawai‘i) went in August of 1881, when she personally asked Pele to spare Hilo from the Mauna Loa lava flow of 1881.

Kelsey's letters on this matter include the following observations:

> June 16, 1921
> ... Ben Brown gave me the meanings of the names of the hills back of Hilo. Halaʻi hill was named because of the easy life led by the subjects of Hina a ke Ahi, after she had relieved their famine by placing her body in the *imu* to create food for them. She went under ground appearing at two or three springs called Hina Auau Wai, and finally came walking up from the sea.
>
> Puu Honu is named after the rain sister, Hina a ka Ua, who was baked in her unsuccessful attempt to imitate Hina a ke Ahi. Hina a ka Ua only crawled about like a tortoise, never getting anywhere-nee *wale iho no i kauhale* [moving about only in her dwelling].
>
> Puu o Kamalii was the peoples' playground. There was a *holua* slide from there down to the Nawahi place. Since Princess Ruth went up there in 1881 and prayed for the lava flow to stop, the hill has often been called Puu Alii [Royal Hill] ... [BPBM Vol. 1:930].
>
> Based on Kelsey and his informants references to known locations—Hālaʻi and Puʻu Honu also being identified on historic maps—Puʻu Kamaliʻi (Hill of the Children - perhaps referring to the children of Hina), or Puʻu Ali'i (Royal Hill) would apparently be the middle hill, as there is no other hill in the vicinity [Maly and Maly 2003:14-19].

The story of the three hills is an important part of the cultural memories of older Hilo residents, though it is not often visited for specific cultural practices. Puʻuhonu was recommended for preservation (Escott 2017).

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

At least fourteen archaeological studies were conducted in the area near the current project area (Figure 8 and Table 2). Six studies included portions of Kūkūau 1st Ahupuaʻa (Kelly & Athens 1982, Neslon et al. 2006, Rosendahl 1988, Rechtman 2009, Wickler & Ward 1992, and Wilkinson et al. 2012). The vast majority of studies did not encounter archaeological sites. This is not surprising since much of the area within Hilo town has been developed. It is likely that most archaeological remains have been disturbed and obscured by construction activities associated with modern development (Hudson 1932:226).

Thrum (1907) and Stokes and Dye (1991) documented heiau located on the Island of Hawaiʻi. Many of the heiau in the Hilo area had been dismantled by the time Thrum arrived to document them. There were no heiau located in Kūkūau 1st Ahupuaʻa.

Only five of the fourteen previous archaeology studies documented a few archaeological sites (see Table 2). Walker and Rosendahl (1996) recorded five historic sugarcane sites, including Waiakea Sugar Plantation field features and remains from the old Hilo Sugar Company mill. Pre-Contact era artifacts were recovered from one feature, indicating a pre-Contact component. The plantation field features and pre-Contact era artifacts were identified south of Hālaʻi Hill in Ponahawai Ahupuaʻa, outside of the current project area (see Figure 8).

The old Hilo Sugar Company mill site is east of the current project area, though the mill is no longer present, and more modern structures have been built over the site. None of the archaeological sites documented in Walker and Rosendahl (1996) will be impacted by the proposed cellular tower undertaking.

Clark and Rechtman (2006) also recorded a single sugarcane era rock mound south of the current project area. Wolforth (2006) recorded the Kanakea fishpond, pecked basins, and three historic sites, all of which east of the current project area.

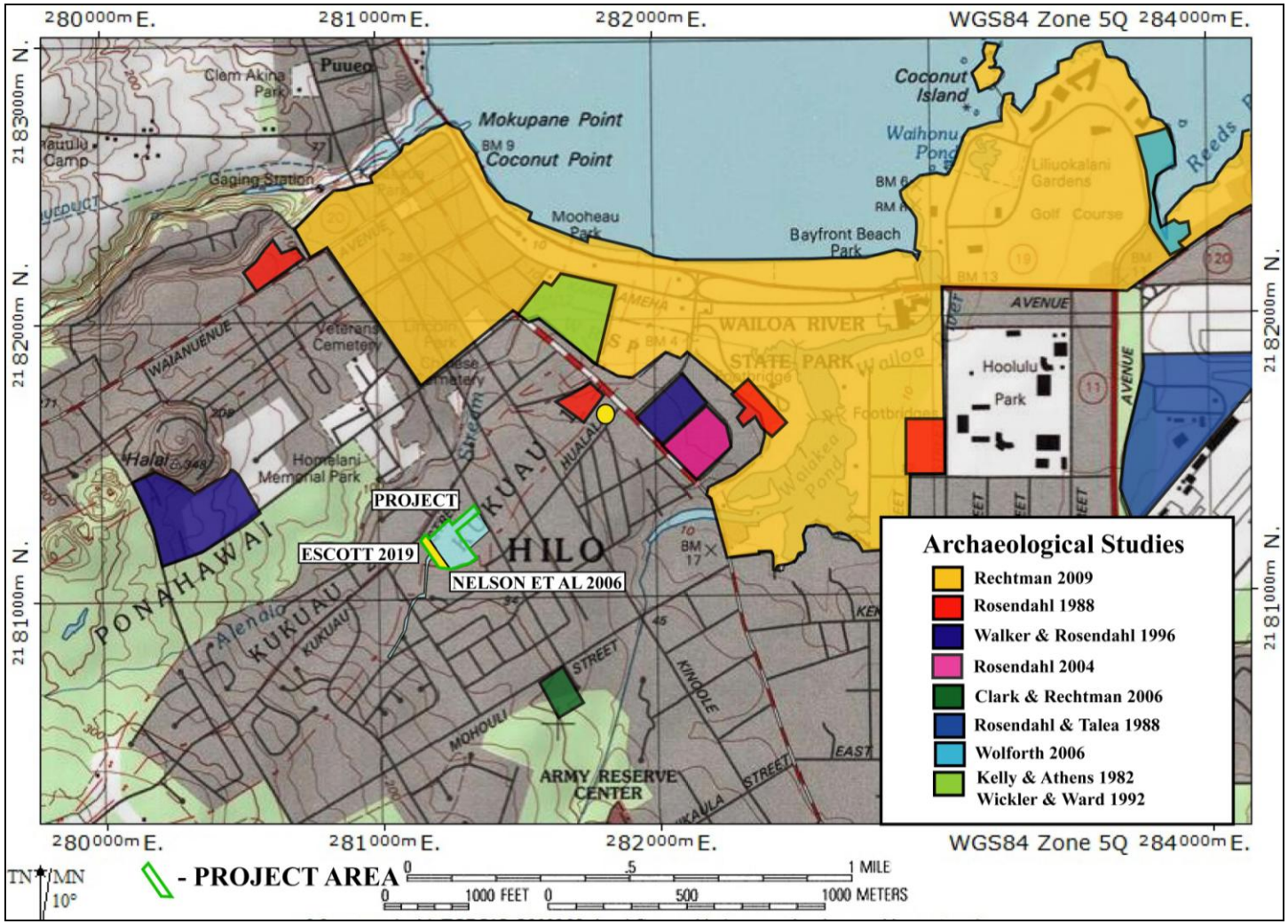

Figure 8: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area (Green Border) and Previous Archaeological Studies (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

Table 2: Previous Archaeological Studies Near the Project Area.

Study Reference	Study Type	Location	Results
Thrum 1907	*Heiau* Survey	Hawaiian Island	No *Heiau* in Kūkūau 1st Ahupaʻa
Hudson 1932	Survey	East Hawaii	Very Few Sites in Hilo Area
Kelly & Athens 1982	Cultural Resources Reconnaissance	Wailoa River	No Archaeological Sites at Wailoa River
Rosendahl & Talea 1988	Archaeological Reconnaissance Survey	Hilo Airport	No Archaeological Sites
Rosendahl 1988	Archaeological Reconnaissance Survey	Four Locations in Hilo, One Just North of Current Project	No Archaeological Sites
Smith & Tourtellotte 1988	Burial Discovery	Mouth of Wailoa River	Single Burial
Stokes and Dye 1991	*Heiau* Survey	Hawaiian Island	No *Heiau* in Kūkūau 1st Ahupaʻa
Wickler & Ward 1992	Archaeological Investigation	ʻAlenaio Stream	Historic Artifacts Only, No Sites
Walker & Rosendahl 1996	Archaeological Assessment	Hilo Judicial Complex	Five Historic Sites
Rosendahl 2004	Archaeological Assessment	Hilo Judicial Complex	No Archaeological Sites
Wolforth 2006	AIS	Reed's Bay Beach Park	Two Pre-Contact and Three Historic Sites
Nelson et al. 2006	AIS	Kūkūau 1st Ahupaʻa	Historic Era Enclosure
Clark & Rechtman 2006	Section 106	Mohouli Street	One Historic Era Rock Mound
Rechtman 2009	Archaeological Assessment	Hilo Bay Front to Reed's Bay	No Archaeological Sites
Escott 2019	Archaeological Assessment	Current Project Area	No Archaeological Sites

A single set of burial remains were identified by Smith and Tourtellotte (1988) 2.0km northeast of the current project area, at the mouth of the Wailoa River (not plotted on Figure 8). None of the previously identified archaeological sites will be affected by the current undertaking.

Rechtman Consulting, LLC conducted an AIS study (Nelson et al. 2006) adjacent to the current project area that included a narrow study corridor bisecting the current project area (see Figure 8 and Figure 9). A single archaeological site (Site #50-10-35-25547) was recorded on TMK: (3) 2-4-025: 048 (Figure 10 and Figure 11). Site 25547 is a 24.0 m long (NE/SW) by 2.0 m wide by 2.0 m high Historic era linear enclosure constructed along a naturally occurring crack in a raised pāhoehoe bedrock outcrop (Nelson et al. 2006:12). The bedrock crack as been modified in three locations by stacking cobbles along the sides and across the middle of the crack (see Figure 11). The enclosure was likely constructed to keep animals. Site 25547 appeared to be unaltered and was in good condition.

Site 25547 is considered significant under Criterion d, as having, or likely to yield information important to Historic era animal husbandry features. No further work was recommended for Site 25547 (Nelson et al. 2006:18). The AIS report was approved by the Hawai‘i State Historic Division (SHPD) (Log No. 2006.3275, Doc. No. 0609JT83, Approval Letter dated September 28, 2006).

Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Assessment (AA) for Parcel 080 (Escott 2019) to identify archaeological sites and/or historic properties within the survey area (see Figure 8). Parcel 080 is a private access easement with a paved driveway down the center of the parcel. The driveway provides access for residential homes on property along the west and south boundaries of Parcel 080. There is a modern drainage culvert constructed in the 1970s that crosses the center of Parcel 080 from the west to east. There were no archaeological sites or historic properties identified during the field inspection.

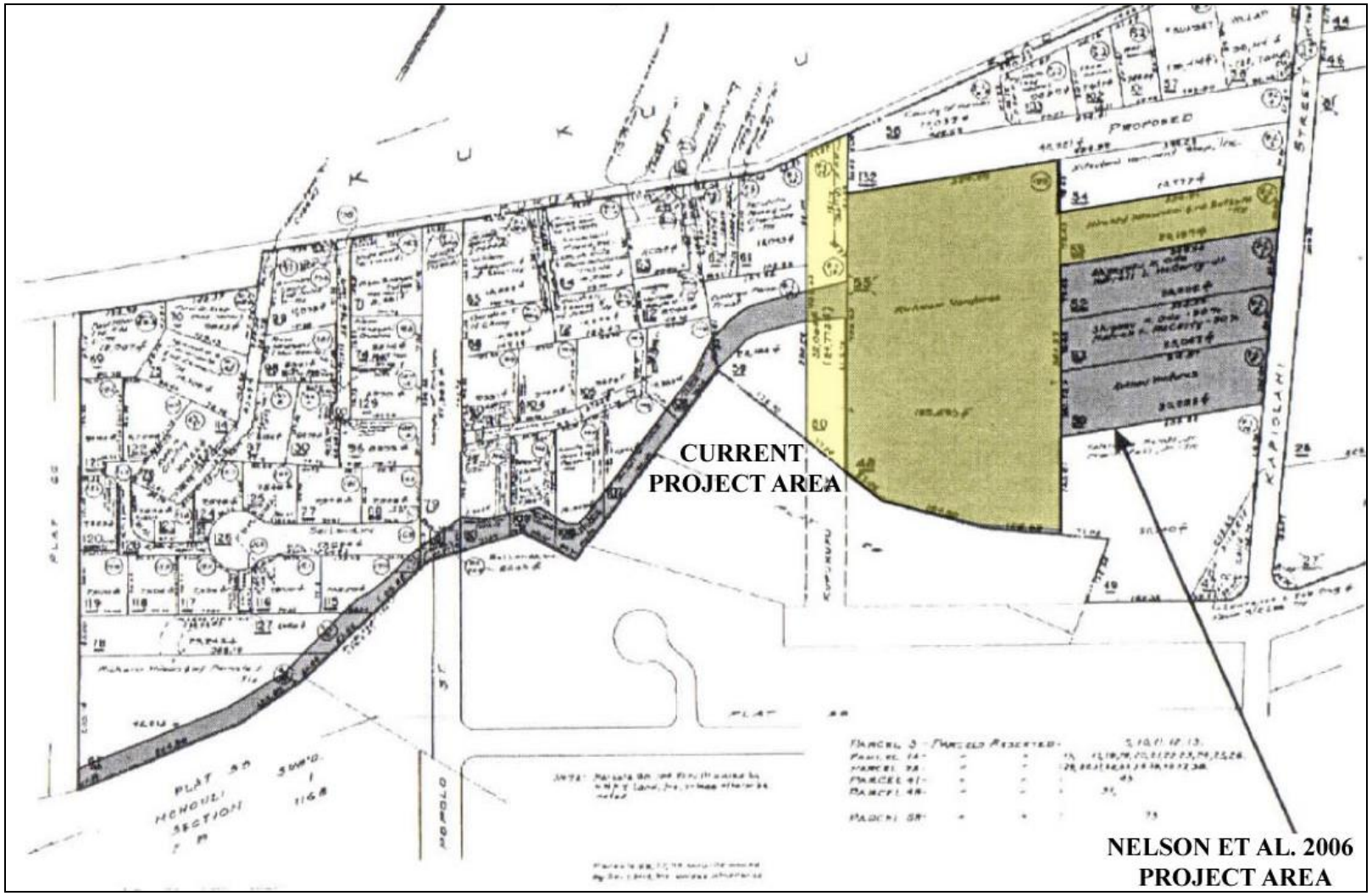

Figure 9: TMK: (3) 2-4-025 Map Showing Location of Current Housing Project Area Shaded Yellow and Nelson et al. (2006) Project Area Shaded Gray (Adapted from Nelson et al. 2006:3).

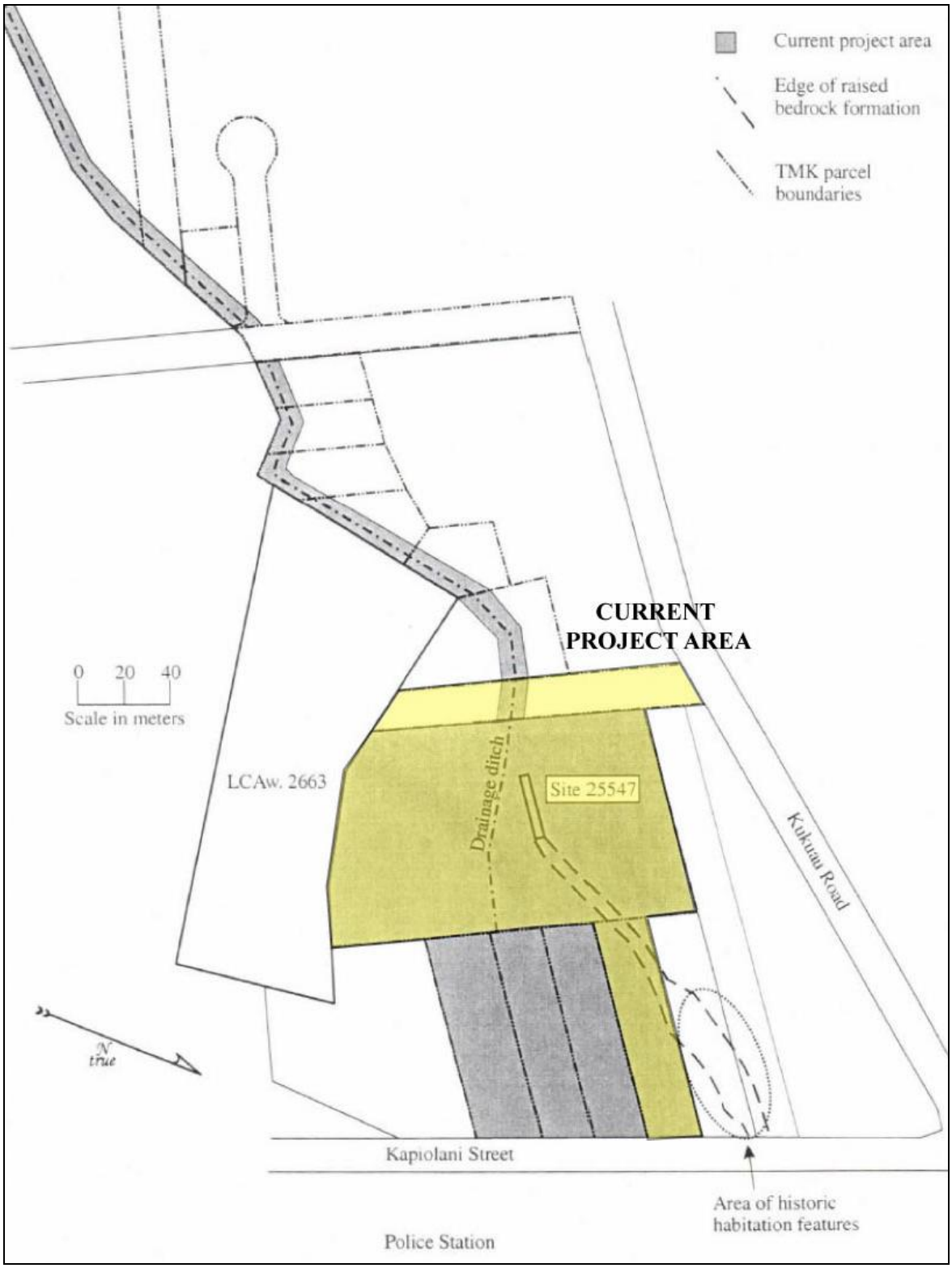

Figure 10: Map Showing Location of Site 25547, Current Housing Project Area Shaded Yellow and Nelson et al. (2006) Project Area Shaded Gray (Adapted from Nelson et al. 2006:13).

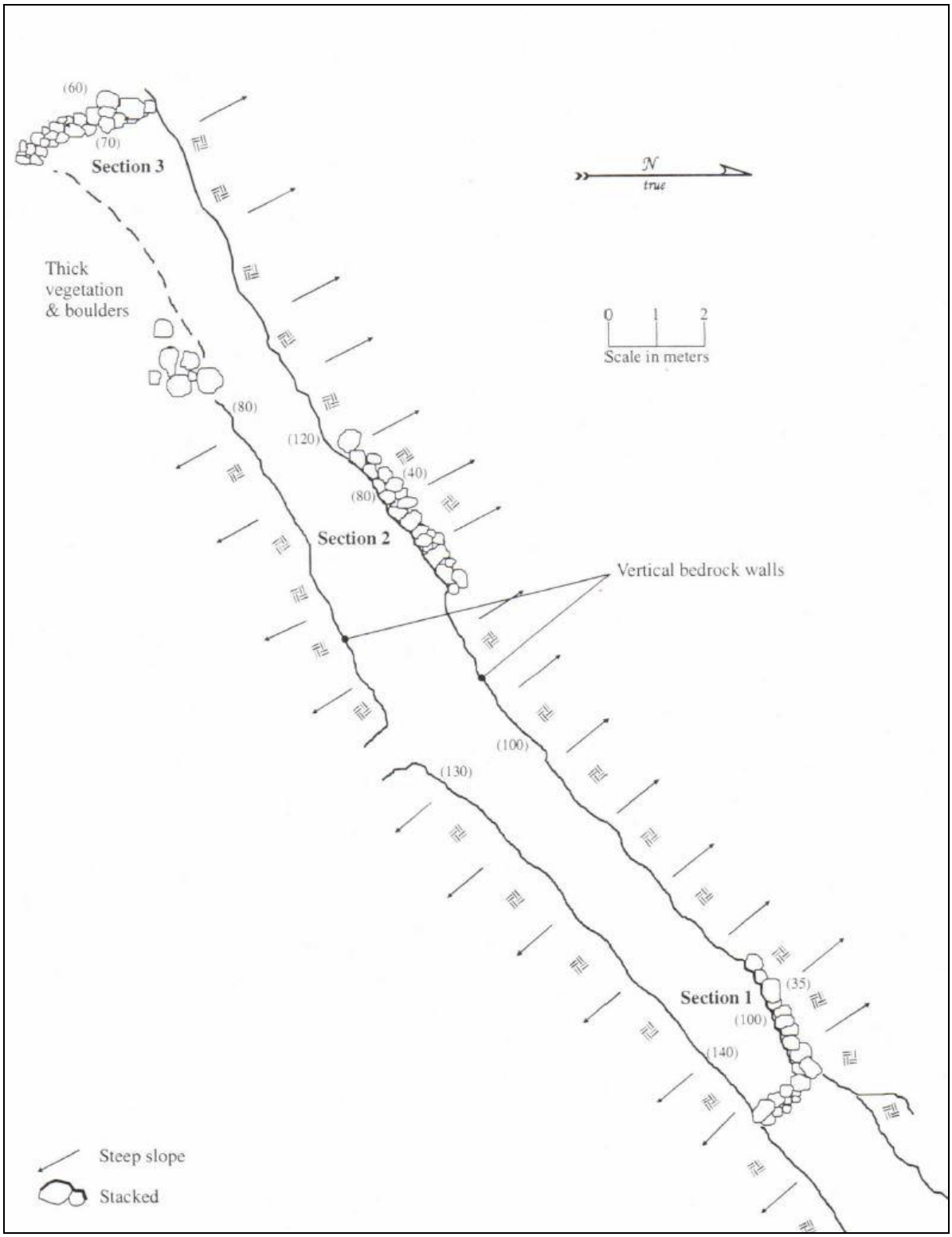

Figure 11: Site 25547 Plan View Map (Nelson et al. 2006: 14).

RECORDS SEARCH RESULTS

A search was made for archaeological sites and architectural structures within a roughly half-mile of the current project area that are eligible for listing on the NRHP and HRHP. The results of the records search indicate that there are nineteen sites listed on the Hawai‘i Register of Historic Places (Figure 12 and Table 3). Two of those sites are also listed on the National Register of Historic Places. The sites include two historic districts, several church buildings, schools, commercial buildings, homes, and a Portuguese oven. Many of the buildings are characteristic of period style architecture.

Other than the nineteen sites listed in Table 3, there are no other previously recorded archaeological sites or structures eligible for listing within one half-mile of the current project area. There are a limited number of structures within one half-mile of the project area that are more than 50 years old that were not selected for listing on either register.

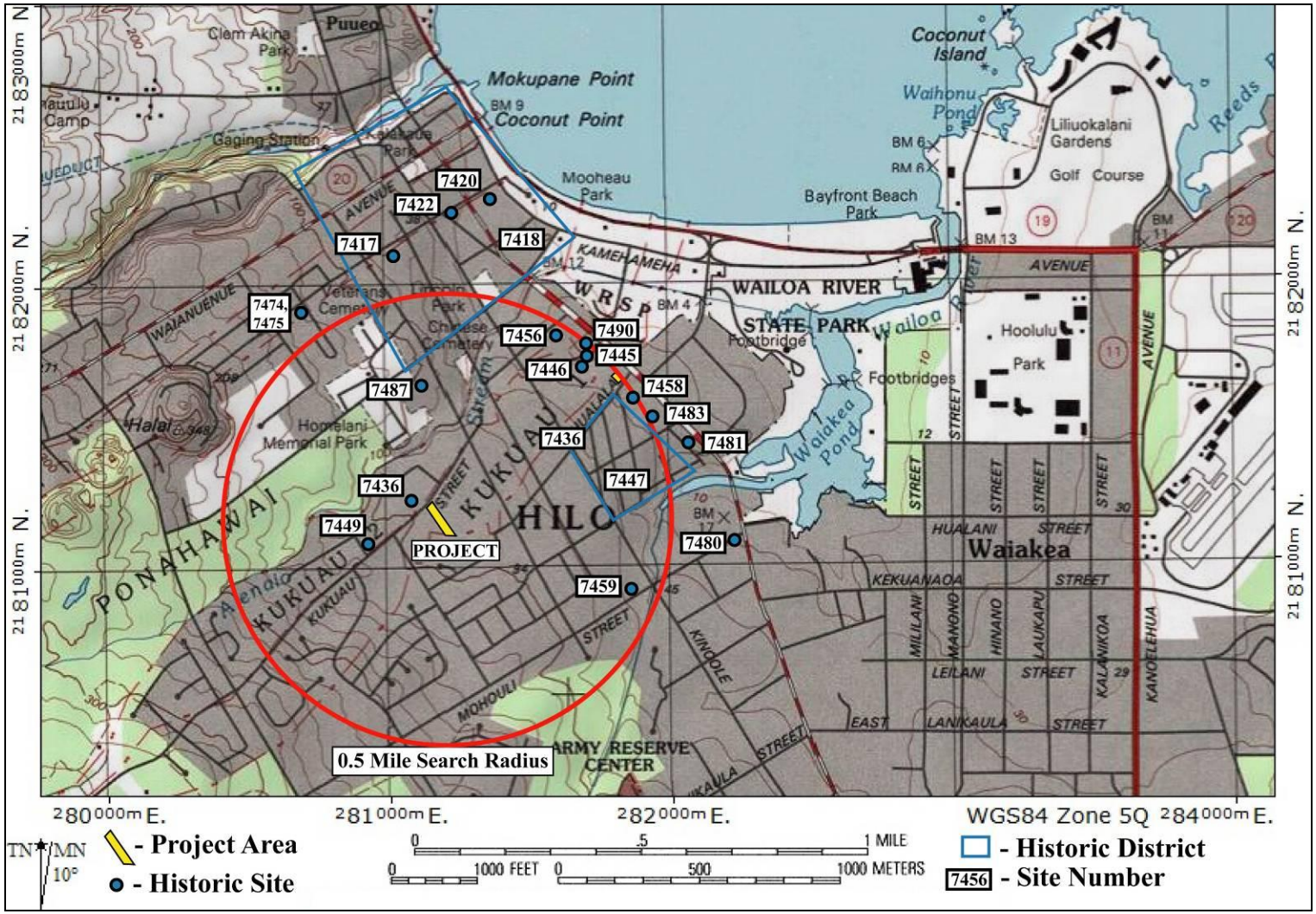

Figure 12: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow and Historic Registered Sites Within One Half Mile Radius (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

Table 3: Inventory of Registered Historic Properties Within a 0.5 Mile Search Radius.

State Site No.	Site No.	Site Name	Hawai‘i Register	National Register
50-10-35-07417	7417	Waiakea Mission or Haili Church	17-Nov-01	23-Apr-02
50-10-35-07418	7418	Bay Front Historic District	NA	
50-10-35-07420	7420	S. Hata Building	14-Jan-89	27-Aug-91
50-10-35-07422	7422	Central Christian Church	1-Jan-92	
50-10-35-07436	7436	Serrao Winery	1-Jan-92	
50-10-35-07445	7445	Ling Hing Society	1-Jan-92	
50-10-35-07446	7446	Konko-Kyo Daijin	1-Jan-92	
50-10-35-07447	7447	Villa Franca District	1-Jan-92	
50-10-35-07449	7449	Prudencio Portuguese Oven	1-Jan-92	
50-10-35-07456	7456	Hilo Hongwanji	1-Jan-92	
50-10-35-07458	7458	Old Chinese Language School	1-Jan-92	
50-10-35-07459	7459	United Community Church	1-Jan-92	
50-10-35-07480	7480	Waiakea Mill Camp Housing	1-Jan-92	
50-10-35-07481	7481	Hilo House Type #6	1-Jan-92	
50-10-35-07483	7483	Former Souza-Matsumura House	1-Jan-92	
50-10-35-07487	7487	Hilo House Type #7	1-Jan-92	
50-10-35-07490	7490	Hilo House Type #9	1-Jan-92	
50-10-35-07474	7474	Cannon-Hill Boarding School	1-Jan-92	
50-10-35-07475	7475	Hilo Boarding School Site	1-Jan-92	

CULTURAL INFORMANT INTERVIEWS

SCS, Inc contacted four individuals who, either work for the Office of Hawaiian Affairs, are SHPD personnel, are familiar with the project area lands through cultural, professional, or historical work, or are long-time residents of the area (Table 3). Consultation was sought from each of the four individuals to identify past and ongoing cultural practices, as well as to identify any cultural practitioners that they could recommend for consultation. One individual responded.

Table 4: Individuals Responding to CIA.

Name	Affiliation	Responded	Has Knowledge	Cultural Practices
Kalena Blakemore	HIBC Representative	Yes	Some	No
Kamaile Puluole-Mitchell	OHA East Hawai‘i	No	-	-
Sean Naleimaile	SHPD Archaeologist	No	-	-
Jordan Kea Calpito	SHPD Burial Sites Specialist	No	-	-

SUMMARY

The “level of effort undertaken” to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential.

In the case of the present parcel, letters of inquiry were sent to organizations and individuals whose expertise would include the project area. Consultation was sought from Kamaile Puluole-Mitchell, Office of Hawaiian Affairs (OHA) East Hawai‘i Island Representative; Jordan Kea Calpito, SHPD Burial Sites Specialist; Sean Naleimaile, State Historic Preservation Division (SHPD) Hawai‘i Island Archaeologist; and Kalena Blakemore, Hawai‘i Island Burial Council (HIBC) Member.

Public notices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, and were published in the Honolulu Star-Advertiser and the Hawai‘i Tribune Herald.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I‘i, Kamakau, Chinen, Kame‘eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku‘i and Elbert, Thrum, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai‘i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona ‘Aina 2007 Data Base.

CIA INQUIRY RESPONSE

As suggested in the “Guidelines for Accessing Cultural Impacts” (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview procedures, circumstances attending the interviews, as well as the results of this consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

As stated above, consultation was sought from Kamaile Puluole-Mitchell, Office of Hawaiian Affairs (OHA) East Hawai‘i Island Representative; Jordan Kea Calpito, SHPD Burial Sites Specialist; Sean Naleimaile, State Historic Preservation Division (SHPD) Hawai‘i Island Archaeologist; and Kalena Blakemore, Hawai‘i Island Burial Council (HIBC) Member.

Public notices were printed in the the September 2019 issue of the Office of Hawaiian Affairs (OHA) Ka Wai Ola Newspaper. Public notices were also published in the Honolulu Star-Advertiser, and the Hawai‘i Tribune Herald on August 14th, 15th, and 18th. The public notices did not generate responses from the public. This fact is not surprising since it is unlikely as there no known inland locations in Hilo town where gathering or cultural practices occur.

An analysis of the potential effect of the proposed construction of residences on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area was used a location for animal husbandry in the late Historic to Modern eras. Based on historical research and responses from the above listed contacts, it is reasonable to conclude that, as the current project was not and is not a location for past and ongoing cultural practices, there will be no traditional cultural practices affected and there will be no direct adverse effect upon cultural practices or beliefs in the broader project area region.

CULTURAL ASSESSMEMNT

Based on the results of an Archaeological Assessment of the project area, the results of previous archaeological studies, as well as organizational response, individual cultural informant responses, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel. The proposed project is not a location for past or ongoing cultural practices. The proposed undertaking will not produce adverse effects to any native Hawaiian cultural practices within the project area or in the broader region.

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APPENDIX A: PUBLIC NOTICES AND AFFIDAVITS

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. of past and ongoing cultural practices on 5.0499 acres of land in Kūkūau 1st Ahupua'a, South Hilo District, Island of Hawai'i, TMK: (3) 2-4-025: 048, 053 and 080. Please respond within 30 days to Glenn Escott at (808) 938-0968.

September 2019 Ka Wai Ola Public Notice.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
CULTURAL IMPACT ASSESSMENT NOTICE

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: AUG 19 2019 **# Pages:** 1
Notary Name: Patricia K. Reese First Judicial **Circuit**
Doc. Description: Affidavit of Publication
Notary Signature AUG 19 2019 Date

PATRICIA K. REESE NOTARY PUBLIC No. 86-467 STATE OF HAWAII

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. of past and ongoing cultural practices on 5.0499 acres of land in Kukuau 1st Ahupua'a, South Hilo District, Island of Hawai'i, TMK: (3) 2-4-025: 048, 053 and 080. Please respond within 30 days to Glenn Escott at (808) 938-0968.
(SA1223396 8/14, 8/15, 8/18/19)

Gwyn Pang being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 3 times on:
08/14, 08/15, 08/18/2019
MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Gwyn Pang
Gwyn Pang

Subscribed to and sworn before me this 19 day of August A.D. 2019

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2022

Ad # 0001223396

PATRICIA K. REESE NOTARY PUBLIC No. 86-467 STATE OF HAWAII

SP.NO.: _____ L.N.

August 2019 Honolulu Star-Advertiser Public Notice.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
CULTURAL IMPACT ASSESSMENT NOTICE

STATE OF HAWAII }
} SS.
City and County of Honolulu }

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CULTURAL IMPACT ASSESSMENT NOTICE

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(HTH1223399 8/14, 8/15, 8/18/19)

Gwyn Pang being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

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Hawaii Tribune-Herald 3 times on:
08/14, 08/15, 08/18/2019

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Gwyn Pang

Subscribed to and sworn before me this 19 day of August A.D. 2019

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2022

PATRICIA K. REESE NOTARY PUBLIC No. 86-467 STATE OF HAWAII

Ad # 0001223399

SP.NO.: _____ L.N.

August 2019 Hawai'i Tribune-Herald Public Notice.

Mitchell D. Roth
Mayor

Lee E. Lord
Managing Director

Robert H. Command
Deputy Managing Director

Susan K. Kunz
Housing Administrator

Harry M. Yada
Assistant Housing Administrator

County of Hawai'i
Office of Housing and Community Development

1990 Kino'ole Street, Suite 102 • Hilo, Hawai'i 96720 • (808) 961-8379 • Fax (808) 961-8685
Existing Housing: (808) 959-4642 • Fax (808) 959-9308
Kona: (808) 323-4300 • Fax (808) 323-4301

March 2, 2022

Alan Downer, PhD
State Historic Preservation Officer
Hawai'i State Historic Preservation Division
601 Kamokila Blvd., Rm.555
Kapolei, Hawai'i 96707
Alan.S.Downer@hawaii.gov

RE: Request for Concurrence on No Historic Properties Affected Determination, Section 106 of the National Historic Preservation Act for the proposed Kaiāulu O Kapi'olani Housing Project Located on a 5.05-Acre Property in Kūkūau 1st Ahupua'a, South Hilo District, Island of Hawai'i [TMK: (3) 2-4025:048, 053 and 080]

Dear Mr. Downer:

In accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, the County of Hawai'i (COH) Office of Housing and Community Development (OHCD) is providing information for your review and concurrence regarding the above-referenced proposed undertaking. The Kaiāulu O Kapi'olani Affordable Housing Project is eligible for U.S. Department of Housing and Urban Development (HUD) assistance and is subject to review under 24 CFR Part 58 Section 5 of 1998, as amended (2003). OHCD is the entity responsible for compliance with environmental requirements including those relating to NHPA and Section 106.

Based on our research of the property; the results of an Archaeological Inventory Survey (AIS) report (H-02119) for TMK: (3) 2-4-025:048, 050, 053, 059 por., 067 por., 078 por., 080 por., 093, 106 por., 107 por., 108 por., 109 por., 110 por., 115 por., and 126 por. (Nelson et al. 2006) and an Archaeological Assessment (AA) letter report for Parcel 080 (Escott 2019a); the results of a Cultural Impact Assessment (Escott 2019b), and the results of Section 106 consultation conducted with the Hawai'i State Historic Preservation Division (SHPD), Native Hawaiian Organizations (NHO), Hawai'i Island traditional cultural practitioners, and long-time community members we have defined the Area of Potential Effect (APE) as TMK: (3) 2-4025:048, 053 and 08.

We have made a Finding of "No Historic Properties Affected" pursuant to 36 CFR 800.4(d)(1) based on the following:

EQUAL HOUSING OPPORTUNITY

The Area of Potential Effect (APE) is TMK: (3) 2-4025:048, 053 and 08 and is 5.05 acres [Enclosures 1 through 4]. The 5.05-acre project area is located approximately one kilometer southwest the coast of Hilo Bay Front and is bordered Kūkūau Street to the west and by Kapi'olani Street to the north. The south and east property boundaries are bordered by undeveloped residential lots. The project area is currently undeveloped. The APE is situated within a built environment that includes residential homes, paved parking lots and walkways, paved roads, and landscaping. The project area property is owned by Giampaolo Boschetti.

Rechtman Consulting, LLC conducted an AIS study (Nelson et al. 2006) within portions of the current project area [Enclosure 5]. A single archaeological site (Site #50-10-35-25547) was recorded on TMK: (3) 2-4-025: 048 [Enclosure 6]. Site 25547 is a 24.0 m long (NE/SW) by 2.0 m wide by 2.0 m high Historic era linear enclosure constructed along a naturally occurring crack in a raised pāhoehoe bedrock outcrop (Nelson et al. 2006:12). The bedrock crack was modified in three locations by stacking cobbles along the sides and across the middle of the crack [Enclosure 7]. The enclosure was likely constructed to keep animals. Site 25547 appeared to be unaltered and was in good condition.

Site 25547 was assessed significant under Criterion d, in accordance with eligibility criteria for listing on the Hawai'i Register of Historic Places (HRHP), as having yielded information important to Historic era animal husbandry features. Site 25547 was recorded in detail and there is virtually no excavation potential. Therefore, no further work was recommended for Site 25547 (Nelson et al. 2006:18). This site was not considered a traditional cultural property, and there were no natural or cultural resources, or cultural beliefs and practices identified relative to the land within the current study area. The AIS report was approved by the Hawai'i State Historic Division (SHPD) (Log No. 2006.3275, Doc. No. 0609JT83, Approval Letter dated September 28, 2006).

Site 25547 is not eligible/recommended for listing on the NRHP. The animal pen does not have excavation potential and has been fully recorded in the Nelson et al. (2006) AIS report. The SHPD-accepted AIS report recommended no further work and archaeological preservation is not warranted.

Scientific Consultant Services, Inc. (SCS) conducted an AA for Parcel 080 (Escott 2019a, HICRIS Project 2021PR00880) to identify archaeological sites and/or historic properties within the survey area [Enclosure 8]. Parcel 080 is a private access easement with a paved driveway down the center of the parcel. The driveway provides access for residential homes on property along the west and south boundaries of Parcel 080. There is a modern drainage culvert constructed in the 1970s that crosses the center of Parcel 080 from the west to east. There were no archaeological sites or historic properties identified during the field inspection.

Scientific Consultant Services, Inc. (SCS) conducted a CIA (Escott 2019b) to identify and assess any possible impacts to past or ongoing cultural practices. The CIA concluded that based on archival research, the results of previous archaeological studies, a review of NRHP and HRHP eligible historic properties within a one-half mile radius, as well as organizational response and individual cultural informant responses, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or

any ethnic group, related to gathering, access or other customary activities will not be affected by the proposed Kaiāulu o Kapiʻolani Affordable Housing Project. The proposed undertaking will not produce adverse effects to any native Hawaiian cultural practices within the project area or in the broader region.

OHCD conducted Section 106 consultation Native Hawaiian Organizations (NHO), Hawaiʻi Island traditional cultural practitioners, and long-time community members. A record of Section 106 consultation is included with this letter. None of the respondents knew of any historic properties, archaeological or cultural sites, or past or ongoing cultural practices associated with the project area property.

Based on Section 106 consultation conducted for the Kaiāulu o Kapiʻolani Affordable Housing Project, the proposed undertaking will have no effect to historic properties, cultural properties, or cultural practices. The OHCD has made a Finding of "No Historic Properties Affected" pursuant to 36 CFR 800.4(d)(1).

Included for your review are copies of relevant documents supporting our finding, along with maps showing the location of the property. This documentation satisfies requirements set forth at §800.11(d). In accordance with §800.4(d)(1)(i), your office has thirty days to object to this finding. Please respond within this timeframe, otherwise we will assume that you concur with our finding. If you concur, please sign on the line below and return a copy of this letter to Assistant Housing Administrator Harry Yada. If you have questions regarding this finding, please direct them to Harry Yada. Thank you for your attention to this matter.

