Bernard P. Carvalho Jr.
Mayor

Wallace G. Rezentes Jr.
Managing Director

Kanani Fu
Housing Director

FILE COPY

KAUA'I COUNTY HOUSING AGENCY

4444 Rice Street Suite 330
Līhu'e, Hawai'i 96766
TEL (808) 241-4444 FAX (808) 241-5118
www.kauai.gov/housing

March 19, 2018

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

Dear Mr. Glenn:

With this letter, the Kaua'i County Housing Agency hereby transmits the final environmental assessment and finding of no significant impact (FEA-FONSI) for the proposed Pua Loke Affordable Housing Development situated at TMK (4) 3-8-005, Parcels 28 and 29, in Līhu'e on the island of Kaua'i for publication in the next available edition of the Environmental Notice.

The Kaua'i County Housing Agency has included copies of comments and responses that it received during the 30-day public comment period on the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI).

Enclosed is a completed OEQC Publication Form, one copy of the FEA-FONSI, a CD containing an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word.

If there are any questions, please contact the County of Kaua'i Housing Director, Kanani Fu at (808) 241-4444, or our authorized agent of this project, Max Solmssen of Environet Inc, at (808) 833-2225, Ext. 1012.

Sincerely,

Kanani Fu
Housing Director

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

Enclosures

18-513

EQUAL HOUSING OPPORTUNITY
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AGENCY
PUBLICATION FORM

Project Name:	Pua Loke Affordable Housing Development
Project Short Name:	N/A
HRS §343-5 Trigger(s):	Use of county lands and funds.
Island(s):	Kaua'i
Judicial District(s):	Lihu'e
TMK(s):	(4) 3-8-005-028 and (4) 3-8-005-029
Permit(s)/Approval(s):	NPDES Permit Coverage, Grading Permit, County Project Development Use Permit/Approval, County Trenching Permit, County Building Permit
Proposing/Determining Agency:	Proposing/Determining Agency: Kaua'i County Housing Agency
Contact Name, Email, Telephone, Address	Kanani Fu (Housing Director), kananifu@kauai.gov, (808) 241-4444, 4444 Rice Street, Suite 330 Līhu'e, Kaua'i, HI 96766
Accepting Authority:	N/A
Contact Name, Email, Telephone, Address	N/A
Consultant:	Environet, Inc.
Contact Name, Email, Telephone, Address	Max Solmssen, msolmssen@environetinc.com, (808) 833-2225, Ext. 1012, 1286 Queen Emma Street, Honolulu, HI 96813

Status (select one)	**Submittal Requirements**
____ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
__X__ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and

determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.

____ Withdrawal — Identify the specific document(s) to withdraw and explain in the project summary section.

____ Other — Contact the OEQC if your action is not one of the above items.

Project Summary

The Proposed Action is the development of the Pua Loke Affordable Housing Development; a County of Kaua'i affordable housing project that would provide the growing county population with much needed affordable rental housing, as well as serve families and individuals experiencing homelessness. The development would include a maximum of 60 dwelling units to provide multi-family (MF) rental housing units to accommodate a blend of affordable incomes, as well as designated units to serve those experiencing homelessness. The Proposed Action would be located along Pua Loke Street and Haleko Road in the town of Līhu'e on the east side of Kaua'i.

Final

ENVIRONMENTAL ASSESSMENT

April 2018

Pua Loke Affordable Housing Development

Līhu'e, Kaua'i, Hawai'i

Environet, Inc.

FINAL
ENVIRONMENTAL ASSESSMENT

Pua Loke Affordable Housing Development
Līhuʻe, Kauaʻi, Hawaiʻi

Prepared by:

Environet, Inc.
1286 Queen Emma Street
Honolulu, HI 96813

Proposing/Determination Agency:

Kauaʻi County Housing Agency
4444 Rice Street, Suite 330
Līhuʻe, Kauaʻi, HI 96766

April 2018

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ACRONYMS AND ABBREVIATIONS

%	percent
<	less than
AA	Archaeological Assessment
AIS	Archaeological Inventory Survey
AMI	area median income
ATA	Austin, Tsutsumi & Associates, Inc.
BEA	United States Bureau of Economic Analysis
bgs	below ground surface
BMP	Best Management Practice
CAA	Clean Air Act
CDP	Līhuʻe Census Designated Place
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
C-G	General Commercial
CH_4	methane
CIA	Cultural Impact Assessment
CO	carbon monoxide
CO_2	carbon dioxide
CWA	Clean Water Act
CZM	Coastal Zone Management
CZO	Comprehensive Zoning Ordinance
DAR	State of Hawaiʻi Division of Aquatic Resources
dB	decibels
dBA	A-weighted decibels
DEA	draft environmental assessment
DFW	State of Hawaiʻi Division of Forestry and Wildlife
DLNR	State of Hawaiʻi Department of Land and Natural Resources
DNL	day-night sound level
DOE	State of Hawaiʻi Department of Education
DOH	State of Hawaiʻi Department of Health
DOW	County of Kauaʻi Department of Water
EA	Environmental Assessment
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEA	final environmental assessment
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
HAR	Hawaiʻi Administrative Rules
HDOT	State of Hawaiʻi Department of Transportation
HHFDC	Hawaiʻi Housing Finance and Development Corporation
HRS	Hawaiʻi Revised Statutes
HT	Hawaiian Telcom
HUD	U.S. Department of Housing and Urban Development
IAL	Important Agricultural Land

KIUC	Kaua'i Island Utility Cooperative
LhB	Līhu'e silty clay
LOS	level of service
LUC	Land Use Commission
MF	multi-family
mg/L	milligram per liter
mgd	million gallons per day
mph	miles per hour
msl	mean sea level
N/A	not available
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
No.	Number
NO	nitric oxide
NO_2	nitric dioxide
NOx	nitric oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OEQC	State of Hawai'i Office of Environmental Quality Control
OSHA	United States Occupational Safety and Health Administration
Pb	lead
PCB	polychlorinated biphenyl
PM	particulate matter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
PUC	State of Hawai'i Public Utilities Commission
R-1	Residential-1 unit per developed acre of land
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
SCS	Scientific Consultant Services, Inc.
SF	single-family
SHPD	State Historic Preservation Division
SIP	State Implementation Plan
SLUD	State Land Use Designation
SMA	special management area
SO_2	sulfur dioxide
TCP	Traffic Control Plan
ST-P	Special Treatment District-Public Facilities
TIAR	Traffic Impact Analysis Report
TMK	tax map key
U.S.	United States
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound

1 INTRODUCTION

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1.1 INTRODUCTION

This Environmental Assessment (EA) is prepared pursuant to Chapter 343, Hawai'i Revised Statutes (HRS) and associated Title 11, Chapter 200, Hawai'i Administrative Rules (HAR), as well as the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] Parts 1500-1508) and 24 CFR Part 58; *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The environmental trigger initiating HRS Chapter 343 includes the use of county lands and funds. The environmental trigger initiating NEPA and 24 CFR Part 58 includes potential funding through the United States (U.S.) Department of Housing and Urban Development (HUD) programs. The intent of this document is to ensure that systematic consideration is given to the environmental, social, and economic consequences of the Proposed Action. The Proposed Action is the development of an affordable housing project located in the town of Līhu'e on the island of Kaua'i.

1.2 PROJECT INFORMATION

Project Name:	Pua Loke Affordable Housing Development Līhu'e, Kaua'i, Hawai'i
Proposing Agency:	Kaua'i County Housing Agency 4444 Rice Street, Suite 330 Līhu'e, Kaua'i, HI 96766 Contact: Kanani Fu - Housing Director (808) 241-4444
Agent:	Environet, Inc. 1286 Queen Emma Street Honolulu, HI 96813 Contact: Max Solmssen – Project Manager (808) 833-2225, Ext. 1012
Approving Agency:	Kaua'i County Housing Agency 4444 Rice Street, Suite 330 Līhu'e, Kaua'i, HI 96766
Project Location:	Līhu'e, Kaua'i, Hawai'i
Tax Map Key (TMK):	(4) 3-8-005, Parcels 28 and 29
Land Area:	Approximately 1.47 acres
State Land Use District (SLUD):	Urban
County Zoning Designations:	General Commercial (C-G), Residential (R-1), Special Treatment District-Public Facilities (ST-P)

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2 PROJECT DESCRIPTION

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2.1 SCOPE AND AUTHORITY

This EA is being conducted in accordance with HRS Chapter 343 and associated Title 11, Chapter 200, HAR, as well as the NEPA (40 CFR Parts 1500-1508) and 24 CFR Part 58; *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. This EA evaluates the potential environmental, social, and economic impacts associated with the development of an affordable housing project in the town of Līhu'e on the island of Kaua'i. The proposed improvements include:

- Site work and grading;
- Utility and infrastructure development; and
- Construction of up to 60 residential housing units.

Environmental permits that would be required for the Proposed Action include a National Pollutant Discharge Elimination System (NPDES) permit during the construction period.