Sincerely,

Susan K. Kunz
Housing Administrator

Concurrence:

_____

State Historic Preservation Officer Date

Enclosures:
Enclosure 1: Hawaiʻi Island Project Area Map
Enclosure 2: USGS TMK Project Area Map
Enclosure 3: TMK: (3) 2-4-025 Map
Enclosure 4: Aerial Photo of Project Area
Enclosure 5: Nelson and Rechtman (2006) Project Area Map
Enclosure 6: Nelson and Rechtman (2006) Project Site Map
Enclosure 7: Nelson and Rechtman (2006) Site 25547 Plan View Map
Enclosure 8: Escott (2019a) Project Area Map

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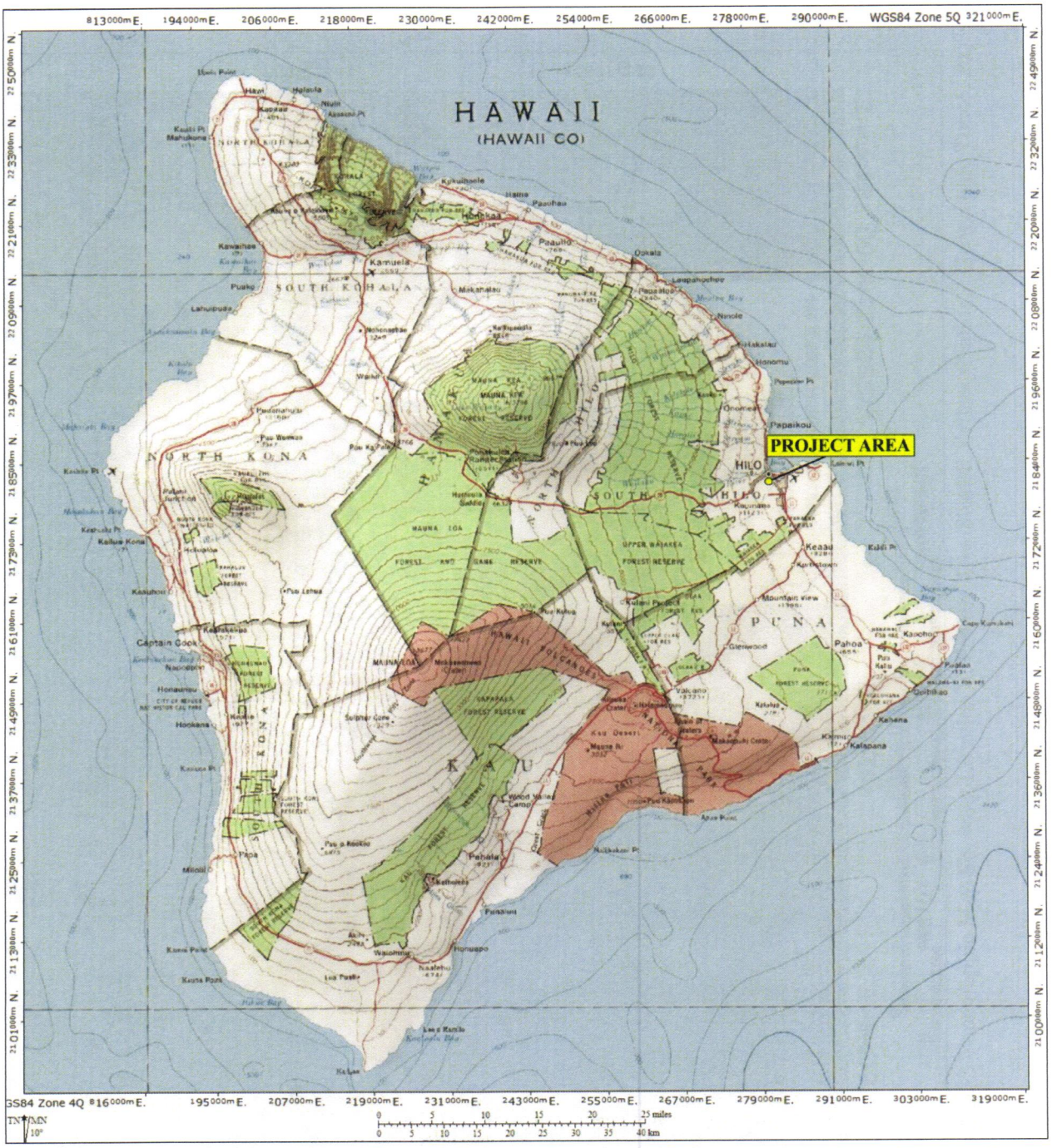
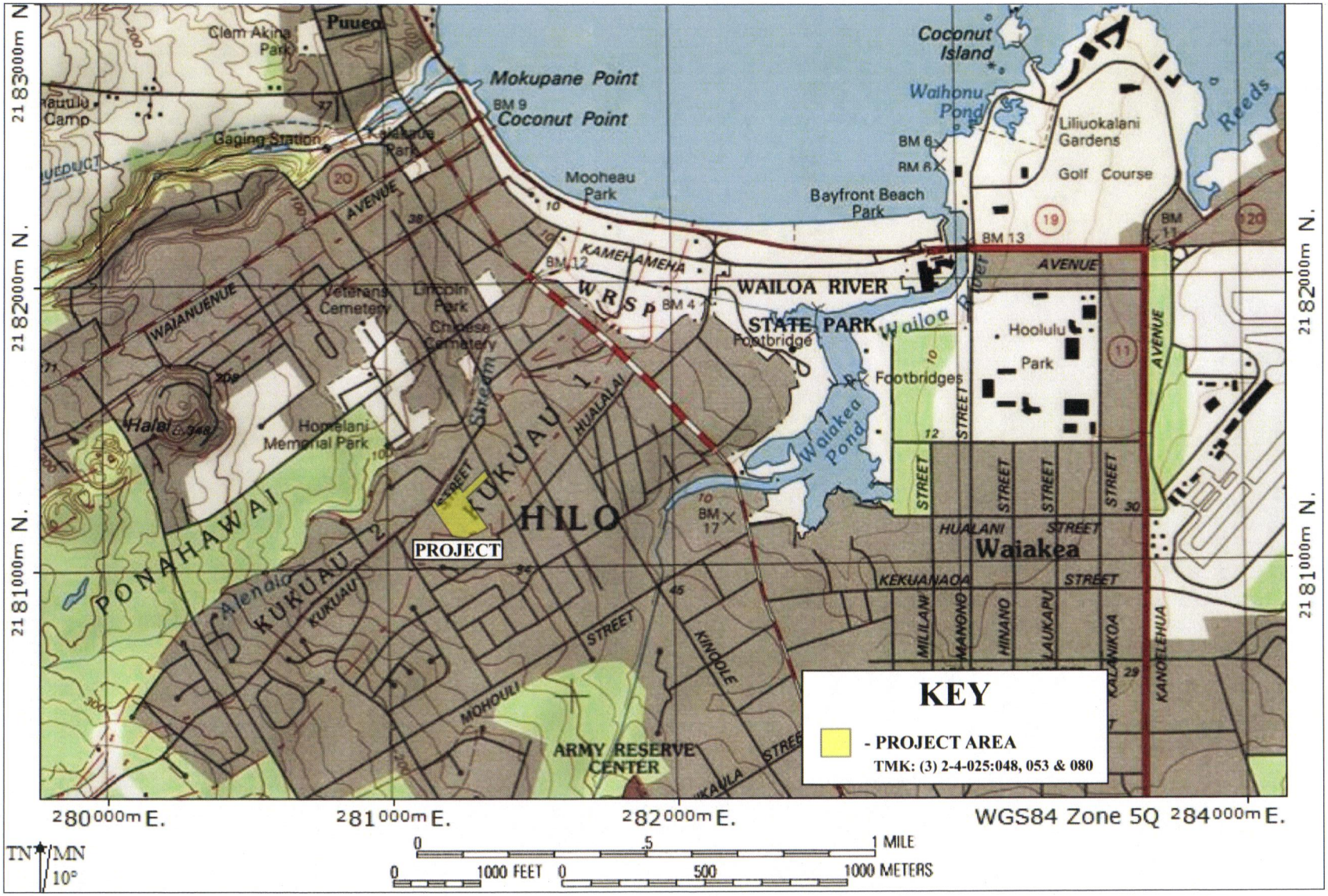
2019b *A Cultural Impact Assessment for a 0.6447-Acre Property in Kūkūau 1st Ahupua'a, South Hilo District, Hawai'i Island, Hawai'i [TMK: (3) 2-4-025:080]*. Scientific Consultant Services, Inc. Report 2340-1 prepared for Urban Housing Communities, LLC. Santa Ana, CA.

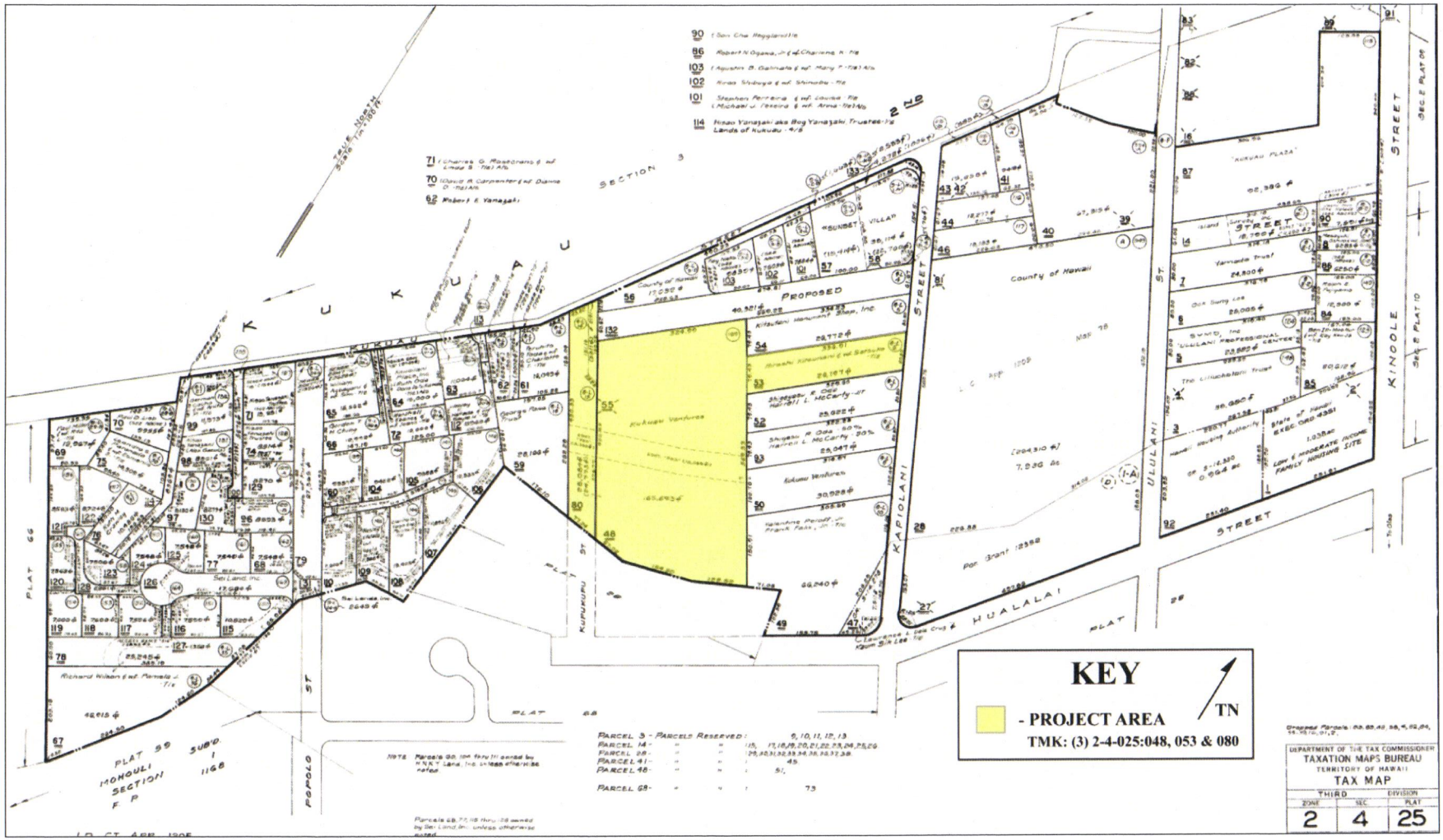
Nelson, J., M. Clark and R Rechtman
2006 *Archaeological Inventory Survey and Limited Cultural Assessment for the Proposed Acquisition of Drainageway Lands Project (TKs:3-2-4-25:48, 50, 53, 59 por., 67 por., 78 por., 80 por., 93, 106 por., 107 por., 108 por., 109 por., 110 por., 115 por., and 126 por.)*. Rechtman Consulting, LLC Report RC-0342 prepared for SSFM. Honolulu.



Enclosure 1: 5,500 K-Series Map of Hawai'i Showing Location of Project Area (National Geographic Topo!, 2003. Sources: National Geographic Society, USGS).

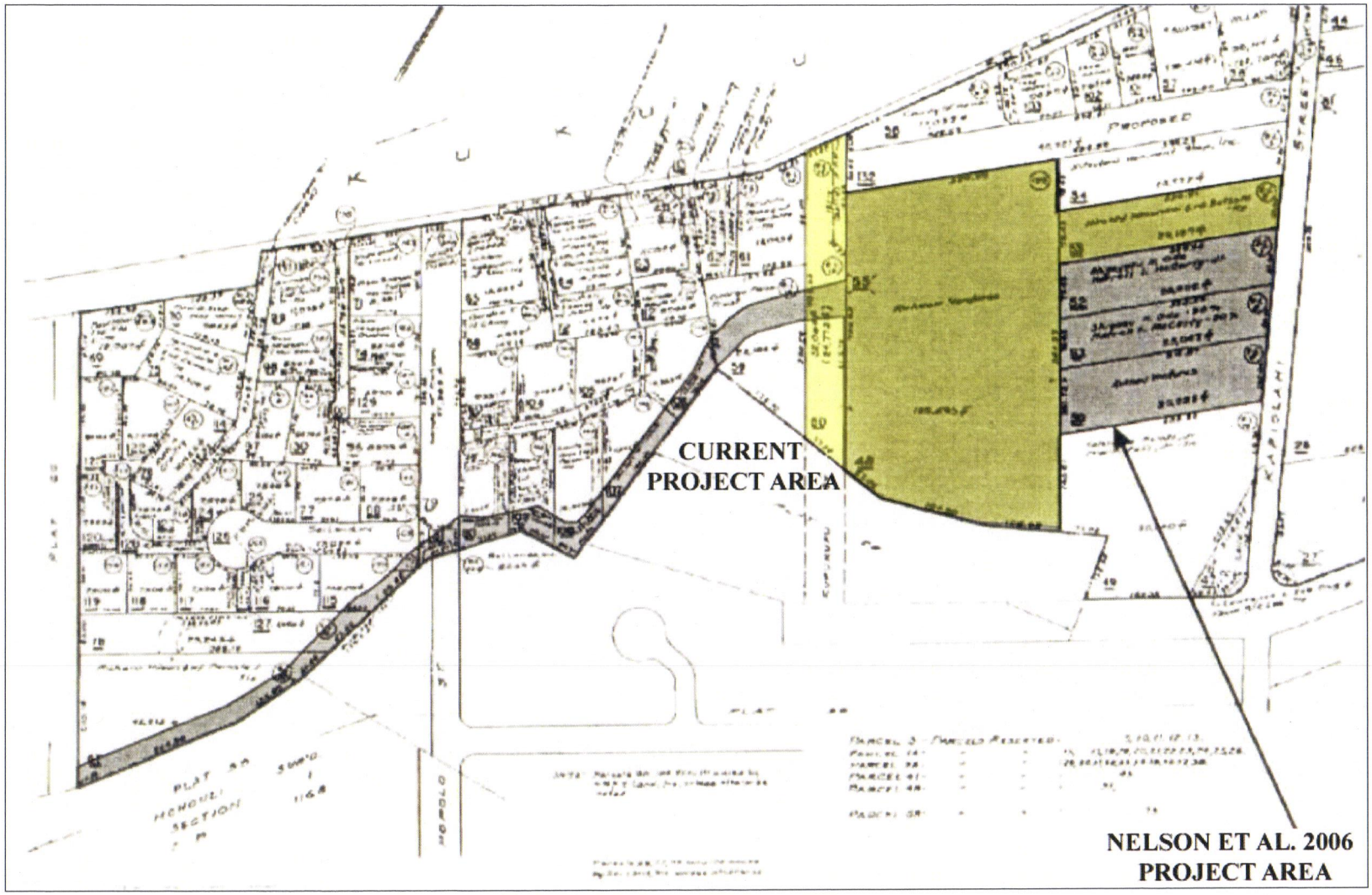


Enclosure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow (National Geographic Topo!, 2003, USGS Hilo Quadrangle).

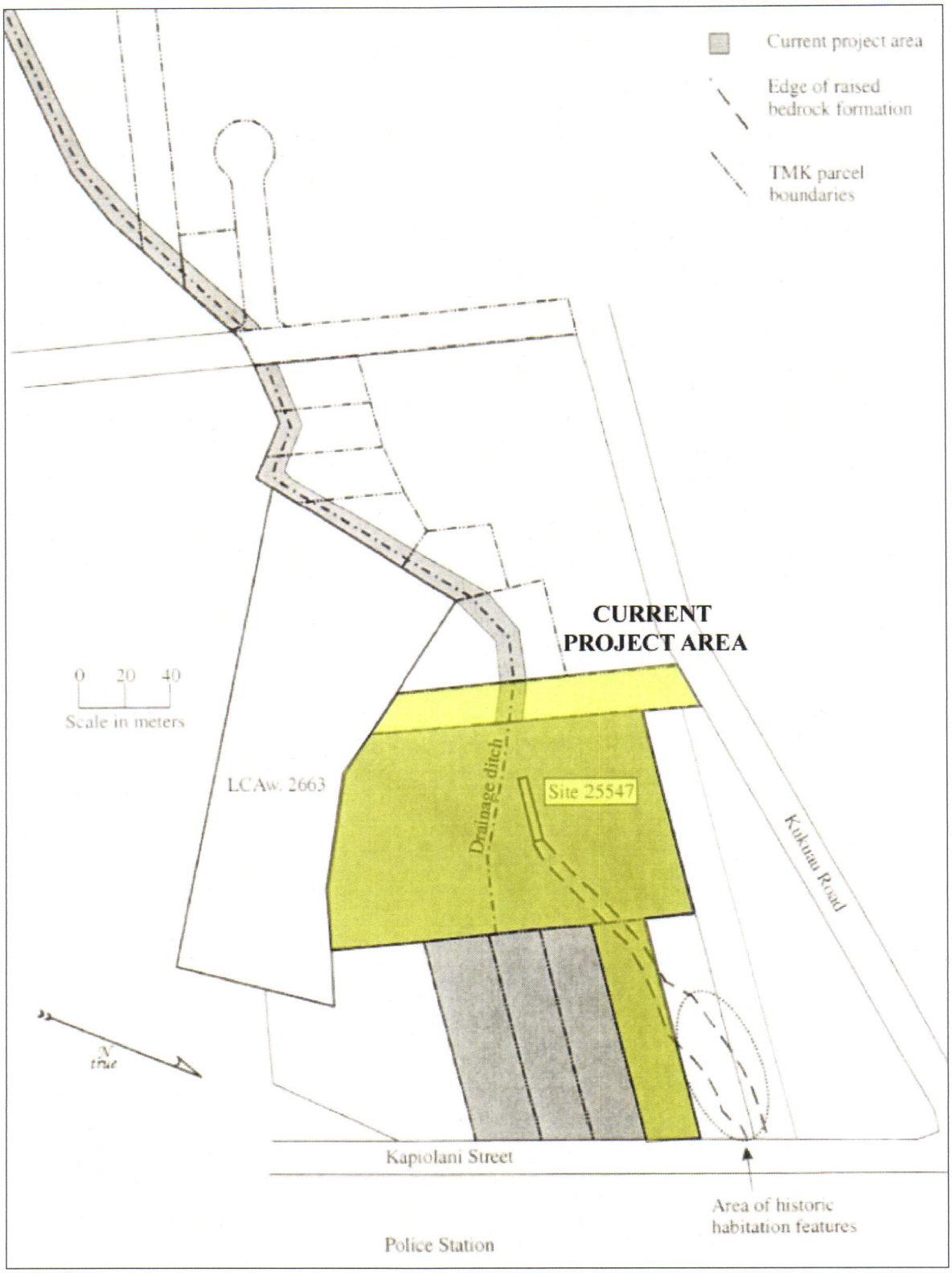


Enclosure 3: TMK: (3) 2-4-025 Map Showing Location of Project Area (County of Hawai'i Planning Department, 2019).

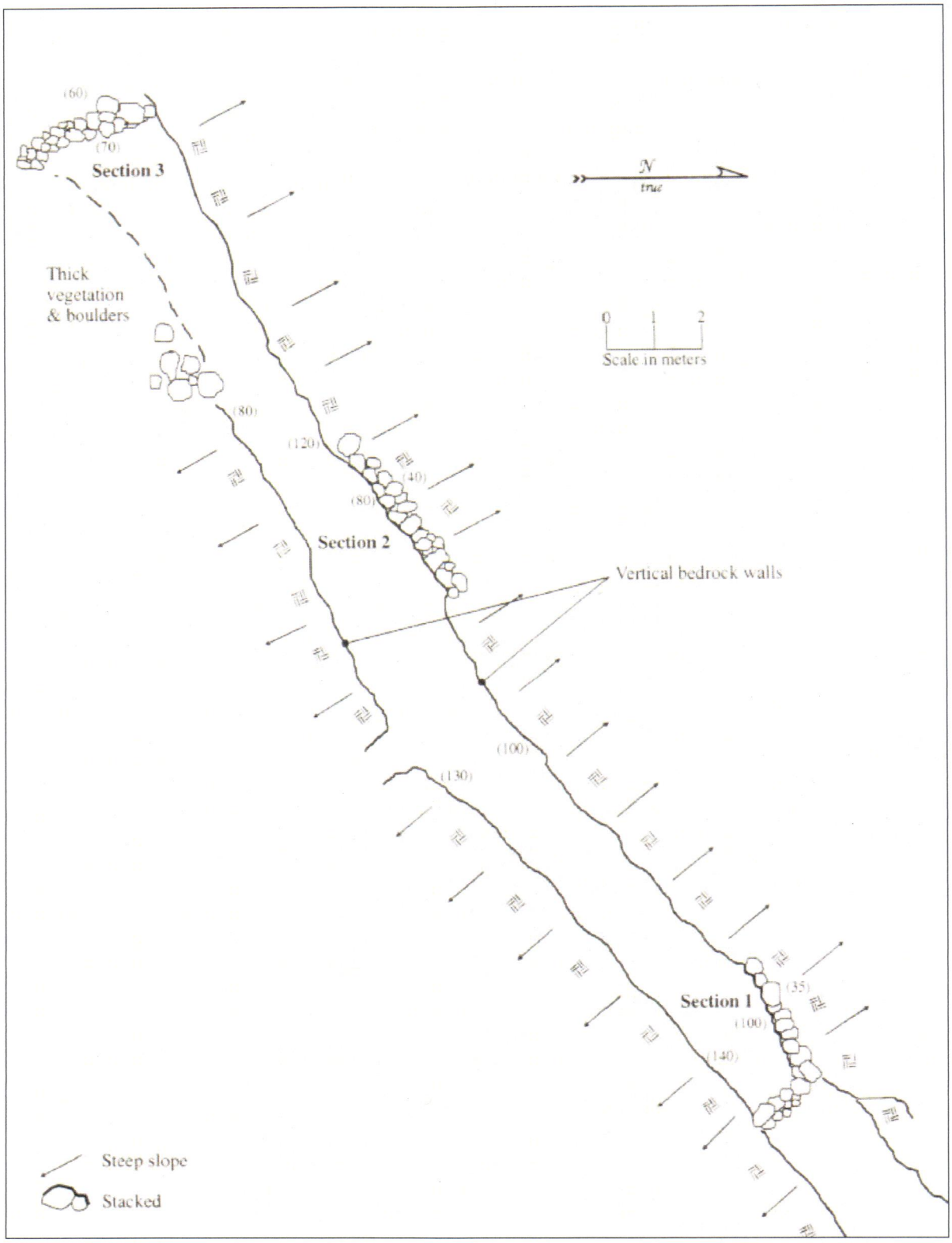
Enclosure 4: Aerial Photograph Showing Project Areas, Kea'au, HI, Zone 5 North, 281109 m E, 2181236 m N. (Google Earth, 2013 Image. Data Sources: Digital Globe, GeoEye, Earthstar, USDA, and USGS).



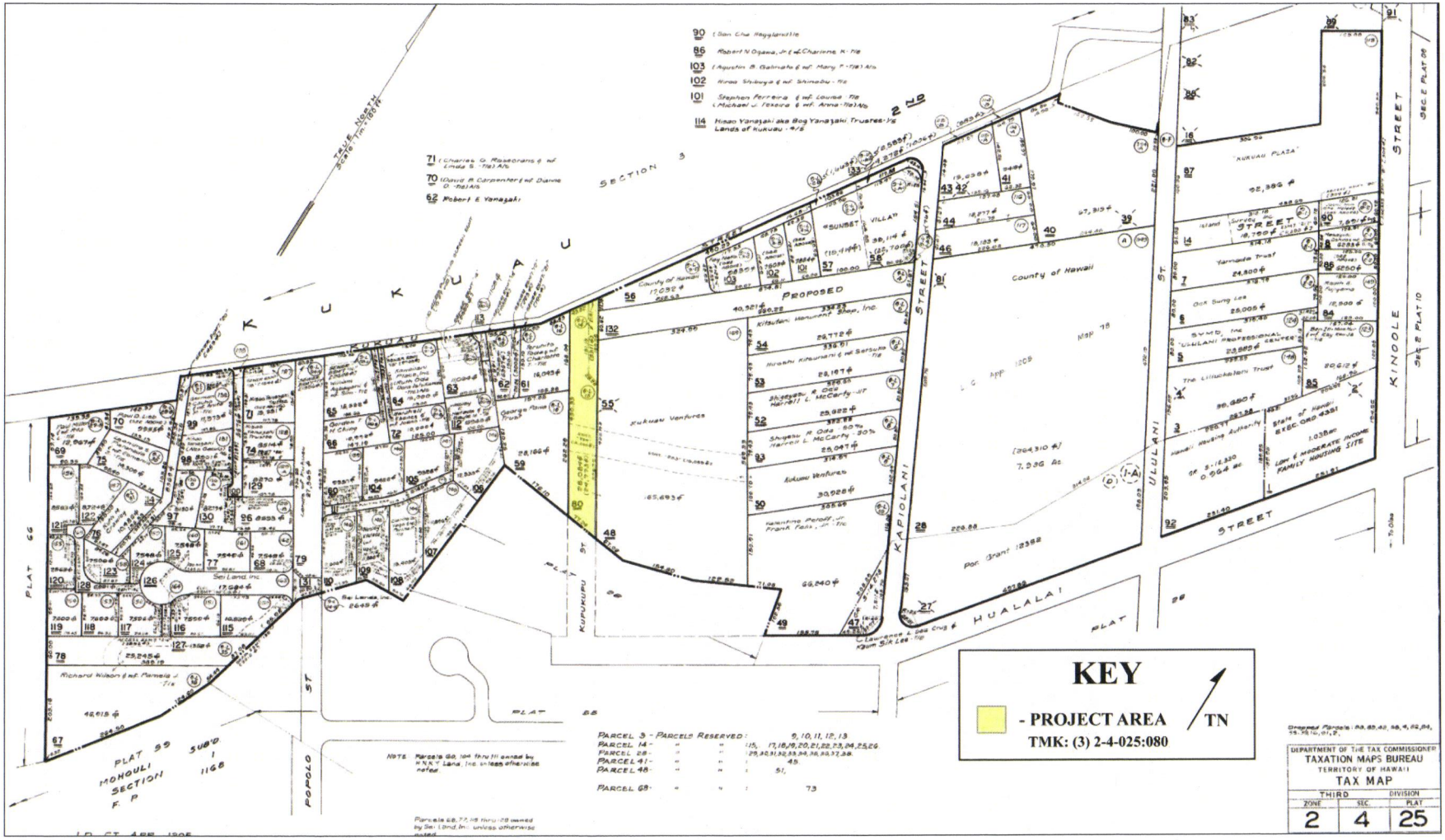
Enclosure 5: TMK: (3) 2-4-025 Map Showing Location of Current Housing Project Area Shaded Yellow and Nelson et al. (2006) Project Area Shaded Gray (Adapted from Nelson et al. 2006:3).



Enclosure 6: Map Showing Location of Site 25547, Current Housing Project Area Shaded Yellow and Nelson et al. (2006) Project Area Shaded Gray (Adapted from Nelson et al. 2006:13).



Enclosure 7: Site 25547 Plan View Map (Nelson et al. 2006: 14).



Enclosure 8: TMK: (3) 2-4-025 Map Showing Location of Project Area (County of Hawai'i Planning Department, 2019).

DAVID Y. IGE
GOVERNOR OF
HAWAII

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

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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

May 11, 2022

IN REPLY REFER TO:
Project No.: 2021PR00880
Doc. No.: 2205SN01
Archaeology

Susan Kunz, Housing Administrator
County of Hawaii
Office of Housing and Community Development
1990 Kinoole Street, Suite 102
Hilo, HI 96720
Email: Susan.Kunz@hawaiicounty.gov

Dear Ms. Kunz:

SUBJECT: **Chapter 6E-42 and National Historic Preservation Act Section 106 Review –**
Kaiāulu O Kapiʻolani Housing Project
Request for Concurrence with Project Effect Determination
Archaeoological Inventory Survey
Kūkūau 1st Ahupuaʻa, South Hilo District, Island of Hawaiʻi
TMK: (3) 2-4-025:048, 053, and 080

This letter provides the State Historic Preservation Division's (SHPD's) review of the Kaiāulu O Kapiʻolani Housing Project. SHPD received the initial project submission on July 26, 2021. The submittal consisted of an archaeological assessment titled, *An Archaeological Assessment for a 0.6447-acre Property in Kūkūau 1st Ahupuaʻa, South Hilo District, Hawaiʻi Island, Hawaiʻi TMK (3)2-4-025:080* (Escott 2019a, revised March 2022) prepared on behalf of the Urban Housing Communities, LLC., a cultural impact assessment (Escott 2019) for parcel 080 and an archaeological summary letter report (Escott 2019b) that indicated the project area includes parcels 048, 053, and 080 (Submission No. 2021PR00880.001). The submission indicated the landowner is Mr. Giampaolo Boschetti and that Urban Housing Communities, LLC, is managing the proposed project.

On July 26, 2021, SHPD requested additional information, indicating that if federal funds were being used, our office looked forward to receiving a letter from the appropriate agency initiating NHPA Section 106 consultation with the State Historic Preservation Officer (SHPO). In response, SHPD received a letter dated March 2, 2022, from the Office of Housing and Community Development (OHCD) indicating that the project was seeking funding from the U.S. Department of Urban Housing (HUD) and that OHCD is the County agency responsible for compliance with HRS 6E statutes and the Section 106 consultation. OHCD provided a project overview, identification of the HRS 6E and federal area of potential effect (APE), which are synonymous, previous archaeological studies and findings, and requested the SHPO's concurrence with a finding of *no historic properties affected* pursuant to 36 CFR 800.4(d)(1) for the proposed undertaking. The SHPD received this letter on March 4, 2022, along with a letter dated February 9, 2022, from the archaeological consultant (Glenn Escott) to the OHCD, summarizing the archaeological studies undertaken and the Section 106 consultation effort (Submission No. 2021PR00880.003).

OHCD indicates that the proposed project is the development of an affordable rental complex of 64-units, community center and 117-stall parking lot. The project consists of the construction of nine (9) residential units and will include grubbing, grading, and trenching for utility infrastructure. The project area and area of potential effect (APE) and project area includes the entirety of TMK: (3) 2-4-025:048, 053, and 080. Ground disturbance consists of grubbing, grading, and trenching within the entire 5.0499-acre project area. Aerial photographs show the project area is mostly undeveloped land.

SHPD records confirm that portions of the current project area/APE were included in an archaeological survey (AIS; Nelson et al. 2006) conducted by Rechtman Consulting, LLC for a previous waterline project. Nelson et al. (2006) identified a single historic property, a historic enclosure (Site 50-10-35-25547) within TMK: (3) 2-4-025:048. They indicated it was significant under HAR §13-284-6 Criterion d, as having yielded information about historic animal husbandry features, that it was adequately documented during the AIS and, thus, they recommended no further archaeological work. SHPD concurred with the findings and recommendations and accepted the AIS report on September 28, 2006 (Log No. 2006.3275, Doc. No. 0609JT83).

Scientific Consultant Services, Inc. (SCS) conducted the current AIS for the easement portion of the project area/APE [TMK: (3) 2-4-025:080]. Escott (2019a) indicates the AIS involved a 100% coverage pedestrian survey of the easement and that no historic properties were identified, thus the negative findings are presented in an archaeological assessment (AA) report in accordance with HAR §13-284-5(b)(5)(A).

SHPD requested revisions via email [Susan Lebo (SHPD) to Glenn Escott (SCS)] for the AA (Escott 2019a) on March 20, 2022. On April 4, 2022, SHPD received from SCS the revised AA report (Escott, March 2022) and a letter dated March 24, 2022, summarizing the revisions (Submission No. 2021PR00880.007). On the same day, SHPD also received a letter dated March 23, 2022, from OHCD requesting SHPD's concurrence with a determination of "No Historic Properties Affected" pursuant to HAR §13-284-7(a)(1), along with plans showing the limits of proposed disturbance, a current land use map (Submission No. 2021PR00880.005), and a HRS 6E Submittal Form (Submission No. 2021PR00880.006).

The OHCD and SCS submissions indicate that no historic properties were identified during current AIS (Escott 2019; revised March 2022) conducted within TMK: (3) 2-4-025:080, and that the single historic property (Site 50-10-35-25547) was identified previously within TMK: (3) 2-4-025:048. Additionally, Site 50-10-35-25547 (historic enclosure) and that SHPD concurred that this site had been adequately documented. The OHCD and SCS submissions also indicate that nineteen (19) historic properties eligible for listing in the National Register of Historic Places (NRHP) were identified with a one-half mile radius of the current project area/APE. However, the project will have no direct or indirect (e.g., visual) impacts of these eligible historic properties.

Based on the information provided, the **SHPO concurs** with the OHCD's determination of *no historic properties affected* for the proposed undertaking pursuant to 36 CFR 800.5(b). Additionally, **SHPD concurs** with OHCD's determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(1).

The NHPA Section 106 and the HRS 6E historic preservation review processes are concluded. The project initiation process may proceed.

The OHCD is the office of record for this project. Please maintain a copy of this letter with your environmental review record for this undertaking.

The revised AA report meets the minimum requirements of HAR §13-276-5. **It is accepted.** Please send two hard copies of the report, clearly marked FINAL, along with a text-searchable PDF copy of the report and a copy of this review letter to the Kapolei SHPD office, attention SHPD library. Please also submit a text-searchable PDF copy of the report to HICRIS Project No. 2022PR00880 using the Project Supplement option, and a PDF copy of the report to SHPD at Lehua.K.Soares@hawaii.gov.

Please note: In the unlikely event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, native sand deposits, or sink holes are identified during the demolition and/or construction work, cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division, at (808) 933-7651.

Please contact Sean Nāleimaile, Hawaii Island Archaeologist IV, at Sean.P.Naleimaile@hawaii.gov for any matters regarding archaeological resources or this letter.

Aloha, Alan Downer

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

cc. Rachel Okoji, rachelokoji@enviroriskhawaii.com
Glenn Escott, ggescott@yahoo.com

Exhibit 12: Noise Abatement and Control

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		
https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control		

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: 45

   → *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:

   <u>If project is rehabilitation:</u>

   → *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

   <u>If project is new construction:</u>

   Is the project in a largely undeveloped area[1]?

   ☐ No

   → *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.*

[1] 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.*

<u>Worksheet Summary</u>

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 3,589 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 runway is 8,344 feet away

Are formal compliance steps or mitigation required?

☐ Yes

☒ No

Distance from Site:

Hilo International: 3.5 miles

Mauna Kea – Honolii Airport: 5.2 miles

Pepeekeo Airstrip: approx. 9 miles

Bradshaw Army Airport: 37 miles

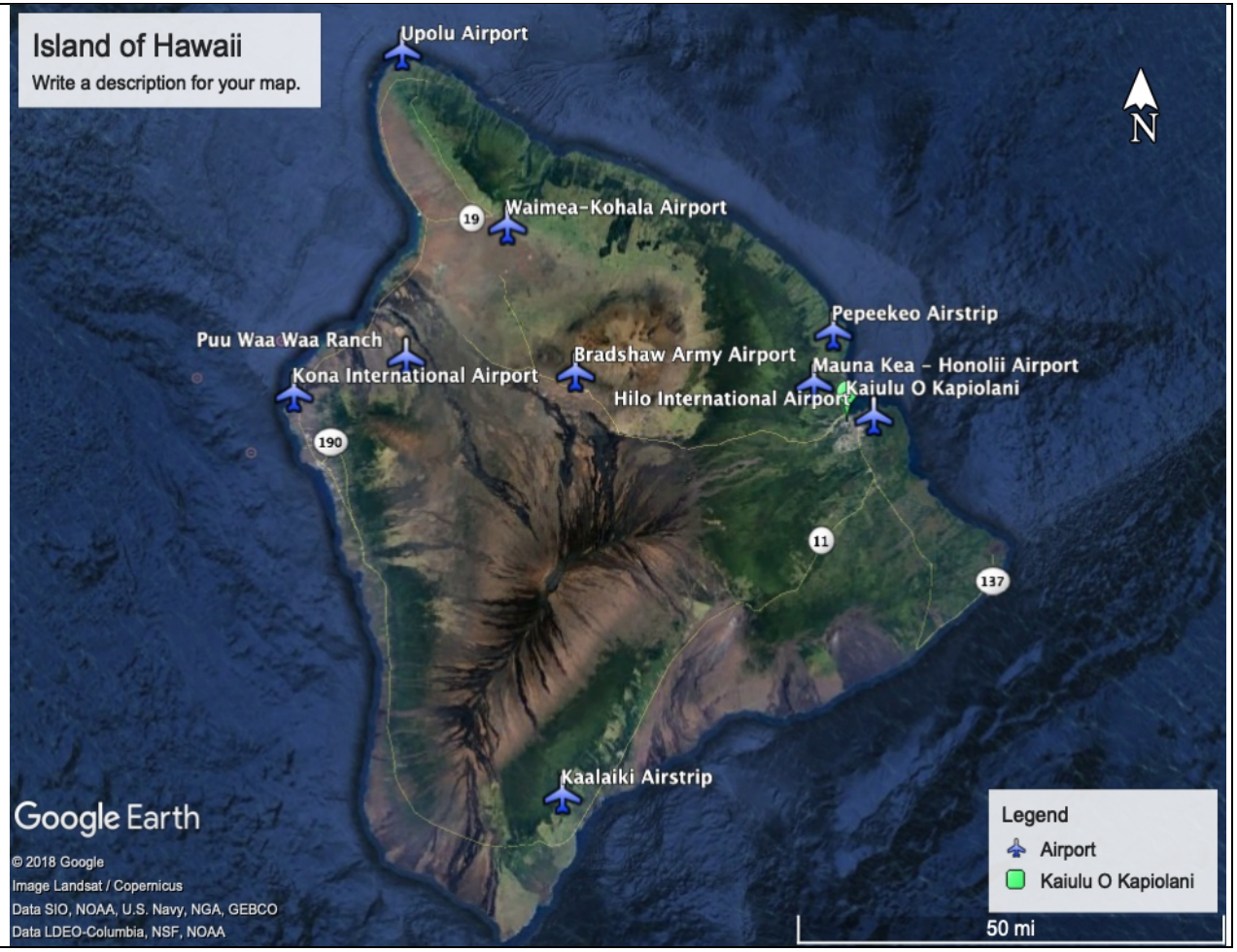
Waimea-Kohala Airport: 58 miles

Puu Waa Waa Ranch: 62 miles

Kaalaiki Airport: 62 miles

Kona International: 75 miles

Upolu Airport: 94 miles



Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Distance to Airports

Distance from Site:

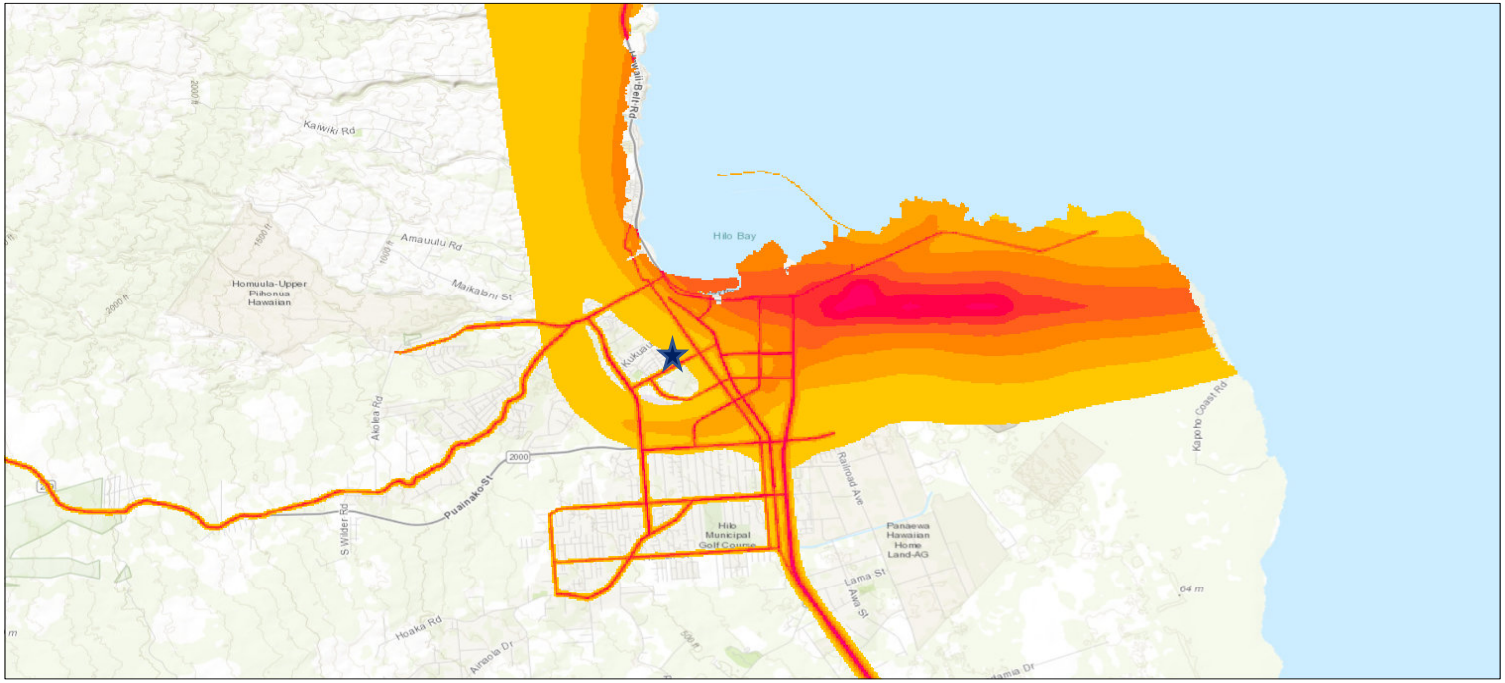
Hwy 200: 7.2 miles

Hwy 19: 0.67 miles

Komohana StL 0.62 miles

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Distance to Roadways

Hilo Road and Aviation Noise Map



August 19, 2019

1:72,224

Hawaii Road and Aviation Noise

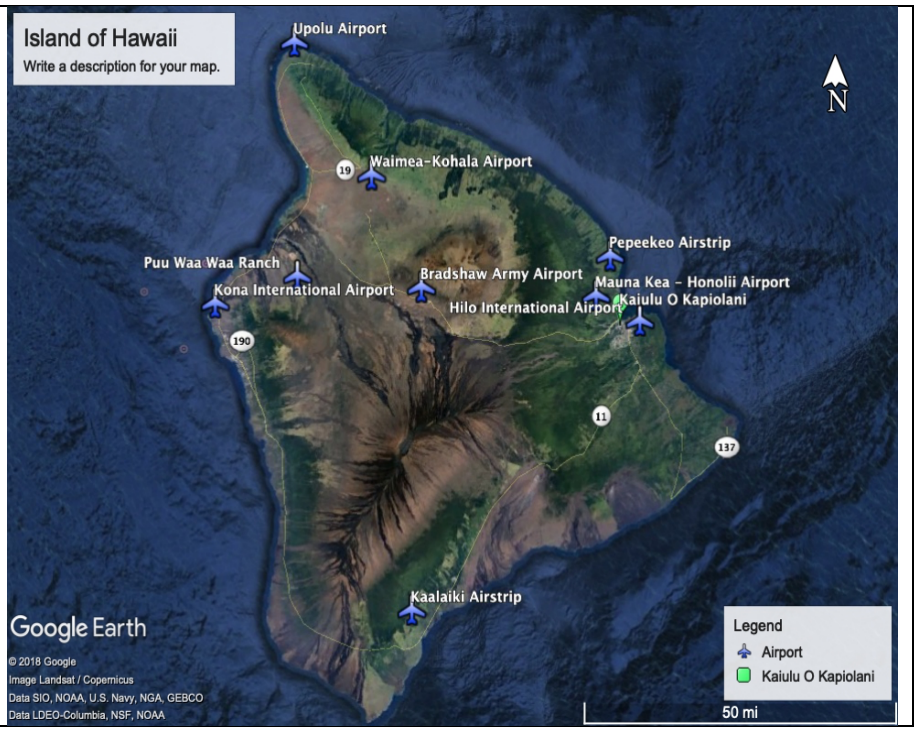
- 35 - 40
- 40.01 - 45
- 45.01 - 50
- 50.01 - 55
- 55.01 - 60
- 60.01 - 65
- 65.01 - 70
- 70.01 - 75
- 75.01 - 80
- 80.01 - 85
- 85.01 - 90
- 90.01 - 95

0 0.75 1.5 3 mi
0 1.25 2.5 5 km

Bureau of Transportation Statistics, VOLPE
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Web AppBuilder for ArcGIS
Bureau of Transportation Statistics, VOLPE | Esri, HERE, Garmin, USGS, METI/NASA, NGA, EPA, USDA |

	PROJECT NAME:	FIGURE TITLE:
Environmental Risk Analysis	Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	Hilo Road and Aviation Noise Map

<u>Distance from Site:</u> Hilo International: 3.5 miles Mauna Kea – Honolii Airport: 5.2 miles Pepeekeo Airstrip: approx. 9 miles Bradshaw Army Airport: 37 miles Waimea-Kohala Airport: 58 miles Puu Waa Waa Ranch: 62 miles Kaalaiki Airport: 62 miles Kona International: 75 miles Upolu Airport: 94 miles	

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Distance to Airports

<u>Distance from Site:</u> Hwy 200: 7.2 miles Hwy 19: 0.67 miles Komohana StL 0.62 miles	

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Distance to Roadways

Exhibit 13: Sole Source Aquifers / Safe Drinking Water

ArcGIS Web Map

5/8/2019, 1:25:01 PM

Sole Source Aquifers - Labels

SSA

1:4,622,324

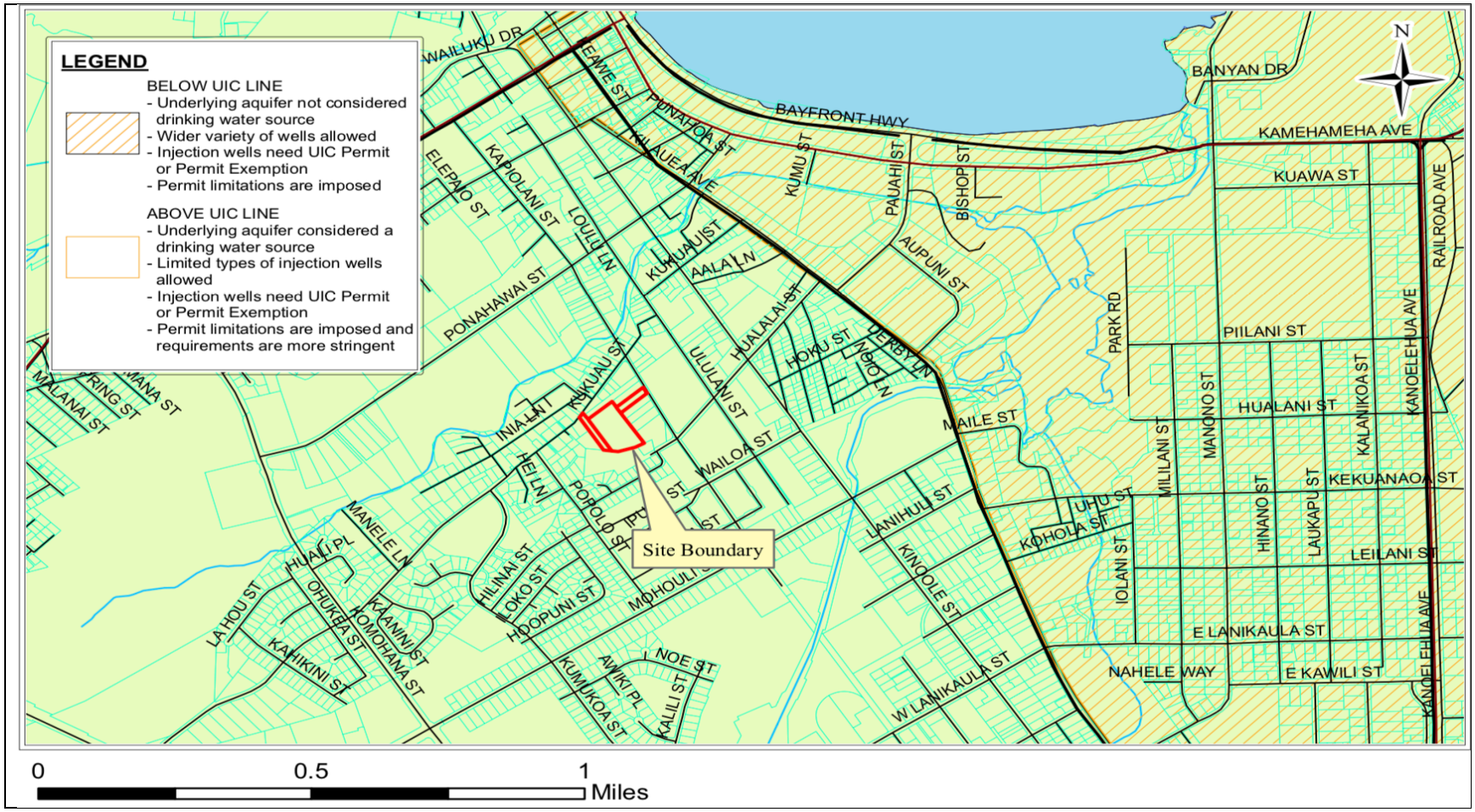
0 55 110 220 mi

0 90 180 360 km

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 |

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Sole Source Aquifer



0 0.5 1 Miles

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kukuau Street Hilo, Hawaii 96720 TMKs (3) 2-4-025:048,053,080	FIGURE NAME: TMK Map

...Water, Our Most Precious Resource...

You may also access your 2018 Hilo Water Quality Report online at:

https://www.hawaiidws.org/CCRSHilo2018.pdf

Where does my water come from?

The sources of water that are normally used for the Hilo Water System are Pana'ewa Well Nos. 1, 2 and 3, Pi'ihonua Well Nos. A, B, and C, Saddle Road Well "A", and the UH Hilo Well (all of which are groundwater sources). These source(s) may change depending on the supply and demand.

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Shutting off water while brushing your teeth, washing your hair, and shaving could save up to 500 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.

- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!

For more information,
visit us at **www.hawaiidws.org**
& follow the conservation links
or visit **www.epa.gov/watersense**

Source Water Assessment Program

In 2004, the preliminary source water assessment report was released. The purpose of the source water assessment report is to enable the public and decision-makers to make well-founded decisions for the protection and preservation of our drinking water. The source water assessment report identifies the potential contaminating activities for each source of water.
In the report, Hilo Water System sources are potentially vulnerable to contaminants associated with the following activities: roads, septic tanks, cesspools, sewer lines, injection wells, residential parcel, cultivated agriculture, and sugarcane. Note: the list of potential contaminating activities has not necessarily been associated with anything found in the water. For more information, please contact Kawika Uyehara, P.E., at 961-8670.

How can I get involved?

The Water Board meets the fourth Tuesday of every month. Call for the time and location of the meeting.

You Can Contact Us at the Following Numbers:

Administration/Finance/General	(808) 961-8050
Billing/Customer Service	(808) 961-8060
Engineering	(808) 961-8070
Emergencies & Field Operations	(808) 961-8790
Water Quality	(808) 961-8670

The Department of Water Supply is an equal opportunity provider and employer

What is the purpose of the Water Quality Report?

List of Abbreviations:

CCR..... Consumer Confidence Report
CDC ..... Center for Disease Control & Prevention
EPA ..... Environmental Protection Agency
HDWS..... Hawai'i Department of Water Supply

What is the purpose of the Water Quality Report?

The EPA is responsible for making sure that public water supplies within the United States are safe. In 1974, Congress passed the Safe Drinking Water Act in order to protect the nation's public drinking water supply. This law gives the EPA authority to set the standards for drinking water quality (to determine what levels of contaminants are safe to have in the water) and to oversee the states and water suppliers who implement these standards.

The EPA requires community water systems to deliver a CCR, also known as an annual drinking Water Quality Report, to their customers. These reports provide information to customers about their drinking water quality for the past year. All water quality reports must contain certain content elements and must be made available each year by July 1st for the preceeding year.

The EPA determines what levels of contaminants are safe to have in the water, and the water quality report will show customers how the levels of contaminants in their water source compare to the EPA standard.

The water system must provide the EPA standard in the data table for each regulated contaminant detected. The customer can then compare the level of contaminants in their water to the EPA standard.

Is my water safe?

Yes it is. Last year, as in years past, our tap water met all U.S. EPA and State drinking water health standards. HDWS vigilantly safeguards its water supplies and once again we are proud to report that we have complied with all drinking water standards.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline 1-(800) 426-4791. If you have any questions regarding this Water Quality Report, please call Kawika Uyehara, P.E., at 961-8670.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline at 1-(800) 426-4791.

Sources of drinking water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source 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.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Water Quality Report Online

This year, you are likely reading the report online, rather than the traditional paper copy sent by mail. The EPA recently changed the requirements to allow utilities to communicate this important information digitally.

Customers are still able to request a paper copy and can do so by the following methods. (Please provide us with your account number, phone number, mailing or email address, and water system name so that we can provide you with the correct report.):

- Call us at (808) 961-8670
- Email us at dws@hawaiidws.org
- Write to us at:
  Department of Water Supply/Micro Lab
  889 Leilani Street
  Hilo, HI 96720

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2018 Hilo System Water Quality Data Tables

The table below lists the drinking water contaminants that we detected during the calendar year of this report. The presence of contaminants in the water does not
a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to mo
once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

Regulated Contaminant Data Tables

Regulated Contaminants								
				Hilo Water System				
Contaminants (units)	MCL	MCLG	AL	Level Found	Range of Detections	Sample Date	Violation	Typical Source of Contaminant
Inorganic Contaminants								
Copper-source water (ppm)	n/a	n/a	1.3	0.00086	ND - 0.00430	2017	No	Corrosion of household plumbing systems; erosion of natural deposits.
Chromium (ppb)	100	100	n/a	0.26	ND - 1.30	2017	No	Erosion of natural deposits.
Nitrate (ppm)	10	10	n/a	0.40	0.33 - 0.40	2018	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Lead and Copper Rule Compliance							
			Hilo Water System				
Contaminant (units)	AL	MCLG	Level Found	# of sites > AL	Sample Date	Violation	Typical Source of Contaminant
Copper (ppm)	1.3	1.3	0.0955	0/35	2016	No	Corrosion of household plumbing systems; erosion of natural deposits.
The 90th percentile value of copper is reported as the level found.							

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2018 Hilo System Water Quality Data Tables (contin

Unregulated Contaminant Data Tables

UCMR3 - Unregulated Contaminant Monitoring Rule [UCMR] (Not Regulated by State or Federal Government)					
	Hilo Water System				
Contaminants (units)	Level Found	Range of Detections	Sample Date	Violation	Typical Source of Contaminant
Unregulated Contaminants					
Total Chromium (ppb)*	1.1	0.77 - 1.1	2014	No	Erosion of natural deposits.
Hexavalent Chromium [Chromium-6] (ppb)	1.2	0.87 - 1.2	2014	No	Naturally occurring element.
Molybdenum (ppb)	1.3	ND - 1.3	2014	No	Naturally occurring element.
Strontium (ppb)	35.0	17.0 - 35.0	2014	No	Naturally occurring element.
Vanadium (ppb)	26.0	7.4 - 26.0	2014	No	Naturally occurring elemental meta

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years the EPA issue a new list of no more than 30 be monitored by public water systems (PWSs). UCMR3 was published on May 2, 2012 and is the third list of contaminants. These cont based standards, MCLs, or MCLGs set under the Safe Drinking Water Act (SDWA). UCMR benefits public health and the environment Protection Agency (EPA) and other interested parties with scientifically valid data on the occurrence of these contaminants in the drinki the primary sources of occurrence and exposure information the EPA uses to develop future regulatory decisions and actions to protect a regulated contaminant and also one of the contaminants tested in UCMR3. The MCL and MCLG for Total Chromium is 100 ppb.

Sodium (Not Regulated by State or Federal Government)							
			Hilo Water System				
Contaminants (units)	MCL	MCLG	Level Found	Range of Detections	Sample Date	Violation	Typical Source of
Inorganic Contaminants							
Sodium (ppm)	none	none	10.0	5.9 - 10.0	2017	No	Erosion of natural de

Exhibit 14: Wetlands Protection

U.S. Fish and Wildlife Service
National Wetlands Inventory

Kaiulu O Kapiolani wetlands

August 9, 2019

Wetlands

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

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 NWI mapper

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Wetland Map

Exhibit 15: Wild and Scenic Rivers

NPS Wild & Scenic River Responsibilities

National Wild & Scenic Rivers System

This map provides detailed information about and links for individual wild and scenic rivers by moving the mouse over the highlighted river.

Map Legend:

Rivers are shown in blue, orange, and green: The NPS Wild and Scenic Rivers program has various responsibilities for these rivers;more information will be shown when links are 'clicked'.

Environmental Risk Analysis	PROJECT NAME: Environmental Assessment Kaiaulu O Kapiolani Kapiolani Street and Kakuau Street Hilo, Hawaii, 96720 TMKs (3) 2-4-025:048,053,080	FIGURE TITLE: Wild and Scenic Rivers

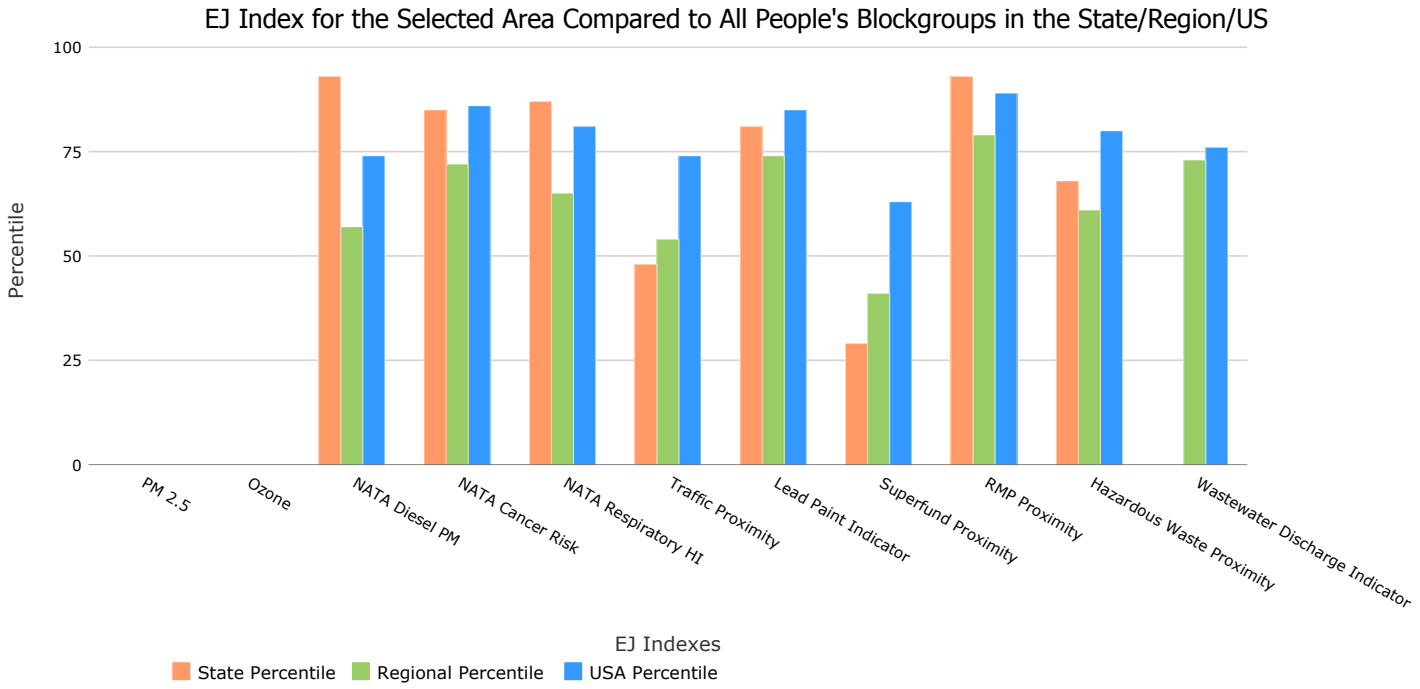
Exhibit 16: Environmental Justice

Save as PDF

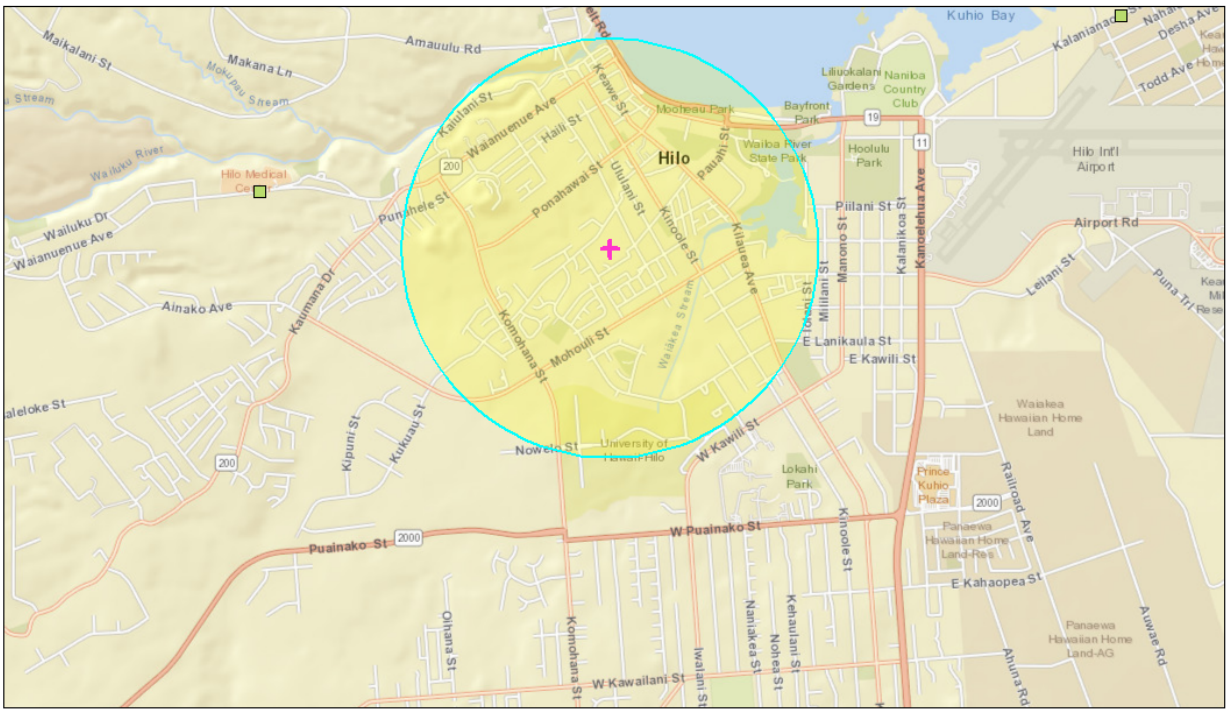
EJSCREEN Report (Version 2018)

1 mile Ring Centered at 19.713576,-155.087180
HAWAII, EPA Region 9
Approximate Population: 9,684
Input Area (sq. miles): 3.14
Kaiulu O Kapiolani

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	93	57	74
EJ Index for NATA* Air Toxics Cancer Risk	85	72	86
EJ Index for NATA* Respiratory Hazard Index	87	65	81
EJ Index for Traffic Proximity and Volume	48	54	74
EJ Index for Lead Paint Indicator	81	74	85
EJ Index for Superfund Proximity	29	41	63
EJ Index for RMP Proximity	93	79	89
EJ Index for Hazardous Waste Proximity	68	61	80
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.



August 8, 2019

Buffer Area

Digitized Point

ejfacility

1:36,112

0 0.3 0.6 1.2 mi

0 0.5 1 2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State Average	Percentile in State	EPA Region Average	Percentile in EPA Region	USA Average	Percentile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu g/m^3$)	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 ($\mu g/m^3$)	0.338	0.15	90	0.978	<50th	0.938	<50th
NATA* Air Toxics Cancer Risk (risk per MM)	38	34	78	43	<50th	40	<50th
NATA* Respiratory Hazard Index	1.3	1	77	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	50	1000	38	1100	29	600	40
Lead Paint Indicator (% pre-1960s housing)	0.24	0.16	72	0.24	60	0.29	56
Superfund Proximity (site count/km distance)	0.0027	0.096	6	0.14	1	0.12	0
RMP Proximity (facility count/km distance)	0.98	0.37	89	0.97	69	0.72	76
Hazardous Waste Proximity (facility count/km distance)	0.59	1.4	57	2.8	37	4.3	54
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	12	59	30	40
Demographic Indicators							
Demographic Index	71%	51%	94	47%	82	36%	89
Minority Population	84%	78%	51	59%	74	38%	86
Low Income Population	57%	25%	94	35%	80	34%	84
Linguistically Isolated Population	3%	6%	51	8%	37	4%	64
Population with Less Than High School Education	10%	9%	68	17%	42	13%	49
Population under Age 5	6%	6%	45	6%	43	6%	47
Population over Age 64	15%	16%	48	13%	69	14%	61

*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

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

Exhibit 17: Consultation Letters

July 16, 2019

Department of the Army
Army Corps of Engineers
Honolulu District, Building 230
Fort Shafter, Hawaii 96858-5440

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

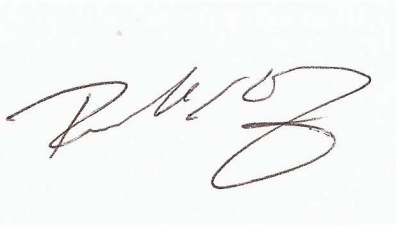
Dear Sir or Madam,

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

These units will address the critical housing shortage issue on the island of Hawaii, and specifically to the city of Hilo. Due to the overwhelming demand for affordable housing, A0705 Hilo, L.P. (project proponent) proposes the Kaiaulu O Kapiolani project for the potential to improve the quality of life for residents that cannot afford homes in the area. As the proposed project is in a developed area and has a low potential for adverse environmental impacts, ERA anticipates a Finding of No Significant Impact.

Please forward any comments, questions, or concerns within 30 calendar days. Comments can be submitted via email to kristen@enviroriskhawaii.com, or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Kapiolani Housing Development.

Sincerely,



Rachel Okoji, M.S.
President

July 16, 2019

Valerie T. Poindexter
County Council Representative, District 1
25 Aupuni Street, Suite 1402/2402
Hilo, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Business, Economic Development and Tourism
Office of Planning
235 S. Beretania St. 6th Floor
Honolulu, Hawaii 96813

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Business, Economic Development and Tourism
Strategic Industries Division
235 S. Beretania Street, 5th Floor
Honolulu, HI 96813

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

State of Hawaii
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Office of Hawaiian Affairs
East Hawaii (Hilo)
Wailoa Plaza, Suite 20-CDE
399 Hualani St.
Hilo, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

State of Hawaii
Department of Accounting and General Services - Office of the Comptroller
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

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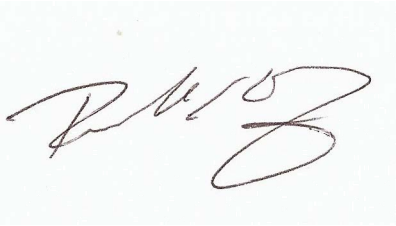

Rachel Okoji, M.S.
President

July 16, 2019

State of Hawaii
Department of Agriculture
1428 S. King Street
Honolulu, Hawaii 96814

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

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Please forward any comments, questions, or concerns within 30 calendar days. Comments can be submitted via email to kristen@enviroriskhawaii.com, or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Kapiolani Housing Development.

Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

State of Hawaii
Department of Defense
3949 Diamond Head Road
Honolulu, Hawaii 96816

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Hawaii State Department of Education
1390 Miller St.
Honolulu, Hawaii 96813

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

State of Hawaii
Department of Hawaiian Home Lands
Hale Kalaniana'ole
91-5420 Kapolei Parkway
Kapolei, Hawaii 96707

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Blvd. Room 3-122
Honolulu, Hawaii 96850

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Interior, Geological Survey
Pacific Islands Water Science Center
1845 Wasp Blvd., B176
Honolulu, Hawaii 96818

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

County of Hawaii
Department of Parks and Recreation
Aupuni Center
101 Pauahi Street, Suite 6
Hilo, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

County of Hawaii
Department of Public Works
Aupuni Center
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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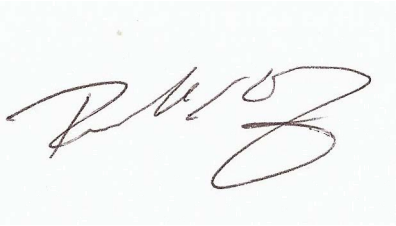

Rachel Okoji, M.S.
President

July 16, 2019

Department of the Navy, Pacific Division
Naval Facilities Engineering Command
258 Makalapa Drive, Suite 100
Joint Base Pearl Harbor-Hickam, Hawaii 96860-3134

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

County of Hawaii
Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

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

August 14, 2019

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

Dear Ms. Okoji:

Subject: Pre-Environmental Assessment Consultation for Kaiaulu O Kapi'olani Housing Development
Tax Map Key 2-4-025:048, 053 and 080

This is in response to your Pre-Environmental Assessment letter dated July 16, 2019.

Please be informed that there was an existing water commitment which expired on January 31, 2016, for a previous development under a Change of Zone Application No. REZ 09-000103.

Water is available from an existing 8-inch waterline within Kapi'olani Street fronting Parcel No. 53, and from an existing 6-inch waterline within Kūkūau Street fronting Parcel No. 80, for the proposed 64 dwelling unit housing project. There are no existing services to the subject parcels.

The Department can issue a water commitment for the proposed development, subject to the following conditions:

1. The Department requests that the applicant submit estimated maximum daily water usage calculations, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. The water usage calculations should be broken down into the average daily usage of 400 gallons for each of the proposed dwelling units and estimated average daily water usage for other uses. In addition to the total daily water usage (in gallons per day), the water usage calculations should also include the estimated peak flow in gallons per minute (GPM).

   Upon acceptance of the water usage calculations, the Department will make a determination as to the water commitment deposit due, prevailing facilities charge (subject to change) to be paid, and any water system improvements required for water service.

2. The Department will require that the project is served through a master meter. The Department will require the installation of a reduced pressure type backflow prevention assembly, within five (5) feet of the meter on private property. The installation of the backflow prevention assembly(s) must be inspected and approved by the Department before water service can be activated.

3. Please be informed that the existing 8-inch waterline fronting within Kapi'olani Street and the existing 6-inch waterline within Kūkūau Street are both adequate to provide 1,500 GPM of flow for fire protection as required per the Department's Water System Standards for the proposed type of land use.

4. Subject to other agencies' requirements to construct improvements within the road right-of-way fronting the property affected by the proposed development, the applicant shall be responsible for the relocation and adjustment of the Department's affected water system facilities, should they be necessary.

Please keep in mind that this letter shall not be construed as a water commitment. In other words, unless a water commitment is officially effected, water availability is subject to change, depending on the water situation.

Should there be any questions, please contact Mr. Ryan Quitoriano 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 – Mr. Doug Bigley, Ikaika Ohana

July 16, 2019

State of Hawaii
Department of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

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Sincerely,

Rachel Okoji, M.S.
President

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

August 19, 2019

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

via email: rachelokoji@enviroriskhawaii.com

Dear Ms. Okoji:

SUBJECT: Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** Project located at South Hilo Island of Hawaii; TMK: (3) 2-4-025:048, 053, & 080

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 and (b) 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. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2019 JUL 31 AM 10:49

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

DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

'19 JUL 23 PM 03:22 ENGINEERING

July 23, 2019

MEMORANDUM

FROM

TO

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** Project
LOCATION: South Hilo Island of Hawaii; TMK: (3) 2-4-025:048, 053, & 080
APPLICANT: Environmental Risk Analysis LLC

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **August 14, 2019.**

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. Thank you.

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

Signed: _____

Print Name: Carty S. Chang, Chief Engineer

Date: 7/30/19

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Environmental Assessment for the Proposed Kaiaulu O Kapiolani Housing Development Project
TMK(s): (3) 2-4-025:048, 053, & 080
Location: South Hilo, Island of Hawaii
Applicant: Environmental Risk Analysis LLC

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.hawaiinfip.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: 7/30/19

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

July 23, 2019

MEMORANDUM

RECEIVED
LAND DIVISION
2019 AUG 12 AM 10:10
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
___Div. of State Parks
X Commission on Water Resource Management
___Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** Project
LOCATION: South Hilo Island of Hawaii; TMK: (3) 2-4-025:048, 053, & 080
APPLICANT: Environmental Risk Analysis LLC

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

Signed: _____

Print Name: GORDON C. HEIT

Date: 8/2/19

Attachments
cc: Central Files

July 16, 2019

Hawaii Department of Health
Environmental Health Administration
2827 Waimano Home Road
Hale Ola Building, Room 222
Pearl City, Hawaii 96782-1487

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

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Please forward any comments, questions, or concerns within 30 calendar days. Comments can be submitted via email to kristen@enviroriskhawaii.com, or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Kapiolani Housing Development.

Sincerely,

Rachel Okoji, M.S.
President

DAVID Y. IGE
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

07018PRM.19

July 27, 2019

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

Dear Ms. Okoji:

Subject: Comments on Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, 053, 080 Hilo, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB) has received your request for comment and in response, refers you to the DOH's Standard Comments available at: http://health.hawaii.gov/cwb/clean-water-branch-home-page/cwb-standard-comments/.

A copy of the Standard Comments, along with memo explaining that the DOH no longer responds to requests for comments is enclosed.

Should you have any questions, please contact Mr. Reef Migita of the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

RM:ak

Enclosure: CWB Standard Comments Memo, dated May 10, 2018

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

05023PDCL.18

May 10, 2018

MEMORANDUM

SUBJECT: Clean Water Branch Standard Project Comments

TO: Agencies and Project Owners

FROM: ALEC WONG, P.E., CHIEF
Clean Water Branch

This memo is provided for your information and sharing. You are encouraged to share this memo with your project partners, team members, and appropriate personnel.

The Department of Health (DOH), Clean Water Branch (CWB) will no longer be responding directly to requests for comments on the following documents (Pre-consultation, Early Consultation, Preparation Notice, Draft, Final, Addendums, and/or Supplements):

- Environmental Impact Statements (EIS)
- Environmental Assessments (EA)
- Stream Channel Alteration Permits (SCAP)
- Stream Diversion Works Permits (SDWP)
- Well Construction/Pump Installation Permits
- Conservation District Use Applications (CDUA)
- Special Management Area Permits (SMAP)
- Shoreline Setback Areas (SSA)

For agencies or project owners requiring DOH-CWB comments for one or more of these documents, please utilize the DOH-CWB Standard Comments below regarding your project's responsibilities to maintain water quality and any necessary permitting. DOH-CWB Standard Comments are also available on the DOH-CWB website located at: http://health.hawaii.gov/cwb/.

DOH-CWB Standard Comments

The following information is for agencies and/or project owners who are seeking comments regarding environmental compliance for their projects with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for point source water pollutant discharges into State surface waters (HAR, Chapter 11-55). Point source means any discernible, confined, and discrete conveyance from which pollutants are or may be discharged.

   For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

Some of the activities requiring NPDES permit coverage include, but, are not limited to:

a. Discharges of Storm Water

   i. For Construction Activities Disturbing One (1) or More Acres of Total Land Area.

      By HAR Chapter 11-55, an NPDES permit is required before the start of the construction activities that result in the disturbance of one (1) or more acres of total land area, including clearing, grading, and excavation. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale.

   ii. For Industrial Activities for facilities with primary Standard Industrial Classification (SIC) Codes regulated in the Code of Federal Regulations (CFR) at 40 CFR 122.26(b)(14)(i) through (ix) and (xi). If a facility has more than one SIC code, the activity that generates the greatest revenue is the primary SIC code. If revenue information is unavailable, use the SIC code for the activity with the most employees. If employee information is also unavailable, use the SIC code for the activity with the greatest production.

   iii. From a small Municipal Separate Storm Sewer System (along with certain non-storm water discharges).

b. Discharges to State surface waters from construction activity hydrotesting or dewatering

c. Discharges to State surface waters from cooling water applications

d. Discharges to State surface waters from the application of pesticides (including insecticides, herbicides, fungicides, rodenticides, and various other substances to control pest) to State waters

e. Well-Drilling Activities

   Any discharge to State surface waters of treated process wastewater effluent associated with well drilling activities is regulated by HAR Chapter 11-55. Discharges of treated process wastewater effluent (including well drilling slurries,

lubricating fluids wastewater, and well purge wastewater) to State surface waters requires NPDES permit coverage.

NPDES permit coverage is not required for well pump testing. For well pump testing, the discharger shall take all measures necessary to prevent the discharge of pollutants from entering State waters. Such measures shall include, if necessary, containment of initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices (BMPs) shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of the storm drain prior to discharge. Furthermore, BMPs shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.

3. A Section 401 Water Quality Certification (WQC) is required if your project/activity:

   a. Requires a federal permit, license, certificate, approval, registration, or statutory exemption; and

   b. May result in a discharge into State waters. The term "discharge" is defined in Clean Water Act, Subsections 502(16), 502(12), and 502(6).

   Examples of "discharge" include, but are not limited to, allowing the following pollutants to enter State waters from the surface or in-water: solid waste, rock/sand/dirt, heat, sewage, construction debris, any underwater work, chemicals, fugitive dust/spray paint, agricultural wastes, biological materials, industrial wastes, concrete/sealant/epoxy, and washing/cleaning effluent.

   Determine if your project/activity requires a federal permit, license, certificate, approval, registration, or statutory exemption by contacting the appropriate federal agencies (e.g. Department of the Army (DA), U.S. Army Corps of Engineers (COE), Pacific Ocean Division Honolulu District Office (POH) Tel: (808) 835-4303; U.S. Environmental Protection Agency, Region 9 Tel: (415) 947-8021; Federal Energy Regulatory Commission Tel: (866) 208-3372; U.S. Coast Guard Office of Bridge Programs Tel: (202) 372-1511). If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch regarding their permitting requirements.

   To request a Section 401 WQC, you must complete and submit the Section 401 WQC application. This application is available on the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/.

Please see HAR, Chapter 11-54 for the State's Water Quality Standards and for more information on the Section 401 WQC. HAR, Chapter 11-54 is available on the CWB website at: http://health.hawaii.gov/cwb/.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation and up to two (2) years in jail.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

   b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

   c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

July 16, 2019

Department of Transportation
Federal Highways Administration, Hawaii Division
300 Ala Moana Blvd, Room 3-306
Box 50206
Honolulu, Hawaii 96850-3306

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

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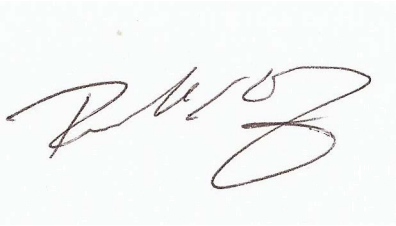
Sincerely,



Rachel Okoji, M.S.
President

July 16, 2019

Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

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President

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 0725
STP 8.2733

August 14, 2019

Ms. Rachel Okoji, M.S.
President
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawaii 96738

Dear Ms. Okoji:

Subject: Kaiaulu O Kapiolani Housing Development
Environmental Assessment Pre-Assessment Consultation
Hilo, Hawaii Island, Hawaii
TMK: (3) 2-4-025:048, 053, 080

The State Department of Transportation (DOT) understands A0705 Hilo, L.P. is proposing this 64-unit affordable housing complex.

DOT's comments on the subject project are as follows:

Airports Division (DOT-AIR)

The proposed location is within five miles from Hilo International Airport (ITO). Therefore, the developers need to be aware of the following:

1. The project area is approximately 1.55 miles from the end of Runway 3 at ITO. All projects within 5 miles from Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at this link: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-20 16.pdf

2. Due to the proximity of the airport, there is a potential for fumes, smoke, vibrations, odors, etc. that may result from aircraft flight operations over the proposed housing development.

3. Although the project is located outside of the 55 Day-Night Average Sound Levels noise contours on the ITO 2018 Noise Exposure Map (attached), the Applicant and future residents should be aware of the proximity of the airport and potential single event noise from aircraft operations.

4. The Airport Zoning Act, Hawaii Revised Statutes, Chapter 262 requires DOT-AIR to prevent hazards and non-conforming uses that conflict with the Federal Aviation

Administration (FAA) Hazardous Wildlife Attractants requirements. DOT-AIR recommends that the proposed housing development construction and operation does not create a wildlife attractant. Please review the FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On Or Near Airports* for guidance.

5. Photovoltaic (PV) systems located in or near the approach path of aircrafts into ITO can create a hazardous condition for pilots due to possible glint and glare reflected from the PV array. If glint or glare from the PV array create a hazardous condition for pilots, the owner of the PV system must be prepared to immediately mitigate the hazard upon notification by DOT-AIR and/or FAA.

6. PV systems have been known to emit radio frequency interference (RFI) to aviation dedicated radio signals, disrupting the reliability of air-to-ground communications. Again, the owner of the PV system must be prepared to immediately mitigate the RFI hazard upon notification by DOT-AIR and/or FAA.

Highways Division

1. We note that the Applicant's consultant letter did not include any maps or conceptual drawings; therefore, we do not have any early comments relating to the project layout or access details at this time.

2. A Transportation Assessment (TA) or a Traffic Impact Analysis Report (TIAR) should be prepared by a traffic engineer licensed in the State of Hawaii and should be included in the Draft Environmental Assessment (DEA).

    a. Both the TA/TIAR and the DEA should include a discussion of any traffic impacts generated by the project onto the nearby State highways and to identify any mitigations that will be required at no cost to the State.

3. The DEA should provide additional details if there are any ancillary uses such as a daycare program. This should be accounted for and reflected in the TIAR's trip generation and anticipated pedestrian patterns.

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.