2.2 PROJECT LOCATION

The project site is located on the east side of the island of Kaua'i in Līhu'e town. The project site is bound by the Kukui Park Professional Building and the Kukui Grove Cinema to the west; Pua Loke Street to the east; Kaumuali'i Highway to the north; and Haleko Road to the south. The County of Kaua'i Department of Water (DOW) offices and baseyard are located to the north/northeast of the project site. A public State park is located directly east of the project site across Pua Loke Street. King Auto Center, Līhu'e United Church, and a residential subdivision are located across Haleko Road to the south of the project site. The project site includes TMK (4) 3-8-005, Parcels 028 and 029 (Figure 1).

2.3 OVERVIEW OF ALTERNATIVES

2.3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed affordable housing development would not be constructed. There would be no disturbance to the existing environment within the project site under the No Action Alternative; however, the County of Kaua'i would not have use of the project site to provide affordable housing needed by Kaua'i residents. There would be cumulative adverse socioeconomic impacts under the No Action Alternative since the housing needs of Kaua'i's growing resident population, as well as families and individuals experiencing homelessness, would continue to increase without the necessary affordable housing stock in the county.

2.3.2 THE PROPOSED ACTION

The Proposed Action is the development of the Pua Loke Affordable Housing Development; a County of Kaua'i affordable housing project that would provide the growing county population with much needed affordable rental housing, as well as serve families and individuals experiencing homelessness. The development would include a maximum of 60 dwelling units to provide multi-family (MF) rental housing units to accommodate a blend of affordable incomes, as well as designated units to serve those experiencing homelessness. All residential units would comply with state law and county charter. The Proposed Action would be located along Pua Loke Street and Haleko Road in the town of Līhu'e on the

east side of Kaua'i. Access to the proposed affordable housing development would be provided from Pua Loke Street, which borders the eastern boundary of the project site (Figure 2).

2.4 PURPOSE AND NEED FOR ACTION

The purpose of the Proposed Action is to satisfy the need for affordable housing on the island of Kaua‘i, and serve families and individuals experiencing homelessness. The Kaua‘i County Housing Agency's mission is to provide much needed affordable housing to families on Kaua‘i, due to the increasing population of Kaua‘i residents and lack of available affordable housing in Kaua‘i county. Facilitating affordable housing opportunities for Kaua‘i residents is one of the county's top priorities. The project site was identified as a suitable location to provide the needed affordable housing to Kaua‘i residents since it is located in a central location within close proximity to existing job centers, schools, recreational areas, shopping, and established residential communities.

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

PROJECT LOCATION MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE
1

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CONCEPTUAL SITE PLAN

PUA LOKE AFFORDABLE HOUSING

North

Graphic Scale 0 20 40 80 FEET

PBR HAWAII & ASSOCIATES, INC.

OCTOBER 2017

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2.5 REGULATORY FRAMEWORK

The EA is a requirement under Chapter 343 HRS due to the use of County land and funds. This EA has been prepared in accordance with Chapter 343, and its implementing regulations, including Title 11, Chapter 200 of the HAR. This EA also complies with NEPA (40 CFR 1500-1508), as well as 24 CFR Part 58; *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. Compliance with NEPA and 24 CFR Part 58 are needed since HUD funding may be sought for the proposed project. A separate *Environmental Assessment for HUD-Funded Proposals* is included as Appendix A of this EA in compliance with 24 CFR Part 58. In addressing environmental considerations, the following relevant regulations that establish standards and provide guidance on environmental and natural resource management and planning are discussed throughout subsequent sections of this EA:

- Chapter 343 HRS;
- Chapter 226 HRS;
- Chapter 6E HRS;
- Chapter 205 HRS;
- Title 11, Chapter 200 HAR;
- County of Kaua'i General Plan (Amended November 2000);
- Coastal Zone Management (CZM) Act;
- Kaua'i County Comprehensive Zoning Ordinance;
- 40 CFR Parts 1500-1508;
- 24 CFR, Part 58;
- The Clean Air Act (CAA);
- The Clean Water Act (CWA);
- The Endangered Species Act (ESA);
- Executive Order (EO) 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*); and
- EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*).

2.6 PUBLIC AND AGENCY CONSULTATION

This environmental review has included public involvement and agency consultation, as required by HRS Chapter 343, NEPA, and 24 CFR Part 58. Public participation has included an opportunity for public review and comment on the draft EA (DEA). A public meeting was held by the County for the project on March 8, 2018. Comments received during the preconsultation period, as well as responses are included in Appendix B-1 of this final EA (FEA). Comments received during the 30-day DEA public comment period, as well as responses are included in Appendix B-2 of this FEA. The meeting minutes and presentation for the public meeting held are also included in Appendix B-2. Availability of this FEA

will be announced via the State of Hawai'i Office of Environmental Quality Control (OEQC) Environmental Notice.

3 ENVIRONMENTAL SETTING AND POTENTIAL IMPACTS

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3.1 INTRODUCTION

The environmental, social, and economic setting of the existing environment and the probable impacts of the No Action Alternative and the Proposed Action are described in this section of the EA. Impacts are evaluated as to whether they constitute a "significant effect" on a particular environmental setting. Impacts are described as having No Impact, Significant Adverse Impact, or Beneficial Impact 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 3.

3.1.1 REGULATORY SETTING

Impacts to the affected environment from the proposed alternatives were assessed based on procedures outlined in State regulations HRS Chapter 343, HAR Title 11, Chapter 200, as well as Federal regulations included in NEPA (40 CFR §1500-1508) and 24 CFR Part 58; *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*.

3.1.2 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" (HRS Chapter 343). HAR §11-200-12 B offers the following guidance for determining environmental impact significance:

"In determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as the short-term and long-term effects of the action. In most instances, an action shall be determined to have a significant effect on the environment if it:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
2. Curtails the range of beneficial uses of the environment;
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;
4. Substantially affects the economic welfare, social welfare, and cultural practices of the community or state;
5. Substantially affects public health;
6. Involves substantial secondary impacts, such as population changes or effects on public facilities;
7. Involves a substantial degradation of environmental quality;
8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;
9. Substantially affects a rare, threatened, or endangered species, or its habitat;
10. Detrimentally affects air or water quality or ambient noise levels;
11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or
13. Requires substantial energy consumption (HAR §11-200-12 B).

3.1.3 DIRECT VERSUS INDIRECT IMPACTS

Definitions and examples of "direct" and "indirect" impacts as used in this document are as follows:

"Primary impact" or "primary effect" or "direct impact" or "direct effect" means effects which are caused by the action and occur at the same time and place (HAR §11-200-2). For direct impacts to occur, a resource must be present in the particular project site.

"Secondary impact" or "secondary effect" or "indirect impact" or "indirect effect" means effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (HAR §11-200-2).

3.1.4 BENEFICIAL VERSUS ADVERSE IMPACTS

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

Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR §1500-1508, Section 1502.13) also include the following guidance relating to impact analysis.

Impact Analysis

Direct Impacts: are caused by the action and occur at the same time and place.

Indirect Impacts: are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth inducing impacts and other impacts related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water and other natural systems, including ecosystems.

Impacts include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial (40 CFR 1508.8).

Significance of Environmental Impacts

According to CEQ regulations 40 CFR §1500-1508, the determination of a significant impact is a function of both context and intensity.

Context: This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

Intensity: This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action.

To determine significance, the severity of the impact must be examined in terms of the type, quality and sensitivity of the resource involved; the location of the proposed project; the duration of the effect (short or long-term) and other consideration of context. Significance of the impact will vary with the setting of the proposed action and the surrounding area (including residential, industrial, commercial, and natural sites).

3.1.5 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 effect 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.

HAR 11-200-7 states the following with regard to analyzing cumulative effects of a proposed action:

A group of actions proposed by an agency or applicant shall be treated as a single action when:

(1) The component actions are phases or increments of a larger total undertaking;

(2) An individual project is a necessary precedent for a larger project;

(3) An individual project represents a commitment to a larger project; and

(4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole.

In accordance with NEPA and the CEQ memorandum of "Guidance on the Consideration of Past Actions in Cumulative Effects Analysis," a discussion of cumulative impacts resulting from projects which are proposed, under construction, recently completed, or anticipated to be implemented in the near future is included in this EA.

3.2 PHYSICAL ENVIRONMENT

3.2.1 GEOLOGICAL RESOURCES

Definition of Resources

Geological resources typically consist of surface and subsurface materials and their inherent properties. Principal geologic factors affecting the ability to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), soil stability, and topography.

The term soil, in general, refers to unconsolidated materials overlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support man-made structures and facilities. Soils typically are described in terms of their complex type, slope, physical characteristics, and relative compatibility or constraining properties with regard to particular construction activities and types of land use.

Topography is the change in elevation over the surface of a land area. An area's topography is influenced by many factors, including human activity, underlying geologic material, seismic activity, climatic conditions, and erosion. A discussion of topography typically encompasses a description of surface elevations, slope, and distinct physiographic features (e.g., mountains), and their influence on human activities.

Natural geologic hazards include earthquakes and tsunamis. Earthquakes typically result from release of energy from the earth's crust and manifest themselves by shaking and sometimes displacing the ground which can result in property damage. Earthquakes can also trigger landslides as well as volcanic activity. When the epicenter of a large earthquake is located offshore, the seabed may be displaced sufficiently to cause a tsunami. A tsunami is a series of water waves caused by the displacement of a large volume of a body of water. Tsunamis are characterized by high speeds (up to 560 miles per hour [mph]), long wave lengths (up to 120 miles), and long periods between successive wave crests (up to several hours). Tsunamis have the potential to inundate the coastline, causing severe property damage and/or loss of life. The tsunami evacuation zone is a guideline, developed by the Kaua'i Civil Defense Agency, to provide the minimum safe evacuation distance.