Sincerely,

for JADE T. BUTAY
Director of Transportation

Attachment

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 0725
STP 8.2733

August 14, 2019

Ms. Rachel Okoji, M.S.
President
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawaii 96738

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Subject: Kaiaulu O Kapiolani Housing Development
Environmental Assessment Pre-Assessment Consultation
Hilo, Hawaii Island, Hawaii
TMK: (3) 2-4-025:048, 053, 080

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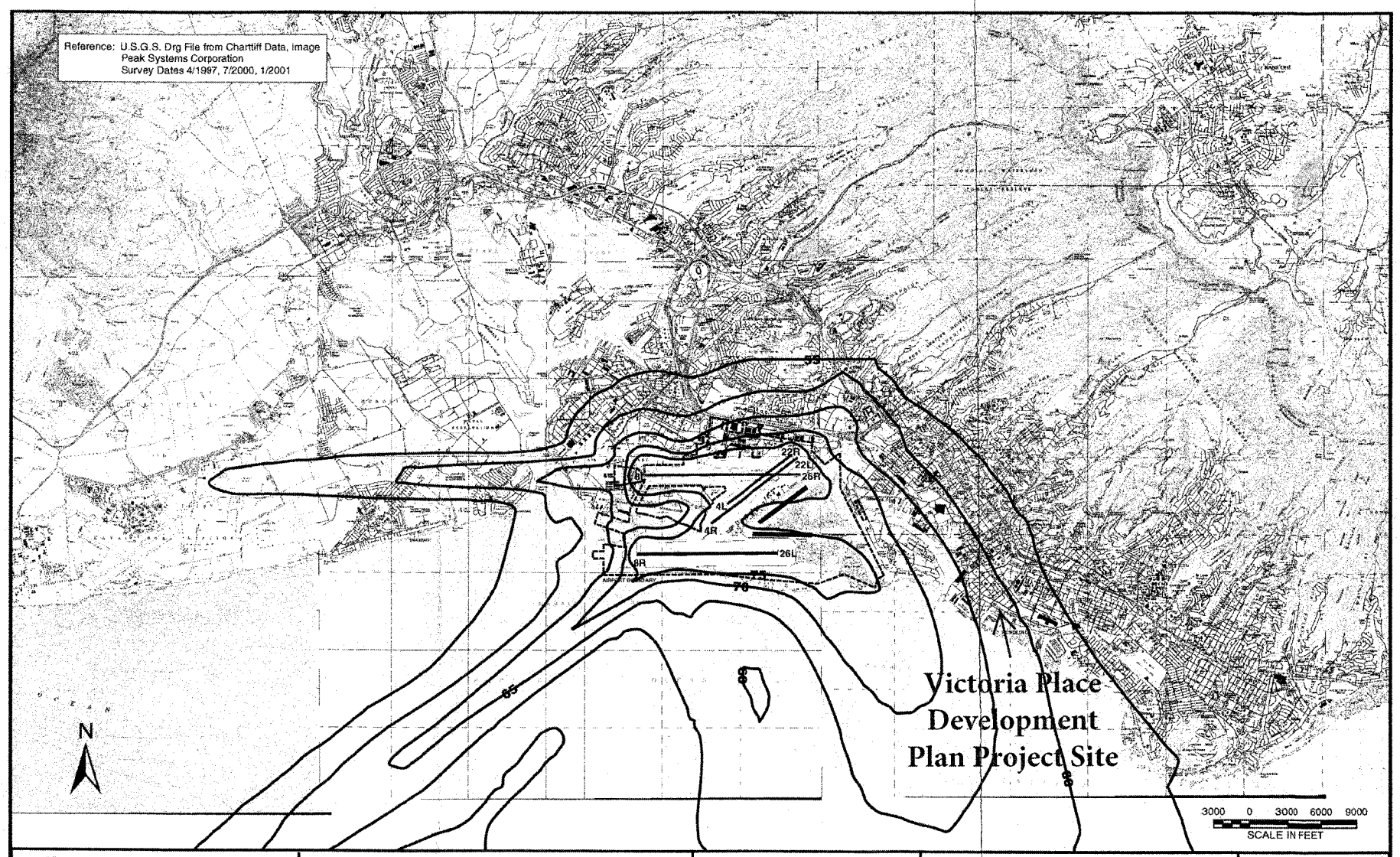
for JADE T. BUTAY
Director of Transportation

Attachment



AIRPORTS DIVISION DEPARTMENT OF TRANSPORTATION STATE OF HAWAII	HONOLULU INTERNATIONAL AIRPORT MASTER PLAN UPDATE AND NOISE COMPATIBILITY PROGRAM	Edward K. Noda and Associates,Inc	2008 (FORECAST) FIVE YEAR NOISE EXPOSURE MAP NO MITIGATION SCENARIO	FIGURE 5 –1

July 16, 2019

Environmental Protection Agency
Region IX, Pacific Islands Contact Office
300 Ala Moana Blvd., Room 5124
Honolulu, Hawaii 96850

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Transportation
Federal Aviation Administration
135 Nakolo Place
Honolulu, Hawaii 96819

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Transportation
Federal Transit Administration
San Francisco Federal Building
90, 7th Street, Suite 15-300
San Francisco, CA 94103

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President

July 16, 2019

County of Hawaii
Hawaii Fire Department
25 Aupuni Street, Suite 2501
Hilo, HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

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Please forward any comments, questions, or concerns within 30 calendar days. Comments can be submitted via email to kristen@enviroriskhawaii.com, or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Kapiolani Housing Development.

Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

County of Hawaii
Mass Transit Agency
25 Aupuni Street
Hilo, HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

National Oceanic and Atmospheric Association
Pacific Islands Regional Office
1845 Wasp Boulevard
Building 176
Honolulu, HI 96818

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of the Interior
National Parks Service
Pacific West Region – Honolulu
300 Ala Moana Blvd., Room 6-226, Box 50165
Honolulu, HI 96850

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Agriculture
National Resources Conservation Service
Pacific Islands Area
300 Ala Moana Blvd., Room 4-118
Honolulu, HI 96850

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Office of Hawaiian Affairs
Wailoa Plaza
399 Hualani St., Suite 20-CDE
Hilo, HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

County of Hawaii
Planning Department
Aupuni Center
101 Pauahi Street, Suite 3
Hilo, HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

Kristen Caskey <kristen@enviroriskhawaii.com>

EA for Kaiaulu O Kapiolani Housing

15 messages

Sullivan, Kevin <Kevin.Sullivan@hawaiicounty.gov> Fri, Aug 2, 2019 at 9:30 AM
To: "kristen@enviroriskhawaii.com" <kristen@enviroriskhawaii.com>
Cc: "Mori, Ashley" <Ashley.Mori@hawaiicounty.gov>

Aloha Kristen,

I am in receipt of the attached but cant find an EA document *per se* and I am unable to locate on OEQC's library site:(

I only see Kaiaulu-O-Waikoloa

Could you please assist/clarify?

Mahalo

Kevin Sullivan, AICP

Planner IV Long Range Division

Hawai'i County Planning Department

101 Pauahi St, Ste 3

Hilo, HI 96720

(808) 961-8135

kevin.sullivan@hawaiicounty.gov

COR-19-126732.pdf
65K

Kristen Caskey <kristen@enviroriskhawaii.com> Fri, Aug 2, 2019 at 9:36 AM
To: Rachel Okoji <rachelokoji@enviroriskhawaii.com>

How should I respond to this?

Begin forwarded message:
[Quoted text hidden]

COR-19-126732.pdf
65K

Rachel Okoji <rachelokoji@enviroriskhawaii.com> Fri, Aug 2, 2019 at 9:42 AM
To: Kristen Caskey <kristen@enviroriskhawaii.com>

Hello Kevin
Thank you for your response. We are currently conducting pre-consultation for the referenced project and are requesting any comments for consideration in the draft document. Please let us know if you have any comments for inclusion into the draft EA.

Thank you,
Rachel

Rachel Okoji, M.S.
Environmental Risk Analysis, LLC
905A Makahiki Way
Honolulu, Hawaii 96826
808.783.6840 tel
www.enviroriskhawaii.com

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From: Kristen Caskey <kristen@enviroriskhawaii.com>
Sent: Friday, August 2, 2019 9:36 AM
To: Rachel Okoji
Subject: Fwd: EA for Kaiaulu O Kapiolani Housing

[Quoted text hidden]

Kristen Caskey <kristen@enviroriskhawaii.com> Fri, Aug 2, 2019 at 9:52 AM
To: "Sullivan, Kevin" <Kevin.Sullivan@hawaiicounty.gov>

Hello Kevin,
[Quoted text hidden]
Kristen

--
Kristen Caskey
Environmental Scientist/Environmental Planner
Environmental Risk Analysis LLC
905A Makahiki Way
Honolulu, HI 96826
Ph: (714) 290-2132

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Kristen Caskey <kristen@enviroriskhawaii.com> Fri, Aug 2, 2019 at 9:55 AM

To: Rachel Okoji <rachelokoji@enviroriskhawaii.com>

Thank you Rachel!

Sent from my iPhone

[Quoted text hidden]

Sullivan, Kevin <Kevin.Sullivan@hawaiicounty.gov> Fri, Aug 2, 2019 at 3:00 PM
To: Kristen Caskey <kristen@enviroriskhawaii.com>

Mahalo Kristen for clarifying,

The Planning Dept would like to be included in distribution of the EA.

In meantime, if you have any preliminary site plans, drainage studies or environmental studies you can share with me at this time, I'm happy to review.

Otherwise, preliminarily, I would suggest a tree survey for the property as it appears one of the few forest stands left in urbanized Hilo. While it may likely have high percentage of non-natives, be a shame to clear cut it if any healthy trees can be saved; happy to consult with you on that.

Mahalo. Look forward to hearing from you.

Have a good weekend!

Kevin Sullivan, AICP

Planner IV Long Range Division

Hawai'i County Planning Department

101 Pauahi St, Ste 3

Hilo, HI 96720

(808) 961-8135

kevin.sullivan@hawaiicounty.gov

[Quoted text hidden]

Kristen Caskey <kristen@enviroriskhawaii.com> Fri, Aug 2, 2019 at 3:01 PM
To: Rachel Okoji <rachelokoji@enviroriskhawaii.com>

Begin forwarded message:

From: "Sullivan, Kevin" <Kevin.Sullivan@hawaiicounty.gov>

[Quoted text hidden]

Kristen Caskey <kristen@enviroriskhawaii.com> Fri, Aug 2, 2019 at 4:57 PM
To: Rachel Okoji <rachelokoji@enviroriskhawaii.com>

Does this mean we need to conduct a biological/tree survey?
[Quoted text hidden]

Rachel Okoji <rachelokoji@enviroriskhawaii.com> Fri, Aug 2, 2019 at 4:59 PM
To: Kristen Caskey <kristen@enviroriskhawaii.com>

We might. I'll ask our biology sub

Thank you,
Rachel

Rachel Okoji, M.S.
Environmental Risk Analysis, LLC
905A Makahiki Way
Honolulu, Hawaii 96826
808.783.6840 tel
www.enviroriskhawaii.com

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From: Kristen Caskey <kristen@enviroriskhawaii.com>
Sent: Friday, August 2, 2019 4:57 PM
To: Rachel Okoji
[Quoted text hidden]
[Quoted text hidden]

Sullivan, Kevin <Kevin.Sullivan@hawaiicounty.gov> Fri, Aug 9, 2019 at 8:09 AM
To: "kristen@enviroriskhawaii.com" <kristen@enviroriskhawaii.com>
Cc: "Mori, Ashley" <Ashley.Mori@hawaiicounty.gov>

Kristen,

If I otherwise do not hear from you; I'll assume this is an early consult request only.

Thank you

Kevin Sullivan, AICP

Planner IV Long Range Division

Hawai'i County Planning Department

101 Pauahi St, Ste 3

Hilo, HI 96720

(808) 961-8135

kevin.sullivan@hawaiicounty.gov

[Quoted text hidden]

Kristen Caskey <kristen@enviroriskhawaii.com> Fri, Aug 9, 2019 at 11:43 AM
To: "Sullivan, Kevin" <Kevin.Sullivan@hawaiicounty.gov>

Sorry for the late reply. We are still waiting on some information from the client on drainage and sewer. However, the client will be in contact with the Planning Department as the project progresses. A cultural study was conducted for the Site, and the archaeologists mentioned several plant species in their report, but there was no mention of Ohia or Koa. The following is the environmental section of the cultural study:

> SCS Report 1272-1
>
> ENVIRONMENTAL SETTING
>
> The project area is situated on level to moderately sloping land at 95 feet (29 meters) above mean sea level (amsl). The project area substrate is a Mauna Loa lava flow dated between 750 and 1,500 years ago (Wolfe and Morris 1996). Soil in the project area is Keaukaha Series (rKFD) extremely rocky muck overlaying pāhoehoe lava (Sato 1973:27). The soil is thin and well drained with 6% to 20% slopes. Annual rainfall ranges from 120 to 160 inches and drains toward the east. There is a narrow drainage area that bisects the middle of the property.
>
> Plant communities in the project are dominated by trees, grasses, ferns, and bushes. Tree species include gunpowder (Trema orientalis), autograph (Clusia rosea), banyan (Ficus sp.), guava (Psidium sp.), and bingabing (Macaranga mappa).

We will make sure to note the concern for Ohia and Koa on the project Site. We have also contacted USFWS for information on plant and animals species for the Site, but are still waiting on their response.

[Quoted text hidden]

[Quoted text hidden]

July 16, 2019

County of Hawaii
Hawaii Police Department
349 Kapi'olani Street
Hilo, HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Building
601 Kamokila Blvd., Suite 555
Kapolei, HI 96707

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Tulsi Gabbard
State Representative, District 2
300 Ala Moana Blvd., Room 5-104
Honolulu, HI 96850

Subject: **Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii**

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Brian Schatz
Senior State Senator
300 Ala Moana Blvd., Room 7-212
Honolulu, HI 96850

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

University of Hawaii
Marine Option Program
Dean Hall 105A
2450 Campus Road
Honolulu, HI 96822

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

University of Hawaii
Office of Project Delivery
1960 East-West Road
Biomedical Sciences, B-102
Honolulu, HI 96822

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Sir or Madam,

Environmental Risk Analysis LLC is conducting an Environmental Assessment to evaluate potential environmental impacts associated with the construction and operation of a proposed housing development on unimproved real property known as Tax Map Keys (TMK) (3) 2-4-025:048, :053, :080 in Hilo, Hawaii on the island of Hawaii. The proposed action is to build a total of 64 units of affordable housing. The property will consist of a total of 9 buildings, 8 of which will be residential, with one being a community center. The project will be funded in part by the Hawaii Housing Finance and Development Corporation in the form of Federal and State Low Income Housing Tax Credits (LIHTC), Tax Exempt Bonds, and the State's Rental Housing Revolving Funds. The tax credits will generate equity investment into the project.

These units will address the critical housing shortage issue on the island of Hawaii, and specifically to the city of Hilo. Due to the overwhelming demand for affordable housing, A0705 Hilo, L.P. (project proponent) proposes the Kaiaulu O Kapiolani project for the potential to improve the quality of life for residents that cannot afford homes in the area. As the proposed project is in a developed area and has a low potential for adverse environmental impacts, ERA anticipates a Finding of No Significant Impact.

Please forward any comments, questions, or concerns within 30 calendar days. Comments can be submitted via email to kristen@enviroriskhawaii.com, or by post to Environmental Risk Analysis LLC, 905A Makahiki Way, Honolulu, Hawaii 96826, Attn: Kaiaulu O Kapiolani Housing Development.

Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

University of Hawaii
Water Resources Research Center
2540 Dole St., Holmes Hall 283
Honolulu, HI 96822

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Chris Todd
State Representative, District 2
Hawaii State Capitol, Room 322
415 S Beretania St.
Honolulu, HI 96813

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Mark Nakashima
State Senator, District 1
Hawaii State Capitol, Room 432
415 S Beretania St.
Honolulu, HI 96813

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

Postmaster - Hilo Post Office
154 Waianuenue Ave Ste 1
Hilo, HI 96720
Waimea, HI 96796

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

July 16, 2019

County of Hawaii
Department of Environmental Management
345 Kekūanāo'a St., Suite 41
Hilo, HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

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

August 13, 2019

Via email to kristen@enviroriskhawaii.com

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

Attn: Kaiaulu O Kapiolani Housing Development

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development
Tax Map Keys: (3) 2-4-025:048, 053, 080 (Hilo, Hawai'i)

Dear Ms. Okoji:

The County of Hawai'i Department of Environmental Management (DEM) has received your July 16, 2019, letter on the above subject.

Our Solid Waste Division (SWD) has the following comments:

- The South Hilo Sanitary Landfill will stop accepting construction and demolition (C&D) debris on July 31, 2019. After this date, disposal of C&D debris will be at the West Hawai'i Sanitary Landfill in Pu'uanahulu.

- To conserve valuable landfill space, the SWD strongly recommends that the project include waste diversion as part of the project specifications. The SWD can work with the architect/engineer and/or contractor at the appropriate time.

Our Wastewater Division (WWD) has the following comments:

- The proposed project is outside the County of Hawai'i's wastewater collection system. If the proposed action would like to connect to the County's

wastewater collection system, the applicant will need to conduct a sewer study in accordance with the applicable wastewater system design standards prior to approval in order to connect to the County sewer system. The applicant shall provide such sewer line or other facility improvements as the director of DEM may reasonably require, which the sewer study may indicate are advisable for mitigation of impacts of the proposed project. If the wastewater collection, treatment and disposal facility will be privately owned, regulations under the purview of the State Department of Health may be required.

If you have any questions or concerns, you may contact our Solid Waste Division at (808) 961-8270 and our Wastewater Division at (808) 961-8512.

Thank you for the opportunity to provide comments.

Sincerely,

William A. Kucharski
Director

WK:mef

July 16, 2019

Department of Homeland Security
Coast Guard Commander, 14th Coast Guard District
300 Ala Moana Blvd, Room 9-204
Honolulu, HI 96850-4982

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

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Sincerely,

Rachel Okoji, M.S.
President

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 0701
STP 8.3229

August 2, 2021

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

Dear Ms. Okoji:

Subject: Draft Environmental Assessment (EA)
Kaiaulu O Kapiolani Housing Development
Hilo, Hawaii
Tax Map Key: (3) 2-4-025: 048, 053, 080

Thank you for your letter dated July 13, 2021 requesting the State of Hawaii Department of Transportation's (HDOT) review and comment on the Kaiaulu O Kapiolani Housing Development. HDOT understands the project will consist of the construction of 64 affordable housing units on approximately 5.05 acres of land in Hilo. Access to the development is proposed to be via Kapiolani Street and Kukuau Street.

HDOT has the following comments:

Airports Division (HDOT-A)

HDOT-A has reviewed the Draft EA and thanks the developer for addressing the comments previously provided during Pre-Assessment Consultation in letter STP 8.2733 dated August 14, 2019. HDOT-A offers the following additional comments.

1. The project is approximately 8,213 feet from the end of Runway 3 at the Hilo International Airport. Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and criteria for submittal can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp

2. Please be aware that the FAA has updated the Advisory Circular for Wildlife Hazard Attractants. Please review FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants on or near Airports for guidance.

Highways Division (HDOT-HWY)

In 2020, HDOT reviewed and provided comments on the application for an Amendment to Change of Zone for the project site in letter STP 8.3047 dated October 7, 2020. That application included a Traffic Impact Analysis Report (TIAR) dated June 21, 2019. The TIAR is cited in the Draft EA, however it has not been included.

1. The TIAR assessment was based on the project being fully operational in 2021, however the Draft EA describes a delay until 2023. The Final EA should disclose the TIAR assumption is outdated and should qualitatively assess potential impacts to State highways due to the delay in construction.

2. HDOT-HWY's 2020 comments on the TIAR remain applicable, and are summarized as follows:

    a. There would be no direct impact to State highways related to the 64-unit affordable housing development. The project would be accessed from two County roadways (Kapiolani Street and Kukuao Street) and would generate a total of 32 net external trips during the A.M. peak hours of traffic, and 42 net external trips during the P.M. peak hours of traffic.

    b. No State highway intersections were included in the TIAR study area. However, the project would not have an indirect adverse impact on State highways because 1) the project-related trips are low and would be distributed across alternative routes in the region that could avoid the use of State roadways, and 2) the nearest State roadways are Hawaii Belt Road (State Route 19) and Saddle Road (State Route 200), both of which are greater than a mile from the project site. The TIAR does not identify traffic impacts to State highways and no mitigation is warranted or recommended.

If there are any questions, please contact Mr. Blayne Nikaido of the HDOT Statewide Transportation Planning Office at (808) 831-7979 or via email at blayne.h.nikaido@hawaii.gov.

Sincerely,

JADE T. BUTAY
Director of Transportation

August 3, 2022

State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii. 96813-5097

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Ms. Jade Butay,

Thank you for your review and comment on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. In response to the comments received. ERA provides the following responses:

Airport Division (HDOT-A)

1. FAA Form 7460-1 Notice of Proposed Construction or Alteration will be submitted for approval, as necessary, prior to construction commencing.
2. FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants, updated 2020, will be reviewed.

Highways Division (HDOT-HWY)

1. The EA will note the change in operation date, and will qualitatively assess potential impacts to State highways due to the delay in construction.
2. 2020 TIAR comments are acknowledged.

Sincerely,

Rachel Okoji, M.S.
President

United States Department of the Interior

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

In Reply Refer To:
01EPIF00-2021-SL-0372

July 19, 2021

Rachel Okoji
Environmental Risk Analysis, LLC
905A Makahiki Way
Honolulu, Hawai‘i 96826

Subject: Species List for the Kaiaulu O Kapiolani Housing Development, Hilo, Hawai‘i

Dear Rachel Okoji:

Thank you for your email of June 25th requesting comment for the development of a Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development, Hilo, Hawai‘i. We further appreciate your July 12, 2021 email including the link to the Draft Environmental Assessment. The regulatory requirements of 24 CFR 58.4 require units of local governments to assume the responsibility for environmental review, decision-making, and actions that would otherwise apply to the Department of Housing and Human Development (HUD) under the provisions of NEPA and other provisions of law that further the purposes of NEPA as "responsible entities". This includes section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.), as amended. The U.S. Fish and Wildlife Service (Service) understands that the County of Hawai‘i will administer Federal funding from HUD in support of this project and will therefore act as the responsible entity on behalf of HUD as it pertains to section 7 consultation with the Service.

The proposed development site (TMKs [3] 2-4-025:048,053,080) is an undeveloped lot encompassing 5.05 acres in Hilo, on the island of Hawai‘i. The project proponent, A0705 Hilo, L.P., proposes to develop an affordable rental complex of 64 units, consisting of 32 two-bedroom units, an estimated 24 three-bedroom units, and an estimated 8 four-bedroom units in Hilo. The development will include a community center for resident use and at least 80 parking stalls. This location is already zoned for multi-family dwelling units. Habitat consists mostly of nonnative trees and shrubs.

This letter has been prepared under the authority of, and in accordance with, provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.) as amended (ESA). We have reviewed

the information you provided and pertinent information in our files, as it pertains to listed species in accordance with section 7 of the ESA. The Service provides the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation and construction.

Our data indicate the following federally listed species may occur or transit through the vicinity of the proposed project area: the threatened Hawaiian goose or nēnē (*Branta sandvicensis*), the endangered Hawaiian hoary bat or ʻopeʻapeʻa (*Lasiurus cinereus semotus*), the endangered Hawaiian petrel or ʻuaʻu (*Pterodroma sandwicensis*), the endangered Hawaiʻi distinct population segment of the band-rumped storm-petrel or ʻakeʻake (*Oceanodroma castro*), the threatened Newell's shearwater or ʻaʻo (*Puffinus auricularis newelli*), the endangered Hawaiian stilt or aeʻo (*Himantopus mexicanus knudseni*), the endangered Hawaiian coot or ʻalae keʻokeʻo (*Fulica alai*), and the endangered Blackburn's sphinx moth (*Manduca blackburni*). The Hawaiian petrel, band-rumped storm-petrel, and Newell's shearwater will hereafter, collectively be referred to as "Hawaiian seabirds," and the Hawaiian stilt and Hawaiian coot will be referred to as "Hawaiian waterbirds." There is no critical habitat for listed species in the vicinity of this proposed project.

The Hawaiian hawk or ʻio (*Buteo solitarius*), a species that was recently removed from the Federal list of threatened and endangered species, is known to occur in the area. While the Service no longer consults on the Hawaiian hawk, this species is still protected under Hawaiian state regulations (H.R.S. §195D-4) and the Migratory Bird Treaty Act (16 U.S.C. 703-712). Please see our recommendations below and reference the aforementioned regulations for any additional consultation or mitigation requirements.

Hawaiian goose

The Hawaiian goose is found on the islands of Hawaiʻi, Maui, Molokaʻi, and Kauaʻi. 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 energy facilities, and vehicle strikes.

To avoid and minimize potential project impacts to the Hawaiian goose we recommend you incorporate the following measures into your project plan:

- Do not approach, feed, or disturb the Hawaiian goose.
- If a Hawaiian goose is observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with Hawaiian goose nesting behavior 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 (ft) of proposed project, or a previously undiscovered nest is found within the 150-ft radius after work begins.
- In areas where Hawaiian goose 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 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 ft 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 ft to higher than 500 ft 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 plan:

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

Hawaiian seabirds

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 light attraction.

To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following measures into your project plan:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- 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.

Hawaiian waterbirds

Hawaiian waterbirds are currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, *Colocasia esculenta* (kalo or taro) lo‘i or patches, irrigation ditches, sewage treatment ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. Threats to these species include nonnative predators, habitat loss, and habitat degradation.

Based on the project details provided, your project may result in the creation of standing water or open water that could attract Hawaiian waterbirds to the project site. In particular, the Hawaiian stilt is known to nest in sub-optimal locations (e.g., any ponding water), if water is present. Hawaiian waterbirds attracted to sub-optimal habitat may suffer adverse impacts, such as predation and reduced reproductive success, and thus the project may create an attractive nuisance. Therefore, we recommend you work with our office during project planning so that we

may assist you in developing measures to avoid impacts to listed species (e.g., fencing, vegetation control, predator management).

To avoid and minimize potential project impacts to Hawaiian waterbirds we recommend you incorporate the following applicable measures into your project plan:

- In areas where waterbirds 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.
- If water resources are located within or adjacent to the project site, incorporate applicable best management practices regarding work in aquatic environments into the project design (see enclosed Aquatic Best Management Practices).
- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. Repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found:
    - Contact the Service within 48 hours for further guidance.
    - Establish and maintain a 100-ft buffer around all active nests and/or broods until the chicks have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
    - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

Blackburn's sphinx moth

The adult Blackburn's sphinx moth feeds on nectar from native plants, including *Ipomoea pes-caprae* (beach morning glory), *Plumbago zeylanica* ('ilie'e), *Capparis sandwichiana* (maiapilo), and others. Blackburn's sphinx moth larvae feed on nonnative *Nicotiana glauca* (tree tobacco), and native, federally listed, *Nothocestrum* spp. ('aiea). To pupate, the larvae burrow into the soil and can remain in a state of torpor for 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 occurs 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 plants prior to work initiation.
    - Surveys should be conducted during the wettest portion of the year (usually November-to-April or several weeks after a significant rain) and within 4-to-6 weeks prior to construction.
    - Surveys should include searches for adults, eggs, larvae, and signs of larval feeding (i.e., chewed stems, frass, or leaf damage).
    - If moths, eggs, larvae, or native 'aiea or tree tobacco over 3-ft tall, are found during the survey, please contact the Service for additional guidance to avoid impacts to this species.

If no Blackburn's sphinx moth, 'aiea, or tree tobacco are found during surveys, it is imperative that measures be taken to avoid attraction of Blackburn's sphinx moth to the project location and prohibit tree tobacco from entering the site. Tree tobacco can grow greater than 3-ft tall in approximately 6 weeks. If it grows over 3-ft tall, the plants may become a host plant for Blackburn's sphinx moth. We therefore recommend that you:

- Remove any tree tobacco less than 3-ft tall.
- Monitor the site every 4-to-6 weeks for new tree tobacco growth before, during, and after the proposed ground-disturbing activity.
    - 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.

Hawaiian hawk

The Hawaiian hawk was recently federally delisted but remains a listed species under Hawai'i State law. The Hawaiian hawk is known to occur across a broad range of forest habitats throughout the island of Hawai'i. Loud, irregular and unpredictable activities, such as using heavy equipment or building a structure, near an endangered Hawaiian hawk nest may cause nest failure. Harassment of Hawaiian hawk nesting sites can alter feeding and breeding patterns or result in nest or chick abandonment. Nest disturbance can also increase exposure of chicks and juveniles to inclement weather or predators.

To avoid and minimize impacts to Hawaiian hawks we recommend you incorporate the following applicable measures into your project plan:

- If work must be conducted between March 1 through September 30, during the Hawaiian hawk breeding season, have a biologist familiar with the species conduct a nest search of the project footprint and surrounding areas immediately prior to the start of construction activities.
    - Pre-disturbance surveys for Hawaiian hawks are only valid for 14 days. If disturbance for the specific location does not occur within 14 days of the survey, conduct another survey.
- Clearing of vegetation or construction activities should not occur within 1,600 ft of any active Hawaiian hawk nest during the breeding season until the young have fledged.
- Regardless of the time of year, avoid trimming or cutting trees containing a hawk nest, as nests may be re-used during consecutive breeding seasons.

Other Measures to Reduce Mortality of Listed Animal Species

Additional measures for housing developments common to all listed animal species that will reduce mortality or predation include the following:

- Post and enforce low speed limits to reduce vehicle collisions with wildlife.
- Require all pets, including cats and dogs, to be on leash at all times outside.
- Require garbage cans with lids to reduce populations of rats and mongoose, which are invasive species and prey upon native and endangered species.
- Provide signage instructing residents and visitors to avoid approaching, feeding, or disturbing wildlife.

The Service recommends incorporating all applicable avoidance and minimization measures into your project design to avoid and minimize effects on protected species. If you determine 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 ESA compliance. We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Melissa Cady, Fish and Wildlife Biologist at 808-933-6963 or melissa_cady@fws.gov. When referring to this project, please include this reference number: 01EPIF00-2021-SL-0372.

Sincerely,

Island Team Manager
Maui Nui and Hawai‘i Island

Enclosure (1): Aquatic Best Management Practices

cc: Desiree Moore, Hawai‘i County
Janice Takahashi, HHFDC
Pacific Islands Fish and Wildlife Service Field Office Adminstrative Staff

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

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

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.

2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.

3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see https://www.fws.gov/policy/A1750fw1.html) can help to prevent attraction and introduction of non-native species.

5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (*e.g.*, with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

August 3, 2022

US Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96850

Subject: **Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii**

Dear Ms. Chelsie Javar-Salas,

Thank you for your review and comment on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. In response to the comments received. ERA provides the following responses:

We have incorporated the list of protected species which may occur in the project area provided into the Environmental Assessment, as well as mitigative measures proposed by the US Fish and Wildlife Service.

Sincerely,

Rachel Okoji, M.S.
President

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

July 29, 2021

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

Dear Ms. Okoji:

Subject: Draft Environmental Assessment for Kaiaulu O Kapi'olani Housing Development Tax Map Key 2-4-025:048, 053 and 080

We have reviewed the subject Draft Environmental Assessment (DEA) and have no comments at this time.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.
Manager-Chief Engineer

RQ:dfg

August 3, 2022

County of Hawaii
Department of Water Supply
345 Kekuanaoa St, Suite 20
Hilo, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Mr. Keith Okamoto,

Thank you for your review on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. We acknowledge the Department of Water Supply does not have any comments on the proposed project.

Sincerely,

Rachel Okoji, M.S.
President

Mitchell D. Roth
Mayor

Lee E. Lord
Managing Director

Steven Ikaika Rodenhurst, P.E.
Director

Stephen M. Pause, 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

July 14, 2021

Environmental Risk Analysis LLC
Attn: Kaiaulu O Kapiolani Housing Development
905A Makahiki Way
Honolulu, HI 96826
(via email to rachelokoji@enviroriskhawaii.com)

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR KAIAULU O KAPIOLANI HOUSING DEVELOPMENT
SOUTH HILO, ISLAND OF HAWAII, HAWAII
TMK: (3) 2-4-025:048; 053; 080

We have reviewed the request for consultation for an Environmental Assessment dated July 13, 2021, and have the following comments:

1. All development generated runoff shall be disposed of on-site and shall not be directed toward adjacent properties. A drainage study shall be prepared by a licensed civil engineer and the recommended drainage system shall be constructed meeting the approval of the Department of Public Works.

2. All earthwork and grading activity shall conform to Chapter 10, Erosion and Sedimentary Control, of the Hawaii County Code.

3. All driveway connections and construction within Kukuau Street and Kapiolani Street Right-of-Way shall conform to Chapter 22, County Streets, of the Hawaii County Code. Access to Kukuau Street and Kapiolani Street, including the provision of adequate sight distances, shall meet with the approval of the Department of Public Works, Engineering Division.

4. The subject parcel is in an area designated as Flood Zone on the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA). Zone X is an area determined to be outside the 500-year floodplain.

Should there be any questions concerning this matter, please contact Bryce Harada of our Engineering Division at (808) 961-8042.

FOR ALAN K. THOMPSON, Division Chief
Engineering Division

BH

August 3, 2022

County of Hawaii
Department of Pubic Works
Aupuni Center
101 Pauahi St, Suite 7
Hilo, Hawaii 96720-4224

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Mr. Alan Thompson,

Thank you for your review and comment on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. In response to the comments received. ERA provides the following responses:

1. All development generated runoff will be collected and diverted to drywells located on site. Site drainage will be submitted for review and approval.
2. All earthwork and grading will be compliant with Chapter 10, Erosion and Sedimentary Control, of the Hawaii County Code.
3. All driveway connections and construction within Kukuau Street and Kapiolani Street will conform to Chapter 22, County Streets, of the Hawaii County Code.
4. The Environmental Assessment documents the flood zone designation of Zone X.

Sincerely,

Rachel Okoji, M.S.
President

Mitchell D. Roth
Mayor

Lee E. Lord
Managing Director

Kazuo S. K. L. Todd
Fire Chief

Eric H. Moller
Deputy Fire Chief

County of Hawai'i

HAWAI'I FIRE DEPARTMENT

25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

July 20, 2021

Rachel Okoji
Environomental Risk Analysis LLC
905A Makahiki Way
Honolulu, Hawai'i 96826
Attention: Kaiaulu O Kapi'olani Housing Development

Dear Ms Okoji,

SUBJECT: Environmental Assessment for the Kaiaulu O Kapi'olani Housing Development.
TMKs: (3) 2-4-025:048: 053, :080, Hilo Hawai'i

In regards to the above-referenced Environmental Assessment Pre-Assessment Consultation, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION
Note: Hawai'i State Fire Code, National Fire Protection Association 2006 version, with County of Hawaii amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures 400ft^2 (37 m^2) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ 18.2.3.4.1.1 FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ 18.2.3.4.1.2 FDAR shall have an unobstructed vertical clearance of not less then 13ft 6 in.

C~ 18.2.3.4.1.2.1 Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1 The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curb cuts extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other access ways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C~ 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001- 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code.*

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;

2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
   a) 4” for C900 PVC pipe;
   b) 4” for C906 PE pipe;
   c) 3” for ductile Iron;
   d) 3’ for galvanized steel.

3) The Fire Department Connection (FDC) shall:
   a) be made of galvanized steel;
   b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
   c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
   d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
   e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;
   f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
   g) also comply with section 13.1.3 and 18.2.3.4.6.1 of *this code.*

4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus’conducting drafting operations at once, in mind.

5) Inspection and maintenance shall be in accordance to NFPA 25.

6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.

2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.

3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.

4) For one and two family dwellings, agricultural buildings, and storage sheds greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.

5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact the Fire Prevention Bureau at (808) 932-2911.

KAZUO S.K.L. TODD
Fire Chief

KV:ds

August 3, 2022

County of Hawaii
Hawaii Fire Department
25 Aupuni Street
Suite 2501
Hilo, Hawaii 96720

Subject: **Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii**

Dear Fire Chief Todd,

Thank you for your review and comment on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. In response to the comments received. ERA provides the following responses:

1. NFPA 1, Uniform Fire Code, 2006 Edition with County of Hawaii amendments, Chapter 18 Fire Department Access and Water Supply will be complied with in the design of the project. Building plans will be submitted for review, comment, and approval.

Sincerely,

Rachel Okoji, M.S.
President

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

August 19, 2019

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

via email: rachelokoji@enviroriskhawaii.com

Dear Ms. Okoji:

SUBJECT: Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** Project located at South Hilo Island of Hawaii; TMK: (3) 2-4-025:048, 053, & 080

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 and (b) 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. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2019 JUL 31 AM 10:49
DEPT OF LAND & NATURAL RESOURCES
STATE 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

July 23, 2019

MEMORANDUM

FROM

TO

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
___Div. of State Parks
X Commission on Water Resource Management
___Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** Project
LOCATION: South Hilo Island of Hawaii; TMK: (3) 2-4-025:048, 053, & 080
APPLICANT: Environmental Risk Analysis LLC

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **August 14, 2019.**

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. Thank you.

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

Signed: _____

Print Name: Carty S. Chang, Chief Engineer

Date: 7/30/19

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Environmental Assessment for the Proposed Kaiaulu O Kapiolani Housing Development Project
TMK(s): (3) 2-4-025:048, 053, & 080
Location: South Hilo, Island of Hawaii
Applicant: Environmental Risk Analysis LLC

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.hawaiinfip.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: 7/30/19

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

July 23, 2019

MEMORANDUM

RECEIVED
LAND DIVISION
2019 AUG 12 AM 10: 10
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** Project
LOCATION: South Hilo Island of Hawaii; TMK: (3) 2-4-025:048, 053, & 080
APPLICANT: Environmental Risk Analysis LLC

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **August 14, 2019.**

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. Thank you.

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

Signed: _____

Print Name: GORDON C. HEIT

Date: 8/2/19

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

August 6, 2021

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

via email: rachelokoji@enviroriskhawaii.com

Dear Ms. Okoji:

SUBJECT: Draft Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** located at Hilo, Island of Hawaii; TMK: (3) 2-4-025: 048, 053, and 080 on behalf of A0705 Hilo, 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 and (b) 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. Thank you.

Sincerely,

Russell Tsuji

Russell Y. Tsuji
Land Administrator

Enclosures
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

August 10, 2021

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

via email: rachelokoji@enviroriskhawaii.com

Dear Ms. Okoji:

SUBJECT: Draft Environmental Assessment for the Proposed **Kaiaulu O Kapiolani Housing Development** located at Hilo, Island of Hawaii; TMK: (3) 2-4-025: 048, 053, and 080 on behalf of A0705 Hilo, L.P.

Thank you for the opportunity to review and comment on the subject matter. In addition to our previous comments dated August 6, 2021, enclosed are comments from the Division of Forestry & Wildlife 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. Thank you.

Sincerely,

Russell Tsuji

Russell Y. Tsuji
Land Administrator

Enclosures
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

July 16, 2021

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division (DLNR.ENGR@hawaii.gov)
X Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks
X Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands
X Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Draft Environmental Assessment for the Proposed **Kalaulu O Kapiolani Housing Development**
LOCATION: Hilo, Island of Hawaii; TMK: (3) 2-4-025: 048, 053, and 080
APPLICANT: Environmental Risk Analysis on behalf of A0705 Hilo, L.P.

Transmitted for your review and comment is information on the above-referenced subject matter. The DEA was published on July 8, 2021 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, at the following link:

http://oeqc2.doh.hawaii.gov/The_Environmental_Notice/2021-07-08-TEN.pdf

Please submit any comments by **August 6, 2021.** If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura via email at darlene.k.nakamura@hawaii.gov. Thank you.

( ) We have no objections.
( ) We have no comments.
( ) We have no additional comments.
(☑) Comments are attached.

Signed: [signature]
Print Name: DAVID G. SMITH, Administrator
Division: Division of Forestry and Wildlife
Date: Aug 9, 2021

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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

August 9, 2021

MEMORANDUM

Log no. 3257

TO: RUSSELL Y. TSUJI, Administrator
Land Division

FROM: DAVID G. SMITH, Administrator
Division of Forestry and Wildlife

SUBJECT: Division of Forestry and Wildlife Comments for the Draft Environmental Assessment (DEA) for the Proposed Kaiaulu O Kapi'olani Housing Development

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the DEA for the Kaiaulu O Kapi'olani housing development in Hilo on the Island of Hawai'i, TMKs: (3) 2-4-25:048, 053 and 080. The proposed project consists of constructing a total of 64 affordable housing units, a community center for resident use and at least 80 parking stalls.

The State listed Hawaiian Hawk or 'Io (*Buteo solitarius*) is known to occur in the project vicinity. DOFAW recommends surveying the area to ensure no Hawaiian Hawk nests are present if trees are to be cut. 'Io nests might be present during the breeding season from March to September.

The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in nearby trees. If any site clearing is required this should be timed to avoid disturbance during the bat birthing and pup rearing season (June 1 through September 15). If this cannot be avoided, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed without consulting DOFAW.

We note that artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. For illustrations and guidance related to seabird-friendly light styles that also protect the dark, starry skies of Hawai'i please visit: https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.

DOFAW recommends minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive fungal pathogens (e.g. Rapid 'Ōhi'a Death),

vertebrate and invertebrate pests (e.g. Little Fire Ants), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Big Island Invasive Species Committee at (808) 933-3340 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of Rapid 'Ōhi'a Death and other harmful fungal pathogens.

To prevent the spread of Rapid 'Ōhi'a Death (ROD), if 'ōhi'a trees are present and will be removed, trimmed, or potentially injured DOFAW requests that the information and guidance at the following website be reviewed and followed: https://cms.ctahr.hawaii.edu/rod.

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).

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 Paul Radley, Protected Species Habitat Conservation Planning Associate at (808) 587-0010 or paul.m.radley@hawaii.gov.

Sincerely,

DAVID G. SMITH
Administrator

August 3, 2022

State of Hawaii
Department of Land and Natural Resources
Land Division
PO Box 621
Honolulu, Hawaii 96809

Subject: **Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii**

Dear Land Administrator Tsuji,

Thank you for your review and comment on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. In response to the comments received. ERA provides the following responses:

Engineering Division

- Flood Hazard Zone has been determined as Flood Zone X. The project will be in compliance with the National Flood Insurance Program.