Regulatory Setting

Kaua'i Ordinance Number (No.) 808 Sediment and Erosion Control describes proper procedures necessary for grading, soil erosion, and sediment control during earthwork activities. All work, including excavation and fill work, shall be in accordance with current construction standards and all applicable local, state, and federal regulations.

3.2.1.1 EXISTING CONDITIONS

Geology

The Hawaiian Archipelago is a chain of seamounts and islands in the North Pacific extending 1,616 miles west by northwest from the largest island, the Big Island of Hawai'i. Igneous rocks are the dominant rock type and consist of basaltic flows, caldera and dike complexes, and pyroclastics. The island of Kaua'i consists of a single shield volcano, which has a volume of about 1,007 cubic miles and rises 3.17 miles above the surrounding sea floor. Kaua'i is circular in shape and encompasses an area of approximately 550 square miles. Lava flows of the Kōloa Series cover about half the surface of the eastern part of Kaua'i, including the Līhu'e district, and consist of volcanic and sedimentary rocks that settled on the rocks previously laid down by the Waimea Canyon series (Macdonald et al., 1983).

Topography and Soils

The project site is generally flat with an elevation ranging from approximately 224 feet above mean sea level (msl) to 236 feet above msl. The existing drainage surface runoff path flows from the north to south direction.

Soils at the project site are designated as Līhu'e silty clay (LhB). This soil type is found on the tops of broad interfluves in the uplands. The soil type includes Class B – moderate infiltration rate soils that are moderately to well drained with moderately coarse textures. This soil type has moderately rapid permeability, slow runoff, and water capacity is about 1.5 inches per foot of soil (U.S. Department of Agriculture [USDA], 2017; Figure 3).

Earthquakes

In Hawai'i, earthquakes are generally linked to volcanic activity and occur thousands of times annually; the vast majority of which are at a very small magnitude. According to the Hawai'i Seismic Zone Assignments (U.S. Geological Survey [USGS], 2001), Kaua'i lies in a seismic zone designated as Zone 1;

indicating that ground accelerations of 7.5 percent (%) of the acceleration due to gravity are likely to occur at a probability of 10% in a 50 year exposure time (USGS, 2001).

Tsunamis

Located in the middle of the Pacific Ocean, Hawai'i is susceptible to tsunamis from earthquakes generated throughout the Pacific. The project site is located outside of the tsunami evacuation zone (State of Hawai'i, 2015).

Approach to Analysis

Determination of the significance of potential impacts to geological and soil resources is based on: 1) the importance of the resource (*i.e.*, commercial, ecological, and/or scientific); 2) the proportion of the resource that would be affected relative to its occurrence in the region; and 3) the susceptibility to deleterious effects on the resource due to the Proposed Action. Impacts to geological and soil resources are significant if the physical structure, chemical composition, or visual aesthetic character are adversely affected over a relatively large area.

3.2.1.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, no construction or change in ground surface is expected. No significant impacts to geological resources, topography, soils, or susceptibility to natural hazards are expected to result from the No Action Alternative.

Proposed Action

The Proposed Action would involve ground disturbing activities during the construction period, including grading, surface and subsurface utility and infrastructure installation, and development of resident mobility features, such as walkable pathways. However, it is not anticipated that the proposed development would significantly alter the existing topography or affect geological conditions, other than leveling sites within the project area for building footprints and resident walkways. Therefore, there would be no significant impacts to topography or geology under the Proposed Action.

The Proposed Action could potentially have short-term less than significant impacts on soils during construction activities associated with grading, site work, utility, and infrastructure development. Soils would be temporarily excavated and stockpiled onsite during the construction period. Exposed soils are susceptible to erosion, especially if it rains heavily during site work periods. Wind erosion may also cause some unavoidable soil loss, but the greater concern is silt runoff.

Adverse impacts to soils would be minimized or avoided as a result of both temporary and permanent erosion and sedimentation control measures that shall be implemented during grading and trenching, and during the construction of the site drainage system, housing units, and roads. Control measures may include silt fences around the work area during construction. Proposed work shall comply with state erosion control standards, as well as the Construction Best Management Practices (BMPs) for Sediment and Erosion Control for the County of Kaua'i (County of Kaua'i, 2004). Soil impacts are anticipated to be short-term, and with the implementation of the BMP control measures to avoid impacts to the surrounding areas, no significant impacts are anticipated.

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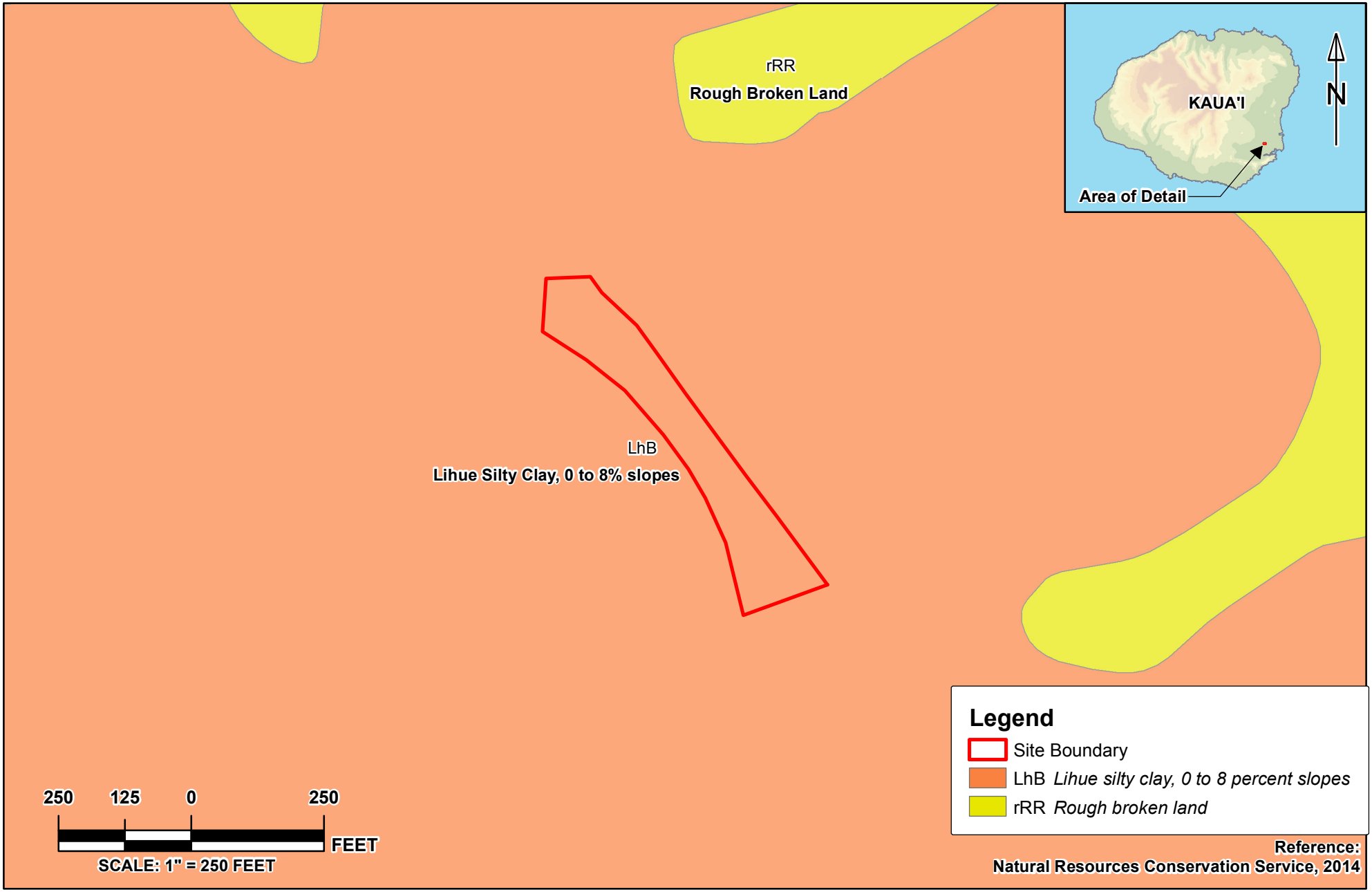

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

SOIL MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE 3

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3.2.2 FIRE HAZARDS

3.2.2.1 EXISTING CONDITIONS

Currently, there is a low fire risk at the project site, as the site consists of a paved asphalt parking lot and landscaped grass areas with stormwater swales and small patches of bare soil. The first station to respond in case of a fire at the project site would be the Līhuʻe Fire Station, located less than a mile east of the project site. The secondary response station would be the Kauaʻi Fire Station located approximately eight miles west of the project site.

3.2.2.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

No significant impacts are expected under the No Action Alternative. Existing potential fire hazards posed by the current conditions would remain the same.