Land Division-Hawaii District

- Response of No Comments is noted.

Division of Forestry & Wildlife

- Mitigative measures for the protection of the Hawaiian Hawk, Hawaiian Hoary Bat, and seabirds have been incorporated into the document. Additionally, measures to minimize the spread of fungal pathogens, vertebrate and invertebrate pests, or invasive plant parts have been included into the document. The use of native plant species for landscaping has been noted.

Sincerely,

Rachel Okoji, M.S.
President

SHERRILL A. ERICKSON
Attorney at Law
P.O. Box 307
Hakalau, Hawaii 96720
beckleylanelaw@gmail.com **(808) 960-0921 (cell)**

August 5, 2021

STATE OF HAWAII **VIA EMAIL**
Hawaii Housing Finance and Development Corporation
Attn: Janice Takahashi
677 Queen Street, Ste. 300
Honolulu, Hawaii 96813
janice.n.takahshi@hawaii.gov

A0705 Hilo, L.P.
Attn: Grant Bigley
2000 E. Fourth Street, Ste. 220
25 Aupuni Street, Suite 2501
Santa Ana, California 92705
gbigley@uhclic.net

Environmental Risk Analysis LLC
Attn: Rachel Okoji
905A Makahiki Way
Honolulu, Hawaii 96821
rachelokoji@enviororiskhawaii.com

Re: <u>Comments to Kaiaulu O Kapiolani Housing Development-Draft EA (AFNSI)</u>

Ladies and Gentlemen:

This office represents Mr. Peter Vana Trustee ("Mr. Vana"). Mr. Vana owns property designated TMK No. (3) 2-4-25: 132 that borders the land that will comprise the contemplated 64 Unit Kaiaulu O Kapiolani Multifamily Housing Development bearing TMK Nos. (3) 2-4-25:48, 53, 80 (the "Project"). Mr. Vana's adjacent land is improved with three tenant occupied residential buildings.

This letter constitutes Mr. Vana' comments as Trustee, individually and as principal of Kavana Homes, Inc., to the above referenced Draft EA.

1. **<u>The Project May Have Significant Flooding Problems: Concerns Re Parking Stalls in Drainage Ditch</u>**

Figure 8: Site Location Map from Nelson et al. shows a Drainage Ditch right down the center of the Project. Similarly, a previous Site Plan by the same Owner for the subject land, "Boschetti Apartment Site Plan", depicts a Drainage Easement, bisecting the

site. The Boschetti Apartment Site Plan proposed bridges spanning both ends of the Drainage Easement. The lands that comprise the Project have been described as "Drainageway Lands"[1] and have been said to be the subject of "periodic flooding".[2]The same 2006 Report shows pictures of vegetation near the "drainage channel in the subject parcel" as well as a trio of massive three foot culverts at the "center of the Project Area" looking Southwest[3].

In light of the above, it is reasonable to conclude that the Project is sited in low lying "drainage" or swamp lands that include a Drainage Easement, and that the site receives substantial volumes of runoff water and indeed "floods periodically".

With respect to East Hawaii's propensity to be hammered by torrential rain, the Draft EA states at 4.1.3 that the Hawaiian Islands are regularly affected by Hurricanes, including Hiki (1950), Nina (1957), Dot (1959), Iwa (1982), Iniki (1992) and Iselle (2014). The Draft EA further acknowledges that "global climate change" could mean that Hawaii will have more Hurricanes in the future.

Conspicuously absent from the Draft EA is any mention of the affects of record shattering Hurricane Lane of 2018, where upslope Hilo rain gauges recorded a deluge of 52 inches of rain in a couple of days. Hurricane Lane was recognized by FEMA as a "major disaster", with damage to County infrastructure at about 20 million dollars as well as flood damage to at least 150 homes and 30 businesses[4] Hurricane Lane caused "the wettest four day period ever observed at Hilo with records going back to 1949".[5] Who can forget seeing Hilo streets turn into rivers and the entire Hilo Bayfront area become a vast lake? Events like Hurricane Lane will become more common, as the Project's Draft EA points out. Hilo is the rainiest city in the United States with well over ten feet of rain annually. It is evitable-that the low lying Drainageway Lands comprising the Project will continue to experience periodic flooding as mentioned in the 2006 Report.

Flooding and run off are an important environmental concern. Landslides, debris, and erosion can undermine or wash out paved roads, as well as structural members. Flooding can result in personal injury and damages in addition to environmental damage.

In light of the above, Mr. Vana disagrees with 5.1.3 of the Draft EA that states that the "risk of flooding" is minimal at the Project and that there should be no significant Environmental concern as to this issue. Mr. Vana instead wonders whether the parking stalls, ADA stalls, and the proposed slab on grade structures themselves sited directly in the Drainage Easement at the center of the Project might end up underwater, especially

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[1] Nelson, J., M. Clark and R. Rechtman. 2006Archaeological Inventory . . . . for Drainage Way Lands Project (TMKS (3) 3-2-4-25:48, . . . 53, 80 por . . . . . ("2006 Report").
[2] Id. at 4.
[3] Figure 15 at 25.
[4] Claimsjournal.com
[5] National Weather Service

after grading within the drainage easement . The above described significant Environmental issues should be addressed fully in the Draft EA.[6]

2. <u>The Number of Parking Stalls are Insufficient for the Number of People Who will be Living at the Project: Lack of Adequate Parking will Significantly Affect the Surrounding Community</u>

The Draft EA at 2.2 states that the proposed Project would include 64 Units, consisting of 32 two-bedroom units, and 24 three bedroom units, and 8 four bedroom Units, and a Community Center. The Draft EA calls for and at least 80 parking stalls.

The County mandates just 1.25 parking stalls per unit (64 x 1.25 = 80). While the composition of the prospective renters, families, partners, roommates and friends who may occupy the proposed multi bedroom units at the Project is unknown, it is likely that each of the 64 two, three and four bedroom units will on average need at least two parking stalls. Residents at the Project will also have guests with vehicles. Thus the calculation should be 64 x 2 and the Project should require no fewer than 128 parking stalls.

It is important that sufficient parking be provided at the Project, because failure to do so will inevitably result in tenants and guests of the Project parking around the neighborhood wherever they can find parking, as close to the Project as they can find it. Many more cars circling the area looking for parking, equals not merely an increase in inconvenience, but an increase in traffic congestion, green house gas emissions, frustration, and possibly an increase in accidents, trespass, and unlawful parking.

3. <u>The Fact That the Project is so Low that the Sewage Wastewater must be Pumped Uphill Creates a Significant Environmental Impact with Significant Ramifications if the Electricity Goes Out</u>

As mentioned above, the Project is sited in a low lying area of Drainageway Lands. It is axiomatic that water, including waste water and sewage do not flow uphill. Most waste water systems do not require electricity to pump wastewater uphill; rather such waste water systems flow down via gravity. Not so with the contemplated Project located in low lying Drainageway Lands. The Project is low relative to the sewer line that is buried on Kukuau Street which will necessitate additional infrastructure to provide electricity to pump the Project's sewage from hundreds of people (12,544

[6] Chapter 343 finds and requires: "that the quality of humanity's environment is critical to humanity's well being, that humanity's activities have broad and profound effects upon the interrelations of all components of the environment, and that an environmental review process will integrate the review of environmental concerns with existing planning processes of the State and counties and alert decision makes to significant environmental effects which may result from the implementation of certain actions. The legislature further finds that the process of reviewing environmental effects is desirable because environmental consciousness is enhanced, cooperation and coordination are encouraged, and public participation during the review process benefits all parties involved and society as a whole." HRS 343-1.

gallons per day per 5.1.6 of the Draft EA) uphill[7] This is a costly and environmentally burdensome plan.

The constant pumping of wastewater uphill constitutes a significant environmental impact, especially in the context of global climate change. In the event of a blackout, during a Hurricane or high wind event for an example, or if for any reason the electricity goes out, the pump(s) will not operate and the sewage of hundreds of people (12, 544 gallons each day) will back up. If the power is out for hours or days, and especially if the low lying Project site becomes flooded during torrential rains, the wastewater tank could overflow.

Even if the Project developers install a noisy emission producing "back up" diesel generator to pump the sewage uphill in the event of a power outage, the burning of diesel fuel to flush a toilet can reasonably be called a step backwards in terms of environmental protection. The Project does not appear to be "green building Project" and it does not purport to be, even with "energy efficient appliances". Whether or not exacerbation of global climate change will weigh in the approving agency's careful consideration of the environmental impact of the Project, the Project's plan to pump sewage uphill to the tune of 12, 544 gallons per day utilizing electric pumps should be reviewed against concomitant high utility bills, green house gas emissions, and possible environmentally damaging sewage overflows.[8]

4. <u>Traffic Pattern Circulation Plan Significantly Burdens Kukuau Residents</u>

The Project TIAR discussed at 4.2.3 of the Draft EA does not analyze the element of the Project that sets up "right turn in and right turn out" only movements at Kapiolani Street. This traffic circulation plan dumps the extra burden of traffic onto Kukuau Street. Kukuau Street serves a residential "bedroom" area of homes. Kapiolani Street, in front of the Project serves non residential and governmental buildings, including the police station.

All the extra traffic on Kukuau, and particularly the heavy equipment, trucks, construction vehicles and workers that follow the proposed circulation pattern during the two plus years of construction, will greatly burden the residential life and homes on Kukuau Street. Kapiolani Street fronting the Project across from the police station with no residences should bear this burden, not Kukuau Street.

The Project developers understandably likely desired to economize where they could, but the more just and responsible plan would be to install a center turn lane in front of the police station on Kapiolani Street so that Kapiolani Street with the governmental buildings-and parking lots -not the Kukuau home owners-bear the bulk of the burden of

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[7] . . . [T]he developer would have to pump sewer up to an elevation . . . into the Kukuau Street collector. Draft EA at 5.2.7.

[8] The Supreme Court of Hawaii established precedent in May of 2021of re global climate change requiring the PUC to expressly consider green house gas emissions. In the Matter of the Application of Hawaii Electric Light Company, Inc. etc. (Hawaii Supreme Court 5/24/2021). See also, HAR Sec. 11-200.1.13 (b)(13) setting forth "greenhouse gases" as a "Significance Criteria" in considering environmental effects.

the extra traffic that will be generated by the Project, including the parade of construction vehicles and equipment for however many years construction takes place. Why should homeowners and residents along Kukuau have this burden dumped on them because the Project developer doesn't want to pay for traffic control? The Project developer should install a center turn lane. After all, there is a ten foot wide future road widening strip along the entire Kapiolani Street fronting the Project. This road widening with a center turn land should be done now. This will allow left turns into and out of the Project on Kapiolani Street across from the Police Department. As it stands, with no left turns into or out of the Project on Kapiolani, all the traffic will be routed through the back of the Project onto Kukuau Street and then down to the Kukuau/Kapiolani Street intersection. This Kukuau/Kapiolani intersection already has such poor visibility that traffic mirrors have been installed. If the Project traffic is all routed to Kukuau then this Kukuau/Kapiolani Street intersection will urgently need a traffic light. The Draft EA needs to take into account this important health and safety issue given the statutory mandate of HRS 343 and HAR Sec. 11-200.1.3 to fully consider the "sum of the effects" of this Project cumulatively on the "quality of the environment" and the existing community, whose quality of life will not be enhanced by the aforementioned traffic impacts resulting from the Project, as planned.

5. <u>The Nearest Fire Hydrant May be Insufficient To Suppress Fires at the Project</u>

Keith Okamoto, P.E. Department of Water Supply states that the existing 8 inch waterline fronting Kapiolani and the existing 6-inch waterline on Kukuau Street are adequate to provide 1,500 gallons GPM.[9] for fire protection with respect to the Project.

It is Mr. Vana's understanding however that the current fire suppression requirement is 2,000 GPM for multifamily zones. That is, Hydrants are required by law to have water flow and pressure of 2,000 gallons per minute. As an adjacent property owner with tenant occupied buildings, Mr.Vana requests that the Draft EA address this issue not only as to land and buildings bordering the Project, but as to the adverse impact on the environment when there is inadequate water flow and pressure at the Hydrant(s) and the consequences could be fires burning out of control.

It is Mr. Vana's understanding that Fire Department and the Department of Water Supply maintain a close working relationship, and that staff operates hydrants quarterly by opening and flowing the water. Mr. Vana requests that a flow test be done to confirm the specific Hydrant serving the Project (per Mr. Okamoto's letter) provides 2,000 GPM and that the results of such a flow test be expressly stated in the Draft EA at 5.1.6. as being adequate for fire suppression. If such a Hydrant flow test does not result in the required 2,000 GPM capacity, the Draft EA should discuss alternatives/or mitigative measures such as sprinklers in each Unit. It was suggested to Mr. Vana at DWS in the past that joining the six inch Kukuau line with the 8 line where it terminates at the police station on Kapiolani Street (approx. 200 ft) would increase water flow to the hydrants.

[9] Letter from DWS to Env. Risk etc. 8/14/2019.

Green house gasses from preventable fires should be a consideration in the Draft EA. Fires are likely preventable and properly suppressed with adequate 2,000 GMP Hydrants that should be confirmed by a current flow test.

6. <u>Construction Barrier Blocking Solar Panels and Air Circulation, Trash Location Shown on Site Plan</u>

Mr. Vana's final comments may seem de minimus, but a closer look proves otherwise. Mr. Vana is concerned that the high construction barriers that will be erected for the two plus years of construction, between his tenant occupied buildings and the Project will shade out the solar panels he has installed on his buildings and block air circulation. The solar panels Mr. Vana installed are important because they provide energy from the sun to his tenants for water heating. If the Project construction barriers shade out the solar panels, his tenants will have no choice but to increase electricity use from environmentally damaging sources such as largely coal and oil powered HELCO. Accordingly, Mr. Vana requests that the Project Draft EA be amended to state that no construction barriers will be installed adjacent to Mr. Vana's property or that such barriers will be set back sufficiently so that air circulation, and sunlight on Mr. Vana's solar panels will not be affected.

Finally Mr. Vana requests that the Project not place its Trash receptacle area directly next to his tenant occupied buildings as shown on the Project site Plan. Such trash receptacles placed literally up to the very property line adjacent to Mr. Vana's tenant windows will result in nuisance, racket, from early morning trash pickup trucks, unsightliness and may unnecessarily increase energy consumption as Mr. Vana's tenants deal with increased pests such as ants, flies and rodents, as well as noxious odors.

Thank you for the opportunity to submit comments to the Kaiaulu O Kapiolani Housing Development Draft EA.

Very truly yours,

Sherrill A. Erickson

Sherrill A. Erickson
Attorney at Law

cc *email*
County of Hawaii Planning Director, Zendo Kern
Sue L.K. Lee Loy
Ashley Kierkiewicz
Mayor Mitch Roth (regular mail)

August 3, 2022

Mr. Peter Vana, Trustee
c/o Mr. Sherrill A Erickson
Attorney at Law
PO Box 307
Hakalau, Hawaii 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Mr. Sherrill Erickson,

Thank you for your review and comment on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. In response to the comments received. ERA provides the following responses:

1. The Project May Have Significant Flooding Problems: Concerns Re Parking Stalls in Drainage Ditch

   Drainage on site is being diverted to dry wells installed on the property. The drainage and dry wells are intended to prevent significant flooding and migration off property of site waters. Onsite and Offsite drainage were studied. Reports were provided to the Engineering Division for review and approval. The studies found that proposed culvert conditions would decrease adverse impacts or additional ponding. The installation of drywells would decrease runoff from the site compared to existing conditions.

2. The Number of Parking Stalls are Insufficient for the Number of People Who will be Living at the Project: Lack of Adequate Parking will Significantly Affect the Surrounding Community

   The parking requirement from Rezoning Ordinance 21-17 is 1.5 stalls per unit (96 stalls). The project has planned 117 stalls for the property. There will be 21 more stalls than the referenced rezoning ordinance (1.82 per unit). In addition, Building code and Fair Housing Act requires 76 stalls be constructed. The proposed number of stalls seeks to address parking availability in the area.

3. The Fact That the Project is so Low that the Sewage Wastewater must be Pumped Uphill Creates a Significant Environmental Impact with Significant Ramifications if the Electricity Goes Out

   The wastewater system designed for the project will be reviewed by the Wastewater Department for compliance and contingencies will be incorporated into the planning.

4. Traffic Pattern Circulation Plan Significantly Burdens Kukuau Residents

   Traffic from the development will traverse via Kukuau Street and Kapiolani Street. A traffic study done in 2019 determined traffic in the area mainly serviced local traffic and all intersections (Kukuau St and Kupukupu St, Kapiolani St and Kukuau St, and Kapiolani St and Hualalai St) were observed to operate adequately.

5. The Nearest Fire Hydrant May be Insufficient to Suppress Fires at the Project

   NFPA 1, Uniform Fire Code, 2006 Edition with County of Hawaii amendments, Chapter 18 Fire Department Access and Water Supply will be complied with in the design of the project. Building plans will be submitted for review, comment, and approval

6. Construction Barrier Blocking Solar Panels and Air Circulation, Trash Location Shown on Site Plan

   The development will make every effort to be a "good neighbor" while also keeping with environmental regulations.

Sincerely,

Rachel Okoji, M.S.
President

From: **David Panoff** panoff@prodigy.net
Subject: Input regarding proposed housing project Kukuau and Kapiolani
Date: July 13, 2021 at 12:46 PM
To: Rachel Okoji rachelokoji@enviroriskhawaii.com, aaron.chung@hawaiicounty.gov
Cc: julie-ann.cachola@hawaii.gov, janice.n.takahashi@hawaii.gov, gbigley@uhcllc.net, Nancy Cabral nancyc@daylum.com, Jesse Crawford jesse@lava.net, Nancy Crawford nec0311@hotmail.com, Mitch Roth mitch.roth@hawaiicounty.gov, Lord Lee lee.lord@hawaiicounty.gov

DP

Aloha Rachel, Julie, and Grant:

Thank you for the opportunity to comment on the proposed housing development to be located at the intersection of Kukuau and Kapiolani Streets.

It is unfortunate that I only became aware of this proposal so late in this process, and only through mention in a newspaper article instead of more appropriate, community targeted approach. There are two small signs posted at the perimeter of the property in question; however, they are impossible to read unless interested parties park and exit their vehicles, and doing that would require availability of parking, of which there is none, a subject to be discussed later in this communication.

Back in 2010, when the County Council first deliberated approval of Bill 184, changing the zoning of the property in question, it was done in anticipation of a Senior Housing project that later, as many of us suspected, turned out to be a canard, just a device to get the zoning changed. But even as both the Planning Commission and County Council mulled this fictional project, several flaws in the design were corrected, specifically relating to parking density ratio and building height, both of which reduced the proposed occupancy of the project and its burden on the infrastructure of the community.

None of those well thought out revisions appear to be present in the current proposal. That failure to look to agreements of the past is not surprising as this project is pushed to completion with minimal oversight.

I wish to state for the record that I am not categorically opposed to low income housing at this location; I'm quite aware of this community's need for this relief. Rather, it is the size of the project that makes no sense if one looks at the community infrastructure at that location and the devasting impact that this huge (for this neighborhood) increase in cars, foot traffic, noise, and social amenities (e.g. playgrounds, etc.) will impose.

The areas in need of further study are:

1. Pedestrian safety. Despite the misleading statements in the EIS regarding "berms" in the roadway on Kukuau providing safety to pedestrians, just the opposite is the case. I have included photos of the "walkways" leading from the Kukuau entrance to the property to the only path to town or other community destinations (e.g. playgrounds.) The fact that there are no photos of the pedestrian egress in the EIS makes it IMPOSSIBLE for decision makers to correctly evaluate the extreme danger that pedestrians encounter as they walk to and from their homes. There is a 19 foot right of way with a pavement width of 15 to 17 feet. That

homes. There is a 19 foot right of way with a pavement width of 15 to 17 feet. That leaves only 24 inches for safe pedestrian travel (in some places much less BECAUSE of the BERM,) including children walking to school, aligned with a roadway that accumulates significant amounts of water, occasionally floods, and upon which cars are often forced to swerve. The drainage on the roadway/walkway is so faulty now that it is virtually impossible for pedestrians to avoid being splashed by passing cars on rainy days.

Cars must slow down if pedestrians happen to be on both sides of the roadway. There is NO SIDEWALK for almost a quarter-mile. The pathway is so narrow that pedestrians must walk SINGLE FILE if they are not to be mauled by passing vehicles. PLEASE look at the photos and ignore the misleading text in the EIS.

2. Traffic. The intersection of Kapiolani and Kukuau was already a bottleneck even BEFORE the Kapiolani segment between Mohouli and Kawili was completed. The EIS doesn't mention this. Each morning the downtown bound traffic is backed up from Ponahawai. A left turn from Kukuau is an exercise in patience and bravery, despite the concave mirror that was mounted that few can use because it is so distant and small in size. Rendering the Kapiolani exit "right turn only" makes matters much worse, since it puts most heavy-duty traffic on Kukuau, interfering with the safe flow of pedestrian foot traffic (as mentioned above) and impeding the flow on Kukuau in the other direction as the narrow turning area makes traffic on one side of the street stop to allow a vehicle to swing out onto the roadway. This is particularly true of delivery trucks that will only want to use the Kukuau entrance and exit because of the Kapiolani restriction.

Please, once again, look at the photos of Kukuau and draw the appropriate conclusion.

3. Parking. There is already NO STREET PARKING on either Kukuau or Kapiolani. I have attached a photo of cars parked all the way up Kukuau but the road narrows past Kumukoa and there is no street parking past that point. I know there's a formula for allocation parking spaces based on number of units, but 80 doesn't seem to meet those criteria considering were talking about ALL the units being 2, 3 or FOUR Bedroom. 80 parking spots? By my count, according to the proposal, there will be 138 bedrooms. Three and four bedroom units will no doubt include many multi-adult extended families. In Hilo, with no viable public transportation and constant rain, is it reasonable to assume that there will only be 80 resident vehicles? And what about visitors? Where are they going to park? This is a colossal error in planning. There may be a nominal ratio of 1.75 to 1 for average units, but even that would yield 112 parking spots. And that's truly not nearly enough with 3 and 4 bedroom units in the mix. Really, somebody needs to wake up on this.

I believe that before any final decision is made regarding this, a site visit needs to

I believe that before any final decision is made regarding this, a site visit needs to be made and the developer needs to rethink the parking. As far as pedestrian safety is concerned, I think the lower Kukuau walkways need to be totally revamped and drainage issues resolved. As far as traffic is concerned, there needs to be a light at Kukuau and Kapiolani and a light at Kapiolani and Hualalai if this has any chance of working.

Please feel free to contact me at panoff@prodigy.net if you have any comments or need more input.

Photos attached below:

STOP

Low Income
Housin...1).docx

August 3, 2022

David Panoff
panoff@prodigy.net

Subject: **Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii**

Dear Mr. Panoff,

Thank you for your review on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. Please see below our responses to your concerns.

1. Pedestrian Safety

   Please note that a traffic study was performed for the proposed project. The study noted:

   3.2.2 Pedestrian Accessibility
   Sidewalks are provided along the following studied roadways in the vicinity of the Project:
   • Kapiolani Street – Sidewalks are provided along both sides of the roadway.
   • Kukuau Street – A sidewalk is provided along the eastbound direction of the roadway to the west of Kapiolani Street.
   • Hualalai Street – Sidewalks are provided along both sides of the roadway to the east of Kapiolani Street.

2. Traffic

   Please note that a traffic study was performed for the proposed project. The study will be appended to the final document and is attached for your consideration.

3. Parking

   The parking requirement from Rezoning Ordinance 21-17 is 1.5 stalls per unit (96 stalls). The project has planned 117 stalls for the property. There will be 21 more stalls than the referenced rezoning ordinance (1.82 per unit).

Sincerely,

Rachel Okoji, M.S.
President

Mitchell D. Roth
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

July 27, 2021

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

Dear Ms. Okoji:

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE KAIAULU O KAPIOLANI HOUSING DEVELOPMENT; TMKs: (3) 2-4-025:048, :053, :080 HILO, HI

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Sandor Finkey of the Hilo Patrol Division at 961-2214 or via email at sandor.finkey@hawaiicounty.gov.

Sincerely,

JAMES B. O'CONNOR
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

SF:lli/HQ0793

May 15, 2022

County of Hawaii
Police Department
349 Kapiolani St
Hilo, Hawaii 96720-3998

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Dear Assistant Police Chief O'Connor,

Thank you for your review on the Draft Environmental Assessment for the Kaiaulu O Kapiolani Housing Development. We acknowledge the Police Department does not anticipate any significant impact from the proposed project to traffic and/or public safety concerns.

Sincerely,

Rachel Okoji, M.S.
President

Patricia Tummons
421 Kaanini Street
Hilo HI 96720

July 12, 2021

Janice Takahashi
HHFDC
677 Queen Street, Suite 300
Honolulu HI 96813

Rachel Okoji
Environmental Risk Analysis
905 Makahiki Way
Honolulu HI 96821

Grant Bigley
A0705 Hilo L.P.
2000 E. Fourth St., Suite 220
Santa Ana CA 92705

Subject: Draft Environmental Assessment,
Kaiaulu O Kapiolani Housing Development

Aloha!

I wish to provide comments on this draft EA. For the reasons I outline below, I believe that this document does not meet the requirements of the Hawaii Environmental Policy Act (Chapter 343, Hawaii Revised Statutes) nor those of the federal National Environmental Policy Act. It should accordingly be revised and resubmitted as a draft.

No Biological Assessment
The preparrers of this DEA did not conduct a review of flora and fauna at the site. Instead, as stated on page 32 (page 48 in the pdf), they relied instead on a survey conducted three years ago, for a completely different project, by a completely different consultant, at a completely different site, 2.5 miles distant, and at a much higher elevation. This study is then used as the basis for an assumption "that the project areas would have similar plant and animal species." There is utterly no basis for this assumption. There is not even a description of the site at which the 2018 survey was done to justify that assumption.

Surface Water
According to the DEA, there are no streams or surface water features near the site. However, immediately to the west of the site, there is a drainage ditch that collects water from the Pacific Heights townhouses and other sites upslope. Acquaintances of mine who live along this ditch

report that it can flood in heavy rains, overtopping stone walls that line it on the mauka side. Flooding in this ditch would potentially impact the Kukuau entrance to the project and needs to be addressed. This ditch is identified as a drainage easement on tax maps (see Tax Map 2-4-25). That same map shows an easement across TMK parcels 2-4-25:80 and 2-4-25:48. The total area of the easement across both parcels comes to more than 21,000 square feet. The nature of this easement and any restrictions that this may place on the development must be addressed.

Parking

Hawaii County ordinance 21-17, which enabled the development of this project, specifies that, "Should the property be developed as an affordable rental housing project as represented by the applicant, this additional parking requirement shall be 1.5 parking spaces per multiple family residential unit developed." However, the DEA specifies that just 1.25 parking stalls will be provided. The actual number of stalls required by ordinance is 96, based on a 64-unit development.

Kupukupu Street

The DEA refers to traffic studies done at the intersection of Kupukupu Street and Kukuau Street. There is no such intersection. Indeed, Kupukupu Street does not seem to intersect with any street that would lead into the property, running just one block in the public housing project that is south of Hualalai Street. If a different, unnamed street is intended, it should be identified on a map.

Historic Sites

Appended to the DEA are archaeological reports. There is also a letter forwarding one of them to the State Historic Preservation Division. Any response from SHPD should be included; if there has been no response, that, too, should be stated.

Traffic

The Traffic Impact Analysis Report conducted by Austin Tsutsumi should be appended to the DEA. As one who lives in the neighborhood, I find it hard to believe that "existing traffic volumes in the study area were generally light." In rush-hour traffic (generally, anytime within an hour of schools opening to about 8:30 am, and from the time schools close to about 5:30 pm) it is difficult to enter onto Kapiolani Street from Kukuau Street. In addition, traffic has been diverted onto Kapiolani Street in the past when Komohana Street is closed because of accidents or bridges washing out. Also, the consultants are said to have studied the intersection of Kukuau and Kupukupu. Without a map, there is no way of knowing where exactly this is. I am not the only one to wish the inclusion of the TIAR: the state Department of Transportation (letter from Jade Butay, DOT director, to ERA, 8/14/19) asks that the TIAR be included in the DEA.

Hawaii County Ordinance 21-17 imposes restrictions on traffic into and out of the proposed development: "Access at Kapiolani Street shall be limited to right-turn in and right-turn out movements only." This will inevitably mean that the preferred entry will be the one running off

Kukuau Street, significantly increasing traffic on this substandard, narrow roadway. Was this considered in the TIAR?

Other Transportation Issues
On page 51, there is this statement: "The roads surrounding the site are considered 'complete streets,' which encourage equitable, accessible, and safe transportation for all modes. … Kukuau Street only has a sidewalk provided along the eastbound direction of the roadway. There is a bicycle lane located on Kukuau Street, and a signed shared roadway on Kapiolani Street." This is fiction. There is nothing anyone would recognize as a sidewalk on Kukuau below its intersection with Kumukoa. There is no bicycle lane on Kukuau Street. There is no "signed shared roadway" on Kapiolani Street near the project site.

Confusing Number of Units
On page 53 there is a reference to 75 units in the development. Elsewhere the number of units is said to be 64.

Speculation re Sewage
On this same page, there is a discussion of wastewater services that suggests there has been no communication with the Hawaii County Department of Environmental Management. The DEA states, "There is no sewer main on the site, but there is a 10-inch sewer main located in Kukuau Street that may be an option for wastewater and sewer, as long as it can meet the demand of an extra 14,280 gallons per day." This is quite remarkable. If it should turn out that the Kukuau sewer line is not able to handle that substantial additional quantity of wastewater, what do the developers propose instead?

Ground-Truthing
The description of schools in the vicinity suggests that the source may have been an outdated Google map. The Pacific Academy of Music (not really a school, just a private music teacher) has relocated from Kukuau Street to Nanawale Estates, about a 40-minute drive away.

Solid Waste
This discussion is entirely inadequate, and wrong to boot. On page 60, there is the statement that the "South Hilo Sanitary landfill will have adequate capacity to accommodate waste generated from the proposed project. … There are three facilities nearby that manage solid waste." The South Hilo Sanitary Landfill is no longer accepting waste. All municipal waste is now transferred to the west side of the island. Also, the "three facilities nearby that manage solid waste" are not identified. As a resident in the area, I am curious to have these sites pointed out to me.

The same error with respect to the Hilo landfill appears again in the appendix which addresses federal affordable housing issues. "Residential wastes are disposed of at South Hilo Sanitary Landfill, operated by Waste Management, located to the west of the site in Hilo." This is mistaken on several points. Not only are wastes not being accepted at the Hilo landfill, this

landfill is not operated by Waste Management, and, finally, it is not west of the site, but rather to the east.

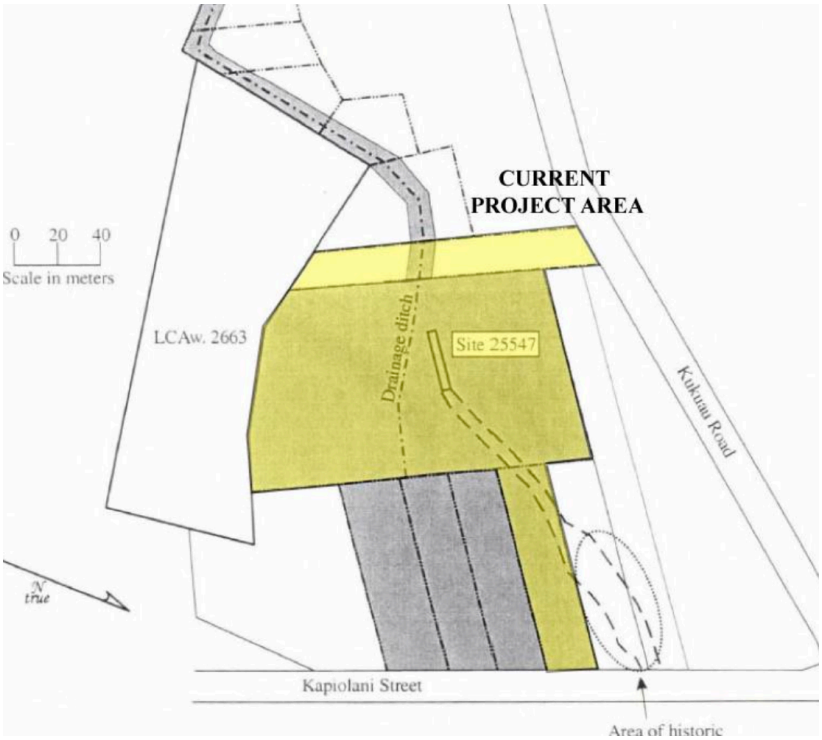
Finally, it should be stated whether the landowner or agent of the Kaiaulu project will provide trash service for residents. There is no public trash service in Hilo. Residents must either contract with a private service or haul their own rubbish to a transfer station.

Health Care

The DEA would have the reader believe that the only health care facilities near the project site are run by Kaiser Permanente. There is no mention of the closer Hilo Medical Center or of the even closer campus of medical services at the corner of Ponahawai and Komohana. This same strange omission is repeated in the discussion of Social Services, where, once more, Kaiser Permanente is the sole care provider mentioned.

Drainage

An issue that is not substantially addressed by the DEA is that of drainage. As anyone walking past the Kapiolani frontage can see, the project site lies significantly below the elevation of the street. In times of heavy rain, this area effectively becomes a swamp. I mentioned earlier the drainage easement identified on the 2-4-25 tax plat. The map that is included in the cultural assessment more clearly identifies this drainage easement as continuing across the property that is the site of the subject development. (Map appears on page 543 of the pdf file.) In addition, on page 13 (608 in pdf) of the letter from ASM to SHPD, a photo is identified as a view of vegetation near the "drainage channel."



While the site may not appear on the FWS wetland index, the soils are appropriately identified as “muck” (pdf 400). Here is a screen shot:

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: Keaukaha

Soil Surface Texture: muck

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	muck	A-8	Not reported	Max: 0.42 Min: 0.02	Max: Min:
2	7 inches	18 inches	bedrock	A-8	Not reported	Max: 0.42 Min: 0.02	Max: Min:

The NRCS defines “hydric” soil as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” In other words, “muck” (the first seven inches of the soil layer in this case).

The DEA states that an “onsite drainage system will be constructed to accommodate runoff generated by a 50-year storm for one hour.” I question whether this is sufficient. Hilo has recently experienced several 50-year storms, or greater, in recent years. As recently as March 2021, Hilo experienced a rainfall exceeding 3 inches in one hour. The drainage system should, at the very least, accommodate runoff from a 100-year rainfall event. Furthermore, given that more than 20,000 square feet is given over to a drainage easement, any discussion of drainage has to explain how this will be displaced and mitigated by the proposed construction.

Padding

As a last point, I would register my complaint about the evident padding in this document, which is over 600 pages long. Much of the material included in the appendix could have easily been omitted (for example, the list of residents on Kukuau Street dating back to 1977 from published city directories: why not just include pages from the phone books of that time?) The air quality report (50 pages) is for the entire state, not just the project area. The reports on contaminants runs from pdf page 195 to 454. The Hawaii County drinking water pamphlet and

the complete description of the state CZM program are included as well. All this extraneous material, I suggest, is intended to overwhelm the reader and discourage careful consideration of the actual relevant content – or lack thereof, I would say.

In conclusion, I believe that at the very least, a revised DEA should be submitted, addressing the serious drainage concerns, solid waste management, and traffic issues. I would also ask that the appendices be edited and the several hundred pages of material that does not directly address the issue at hand be eliminated.

Yours truly,

Patricia Tummons

Patricia Tummons

August 3, 2022

Patricia Tummons
421 Kaanini Street
Hilo HI 96720

Subject: Environmental Assessment for the Kaiaulu O Kapiolani Housing Development TMKs: (3) 2-4-025:048, :053, :080, Hilo, Hawaii

Ms. Tummons,

Thank you for your comments on the Draft Environmental Assessment document. Please see the below responses:

No Biological Assessment
Most of the area has been developed for some time. The instances of threatened or endangered species occurring at the site are low. The report includes information from USFWS on threatened and endangered species that may potentially be in the area. The project workers will be educated on identification and will stop work to determine the best course of action for completion. Mitigation measures are also provided in the report.

Surface Water
Drainage on site is being diverted to dry wells installed on the property. The drainage and dry wells are intended to prevent significant flooding and migration off property of site waters. Onsite and Offsite drainage were studied. Reports were provided to the Engineering Division for review and approval. The studies found that proposed culvert conditions would decrease adverse impacts or additional ponding. The installation of drywells would decrease runoff from the site compared to existing conditions.

Parking
The parking requirement from rezoning ordinance 21-17 is 1.5 stalls per unit (96 stalls). The project has planned 117 stalls for the property. There will be 21 more stalls than the referenced rezoning ordinance (1.82 per unit).

Kupukupu Street
Please see attached map.

Historic Sites
An Archeological Inventory Survey was performed in 2021. State Historic Preservation Office concurred with the Office of Housing and Community Developments determination of No Historic Properties Affected for the project area (please see attached letter). Should iwi or other artifacts be discovered, all work will stop and SHPO will be notified and consulted.

Traffic
The TIAR will be attached to the document.
As there is no access road existing, observations for the right-turn in and right-turn out are not available.
Future traffic load is predicted based on the existing roadways.

Other Transportation Issues
The following is noted on the traffic study: 3.2.2 Pedestrian Accessibility
Sidewalks are provided along the following studied roadways in the vicinity of the Project:

- Kapiolani Street – Sidewalks are provided along both sides of the roadway.
- Kukuau Street – A sidewalk is provided along the eastbound direction of the roadway to the west of Kapiolani Street.
- Hualalai Street – Sidewalks are provided along both sides of the roadway to the east of Kapiolani Street.

The locations of existing pedestrian facilities are shown in Figure 3.1.
3.2.3 Bicycle Accessibility
In the immediate vicinity of the Project, there are currently no bicycle facilities provided along the studied roadway. However, the Bike Plan Hawaii Master Plan, published in 2003 by HDOT, identifies bicycle facilities that are proposed for future implementation. Proposed facilities are assigned a Priority Level ranging from I to III, with Priority Level I planned for near-term completion and Priority Level III planned for long-term completion. An additional Priority Level IV is assigned for bicycle facilities that are contingent on roadway development. In the vicinity of the Project, the following bicycle facilities are identified along studied roadways in the master plan.

- Signed Shared Roadway – Kapiolani Street (Priority Level II)
- Bicycle Lane – Kukuau Street (Priority Level II)

Confusing Number of Units
The number of units is to be 64.

Speculation re Sewage
The wastewater system designed for the project will be reviewed by the Wastewater Department for compliance and contingencies will be incorporated into the planning.

Ground-Truthing
Discussion regarding schools in the vicinity of the site have been obtained through readily accessible public information sources. The report will be updated to remove the Pacific Academy of Music.

Solid Waste
Discussion regarding waste disposal was obtained through readily accessible public information sources. The report will be updated to current information.

The Kaiaulu O Kapiolani project will provide a trash collection area and service.

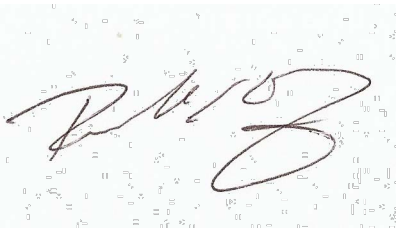
Health Care
Discussion regarding health care facilities was obtained through readily accessible public information sources. The report will be updated to current information.

Drainage
Drainage on site is being diverted to dry wells installed on the property. The drainage and dry wells are intended to prevent significant flooding and migration off property of site waters. Onsite and Offsite drainage were studied. Reports were provided to the Engineering Division for review and approval. The

studies found that proposed culvert conditions would decrease adverse impacts or additional ponding. The installation of drywells would decrease runoff from the site compared to existing conditions.

Padding
While the material may seem extraneous, it is provided in it's entirety for transparency.