Proposed Action

No significant short-term impacts are expected under the Proposed Action. Construction activities for the Proposed Action could create a minor fire hazard during the initial ground clearing activities due to the interaction of earth-moving equipment with existing site foliage. These potential impacts would be controlled through the implementation of construction practices for fire safety in accordance with state and county guidelines. Once the vegetation is cleared, potential fire hazard impacts would be reduced at the project site. The construction fire safety practices include proper practices and fire hazard awareness for contractors at the work site. Daily equipment inspections would be conducted and all vehicles and equipment brought on site would be in proper working condition. All vehicles and equipment would be mounted with appropriately rated fire extinguishers, and additional fire extinguishers would also be available at the project site. All on-site workers would be aware of the locations and operation of fire extinguishers. On-site workers would also be aware of the flammability properties of the chemicals they are working with and their proper storage requirements, and important safety information such as emergency contact numbers, proper emergency evacuation procedures, and designated smoking areas (if smoking is permitted on site). Implementation of these measures would reduce the potential impact of short-term fire hazards to less than significant at the project site. The proposed housing subdivision would be built in accordance with all applicable state and county fire codes.

3.2.3 BIOLOGICAL RESOURCES

Definition of Resources

Biological resources include native or naturalized plants and animals, and the habitats in which they occur. Sensitive biological resources are defined as those plants and animal species listed as threatened or endangered, or proposed as such, by the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the State of Hawaiʻi Department of Land and Natural Resources-(DLNR), Division of Forestry and Wildlife (DFW), and Division of Aquatic Resources (DAR).

Regulatory Setting

The ESA was created in order to protect and recover imperiled species and the ecosystems upon which they depend. The ESA grants USFWS primary responsibility for terrestrial and freshwater organisms, and the NMFS primary responsibility for marine wildlife.

The Migratory Bird Treaty Act, implemented in 1918, prohibited the hunting, killing, capturing, possession, sale, transportation, and exportation of birds, feathers, eggs and nests (16 United States Code [U.S.C.] 703). This treaty applies to bird species that are native to the U.S. and its territories, and is applicable in Mexico, Japan, and Russia.

3.2.3.1 EXISTING CONDITIONS

The project site is located on 1.4 acres west of Pua Loke Street in Līhu'e, Kaua'i. A biological survey was conducted at the project site on September 27, 2017 in order to characterize baseline conditions and to determine if any protected species habitat exist at the project site. The biological survey is included as Appendix C of this FEA.

Flora

Flora at the project site is primarily a manicured lawn of Bermuda grass (*Cynodon dactylon)* and narrow-leaved carpetgrass (*Axonopus fissifolius*). Two kukui trees (*Aleurites moluccana)* are also present at the north end of the site and a single small parasol leaf tree (*Macaranga tanarius*) is growing in the parking lot. Weedy herbaceous species are scattered throughout the lawn, including fourspike heliotrope (*Heliotropium procumbens)*, Cuban jute (*Sida rhombifolia)*, natal redtop (*Melinis repens*), wide-leaved carpetgrass (*Axonopus compressus)*, hairy spurge (*Euphorbia hirta)*, creeping indigo (*Indigofera spicate*), sleeping grass (*Mimosa pudica*), and Guinea grass (*Megathyrsus maximums*). Along the edges of the parking lot, several weedy species can be found, including morning glory (*Ipomoea obscura*), yellow foxtail (*Setaria parviflora*), spiny amaranth (*Amaranthus spinosus*), and sandbur (*Cenchus echinatus*).

Fauna

No federal or state-listed threatened, endangered, proposed, or candidate animal species were observed at the project site.

Eight bird species were documented during the survey: Japanese white-eye (*Zosterops japonicas*), common myna (*Acridotheres tristis*), Java sparrow (*Lonchura oryzivora*), house finch (*Haemorhous mexicanus*), zebra dove (*Geopelia striata*), red junglefowl (*Gallus gallus*), spotted dove (*Streptopelia chinesis*), and Pacific Golden Plover (*Pluvialis fulva*). All of these birds have been introduced to the Hawaiian Islands, with the exception of the Pacific Golden Plover. The Golden Plover and house finch are protected by the Migratory Bird Treaty Act.

There are some listed wildlife that were not observed that have the potential to occur or transit through the project site. The endangered Hawaiian petrel, or 'ua'u (*Petrodroma sandwichensis*), the endangered band-rumped storm petrel, or 'akē'akē (*Oceanodroma castro*), and Newell's shearwater or a'u (*Puffinsus newelli*) have not been documented in the project area, nor does suitable nesting habitat exist in the project area. However, suitable nesting habitat may exist in nearby forested areas at upper elevations, suggesting the potential for these birds to fly over the area at night while transiting between nest sites and the ocean.

No mammals were observed during the study; however, introduced species such as dogs (*Canis familiaris*), cats (*Felis catus*), house mice (*Mus musculus*), small Indian mongoose (*Herpestes auropunctatus*), and rats (*Rattus spp.*) are likely to occur within the project area. The endangered Hawaiian hoary bat was not observed during the biological study, but it may roost or forage near the project area since the area may provide suitable foraging habitat.