Sincerely,



Rachel Okoji, M.S.
President

KAIAULU O KAPIOLANI APARTMENTS TIAR

Austin Tsutsumi & Associates, Inc.
Engineers & Surveyors

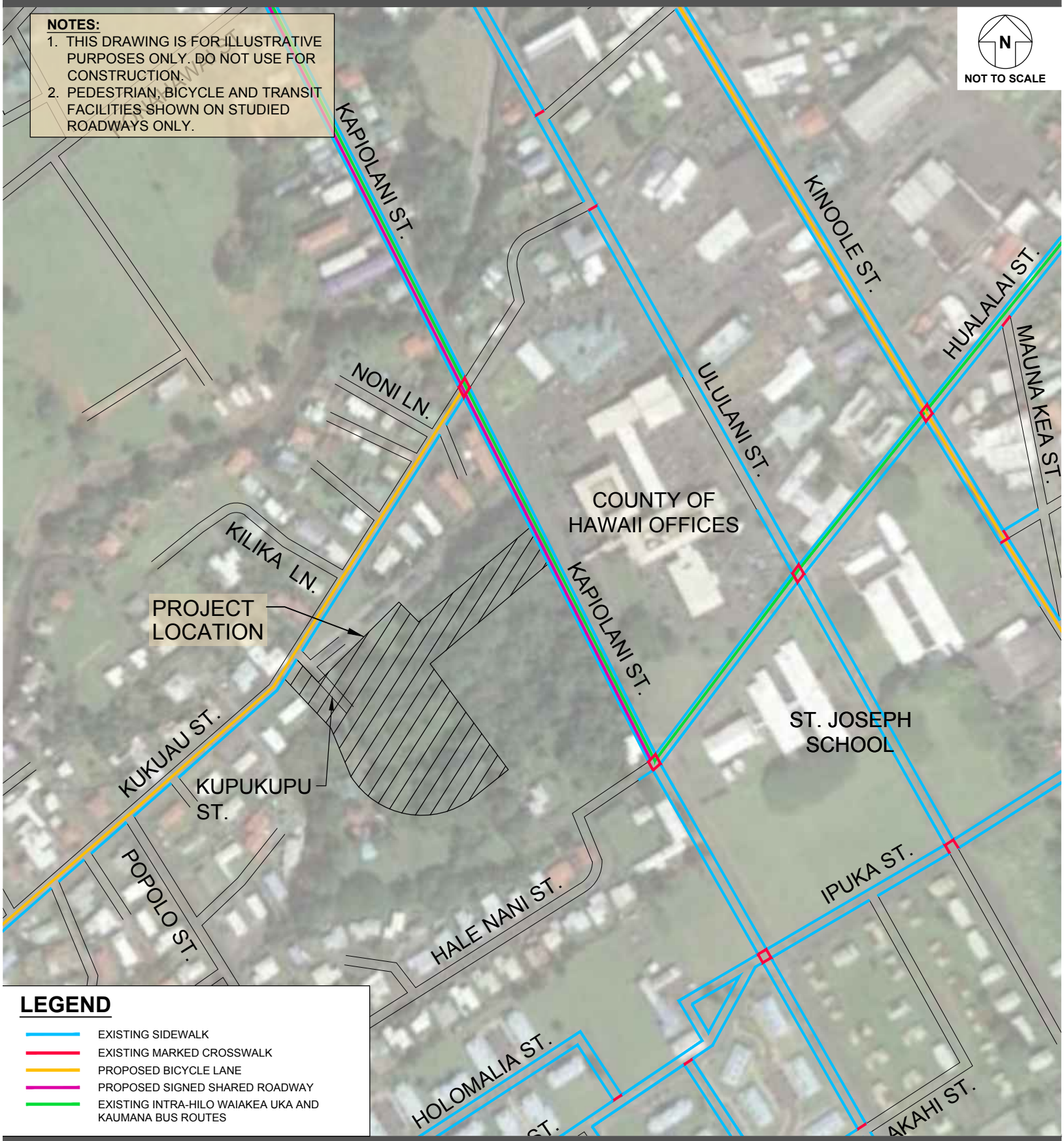


FIGURE 3.1

PEDESTRIAN, BICYCLE AND TRANSIT FACILITIES

KAIAULU O KAPIOLANI APARTMENTS TIAR

AustinTsutsumi & ASSOCIATES, INC.
Engineers & Surveyors

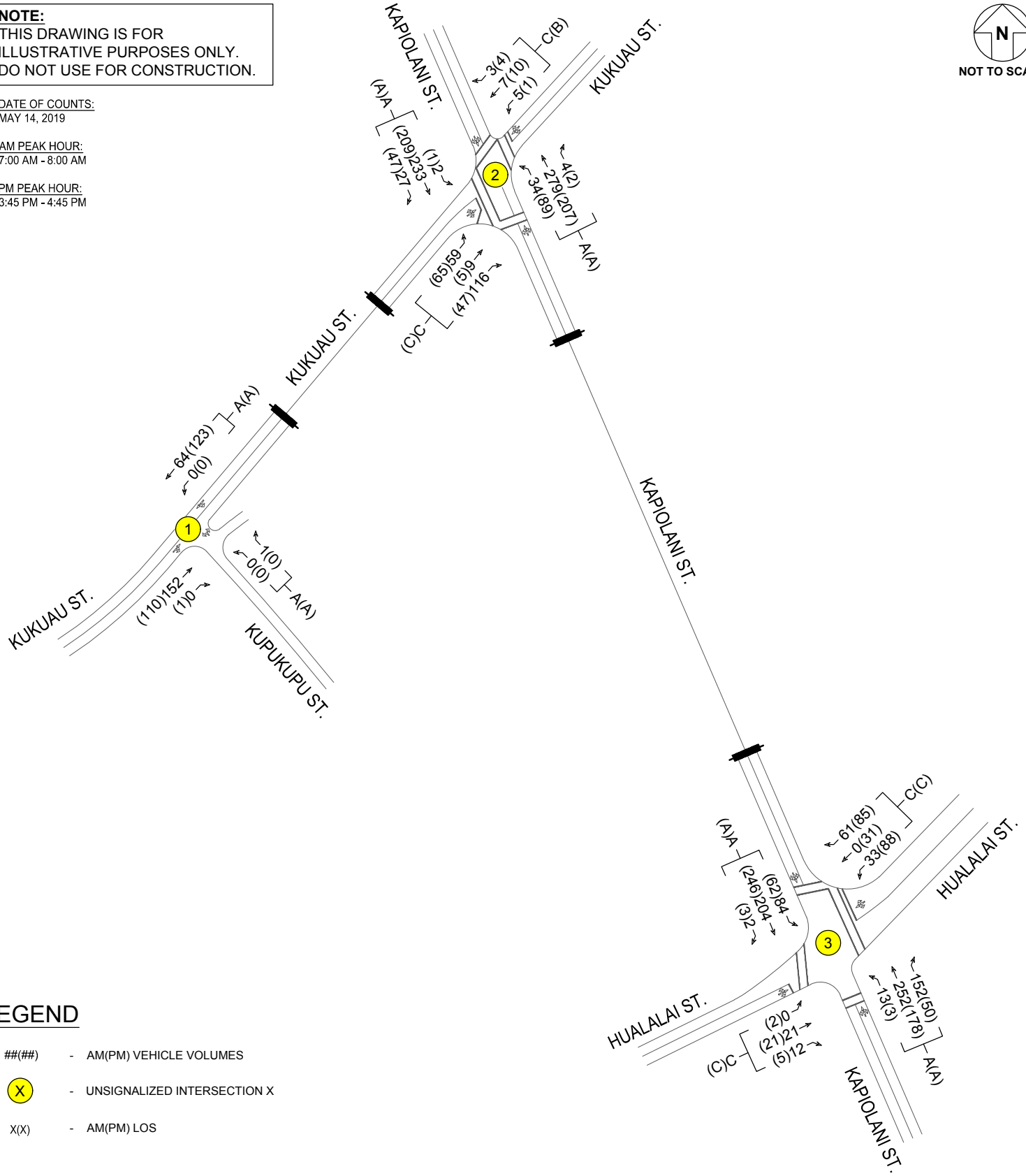
NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

DATE OF COUNTS:
MAY 14, 2019

AM PEAK HOUR:
7:00 AM - 8:00 AM

PM PEAK HOUR:
3:45 PM - 4:45 PM

N
NOT TO SCALE



LEGEND

##(##)	-	AM(PM) VEHICLE VOLUMES
X	-	UNSIGNALIZED INTERSECTION X
X(X)	-	AM(PM) LOS

FIGURE 3.2

EXISTING CONDITIONS, LANE CONFIGURATIONS, TRAFFIC VOLUMES AND LOS

DAVID Y. IGE
GOVERNOR OF
HAWAII

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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

May 11, 2022

IN REPLY REFER TO:
Project No.: 2021PR00880
Doc. No.: 2205SN01
Archaeology

Susan Kunz, Housing Administrator
County of Hawaii
Office of Housing and Community Development
1990 Kinoole Street, Suite 102
Hilo, HI 96720
Email: Susan.Kunz@hawaiicounty.gov

Dear Ms. Kunz:

SUBJECT: **Chapter 6E-42 and National Historic Preservation Act Section 106 Review –**
Kaiāulu O Kapiʻolani Housing Project
Request for Concurrence with Project Effect Determination
Archaeoological Inventory Survey
Kūkūau 1st Ahupuaʻa, South Hilo District, Island of Hawaiʻi
TMK: (3) 2-4-025:048, 053, and 080

This letter provides the State Historic Preservation Division's (SHPD's) review of the Kaiāulu O Kapiʻolani Housing Project. SHPD received the initial project submission on July 26, 2021. The submittal consisted of an archaeological assessment titled, *An Archaeological Assessment for a 0.6447-acre Property in Kūkūau 1st Ahupuaʻa, South Hilo District, Hawaiʻi Island, Hawaiʻi TMK (3)2-4-025:080* (Escott 2019a, revised March 2022) prepared on behalf of the Urban Housing Communities, LLC., a cultural impact assessment (Escott 2019) for parcel 080 and an archaeological summary letter report (Escott 2019b) that indicated the project area includes parcels 048, 053, and 080 (Submission No. 2021PR00880.001). The submission indicated the landowner is Mr. Giampaolo Boschetti and that Urban Housing Communities, LLC, is managing the proposed project.

On July 26, 2021, SHPD requested additional information, indicating that if federal funds were being used, our office looked forward to receiving a letter from the appropriate agency initiating NHPA Section 106 consultation with the State Historic Preservation Officer (SHPO). In response, SHPD received a letter dated March 2, 2022, from the Office of Housing and Community Development (OHCD) indicating that the project was seeking funding from the U.S. Department of Urban Housing (HUD) and that OHCD is the County agency responsible for compliance with HRS 6E statutes and the Section 106 consultation. OHCD provided a project overview, identification of the HRS 6E and federal area of potential effect (APE), which are synonymous, previous archaeological studies and findings, and requested the SHPO's concurrence with a finding of *no historic properties affected* pursuant to 36 CFR 800.4(d)(1) for the proposed undertaking. The SHPD received this letter on March 4, 2022, along with a letter dated February 9, 2022, from the archaeological consultant (Glenn Escott) to the OHCD, summarizing the archaeological studies undertaken and the Section 106 consultation effort (Submission No. 2021PR00880.003).

OHCD indicates that the proposed project is the development of an affordable rental complex of 64-units, community center and 117-stall parking lot. The project consists of the construction of nine (9) residential units and will include grubbing, grading, and trenching for utility infrastructure. The project area and area of potential effect (APE) and project area includes the entirety of TMK: (3) 2-4-025:048, 053, and 080. Ground disturbance consists of grubbing, grading, and trenching within the entire 5.0499-acre project area. Aerial photographs show the project area is mostly undeveloped land.

SHPD records confirm that portions of the current project area/APE were included in an archaeological survey (AIS; Nelson et al. 2006) conducted by Rechtman Consulting, LLC for a previous waterline project. Nelson et al. (2006) identified a single historic property, a historic enclosure (Site 50-10-35-25547) within TMK: (3) 2-4-025:048. They indicated it was significant under HAR §13-284-6 Criterion d, as having yielded information about historic animal husbandry features, that it was adequately documented during the AIS and, thus, they recommended no further archaeological work. SHPD concurred with the findings and recommendations and accepted the AIS report on September 28, 2006 (Log No. 2006.3275, Doc. No. 0609JT83).

Scientific Consultant Services, Inc. (SCS) conducted the current AIS for the easement portion of the project area/APE [TMK: (3) 2-4-025:080]. Escott (2019a) indicates the AIS involved a 100% coverage pedestrian survey of the easement and that no historic properties were identified, thus the negative findings are presented in an archaeological assessment (AA) report in accordance with HAR §13-284-5(b)(5)(A).

SHPD requested revisions via email [Susan Lebo (SHPD) to Glenn Escott (SCS)] for the AA (Escott 2019a) on March 20, 2022. On April 4, 2022, SHPD received from SCS the revised AA report (Escott, March 2022) and a letter dated March 24, 2022, summarizing the revisions (Submission No. 2021PR00880.007). On the same day, SHPD also received a letter dated March 23, 2022, from OHCD requesting SHPD's concurrence with a determination of "No Historic Properties Affected" pursuant to HAR §13-284-7(a)(1), along with plans showing the limits of proposed disturbance, a current land use map (Submission No. 2021PR00880.005), and a HRS 6E Submittal Form (Submission No. 2021PR00880.006).

The OHCD and SCS submissions indicate that no historic properties were identified during current AIS (Escott 2019; revised March 2022) conducted within TMK: (3) 2-4-025:080, and that the single historic property (Site 50-10-35-25547) was identified previously within TMK: (3) 2-4-025:048. Additionally, Site 50-10-35-25547 (historic enclosure) and that SHPD concurred that this site had been adequately documented. The OHCD and SCS submissions also indicate that nineteen (19) historic properties eligible for listing in the National Register of Historic Places (NRHP) were identified with a one-half mile radius of the current project area/APE. However, the project will have no direct or indirect (e.g., visual) impacts of these eligible historic properties.

Based on the information provided, the **SHPO concurs** with the OHCD's determination of *no historic properties affected* for the proposed undertaking pursuant to 36 CFR 800.5(b). Additionally, **SHPD concurs** with OHCD's determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(1).

The NHPA Section 106 and the HRS 6E historic preservation review processes are concluded. The project initiation process may proceed.

The OHCD is the office of record for this project. Please maintain a copy of this letter with your environmental review record for this undertaking.

The revised AA report meets the minimum requirements of HAR §13-276-5. **It is accepted.** Please send two hard copies of the report, clearly marked FINAL, along with a text-searchable PDF copy of the report and a copy of this review letter to the Kapolei SHPD office, attention SHPD library. Please also submit a text-searchable PDF copy of the report to HICRIS Project No. 2022PR00880 using the Project Supplement option, and a PDF copy of the report to SHPD at Lehua.K.Soares@hawaii.gov.

Please note: In the unlikely event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, native sand deposits, or sink holes are identified during the demolition and/or construction work, cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division, at (808) 933-7651.

Please contact Sean Nāleimaile, Hawaii Island Archaeologist IV, at Sean.P.Naleimaile@hawaii.gov for any matters regarding archaeological resources or this letter.

Aloha, Alan Downer

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

cc. Rachel Okoji, rachelokoji@enviroriskhawaii.com
Glenn Escott, ggescott@yahoo.com

Exhibit 17: Traffic Impact Analysis

TRAFFIC IMPACT ANALYSIS REPORT
KAIAULU O KAPIOLANI APARTMENTS
Hilo, Hawaii

FINAL DRAFT

June 21, 2019

Prepared for:

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

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TRAFFIC IMPACT ANALYSIS REPORT
KAIAULU O KAPIOLANI APARTMENTS

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June 21, 2019

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AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

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TRAFFIC IMPACT ANALYSIS REPORT

KAIAULU O KAPIOLANI APARTMENTS

Hilo, Hawaii

1. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate potential traffic impacts resulting from the proposed Kaiaulu O Kapiolani Apartments development in Hilo, Hawaii (hereinafter referred to as the "Project").

1.1 Location

The Project will be located on approximately 5 acres of land consisting of the three (3) undeveloped parcels identified as TMK: (3) 2-4-025:048, 053 and 080. The site is bordered by Kukuau Street to the north, Kapiolani Street to the east and Hualalai Street to the south and is currently zoned for County RM-1.5 (Multiple-Family Residential District). See Figure 1.1 for the Project location.

1.2 Project Description

The Project is proposing a new residential development that will consist of 64 affordable multi-family units with 145 parking stalls. Access to the Project Site will be provided along Kapiolani Street and Kukuau Street via Kupukupu Street. Completion of the Project is anticipated in 2021. See Figure 1.2 for the Project site plan.

REPLY TO:
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OFFICES IN:
HONOLULU, HAWAII
WAILUKU, MAUI, HAWAII
HILO, HAWAII

KAIAULU O KAPIOLANI APARTMENTS TIAR

AustinTsutsumi & ASSOCIATES, INC.
Engineers & Surveyors

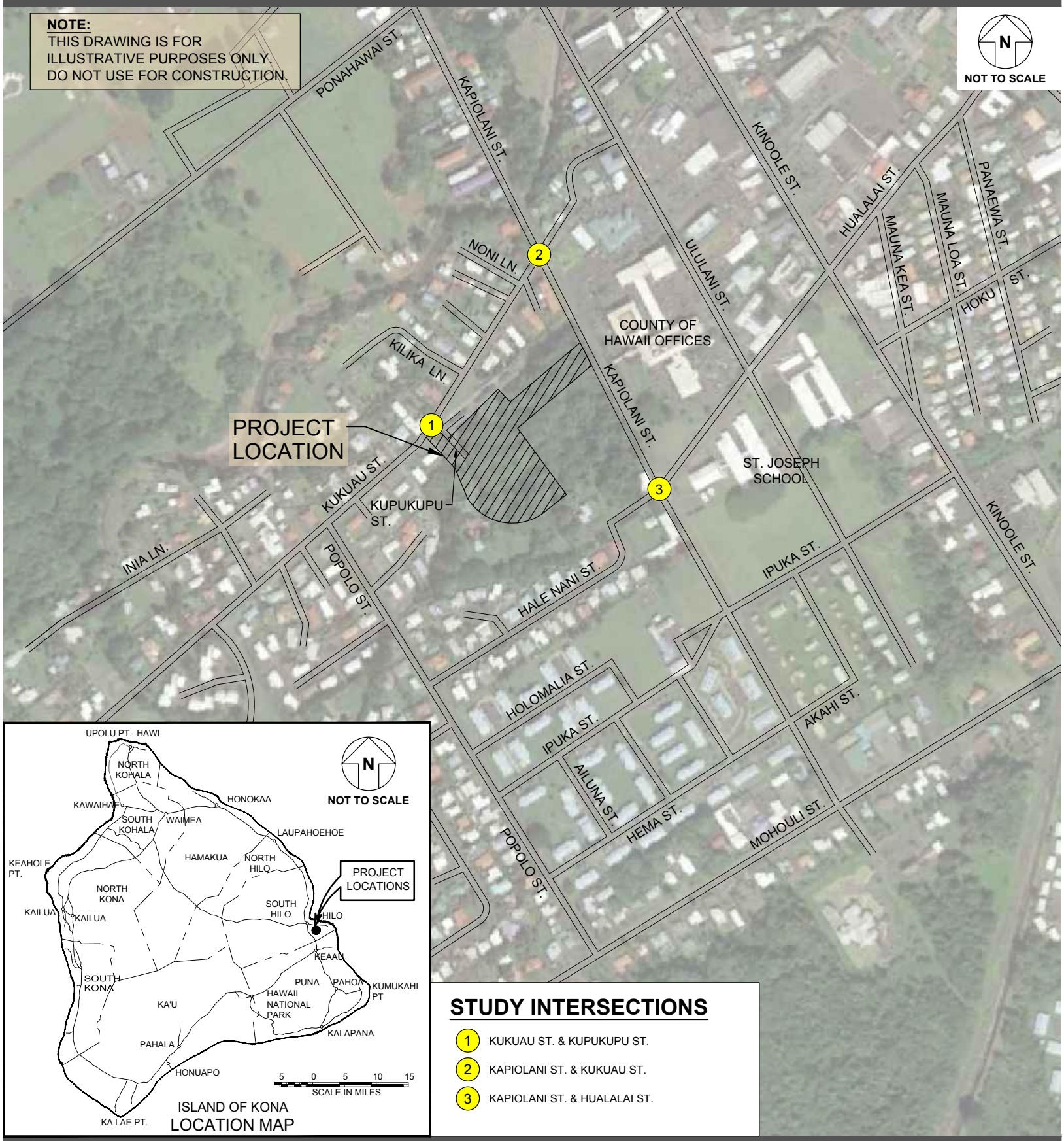

FIGURE 1.1

LOCATION MAP

KAIAULU O KAPIOLANI APARTMENTS TIAR

AustinTsutsumi & ASSOCIATES, INC.
Engineers & Surveyors

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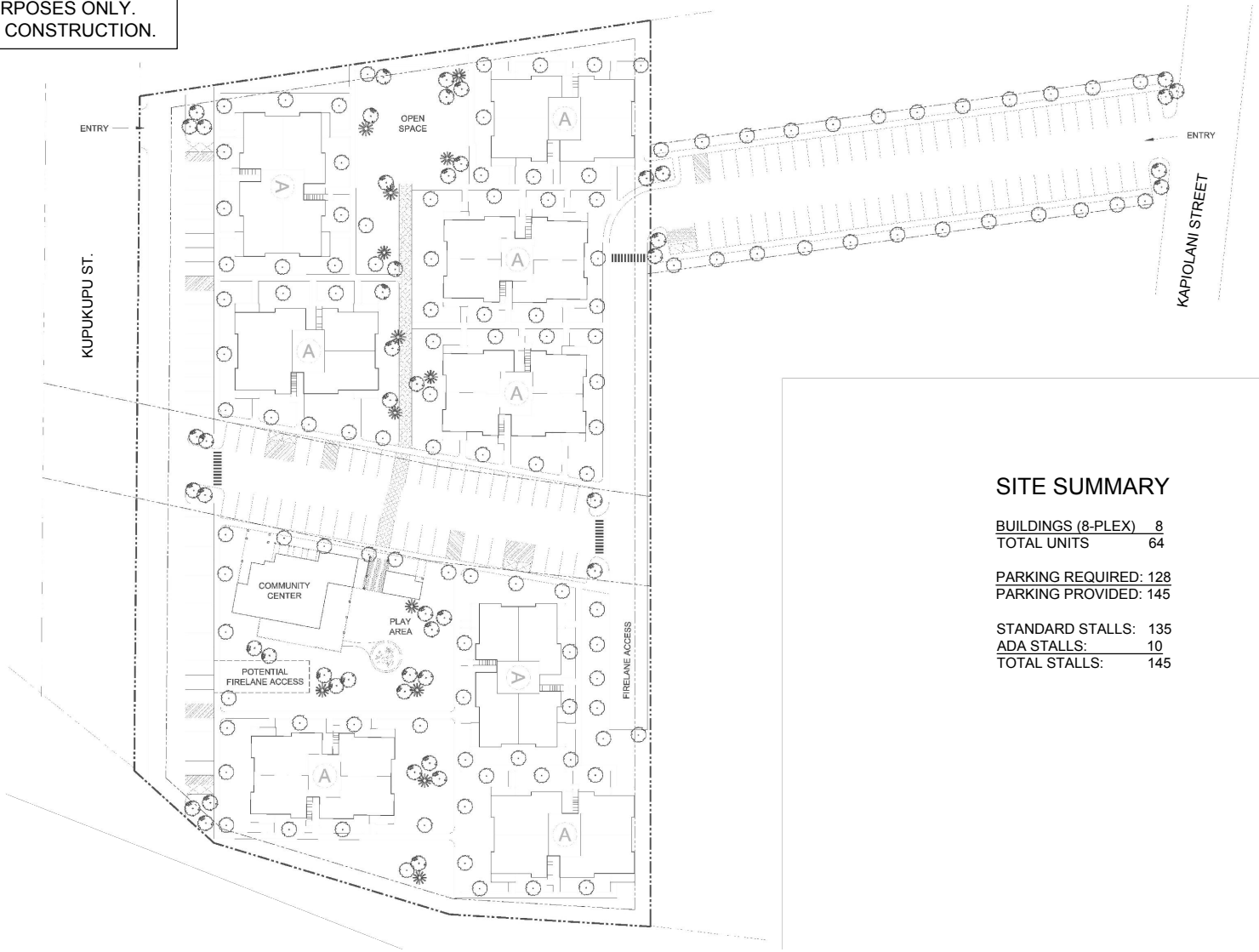

SITE SUMMARY

BUILDINGS (8-PLEX)	8
TOTAL UNITS	64
PARKING REQUIRED:	128
PARKING PROVIDED:	145
STANDARD STALLS:	135
ADA STALLS:	10
TOTAL STALLS:	145

FIGURE 1.2

SITE PLAN

2. METHODOLOGY

2.1 Study Methodology

This study will address the following:

- Assess existing traffic operating conditions at key intersections during the weekday morning (AM) and afternoon (PM) peak hours of traffic within the study area.
- Traffic projections for Base Year 2021 (without the Project) including traffic generated by other known developments in the vicinity of the Project in addition to an ambient growth rate. These other known developments are projects that are currently under construction or known new/future developments that are anticipated to affect traffic demand and operations within the study area.
- Trip generation and traffic assignment characteristics for the proposed Project.
- Traffic projections for Future Year 2021 (with the Project), which includes Base Year traffic volumes in addition to traffic volumes generated by the Project.
- Recommendations for Base Year as well as Future Year roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by known developments in the region or the Project.

2.2 Intersection Analysis

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual (HCM), 6th Edition, dated 2016, includes methods for calculating volume to capacity ratios, delays, and corresponding Levels of Service that were utilized in this study. LOS definitions for signalized and unsignalized intersections are provided in Appendix B.

Analyses for the study intersections were performed using the traffic analysis software Synchro, which is able to prepare reports based on the methodologies described in the HCM. These reports contain control delay results as based on intersection lane geometry, signal timing, and hourly traffic volumes. Based on the vehicular delay at each intersection, a LOS is assigned to each approach and intersection movement as a qualitative measure of performance. These results, as confirmed or refined by field observations, constitute the technical analysis that will form the basis of the recommendations outlined in this report.

3. EXISTING CONDITIONS

3.1 Roadway System

The following are brief descriptions of the existing roadways in the vicinity of the Project.

Kapiolani Street – is generally a north-south, two-way, two-lane, undivided County roadway in the vicinity of the Project. The roadway begins to the north at its T-intersection with Waianuenue Avenue and travels south before terminating at its intersection with Kawili Street and Warrior Avenue at Waiakea High School. Kapiolani Street provides access to residential and commercial areas as well as institutional uses, such as the Hawaii Police Department, Hilo Driver Licensing Station and the University of Hawaii at Hilo. In the vicinity of the Project, the roadway has a posted speed limit of 25 miles per hour (mph).

Kukuau Street – is generally an east-west, two-way, two-lane, undivided County roadway in the vicinity of the Project. The roadway begins to the east at its intersection with Kilauea Avenue and travels to the west before terminating as a dead end just before Puainako Street. After Puainako Street, Kukuau Street continues a short distance through the existing Hilo Hillside development. Kukuau Street mainly provides access to residential and commercial areas in South Hilo. In the vicinity of the Project, the roadway has a posted speed limit of 25 mph.

Hualalai Street – is generally an east-west, two-way, two-lane, undivided County roadway in the vicinity of the Project. The roadway begins to the east at its intersection with Kilauea Avenue and travels to the west before terminating at its intersection with Hale Nani Street, just west of Kapiolani Street. Hualalai Street provides access to St. Joseph School and residential and commercial areas. On-street parking is provided along the roadway east of Kapiloani Street. There is no posted speed limit along the roadway. However, there is a posted reverse turn warning sign with an advisory speed of 10 mph west of Kapiolani Street as Hualalai Street transitions into Hale Nani Street.

Kupukupu Street – is general a north-south, two-way, two-lane, undivided Private roadway in the vicinity of the Project. The roadway provides access from Kukuau Street to five (5) existing residential buildings. Kupukupu Street is proposed as one of the accesses to the Project. There is no posted speed limit along the roadway.

3.2 Sustainable Transportation

3.2.1 Complete Streets

While transportation planning has traditionally focused on automobile travel, recent “Complete Streets” policies also recognize the numerous benefits of encouraging the use of alternative modes of transportation. “Complete Streets” policies encourage the provision of equitable, accessible and safe transportation for all modes.

Hawaii State Senate Bill 718 (2009) required that the Hawaii Department of Transportation (HDOT) and the County transportation departments:

“…adopt a complete streets policy that seeks to reasonably accommodate convenient access and mobility for all users of the public highways within their respective jurisdictions…”

3.2.2 Pedestrian Accessibility

Sidewalks are provided along the following studied roadways in the vicinity of the Project:

- Kapiolani Street – Sidewalks are provided along both sides of the roadway.
- Kukuau Street – A sidewalk is provided along the eastbound direction of the roadway to the west of Kapiolani Street.
- Hualalai Street – Sidewalks are provided along both sides of the roadway to the east of Kapiolani Street.

The locations of existing pedestrian facilities are shown in Figure 3.1.

3.2.3 Bicycle Accessibility

In the immediate vicinity of the Project, there are currently no bicycle facilities provided along the studied roadway. However, the Bike Plan Hawaii Master Plan, published in 2003 by HDOT, identifies bicycle facilities that are proposed for future implementation. Proposed facilities are assigned a Priority Level ranging from I to III, with Priority Level I planned for near-term completion and Priority Level III planned for long-term completion. An additional Priority Level IV is assigned for bicycle facilities that are contingent on roadway development. In the vicinity of the Project, the following bicycle facilities are identified along studied roadways in the master plan.

- Signed Shared Roadway – Kapiolani Street (Priority Level II)
- Bicycle Lane – Kukuau Street (Priority Level II)

The proposed bicycle facilities in the vicinity of the Project are shown in Figure 3.1.

3.2.4 Public Transit

The County of Hawaii Mass Transit Agency (MTA) operates the Hele-On Bus, which serves the most populated areas of the island. Several routes provide service within Hilo and to/from other regions of the island, with service generally along Kilauea Avenue in the vicinity of the Project. The following routes provide service along Kilauea Avenue:

- Intra-Hilo Waiakea-Uka
- Intra-Hilo Keaukaha
- Intra-Hilo Kaumana
- Hilo-Volcano-Kau
- Hilo-Pahoa-Pohoiki
- Hilo-Honokaa
- Hilo-Kailua Kona

The Intra-Hilo Waiakea-Uka and the Intra-Hilo Kaumana routes also provide service in the immediate Project vicinity along Kapiolani Street and Hualalai Street. The existing Hele-On Bus routes are shown in Figure 3.1.

KAIAULU O KAPIOLANI APARTMENTS TIAR

Austin Tsutsumi & Associates, Inc.
Engineers & Surveyors

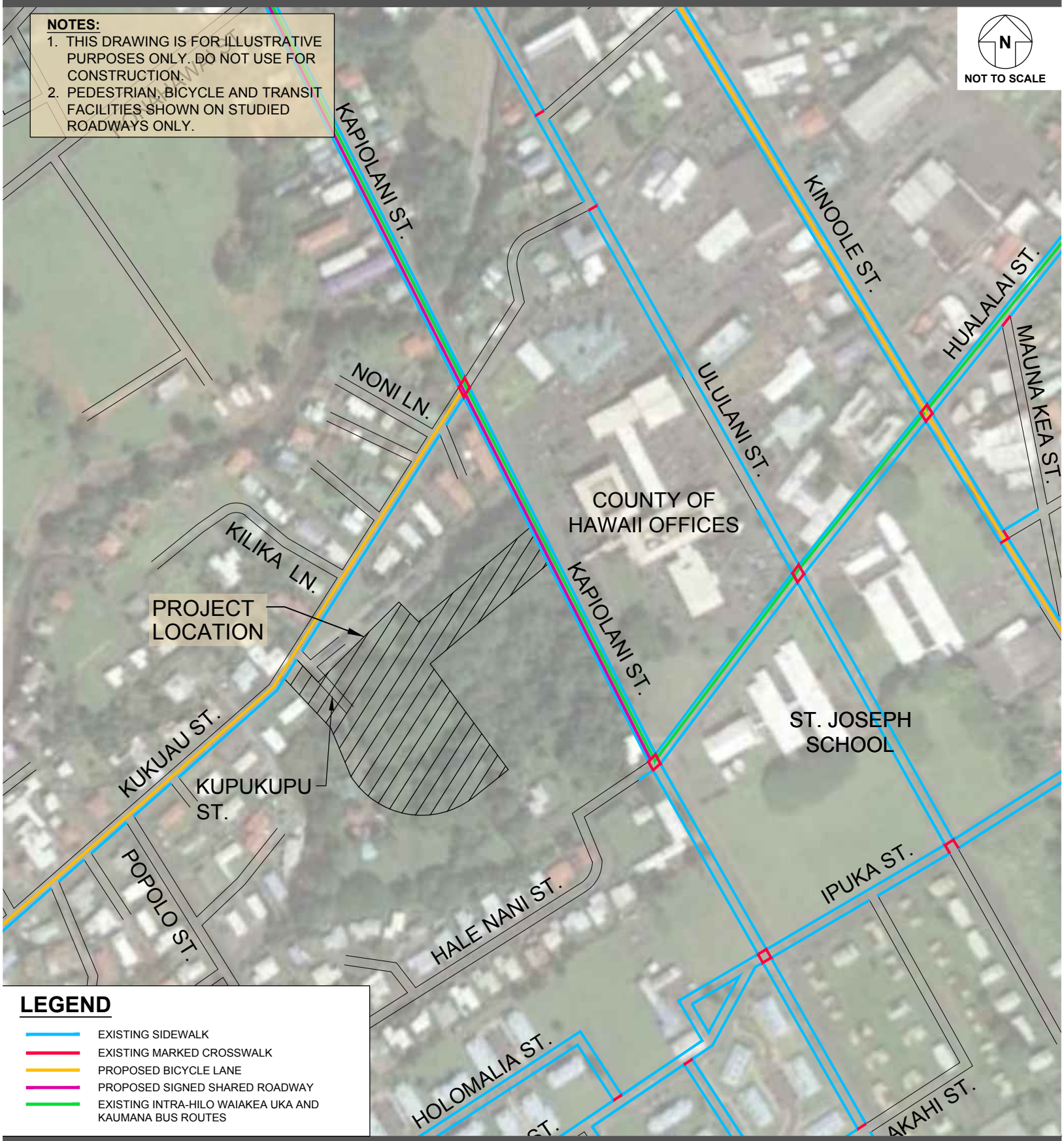

FIGURE 3.1

PEDESTRIAN, BICYCLE AND TRANSIT FACILITIES

3.3 Existing Traffic Volumes

The hourly turning movement data utilized in this report were collected on May 14, 2019. Based on the proximity to the proposed Project site, the following intersections were studied in the existing conditions scenario.

- [1] Kukuau Street/Kupukupu Street (unsignalized)
- [2] Kapiolani Street/Kukuau Street (unsignalized)
- [3] Kapiolani Street/Hualalai Street (unsignalized)

Based on the count data, it was determined that the AM peak hour of traffic occurs between 7:00 AM and 8:00 AM and the PM peak hour of traffic occurs between 3:45 PM and 4:45 PM. The turning movement count data is included in Appendix A.

3.4 Existing Traffic Conditions Observations and Analysis

The observations and analysis described below are based on prevailing observations during the time at which the data was collected. Hereinafter, observations that are expressed as ongoing and current shall represent the conditions that prevailed at the time at which the data was collected.

3.4.1 Existing Intersection Analysis

Traffic volumes in the study area were generally light with the studied roadways primarily serving local traffic. All intersections were observed to operate adequately with no major delays to any movements. The study intersections operate satisfactorily during both peak hours of traffic with all movements operating at LOS C or better.

Figure 3.2 illustrates the existing lane configurations, volumes and LOS for the study intersection movements. Table 3.1 summarizes the existing LOS at the study intersections. LOS worksheets are provided in Appendix C

KAIAULU O KAPIOLANI APARTMENTS TIAR

AustinTsutsumi & ASSOCIATES, INC.
Engineers & Surveyors

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DATE OF COUNTS:
MAY 14, 2019

AM PEAK HOUR:
7:00 AM - 8:00 AM

PM PEAK HOUR:
3:45 PM - 4:45 PM

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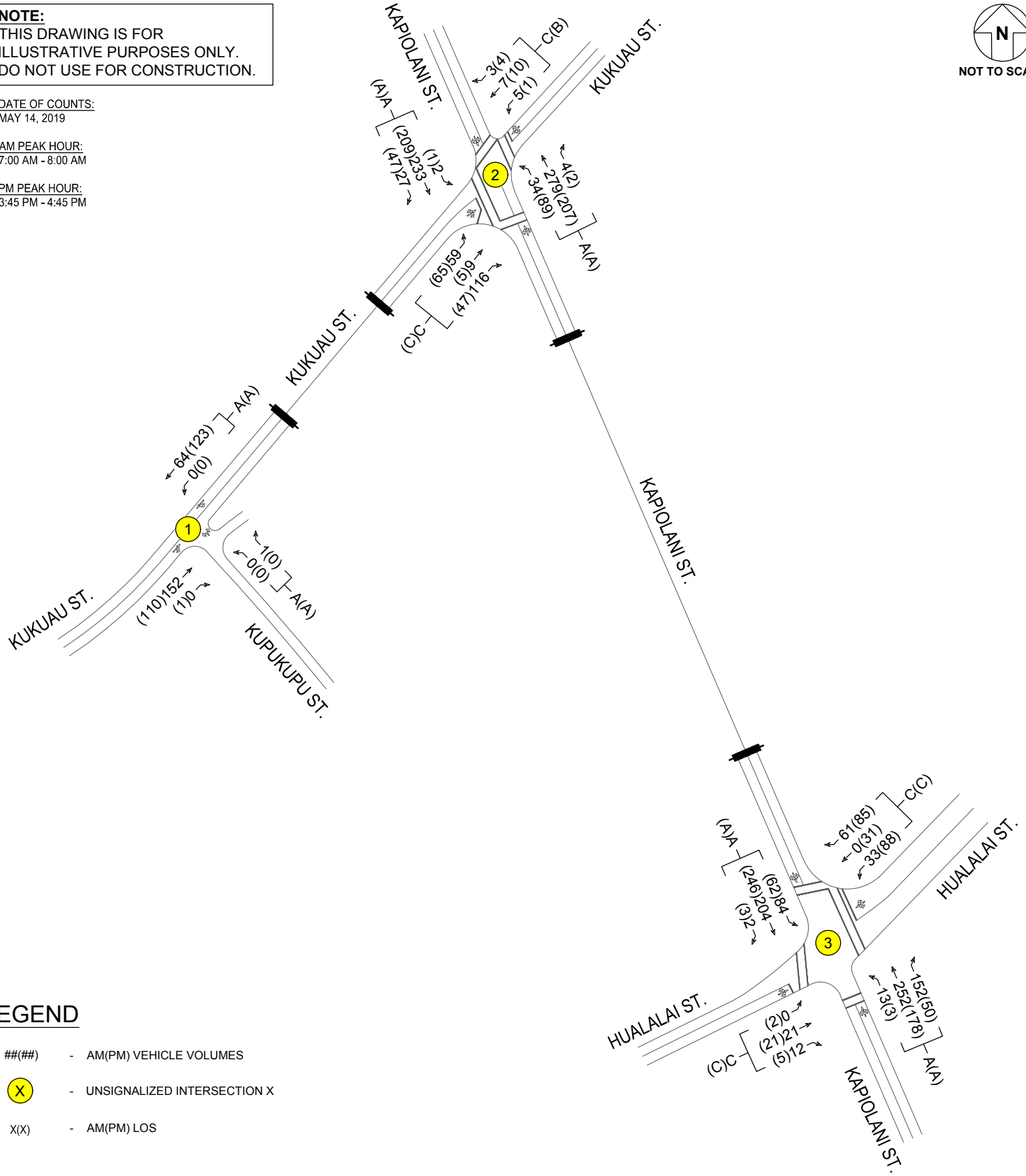

LEGEND

##(##)	-	AM(PM) VEHICLE VOLUMES
X	-	UNSIGNALIZED INTERSECTION X
X(X)	-	AM(PM) LOS

FIGURE 3.2

EXISTING CONDITIONS, LANE CONFIGURATIONS, TRAFFIC VOLUMES AND LOS

TABLE 3.1: LOS SUMMARY TABLE
EXISTING CONDITIONS

Intersection	Existing 2019 Conditions					
	AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Kupukupu Street & Kukuau Street						
NB LT/RT	9.2	0.00	A	0.0	0.00	A
WB LT/TH	0.0	0.00	A	0.0	0.00	A
OVERALL	0.0	-	-	0.0	-	-
2: Kapiolani Street & Kukuau Street						
NB LT/TH/RT	7.9	0.03	A	8.1	0.08	A
EB LT/TH/RT	15.6	0.37	C	17.0	0.30	C
WB LT/TH/RT	15.5	0.05	C	14.7	0.04	B
SB LT/TH/RT	7.9	0.00	A	7.7	0.00	A
OVERALL	4.3	-	-	4.3	-	-
3: Kapiolani Street & Hualalai Street						
NB LT/TH/RT	7.7	0.01	A	7.8	0.00	A
EB LT/TH/RT	16.8	0.11	C	15.0	0.08	C
WB LT/TH/RT	16.1	0.24	C	19.7	0.48	C
SB LT/TH/RT	8.5	0.08	A	7.9	0.05	A
OVERALL	3.4	-	-	6.4	-	-

4. BASE YEAR 2021

The year 2021 was studied to reflect the build-out year of the Project. Inclusion of other approved or proposed developments is discussed in the following sections.

4.1 Defacto Growth Rate

The Hawaii Department of Transportation (HDOT) Travel Demand Forecasting Model (TDFM) provides traffic projections across the island of Hawaii up to year 2035. The forecasting model uses population forecasts from the Hawaii County General Plan to distribute households and vehicular trips across predetermined Traffic Analysis Zones (TAZs) based upon existing TAZ household distributions.

Based on projections in the TDFM, annual growth rates of 1.4%, 1.3%, and 1.1% were applied along Kuakini Street, Kukuau Street and Hualalai Street, respectively, to determine Base Year 2021 conditions.

Because the TDFM does not take into account actual planned or proposed developments, traffic forecasts for known developments in the South Hilo region were added to projections as described in Section 4.2 below.

4.2 Traffic Forecasts for Known Developments

Traffic projections from all known background projects in the vicinity of the Project at the time of this study were added to the existing roadway network to account for additional growth in the study area. Trips from the following known developments were added to the existing traffic data to reflect Base Year 2021 conditions. The completion dates for each of the background developments were based on the best available information at the time this report. Where build-out information was not available, completion dates were estimated based on anticipated approval and construction schedules.

1. Abundant Life Grocery – This project is located at the northwest corner of the Kinoole Street/Mamo Street intersection. The project proposes to construct an approximately 7,500 square-foot supermarket. At the time of data collection, construction appeared ready to commence, and completion of the project is anticipated to occur by 2021.
2. Panda Express – This project is located at the southwest corner of the Kilauea Avenue/Kukuau Street intersection. The project proposes to construct an approximately 1,860 square-foot restaurant with a drive-thru. At the time of data collection, construction appeared ready to commence, and completion of the project is anticipated to occur by 2021.
3. Ponahawai Medical Office Building – This project is located along Ponahawai Street just east of Komohana Street. The project proposes to construct an approximately 7,000 square-foot office building and is anticipated to be completed by 2021.
4. Hawaii Vision Specialists – This project is located at the northwest corner of the Kapiolani Street/Hualalai Street intersection. The project proposes to construct an approximately 16,000 square-foot ophthalmology/optometry office. At the time of data collection, the project was under construction, and completion of the project is anticipated to occur by 2021.

5. Lanakila Housing Redevelopment – This project is located at the northeast corner of the Kapiolani Street/Mohouli Street intersection. The project proposes to construct 16 affordable multi-family units, with construction projected to be completed by the end of Fall 2020. An additional 46 units are ultimately planned for the housing redevelopment but funding for the remainder of the project is currently pending. Occupation of the first 16 units is assumed by 2021.
6. Hale Kupuna Housing – This project is located at the northwest corner of the Kinoole Street/Kamana Street intersection. The project proposes to construct 36 affordable multi-family units. Based on the most recent projected completion year of 2020, the project was assumed to be completed and occupied by 2021.
7. Bank of Hawaii – This project is located at the northeast corner of the Kinoole Street/Lanikaula Street intersection. The project proposes to construct an approximately 7,500 square-foot bank and is anticipated to be completed by 2021.
8. Mohouli Senior Housing Phase 3 – This project is located at the northwest corner of the Mohouli Street/Komohana Street intersection. The project proposes to develop 92 affordable senior housing units. Construction is projected to be completed by the end of Fall 2020 and assumed to be fully occupied by 2021.
9. Hawaii Island Veterans Housing – This project is located at the northeast corner of the Kapiolani Street/Kawili Street Intersection. The project proposes to construct 92 affordable multi-family rental units for veterans along with a community center and Veteran Community Based Outpatient Clinic (CBOC). The housing component is expected to be completed first, with earliest build-out assumed to occur by 2021.
10. Hilo Hillside – This project is located along the Puainako Street Extension, east of Puainako Heights. Phase 1 of the development includes 56 single-family homes, the majority of which were constructed and occupied at the time of data collection. Phase 2 proposes to construct an additional 66 single-family homes south of Phase 1. Completion of Phase 2 is anticipated to occur by 2021.
11. Puainako Heights – This project is located along the Puainako Street Extension, east of Wilder Road. The project proposes to construct 49 single family homes under Phase 1A and 1B. The remaining phases of the project do not currently have a timeframe for completion. Preconstruction of Phase 1A and 1B had begun at the time of data collection, and completion is anticipated to occur by 2021 at the earliest.

4.2.1 Trip Generation

The Institute of Transportation Engineers (ITE) publishes a book based on empirical data compiled from a body of more than 4,250 trip generation studies submitted by public agencies, developers, consulting firms and associations. This publication, titled Trip Generation, 10th Edition, provides trip rates and/or formulae based on graphs that correlate vehicular trips with independent variables. The independent variables can range from Dwelling Units (DU) for single-family detached homes to Gross Floor Area (GFA) for commercial or office development.

Trips for the above background projects were manually generated using trip generation rates contained in the Trip Generation, 10th Edition as described above. See Table 4.1 for applied trip generation volumes per project. Note that not all volumes generated by the background projects are anticipated to pass through the study area. Figure 4.1 shows the locations of the background developments.

Table 4.1: Background Development Trip Generation

Background Development	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Abundant Life Grocery (7,500 SF)	17	12	29	58	55	113
Panda Express (1,860 SF)	3	1	4	15	12	27
Ponahawai Medical Office Building (7,000 SF)	16	5	21	7	19	26
Hawaii Vision Specialists (16,000 SF)	34	10	44	16	41	57
Lanakila Housing Redevelopment (16 DU)	2	7	9	8	4	12
Hale Kupuna Housing (36 DU)	4	15	19	15	9	24
Bank of Hawaii (7,500 SF)	42	30	72	77	77	154
Mohouli Senior Housing Phase 3 (92 DU)	7	12	19	14	11	25
Hawaii Island Veterans Housing (92 DU)	10	35	45	35	20	55
Hilo Hillside Phase 2 (56 DU)	11	34	45	37	22	59
Puainako Heights Phase 1 (49 DU)	10	30	40	33	19	52
Total	**156**	**191**	**347**	**315**	**289**	**604**

Notes:
1. All background development trips are not anticipated to pass through the study area.
2. DU = Dwelling Unit
3. SF = Square Feet

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LEGEND

- PROJECT AREA
- 1 ABUNDANT LIFE GROCERY
- 2 PANDA EXPRESS
- 3 PONAHAWAI MEDICAL CLINIC
- 4 HAWAII VISION SPECIALISTS
- 5 LANAKILA HOUSING REDEVELOPMENT
- 6 HALE KUPUNA LOW INCOME HOUSING
- 7 BANK OF HAWAII
- 8 MOHOULI HEIGHTS SENIOR HOUSING PH3
- 9 HAWAII ISLAND VETERANS HOUSING
- 10 HILO HILLSIDE PH2
- 11 PUAINAKO HEIGHTS PH1

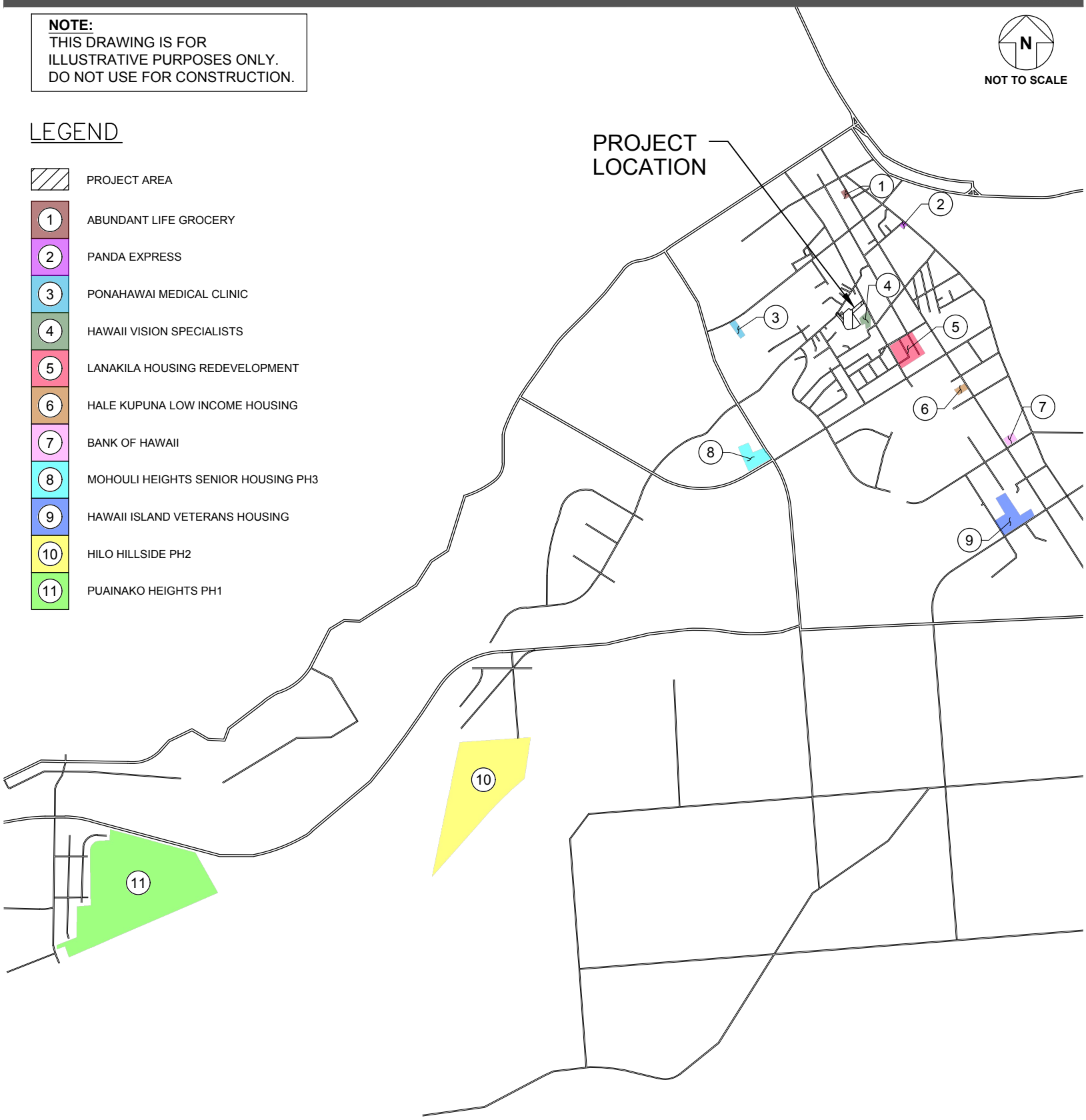

FIGURE 4.1

BACKGROUND DEVELOPMENTS

4.3 Base Year 2021 Analysis

It is anticipated that by Base Year 2021 without the Project, traffic will have increased over existing conditions due to the development in the South Hilo region. Actual growth within the study region may vary based upon the approval process of the various background projects. Despite growth in the region, the majority of study intersections are expected to operate similar to existing conditions.

4.3.1 Base Year 2021 Intersection Analysis

The majority of movements at the study intersections are anticipated to continue operating similar to existing conditions by Base Year 2021. Although some of the minor street movements are expected to experience longer delays, all minor street movements are anticipated to operate at LOS C or better during the AM peak hour of traffic and LOS D or better during the PM peak hour. All major street movements are anticipated to continue operating at LOS A during both peak hours.

Figure 4.2 illustrates the Base Year 2021 forecast traffic volumes and LOS for the study intersection movements. Table 4.2 summarizes the Base Year 2021 LOS at the study intersections compared to existing conditions. LOS worksheets are provided in Appendix C.

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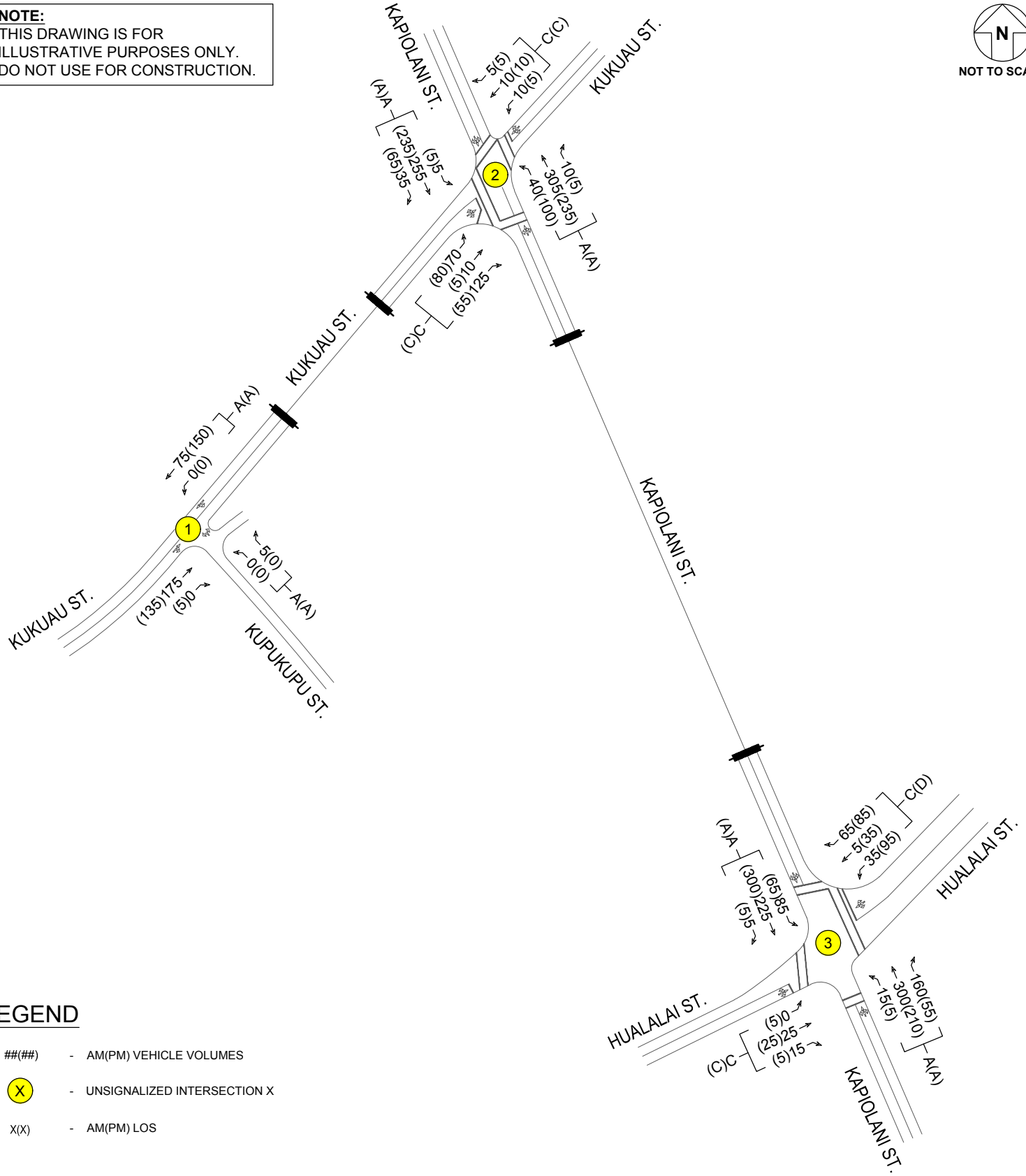

LEGEND

##(##)	-	AM(PM) VEHICLE VOLUMES
X	-	UNSIGNALIZED INTERSECTION X
X(X)	-	AM(PM) LOS

FIGURE 4.2

BASE YEAR 2021 LANE CONFIGURATIONS, TRAFFIC VOLUMES AND LOS

TABLE 4.2: LOS SUMMARY TABLE
EXISTING CONDITIONS AND BASE YEAR 2021

Intersection	Existing 2019 Conditions						Base Year 2021					
	AM			PM			AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Kupukupu Street & Kukuau Street												
NB LT/RT	9.2	0.00	A	0.0	0.00	A	9.3	0.01	A	0.0	0.00	A
WB LT/TH	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
OVERALL	0.0	-	-	0.0	-	-	0.2	-	-	0.0	-	-
2: Kapiolani Street & Kukuau Street												
NB LT/TH/RT	7.9	0.03	A	8.1	0.08	A	8.0	0.04	A	8.2	0.09	A
EB LT/TH/RT	15.6	0.37	C	17.0	0.30	C	18.9	0.47	C	22.0	0.42	C
WB LT/TH/RT	15.5	0.05	C	14.7	0.04	B	18.0	0.09	C	17.2	0.07	C
SB LT/TH/RT	7.9	0.00	A	7.7	0.00	A	8.0	0.00	A	7.8	0.00	A
OVERALL	4.3	-	-	4.3	-	-	5.3	-	-	5.3	-	-
3: Kapiolani Street & Hualalai Street												
NB LT/TH/RT	7.7	0.01	A	7.8	0.00	A	7.8	0.01	A	7.9	0.00	A
EB LT/TH/RT	16.8	0.11	C	15.0	0.08	C	18.7	0.14	C	17.9	0.12	C
WB LT/TH/RT	16.1	0.24	C	19.7	0.48	C	19.3	0.31	C	27.2	0.60	D
SB LT/TH/RT	8.5	0.08	A	7.9	0.05	A	8.7	0.09	A	8.0	0.06	A
OVERALL	3.4	-	-	6.4	-	-	3.9	-	-	7.9	-	-

5. FUTURE YEAR 2021

5.1 Background

The Project proposes a new residential development that will consist of 64 affordable multi-family units with 145 parking stalls located on an approximately 5-acre site. The Project site is bordered by Kukuau Street to the north, Kapiolani Street to the east and Hualalai Street to the south. Access to the Project Site will be provided along Kapiolani Street and Kukuau Street via Kupukupu Street. Completion of the Project is anticipated in 2021.

5.2 Travel Demand Estimations

5.2.1 Trip Generation

The Institute of Transportation Engineers (ITE) publishes a book based on empirical data compiled from a body of more than 4,250 trip generation studies submitted by public agencies, developers, consulting firms, and associations. This publication, titled Trip Generation Manual, 10th Edition, provides trip rates and/or formulae based on graphs that correlate vehicular trips with independent variables. The independent variables can range from Dwelling Units (DU) for single-family detached homes to Square Feet Gross Floor Area (SF GFA) for commercial or office development. These trip rates/formulae and their associated directional distributions were used to estimate the increase in the number of vehicular trips generated by the proposed Project.

See Tables 5.1 and 5.2 for Trip Generation formulae and projections for the Project.

5.2.2 Trip Distribution and Assignment

Trips generated by the Project were assigned throughout the study area generally based upon existing travel patterns and the Hawaii Department of Transportation (HDOT) Travel Demand Forecasting Model (TDFM). The traffic generated by the Project was added to the forecast Base Year traffic volumes to constitute the traffic volumes for Future Year conditions with the Project.

Table 5.1: Trip Generation Rates

Land Use	Independent Variable	AM Peak Hour		PM Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter
Low-Rise Multifamily Housing (220)	DU	[a]	23%	[b]	63%

[a] Ln(T)=0.95Ln(X)-0.51
[b] Ln(T)=0.89Ln(X)-0.02

Table 5.2: Project-Generated Trips

Land Use	Independent Variable	AM Peak Hour			PM Peak Hour		
		Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
Low-Rise Multifamily Housing (220)	64 DU	7	25	32	25	15	40

5.3 Future Year 2021 with Project Analysis

By Future Year 2021, the Project is projected to generate a total of 32(40) net external trips during the AM(PM) peak hours of traffic. The projected growth in traffic is expected along major roadways in the study area. Figure 5.1 illustrates the Future Year 2021 Project-generated trip distribution.

5.3.1 Future Year 2021 with Project Intersection Analysis

It is anticipated that by Future Year 2021 with the Project, traffic will increase slightly compared to Base Year 2021 conditions without the Project due to the projected growth along Kapiolani Street and Kukuau Street. Despite the added traffic, all movements will continue to operate similar to Base Year 2021 conditions at LOS C or better during the AM peak hour of traffic and LOS D or better during the PM peak hour. Both Project access intersections are anticipated to operate with all movements at LOS B or better during both peak hours.

Figure 5.2 illustrates the Future Year 2021 with Project forecast traffic volumes and LOS for the study intersection movements. Table 5.3 summarizes the Future Year 2021 with Project LOS at the study intersections compared to Base Year 2021 without Project. LOS worksheets are provided in Appendix C.

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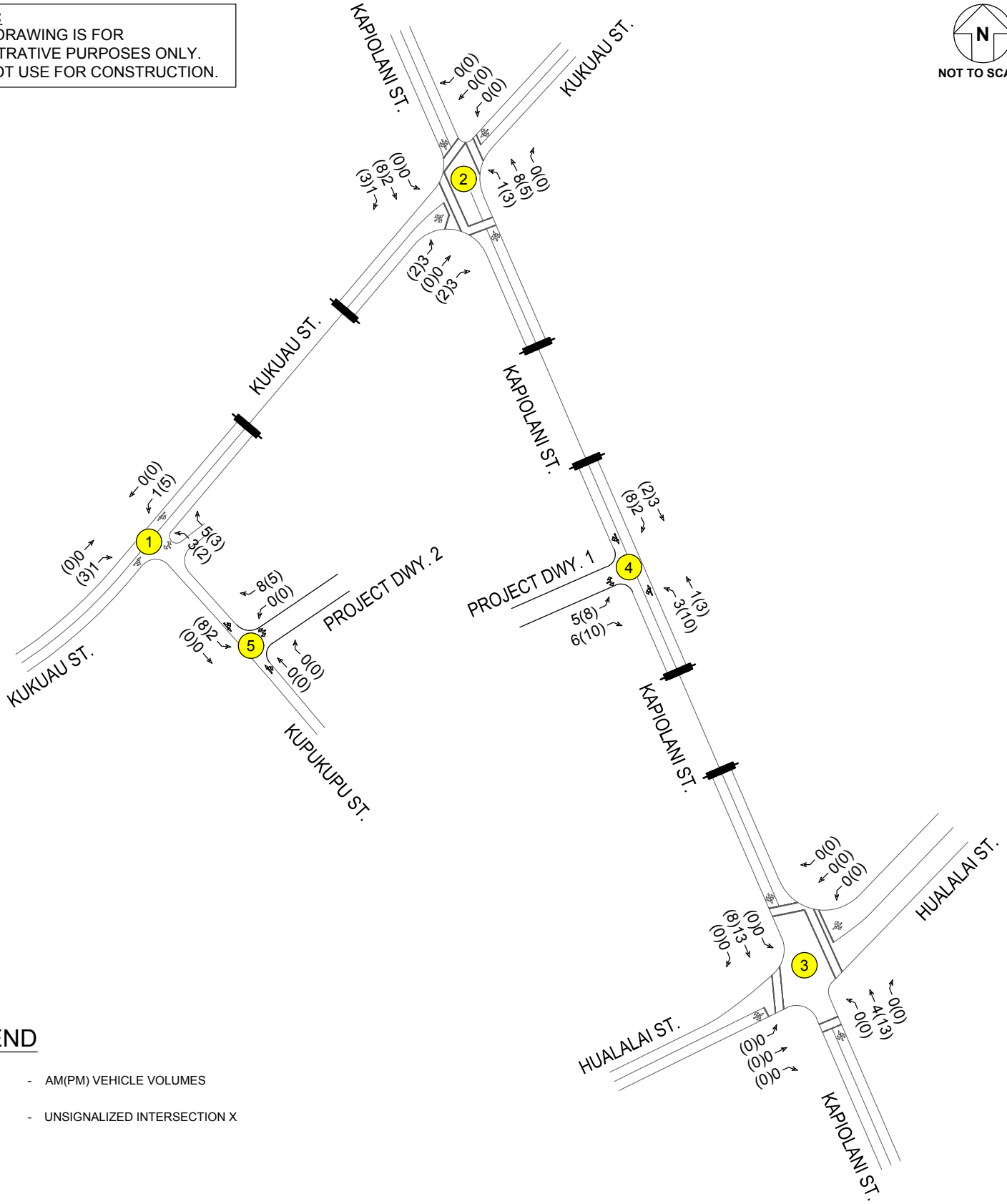

LEGEND

##(##)	-	AM(PM) VEHICLE VOLUMES
X	-	UNSIGNALIZED INTERSECTION X

FIGURE 5.1

PROJECT-GENERATED TRAFFIC

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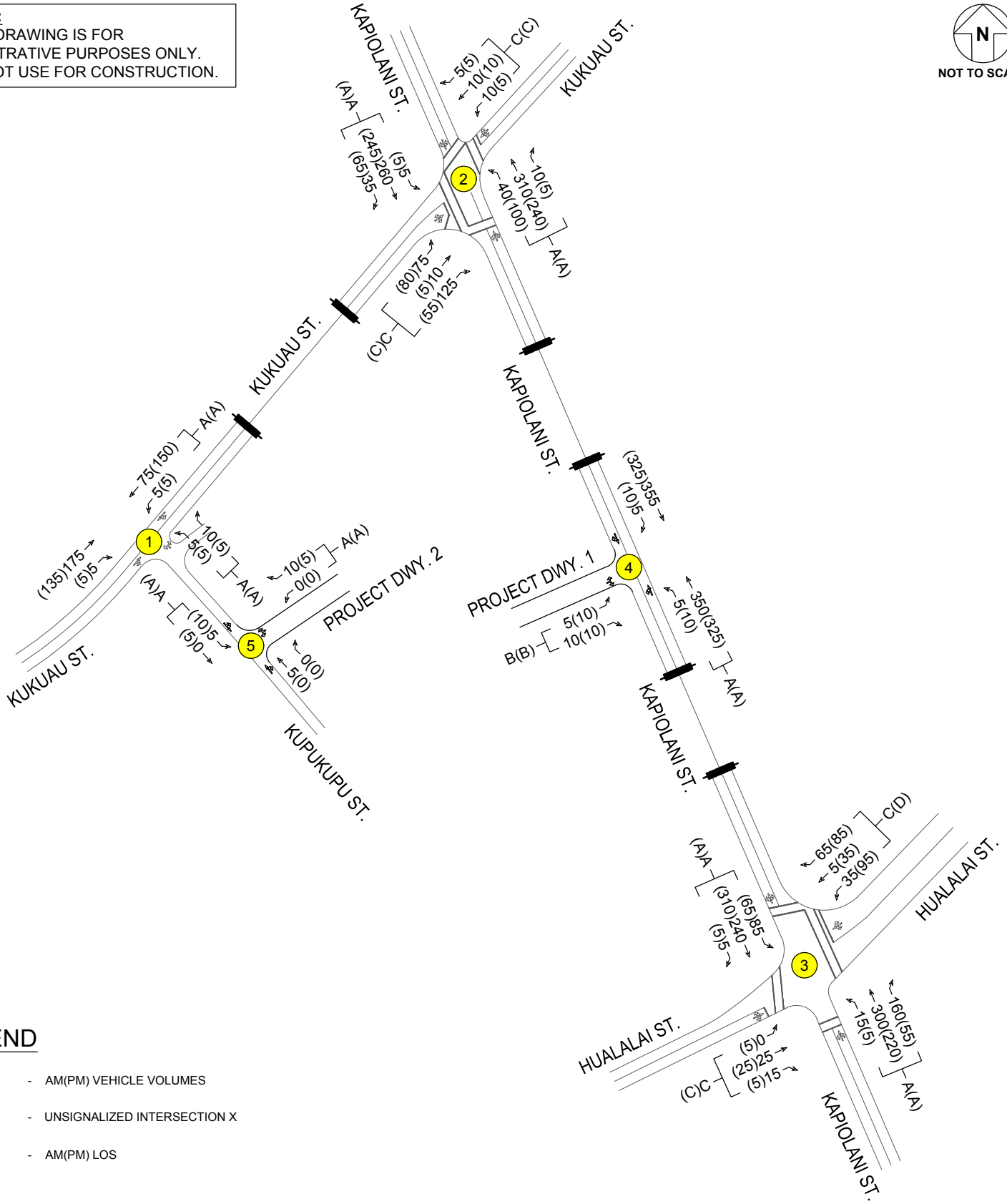

LEGEND

##(##)	-	AM(PM) VEHICLE VOLUMES
X	-	UNSIGNALIZED INTERSECTION X
X(X)	-	AM(PM) LOS

FIGURE 5.2

FUTURE YEAR 2021 LANE CONFIGURATIONS, TRAFFIC VOLUMES AND LOS

TABLE 5.3: LOS SUMMARY TABLE
BASE YEAR 2021 AND FUTURE YEAR 2021

Intersection	Base Year 2021						Future Year 2021					
	AM			PM			AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Kupukupu Street & Kukuau Street												
NB LT/RT	9.3	0.01	A	0.0	0.00	A	9.7	0.02	A	9.8	0.01	A
WB LT/TH	0.0	0.00	A	0.0	0.00	A	7.7	0.00	A	7.6	0.00	A
OVERALL	0.2	-	-	0.0	-	-	0.7	-	-	0.4	-	-
2: Kapiolani Street & Kukuau Street												
NB LT/TH/RT	8.0	0.04	A	8.2	0.09	A	8.0	0.04	A	8.3	0.09	A
EB LT/TH/RT	18.9	0.47	C	22.0	0.42	C	20.0	0.49	C	22.8	0.43	C
WB LT/TH/RT	18.0	0.09	C	17.2	0.07	C	18.2	0.09	C	17.5	0.07	C
SB LT/TH/RT	8.0	0.00	A	7.8	0.00	A	8.0	0.01	A	7.8	0.00	A
OVERALL	5.3	-	-	5.3	-	-	5.6	-	-	5.4	-	-
3: Kapiolani Street & Hualalai Street												
NB LT/TH/RT	7.8	0.01	A	7.9	0.00	A	7.8	0.01	A	8.0	0.00	A
EB LT/TH/RT	18.7	0.14	C	17.9	0.12	C	19.1	0.15	C	18.4	0.12	C
WB LT/TH/RT	19.3	0.31	C	27.2	0.60	D	19.8	0.32	C	29.1	0.62	D
SB LT/TH/RT	8.7	0.09	A	8.0	0.06	A	8.7	0.09	A	8.0	0.06	A
OVERALL	3.9	-	-	7.9	-	-	3.9	-	-	8.2	-	-
4: Kapiolani Street & Project Driveway 1												
NB LT/TH							8.1	0.01	A	8.0	0.01	A
EB LT/RT							13.1	0.05	B	11.8	0.03	B
OVERALL							0.4	-	-	0.4	-	-
5: Kupukupu Street & Project Driveway 2												
WB LT/RT							8.4	0.01	A	0.0	0.00	A
SB LT/TH							7.2	0.00	A	0.0	0.00	A
OVERALL							6.0	-	-	0.0	-	-

6. CONCLUSIONS

The Project proposes a new residential development that will consist of 64 affordable multi-family units with 145 parking stalls located on an approximately 5-acre site. The Project site is bordered by Kukuau Street to the north, Kapiolani Street to the east and Hualalai Street to the south. Access to the Project Site will be provided along Kapiolani Street and Kukuau Street via Kupukupu Street. Completion of the Project is anticipated in 2021.

At full buildout, the Project is projected to generate a total of 32(40) net external trips during the AM(PM) peak hours of traffic.

6.1 Existing Conditions

Traffic volumes in the study area were generally light with the studied roadways serving local traffic only. All intersections were observed to operate adequately with no major delays to any movements. The study intersections operate satisfactorily during both peak hours of traffic with all movements operating at LOS C or better.

6.2 Base Year 2021

Traffic projections in the study area were based upon known developments in the region along with an ambient growth rate applied to nearby roadways. The majority of movements at the study intersections are anticipated to continue operating similar to existing conditions by Base Year 2021. Although some of the minor street movements are expected to experience longer delays, all minor street movements are anticipated to operate at LOS C or better during the AM peak hour of traffic and LOS D or better during the PM peak hour. All major street movements are anticipated to continue operating at LOS A during both peak hours.

6.3 Future Year 2021 with Project

At full buildout, the Project is projected to generate a total of 32(40) net external trips during the AM(PM) peak hours of traffic. Traffic from the Project is expected to generate growth along major roadways in the study area.

It is anticipated that by Future Year 2021 with the Project, traffic will increase slightly compared to Base Year 2021 conditions without the Project due to the projected growth along Kapiolani Street and Kukuau Street. Despite the added traffic, all movements will continue to operate similar to Base Year 2021 conditions at LOS C or better during the AM peak hour of traffic and LOS D or better during the PM peak hour. Both Project access intersections are anticipated to operate with all movements at LOS B or better during both peak hours.

7. REFERENCES

1. Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017.
2. Transportation Research Board, Highway Capacity Manual, 6th Edition, 2016.

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A P P E N D I C E S

APPENDIX A

TRAFFIC COUNT DATA

Austin Tsutsumi & Associates

1871 Wili Pa Loop, Suite A
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Phone: (808) 244-8044 Fax: (808) 242-9163

File Name : Kukuau St-Kupukupu St
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	From North				KUKUAU ST From East				KUPUKUPKU ST From South				KUKUAU ST From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	11	0	0	0	0	0	1	0	22	0	0	34
07:15 AM	0	0	0	0	0	15	0	0	0	0	0	3	0	34	0	0	52
07:30 AM	0	0	0	0	0	15	0	0	1	0	0	3	0	59	0	0	78
07:45 AM	0	0	0	0	0	23	0	0	0	0	0	0	0	37	0	0	60
Total	0	0	0	0	0	64	0	0	1	0	0	7	0	152	0	0	224
Grand Total	0	0	0	0	0	64	0	0	1	0	0	7	0	152	0	0	224
Apprch %	0	0	0	0	0	100	0	0	12.5	0	0	87.5	0	100	0	0	
Total %	0	0	0	0	0	28.6	0	0	0.4	0	0	3.1	0	67.9	0	0	
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	0	0	0	0	0	62	0	0	1	0	0	0	0	151	0	0	214
% Cars & Light Goods	0	0	0	0	0	96.9	0	0	100	0	0	0	0	99.3	0	0	95.5
Buses	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0	0	0	0	3.1	0	0	0	0	0	0	0	0	0	0	0.9
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0.4
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	3.1

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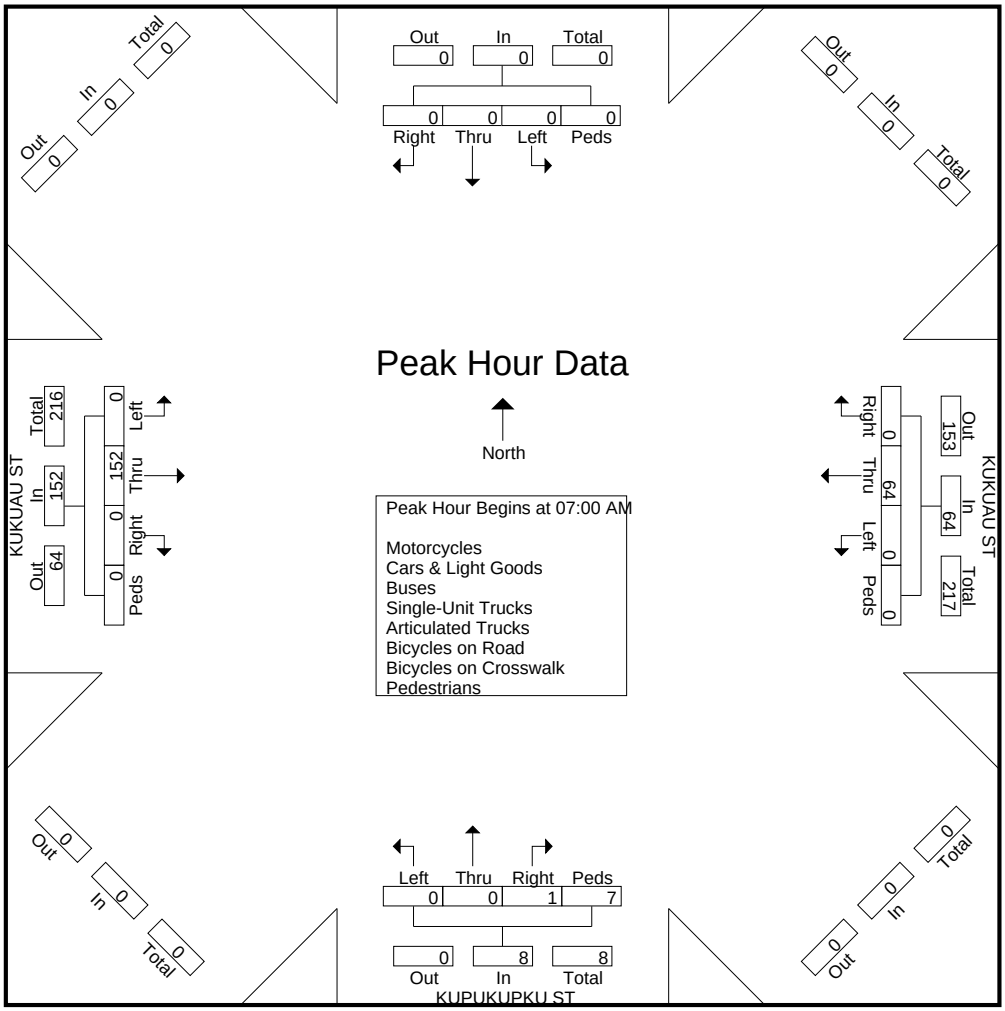
File Name : Kukuau St-Kupukupu St
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 2

	From North					KUKUAU ST From East					KUPUKUPKU ST From South					KUKUAU ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	11	0	0	11	0	0	0	1	1	0	22	0	0	22	34
07:15 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	**3**	3	0	34	0	0	34	52
07:30 AM	0	0	0	0	0	0	15	0	0	15	**1**	0	0	3	**4**	0	**59**	0	0	**59**	**78**
07:45 AM	0	0	0	0	0	0	**23**	0	0	**23**	0	0	0	0	0	0	37	0	0	37	60
Total Volume	0	0	0	0	0	0	64	0	0	64	1	0	0	7	8	0	152	0	0	152	224
% App. Total	0	0	0	0		0	100	0	0		12.5	0	0	87.5		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.696	.000	.000	.696	.250	.000	.000	.583	.500	.000	.644	.000	.000	.644	.718



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1871 Wili Pa Loop, Suite A
Wailuku, Hawaii 96793
Phone: (808) 244-8044 Fax: (808) 242-9163

File Name : KAPIOLANI ST-KUKUAU ST
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	KAPIOLANI ST From North				KUKUAU ST From East				KAPIOLANI ST From South				KUKUAU ST From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	7	45	0	1	0	5	0	0	0	66	3	0	20	1	14	2	164
07:15 AM	3	62	0	0	0	0	0	0	2	67	10	0	43	4	17	0	208
07:30 AM	7	66	1	0	1	1	2	0	1	68	15	2	33	0	15	0	212
07:45 AM	10	60	1	2	2	1	3	2	1	78	6	0	20	4	13	1	204
Total	27	233	2	3	3	7	5	2	4	279	34	2	116	9	59	3	788
Grand Total	27	233	2	3	3	7	5	2	4	279	34	2	116	9	59	3	788
Apprch %	10.2	87.9	0.8	1.1	17.6	41.2	29.4	11.8	1.3	87.5	10.7	0.6	62	4.8	31.6	1.6	
Total %	3.4	29.6	0.3	0.4	0.4	0.9	0.6	0.3	0.5	35.4	4.3	0.3	14.7	1.1	7.5	0.4	
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	26	230	2	0	3	6	5	0	4	278	34	0	116	8	58	0	770
% Cars & Light Goods	96.3	98.7	100	0	100	85.7	100	0	100	99.6	100	0	100	88.9	98.3	0	97.7
Buses	1	2	0	0	0	1	0	0	0	1	0	0	0	0	1	0	6
% Buses	3.7	0.9	0	0	0	14.3	0	0	0	0.4	0	0	0	0	1.7	0	0.8
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
% Bicycles on Road	0	0.4	0	0	0	0	0	0	0	0	0	0	0	11.1	0	0	0.3
Bicycles on Crosswalk	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
% Bicycles on Crosswalk	0	0	0	33.3	0	0	0	0	0	0	0	0	0	0	0	33.3	0.3
Pedestrians	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	8
% Pedestrians	0	0	0	66.7	0	0	0	100	0	0	0	100	0	0	0	66.7	1

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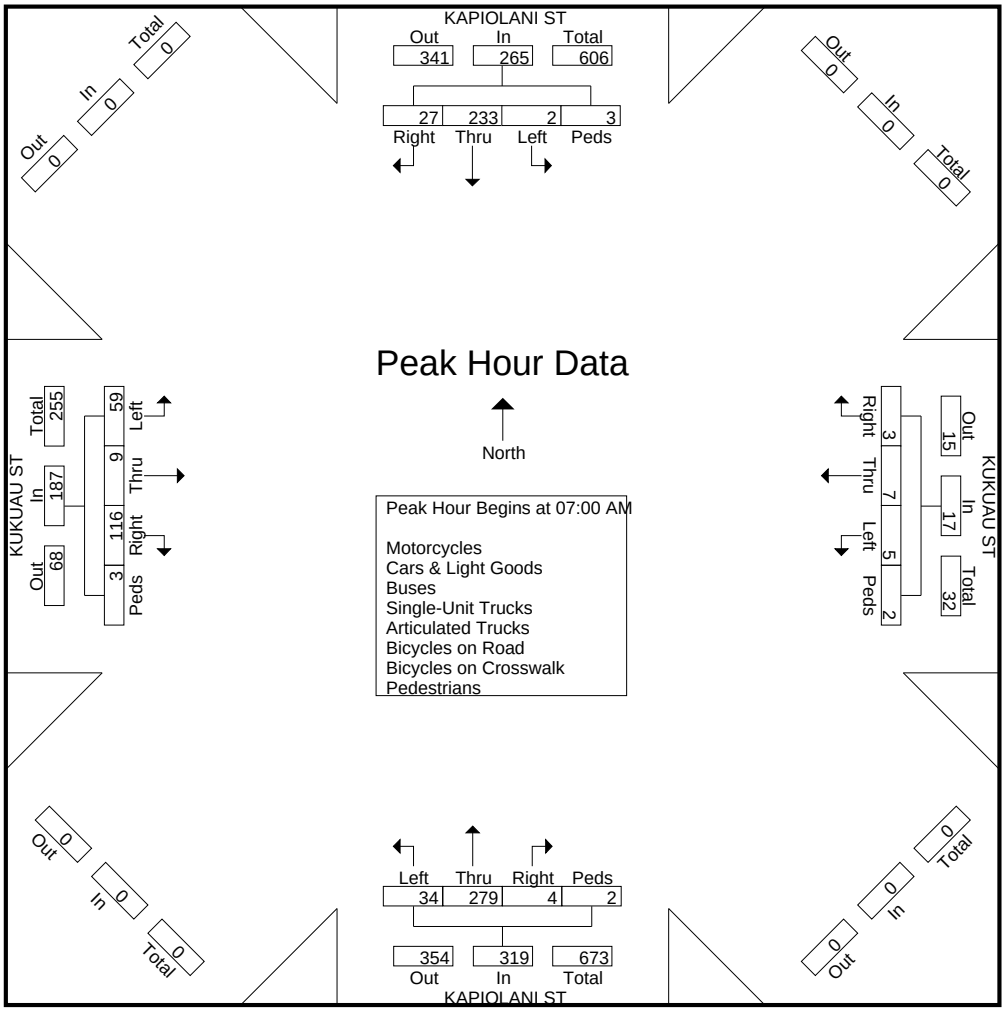
File Name : KAPIOLANI ST-KUKUAU ST
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 2

	KAPIOLANI ST From North					KUKUAU ST From East					KAPIOLANI ST From South					KUKUAU ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	7	45	0	1	53	0	**5**	0	0	5	0	66	3	0	69	20	1	14	**2**	37	164
07:15 AM	3	62	0	0	65	0	0	0	0	0	**2**	67	10	0	79	**43**	**4**	**17**	0	**64**	208
07:30 AM	7	**66**	**1**	0	**74**	1	1	2	0	4	1	68	**15**	**2**	**86**	33	0	15	0	48	**212**
07:45 AM	**10**	60	1	**2**	73	**2**	1	**3**	**2**	**8**	1	**78**	6	0	85	20	4	13	1	38	204
Total Volume	27	233	2	3	265	3	7	5	2	17	4	279	34	2	319	116	9	59	3	187	788
% App. Total	10.2	87.9	0.8	1.1		17.6	41.2	29.4	11.8		1.3	87.5	10.7	0.6		62	4.8	31.6	1.6		
PHF	.675	.883	.500	.375	.895	.375	.350	.417	.250	.531	.500	.894	.567	.250	.927	.674	.563	.868	.375	.730	.929



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File Name : Kapiolani St-Hualalai St
Site Code : 19-524 UHC Hilo Kaiaulu TIAR
Start Date : 5/14/2019
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	KAPIOLANI ST From North				HUALALAI ST From East				KAPIOLANI ST From South				HUALALAI ST From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	44	15	0	13	0	5	0	21	70	3	0	3	7	0	1	182
07:15 AM	0	48	22	0	13	0	10	0	51	61	5	0	5	4	0	0	219
07:30 AM	1	74	35	0	21	0	11	0	53	76	3	0	4	6	0	0	284
07:45 AM	1	38	12	0	14	0	7	1	27	45	2	0	0	4	0	0	151
Total	2	204	84	0	61	0	33	1	152	252	13	0	12	21	0	1	836
Grand Total	2	204	84	0	61	0	33	1	152	252	13	0	12	21	0	1	836
Apprch %	0.7	70.3	29	0	64.2	0	34.7	1.1	36.5	60.4	3.1	0	35.3	61.8	0	2.9	
Total %	0.2	24.4	10	0	7.3	0	3.9	0.1	18.2	30.1	1.6	0	1.4	2.5	0	0.1	
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	2	203	83	0	60	0	33	0	149	252	12	0	11	21	0	0	826
% Cars & Light Goods	100	99.5	98.8	0	98.4	0	100	0	98	100	92.3	0	91.7	100	0	0	98.8
Buses	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3
% Buses	0	0.5	1.2	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0.4
Single-Unit Trucks	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
% Single-Unit Trucks	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	7.7	0	0	0	0	0	0.1
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	8.3	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
% Pedestrians	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0.2

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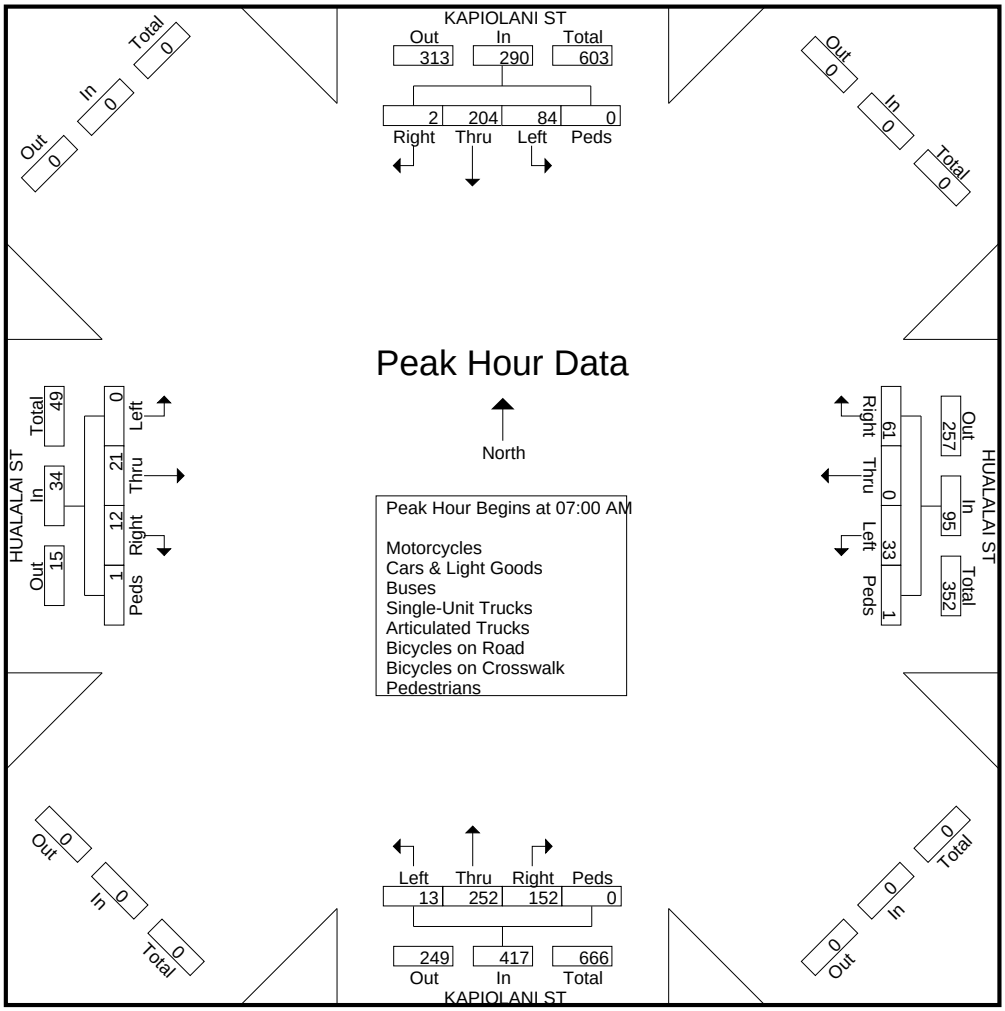
File Name : Kapiolani St-Hualalai St
Site Code : 19-524 UHC Hilo Kaiaulu TIAR
Start Date : 5/14/2019
Page No : 2

	KAPIOLANI ST From North					HUALALAI ST From East					KAPIOLANI ST From South					HUALALAI ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	44	15	0	59	13	0	5	0	18	21	70	3	0	94	3	**7**	0	**1**	**11**	182
07:15 AM	0	48	22	0	70	13	0	10	0	23	51	61	**5**	0	117	**5**	4	0	0	9	219
07:30 AM	**1**	**74**	**35**	0	**110**	**21**	0	**11**	0	**32**	**53**	**76**	3	0	**132**	4	6	0	0	10	**284**
07:45 AM	1	38	12	0	51	14	0	7	**1**	22	27	45	2	0	74	0	4	0	0	4	151
Total Volume	2	204	84	0	290	61	0	33	1	95	152	252	13	0	417	12	21	0	1	34	836
% App. Total	0.7	70.3	29	0		64.2	0	34.7	1.1		36.5	60.4	3.1	0		35.3	61.8	0	2.9		
PHF	.500	.689	.600	.000	.659	.726	.000	.750	.250	.742	.717	.829	.650	.000	.790	.600	.750	.000	.250	.773	.736



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File Name : Kukuau St-Kupukupu St
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	From North				KUKUAU ST From East				KUPUKUPKU ST From South				KUKUAU ST From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:45 PM	0	0	0	0	0	25	0	0	0	0	0	1	0	18	0	0	44
Total	0	0	0	0	0	25	0	0	0	0	0	1	0	18	0	0	44
04:00 PM	0	0	0	0	0	23	0	0	0	0	0	0	1	30	0	0	54
04:15 PM	0	0	0	0	0	28	0	0	0	0	0	1	0	31	0	0	60
04:30 PM	0	0	0	0	0	47	0	0	0	0	0	3	0	31	0	0	81
Grand Total	0	0	0	0	0	123	0	0	0	0	0	5	1	110	0	0	239
Apprch %	0	0	0	0	0	100	0	0	0	0	0	100	0.9	99.1	0	0	
Total %	0	0	0	0	0	51.5	0	0	0	0	0	2.1	0.4	46	0	0	
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	0	0	0	0	0	122	0	0	0	0	0	0	1	109	0	0	232
% Cars & Light Goods	0	0	0	0	0	99.2	0	0	0	0	0	0	100	99.1	0	0	97.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Single-Unit Trucks	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	0	0	0.4
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	2.1

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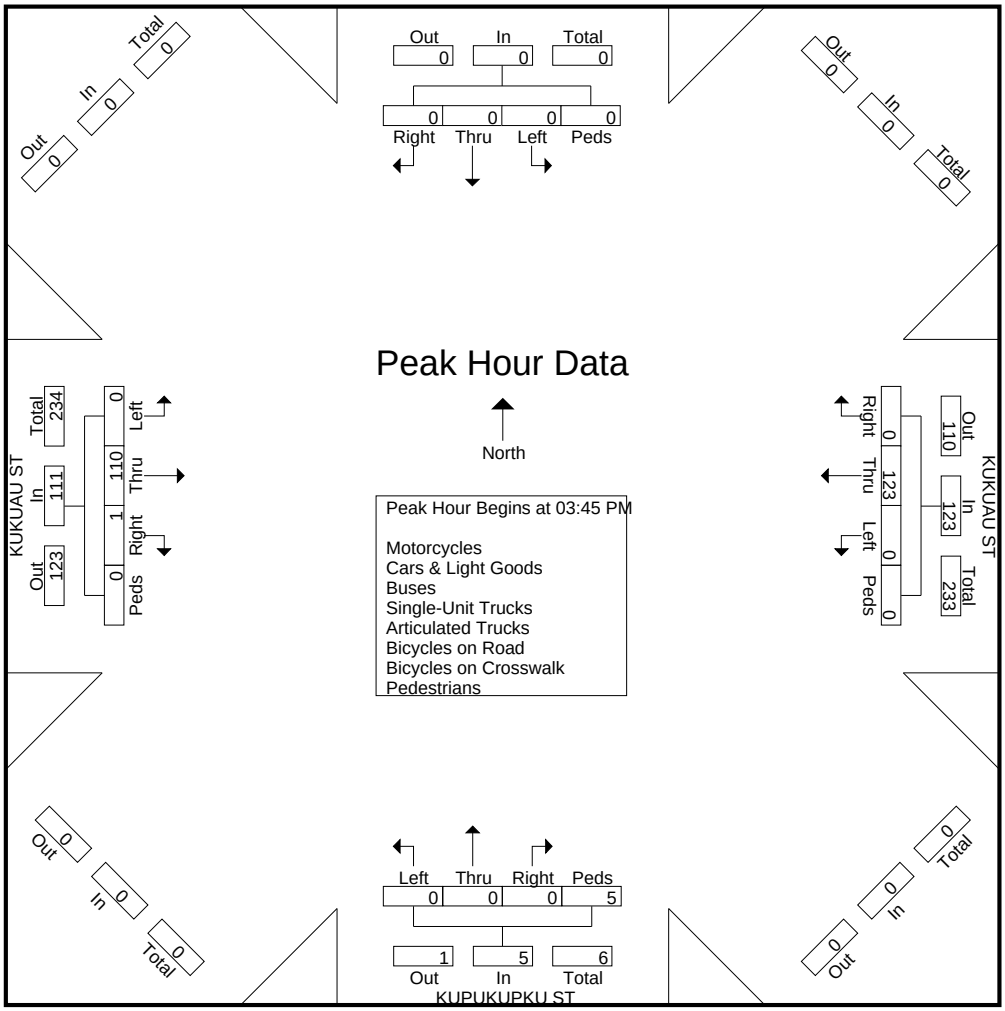
File Name : Kukuau St-Kupukupu St
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 2

	From North					KUKUAU ST From East					KUPUKUPKU ST From South					KUKUAU ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	0	0	0	0	0	25	0	0	25	0	0	0	1	1	0	18	0	0	18	44
04:00 PM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	**1**	30	0	0	**31**	54
04:15 PM	0	0	0	0	0	0	28	0	0	28	0	0	0	1	1	0	**31**	0	0	31	60
04:30 PM	0	0	0	0	0	0	**47**	0	0	**47**	0	0	0	**3**	**3**	0	31	0	0	31	**81**
Total Volume	0	0	0	0	0	0	123	0	0	123	0	0	0	5	5	1	110	0	0	111	239
% App. Total	0	0	0	0		0	100	0	0		0	0	0	100		0.9	99.1	0	0		
PHF	.000	.000	.000	.000	.000	.000	.654	.000	.000	.654	.000	.000	.000	.417	.417	.250	.887	.000	.000	.895	.738



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File Name : KAPIOLANI ST-KUKUAU ST
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	KAPIOLANI ST From North				KUKUAU ST From East				KAPIOLANI ST From South				KUKUAU ST From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:45 PM	3	52	0	0	0	3	0	1	1	48	14	1	17	1	13	1	155
Total	3	52	0	0	0	3	0	1	1	48	14	1	17	1	13	1	155
04:00 PM	12	41	1	0	1	2	0	0	0	46	21	0	9	2	18	2	155
04:15 PM	15	50	0	0	0	3	1	0	1	46	27	1	12	0	19	1	176
04:30 PM	17	66	0	0	3	2	0	0	0	67	27	0	9	2	15	0	208
Grand Total	47	209	1	0	4	10	1	1	2	207	89	2	47	5	65	4	694
Apprch %	18.3	81.3	0.4	0	25	62.5	6.2	6.2	0.7	69	29.7	0.7	38.8	4.1	53.7	3.3	
Total %	6.8	30.1	0.1	0	0.6	1.4	0.1	0.1	0.3	29.8	12.8	0.3	6.8	0.7	9.4	0.6	
Motorcycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
% Motorcycles	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0.1
Cars & Light Goods	47	208	1	0	4	10	1	0	2	206	89	0	47	4	65	0	684
% Cars & Light Goods	100	99.5	100	0	100	100	100	0	100	99.5	100	0	100	80	100	0	98.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
% Bicycles on Road	0	0.5	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0.3
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	4	7
% Pedestrians	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0	100	1

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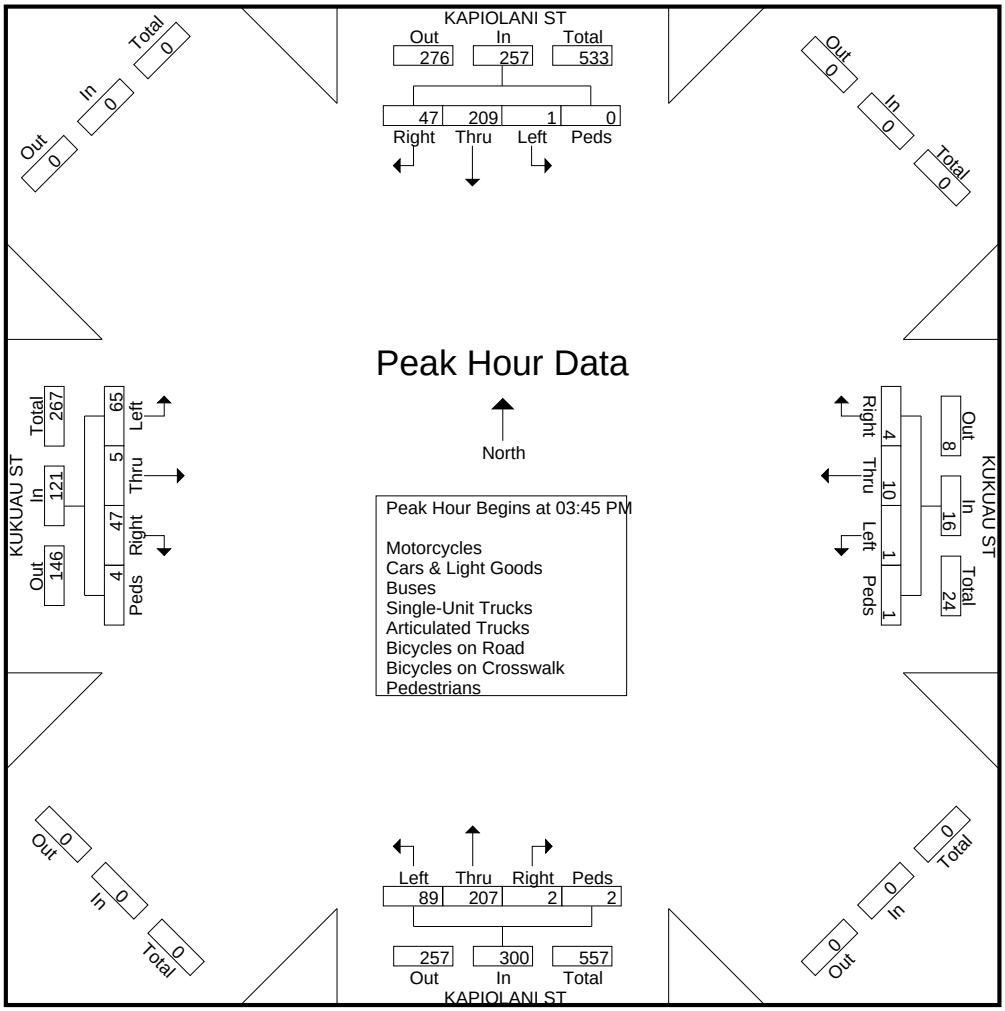
File Name : KAPIOLANI ST-KUKUAU ST
Site Code : 19-524 UHC HILO KAIAULU TIAR
Start Date : 5/14/2019
Page No : 2

	KAPIOLANI ST From North					KUKUAU ST From East					KAPIOLANI ST From South					KUKUAU ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	3	52	0	0	55	0	**3**	0	**1**	4	**1**	48	14	**1**	64	**17**	1	13	1	**32**	155
04:00 PM	12	41	**1**	0	54	1	2	0	0	3	0	46	21	0	67	9	**2**	18	**2**	31	155
04:15 PM	15	50	0	0	65	0	3	**1**	0	4	1	46	**27**	1	75	12	0	**19**	1	32	176
04:30 PM	**17**	**66**	0	0	**83**	**3**	2	0	0	**5**	0	**67**	27	0	**94**	9	2	15	0	26	**208**
Total Volume	47	209	1	0	257	4	10	1	1	16	2	207	89	2	300	47	5	65	4	121	694
% App. Total	18.3	81.3	0.4	0		25	62.5	6.2	6.2		0.7	69	29.7	0.7		38.8	4.1	53.7	3.3		
PHF	.691	.792	.250	.000	.774	.333	.833	.250	.250	.800	.500	.772	.824	.500	.798	.691	.625	.855	.500	.945	.834



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File Name : Kapiolani St-Hualalai St
Site Code : 19-524 UHC Hilo Kaiaulu TIAR
Start Date : 5/14/2019
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	KAPIOLANI ST From North				HUALALAI ST From East				KAPIOLANI ST From South				HUALALAI ST From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:45 PM	1	55	13	0	24	12	12	0	15	35	0	0	1	4	1	0	173
Total	1	55	13	0	24	12	12	0	15	35	0	0	1	4	1	0	173
04:00 PM	2	62	14	0	14	5	18	0	13	39	1	0	2	8	0	0	178
04:15 PM	0	42	11	0	19	8	22	1	15	49	1	0	1	7	1	0	177
04:30 PM	0	87	24	0	28	6	36	0	7	55	1	0	1	2	0	0	247
Grand Total	3	246	62	0	85	31	88	1	50	178	3	0	5	21	2	0	775
Apprch %	1	79.1	19.9	0	41.5	15.1	42.9	0.5	21.6	77.1	1.3	0	17.9	75	7.1	0	
Total %	0.4	31.7	8	0	11	4	11.4	0.1	6.5	23	0.4	0	0.6	2.7	0.3	0	
Motorcycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
% Motorcycles	0	0	0	0	0	0	0	0	0	0.6	0	0	0	0	0	0	0.1
Cars & Light Goods	3	246	62	0	84	31	88	0	50	177	3	0	5	21	2	0	772
% Cars & Light Goods	100	100	100	0	98.8	100	100	0	100	99.4	100	0	100	100	100	0	99.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
% Single-Unit Trucks	0	0	0	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
% Pedestrians	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0.1

Austin Tsutsumi & Associates

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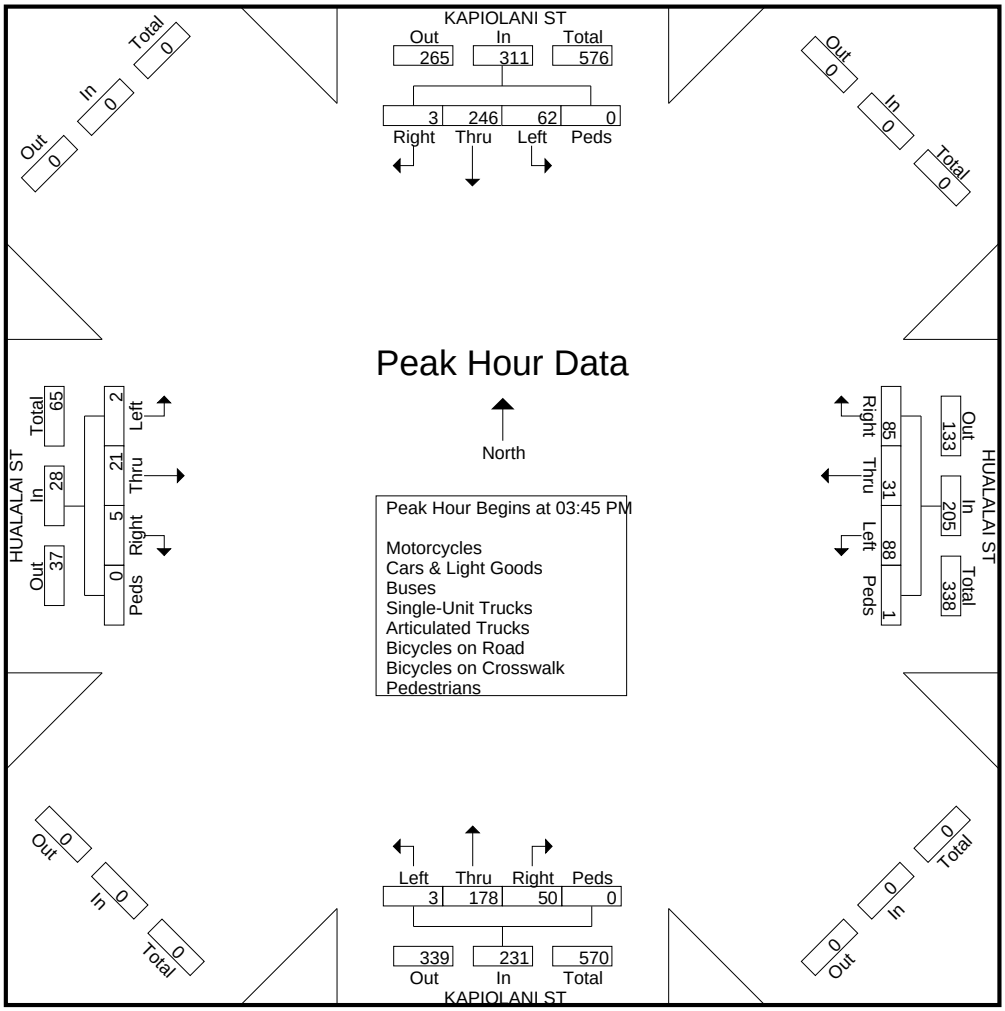
Phone: (808) 244-8044 Fax: (808) 242-9163

File Name : Kapiolani St-Hualalai St
Site Code : 19-524 UHC Hilo Kaiaulu TIAR
Start Date : 5/14/2019
Page No : 2

	KAPIOLANI ST From North					HUALALAI ST From East					KAPIOLANI ST From South					HUALALAI ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	1	55	13	0	69	24	**12**	12	0	48	**15**	35	0	0	50	1	4	**1**	0	6	173
04:00 PM	**2**	62	14	0	78	14	5	18	0	37	13	39	**1**	0	53	**2**	**8**	0	0	**10**	178
04:15 PM	0	42	11	0	53	19	8	22	**1**	50	15	49	1	0	**65**	1	7	1	0	9	177
04:30 PM	0	**87**	**24**	0	**111**	**28**	6	**36**	0	**70**	7	**55**	1	0	63	1	2	0	0	3	**247**
Total Volume	3	246	62	0	311	85	31	88	1	205	50	178	3	0	231	5	21	2	0	28	775
% App. Total	1	79.1	19.9	0		41.5	15.1	42.9	0.5		21.6	77.1	1.3	0		17.9	75	7.1	0		
PHF	.375	.707	.646	.000	.700	.759	.646	.611	.250	.732	.833	.809	.750	.000	.888	.625	.656	.500	.000	.700	.784



APPENDIX B

LEVEL OF SERVICE CRITERIA

APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 6th Edition)

Level of service for vehicles at signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in the table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	< 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

VEHICULAR LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6th Edition)

The level of service criteria for vehicles at unsignalized intersections is defined as the average control delay, in seconds per vehicle.

LOS delay threshold values are lower for two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections than those of signalized intersections. This is because more vehicles pass through signalized intersections, and therefore, drivers expect and tolerate greater delays. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing AM Peak

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	152	0	0	64	0	1
Future Vol, veh/h	152	0	0	64	0	1
Conflicting Peds, #/hr	0	7	7	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	0	0	70	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	242	172
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1405	-	746	872
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1396	-	741	866
Mov Cap-2 Maneuver	-	-	-	-	741	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	866	-	-	1396	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	9	116	5	7	3	34	279	4	2	233	27
Future Vol, veh/h	59	9	116	5	7	3	34	279	4	2	233	27
Conflicting Peds, #/hr	3	0	2	2	0	3	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	10	126	5	8	3	37	303	4	2	253	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	663	658	273	723	670	310	285	0	0	309	0	0
Stage 1	275	275	-	381	381	-	-	-	-	-	-	-
Stage 2	388	383	-	342	289	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	375	384	766	342	378	730	1277	-	-	1252	-	-
Stage 1	731	683	-	641	613	-	-	-	-	-	-	-
Stage 2	636	612	-	673	673	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	355	368	762	271	362	727	1273	-	-	1250	-	-
Mov Cap-2 Maneuver	355	368	-	271	362	-	-	-	-	-	-	-
Stage 1	703	680	-	617	590	-	-	-	-	-	-	-
Stage 2	601	589	-	551	670	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	15.5	0.8	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1273	-	-	537	358	1250	-	-
HCM Lane V/C Ratio	0.029	-	-	0.372	0.046	0.002	-	-
HCM Control Delay (s)	7.9	0	-	15.6	15.5	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	21	12	33	0	61	13	252	152	84	204	2
Future Vol, veh/h	0	21	12	33	0	61	13	252	152	84	204	2
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	13	36	0	66	14	274	165	91	222	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	824	874	224	809	793	358	225	0	0	440	0	0
Stage 1	406	406	-	386	386	-	-	-	-	-	-	-
Stage 2	418	468	-	423	407	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	292	288	815	299	321	686	1344	-	-	1120	-	-
Stage 1	622	598	-	637	610	-	-	-	-	-	-	-
Stage 2	612	561	-	609	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	242	257	814	252	287	685	1343	-	-	1119	-	-
Mov Cap-2 Maneuver	242	257	-	252	287	-	-	-	-	-	-	-
Stage 1	613	542	-	627	601	-	-	-	-	-	-	-
Stage 2	545	553	-	521	541	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.8	16.1	0.2	2.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1343	-	-	342	427	1119	-	-
HCM Lane V/C Ratio	0.011	-	-	0.105	0.239	0.082	-	-
HCM Control Delay (s)	7.7	0	-	16.8	16.1	8.5	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.9	0.3	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing PM Peak

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	1	0	123	0	0
Future Vol, veh/h	110	1	0	123	0	0
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	1	0	134	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	126	0	260	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1460	-	729	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1453	-	725	920
Mov Cap-2 Maneuver	-	-	-	-	725	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1453	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	5	47	1	10	4	89	207	2	1	209	47
Future Vol, veh/h	65	5	47	1	10	4	89	207	2	1	209	47
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	1	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	5	51	1	11	4	97	225	2	1	227	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	687	681	259	706	705	227	282	0	0	228	0	0
Stage 1	259	259	-	421	421	-	-	-	-	-	-	-
Stage 2	428	422	-	285	284	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	361	373	780	351	361	812	1280	-	-	1340	-	-
Stage 1	746	694	-	610	589	-	-	-	-	-	-	-
Stage 2	605	588	-	722	676	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	325	339	776	301	328	811	1275	-	-	1339	-	-
Mov Cap-2 Maneuver	325	339	-	301	328	-	-	-	-	-	-	-
Stage 1	679	691	-	556	537	-	-	-	-	-	-	-
Stage 2	538	536	-	667	673	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	14.7	2.4	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1275	-	-	425	387	1339	-	-
HCM Lane V/C Ratio	0.076	-	-	0.299	0.042	0.001	-	-
HCM Control Delay (s)	8.1	0	-	17	14.7	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	21	5	88	31	85	3	178	50	62	246	3
Future Vol, veh/h	2	21	5	88	31	85	3	178	50	62	246	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	23	5	96	34	92	3	193	54	67	267	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	692	657	269	644	631	221	270	0	0	248	0	0
Stage 1	403	403	-	227	227	-	-	-	-	-	-	-
Stage 2	289	254	-	417	404	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	358	385	770	386	398	819	1293	-	-	1318	-	-
Stage 1	624	600	-	776	716	-	-	-	-	-	-	-
Stage 2	719	697	-	613	599	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	282	360	770	347	373	818	1293	-	-	1317	-	-
Mov Cap-2 Maneuver	282	360	-	347	373	-	-	-	-	-	-	-
Stage 1	622	564	-	773	713	-	-	-	-	-	-	-
Stage 2	606	694	-	549	563	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	19.7	0.1	1.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1293	-	-	389	463	1317	-	-
HCM Lane V/C Ratio	0.003	-	-	0.078	0.479	0.051	-	-
HCM Control Delay (s)	7.8	0	-	15	19.7	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	2.5	0.2	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2021 AM Peak

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	175	0	0	75	0	5
Future Vol, veh/h	175	0	0	75	0	5
Conflicting Peds, #/hr	0	7	7	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	190	0	0	82	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	197	0	279	197
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	82	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1376	-	711	844
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	941	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1367	-	706	838
Mov Cap-2 Maneuver	-	-	-	-	706	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	941	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	838	-	-	1367	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	9.3	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	10	125	10	10	5	40	305	10	5	255	35
Future Vol, veh/h	70	10	125	10	10	5	40	305	10	5	255	35
Conflicting Peds, #/hr	3	0	2	2	0	3	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	11	136	11	11	5	43	332	11	5	277	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	744	740	301	808	754	343	318	0	0	345	0	0
Stage 1	309	309	-	426	426	-	-	-	-	-	-	-
Stage 2	435	431	-	382	328	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	331	345	739	299	338	700	1242	-	-	1214	-	-
Stage 1	701	660	-	606	586	-	-	-	-	-	-	-
Stage 2	600	583	-	640	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	307	327	735	228	320	697	1238	-	-	1212	-	-
Mov Cap-2 Maneuver	307	327	-	228	320	-	-	-	-	-	-	-
Stage 1	669	655	-	579	560	-	-	-	-	-	-	-
Stage 2	557	557	-	509	642	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.9	18	0.9	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1238	-	-	478	304	1212	-	-
HCM Lane V/C Ratio	0.035	-	-	0.466	0.089	0.004	-	-
HCM Control Delay (s)	8	0	-	18.9	18	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0.3	0	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	25	15	35	5	65	15	300	160	85	225	5
Future Vol, veh/h	0	25	15	35	5	65	15	300	160	85	225	5
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	16	38	5	71	16	326	174	92	245	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	916	966	249	899	881	414	251	0	0	501	0	0
Stage 1	433	433	-	446	446	-	-	-	-	-	-	-
Stage 2	483	533	-	453	435	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	253	255	790	260	285	638	1314	-	-	1063	-	-
Stage 1	601	582	-	591	574	-	-	-	-	-	-	-
Stage 2	565	525	-	586	580	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	201	225	789	211	251	637	1313	-	-	1062	-	-
Mov Cap-2 Maneuver	201	225	-	211	251	-	-	-	-	-	-	-
Stage 1	590	523	-	580	564	-	-	-	-	-	-	-
Stage 2	489	516	-	489	521	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.7	19.3	0.2	2.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1313	-	-	307	365	1062	-	-
HCM Lane V/C Ratio	0.012	-	-	0.142	0.313	0.087	-	-
HCM Control Delay (s)	7.8	0	-	18.7	19.3	8.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	1.3	0.3	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2021 PM Peak

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	5	0	150	0	0
Future Vol, veh/h	135	5	0	150	0	0
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	5	0	163	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	157	0	318	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	163	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1423	-	675	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1416	-	672	887
Mov Cap-2 Maneuver	-	-	-	-	672	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	866	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1416	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	5	55	5	10	5	100	235	5	5	235	65
Future Vol, veh/h	80	5	55	5	10	5	100	235	5	5	235	65
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	1	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	5	60	5	11	5	109	255	5	5	255	71

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	789	784	297	812	817	259	330	0	0	261	0	0
Stage 1	305	305	-	477	477	-	-	-	-	-	-	-
Stage 2	484	479	-	335	340	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	308	325	742	298	311	780	1229	-	-	1303	-	-
Stage 1	705	662	-	569	556	-	-	-	-	-	-	-
Stage 2	564	555	-	679	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	271	288	738	247	276	779	1224	-	-	1302	-	-
Mov Cap-2 Maneuver	271	288	-	247	276	-	-	-	-	-	-	-
Stage 1	630	656	-	509	498	-	-	-	-	-	-	-
Stage 2	491	497	-	615	633	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22	17.2	2.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1224	-	-	362	318	1302	-	-
HCM Lane V/C Ratio	0.089	-	-	0.42	0.068	0.004	-	-
HCM Control Delay (s)	8.2	0	-	22	17.2	7.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	2	0.2	0	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	25	5	95	35	85	5	210	55	65	300	5
Future Vol, veh/h	5	25	5	95	35	85	5	210	55	65	300	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	27	5	103	38	92	5	228	60	71	326	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	804	770	329	756	742	259	331	0	0	289	0	0
Stage 1	471	471	-	269	269	-	-	-	-	-	-	-
Stage 2	333	299	-	487	473	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	301	331	712	325	344	780	1228	-	-	1273	-	-
Stage 1	573	560	-	737	687	-	-	-	-	-	-	-
Stage 2	681	666	-	562	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	228	307	712	284	319	779	1228	-	-	1272	-	-
Mov Cap-2 Maneuver	228	307	-	284	319	-	-	-	-	-	-	-
Stage 1	570	522	-	733	683	-	-	-	-	-	-	-
Stage 2	564	662	-	493	520	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.9	27.2	0.1	1.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1228	-	-	317	389	1272	-	-
HCM Lane V/C Ratio	0.004	-	-	0.12	0.601	0.056	-	-
HCM Control Delay (s)	7.9	0	-	17.9	27.2	8	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	3.8	0.2	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2021 AM Peak

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	175	5	5	75	5	10
Future Vol, veh/h	175	5	5	75	5	10
Conflicting Peds, #/hr	0	7	7	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	190	5	5	82	5	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	202	0	292	200
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1370	-	699	841
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	932	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1361	-	691	835
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	932	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	781	-	-	1361	-
HCM Lane V/C Ratio	0.021	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	10	125	10	10	5	40	310	10	5	260	35
Future Vol, veh/h	75	10	125	10	10	5	40	310	10	5	260	35
Conflicting Peds, #/hr	3	0	2	2	0	3	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	11	136	11	11	5	43	337	11	5	283	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	755	751	307	819	765	348	324	0	0	350	0	0
Stage 1	315	315	-	431	431	-	-	-	-	-	-	-
Stage 2	440	436	-	388	334	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	325	340	733	294	333	695	1236	-	-	1209	-	-
Stage 1	696	656	-	603	583	-	-	-	-	-	-	-
Stage 2	596	580	-	636	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	322	730	224	315	692	1232	-	-	1207	-	-
Mov Cap-2 Maneuver	301	322	-	224	315	-	-	-	-	-	-	-
Stage 1	664	651	-	576	557	-	-	-	-	-	-	-
Stage 2	553	554	-	505	638	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20	18.2	0.9	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1232	-	-	465	299	1207	-	-
HCM Lane V/C Ratio	0.035	-	-	0.491	0.091	0.005	-	-
HCM Control Delay (s)	8	0	-	20	18.2	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.7	0.3	0	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	25	15	35	5	65	15	300	160	85	240	5
Future Vol, veh/h	0	25	15	35	5	65	15	300	160	85	240	5
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	16	38	5	71	16	326	174	92	261	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	932	982	265	915	897	414	267	0	0	501	0	0
Stage 1	449	449	-	446	446	-	-	-	-	-	-	-
Stage 2	483	533	-	469	451	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	247	249	774	253	279	638	1297	-	-	1063	-	-
Stage 1	589	572	-	591	574	-	-	-	-	-	-	-
Stage 2	565	525	-	575	571	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	196	219	773	204	246	637	1296	-	-	1062	-	-
Mov Cap-2 Maneuver	196	219	-	204	246	-	-	-	-	-	-	-
Stage 1	578	513	-	580	563	-	-	-	-	-	-	-
Stage 2	489	515	-	479	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.1	19.8	0.2	2.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1296	-	-	299	357	1062	-	-
HCM Lane V/C Ratio	0.013	-	-	0.145	0.32	0.087	-	-
HCM Control Delay (s)	7.8	0	-	19.1	19.8	8.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	1.4	0.3	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	5	350	355	5
Future Vol, veh/h	10	10	5	350	355	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	5	380	386	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	779	389	391	0	-	0
Stage 1	389	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	364	659	1168	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	362	659	1168	-	-	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1168	-	467	-	-
HCM Lane V/C Ratio	0.005	-	0.047	-	-
HCM Control Delay (s)	8.1	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	5	0	5	0
Future Vol, veh/h	0	10	5	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	5	0	5	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	15	5	0	0	5	0
Stage 1	5	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1004	1078	-	-	1616	-
Stage 1	1018	-	-	-	-	-
Stage 2	1013	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1001	1078	-	-	1616	-
Mov Cap-2 Maneuver	1001	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.4	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1078	1616	-
HCM Lane V/C Ratio	-	-	0.01	0.003	-
HCM Control Delay (s)	-	-	8.4	7.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2021 PM Peak

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	5	5	150	5	5
Future Vol, veh/h	135	5	5	150	5	5
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	5	5	163	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	157	0	328	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	173	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1423	-	666	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	857	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1416	-	660	887
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	857	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	757	-	-	1416	-
HCM Lane V/C Ratio	0.014	-	-	0.004	-
HCM Control Delay (s)	9.8	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	5	55	5	10	5	100	240	5	5	245	65
Future Vol, veh/h	80	5	55	5	10	5	100	240	5	5	245	65
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	1	1	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	5	60	5	11	5	109	261	5	5	266	71

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	806	801	308	829	834	265	341	0	0	267	0	0
Stage 1	316	316	-	483	483	-	-	-	-	-	-	-
Stage 2	490	485	-	346	351	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	300	318	732	290	304	774	1218	-	-	1297	-	-
Stage 1	695	655	-	565	553	-	-	-	-	-	-	-
Stage 2	560	552	-	670	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	263	281	728	240	269	773	1213	-	-	1296	-	-
Mov Cap-2 Maneuver	263	281	-	240	269	-	-	-	-	-	-	-
Stage 1	619	649	-	505	494	-	-	-	-	-	-	-
Stage 2	486	493	-	606	626	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.8	17.5	2.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1213	-	-	352	310	1296	-	-
HCM Lane V/C Ratio	0.09	-	-	0.432	0.07	0.004	-	-
HCM Control Delay (s)	8.3	0	-	22.8	17.5	7.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	2.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	25	5	95	35	85	5	220	55	65	310	5
Future Vol, veh/h	5	25	5	95	35	85	5	220	55	65	310	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	27	5	103	38	92	5	239	60	71	337	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	826	792	340	778	764	270	342	0	0	300	0	0
Stage 1	482	482	-	280	280	-	-	-	-	-	-	-
Stage 2	344	310	-	498	484	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	291	322	702	314	334	769	1217	-	-	1261	-	-
Stage 1	565	553	-	727	679	-	-	-	-	-	-	-
Stage 2	671	659	-	554	552	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	219	298	702	273	309	768	1217	-	-	1260	-	-
Mov Cap-2 Maneuver	219	298	-	273	309	-	-	-	-	-	-	-
Stage 1	562	514	-	723	675	-	-	-	-	-	-	-
Stage 2	554	655	-	484	513	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	29.1	0.1	1.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	307	376	1260	-	-
HCM Lane V/C Ratio	0.004	-	-	0.124	0.622	0.056	-	-
HCM Control Delay (s)	8	0	-	18.4	29.1	8	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	4	0.2	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	10	325	325	10
Future Vol, veh/h	5	10	10	325	325	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	11	11	353	353	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	734	359	364	0	-	0
Stage 1	359	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	387	685	1195	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	383	685	1195	-	-	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	695	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1195	-	542	-	-
HCM Lane V/C Ratio	0.009	-	0.03	-	-
HCM Control Delay (s)	8	0	11.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	0	0	10	5
Future Vol, veh/h	0	5	0	0	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	0	11	5

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	27	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	988	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	988	-	-	-	-	-
Mov Cap-2 Maneuver	988	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	996	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-