Approach to Analysis

Determination of the significance of potential impacts to biological resources is based on 1) the importance (*i.e.*, legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) and the sensitivity of the resource to proposed activities; and 4) the duration of ecological ramifications. Impacts to biological resources are significant if species or habitats of concern are adversely affected over relatively large areas, or if disturbances cause reductions in population size or distribution. Potential physical impacts such as habitat loss, noise, and impacts to water quality were evaluated to assess potential impacts to biological resources resulting from the Proposed Action.

3.2.3.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

There would be no impact to biological resources from the No Action Alternative since use at the project site would remain unchanged and no flora or fauna species would be affected.

Proposed Action

Construction activities planned for the Proposed Action may impact the Hawaiian hoary bat and the Hawaiian goose, which were not observed at the project site during the surveys, but could potentially be present in the area. The endangered Hawaiian petrel, the endangered band-rumped storm petrel, and the threatened Newell's shearwater may also be impacted, as these species may fly over the project site while traveling to and from their nesting sites. The following control measures should be implemented at the project site to minimize or avoid possible impacts to biological resources:

To prevent direct impacts to the Hawaiian hoary bat, the following control measures are recommended by the State DLNR-DFW and USFWS:

- No trees taller than 15 feet within the project site should be trimmed or removed between June 1 and September 15 when juvenile bats that are not capable of flying may be roosting in the trees; and
- Any fences that are erected as part of the Proposed Action should have a barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences were observed with barbed wire during the survey; however, if fences are present, the top strand of barbed wire should be removed or replaced with barbless wire.

The following control measures are recommended to avoid and minimize light impacts to the endangered Hawaiian petrel, endangered band-rumped storm petrel, and threatened Newell's shearwater to the project site:

- Construction activity should be restricted to daylight hours as much as practicable during the seabird peak fallout period (September 15 through December 15) to avoid the use of nighttime lighting that could be an attraction to seabirds;

- Although not anticipated, should nighttime construction be required, construction lighting should be shielded, directed downward, and fitted with non-white lights if construction safety is not compromised in order to minimize the attractiveness of construction lights to seabirds and other wildlife. Furthermore, if nighttime construction occurs during the seabird peak fallout period, a biological monitor should be present in the construction area between approximately 0.5 hours before to 0.5 hours after sunrise to watch for the presence of seabirds. Should a seabird be observed and appear affected by the lighting, the monitor should notify the construction manager to reduce or turn off construction lighting until the individual(s) move out of the area; and

- Operational on-site lighting should consist of fixtures that will be shielded and/or directed downward to prevent upward radiation, triggered by a motion detector, and fitted with non-white light bulbs to the extent possible.

Although the project does not appear to be located in a location that is utilized by the Hawaiian goose, the following control measures are recommended to avoid the Hawaiian goose from entering the construction site:

- Construction barriers installed around the project site to prevent the unintentional entry of the Hawaiian goose into the project area during the construction period.

If there is evidence of any of these protected species within the project site during construction, all work shall cease and the USFWS and DLNR-DFW shall be immediately contacted for specific mitigation guidance.

3.2.4 WATER RESOURCES

Definition of Resources

Water resources analyzed encompass surface water, groundwater, floodplains, and wetlands. Surface water resources include lakes, rivers, and streams, and are important for a variety of reasons including ecological, economic, recreational, aesthetic, and human health. Groundwater comprises subsurface water resources and is an essential resource in many areas as it is used for potable water, agricultural irrigation, and industrial applications. Floodplains are belts of low, level ground present on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by floodwater. Wetlands are defined as: *"Those areas that are inundated or saturated by surface or ground water (hydrology) at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation (hydrophytes) typically adapted for life in saturated soil conditions (hydric soils). Wetlands generally include swamps, marshes, bogs, and similar areas"* (40 CFR 232.2[r]).

Regulatory Setting

Section 402 of the CWA specifically requires the U.S. Environmental Protection Agency (EPA), and authorized state governments, to develop and implement the NPDES program. HRS 342D-50(a) states that: *"No person, including any public body, shall discharge any water pollutant into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this chapter, or a permit or variance issued by the director."* HAR Chapter 11-55 (Water Pollution Control), defines the NPDES permit program for the State of Hawai'i, which is required for point source pollutant and stormwater discharges.

3.2.4.1 EXISTING CONDITIONS

Ground Water

The project site is located in the Wailua aquifer system of the Līhu'e aquifer sector (Figure 4). The project site lies on top of an upper and lower aquifer, classified as 20102111 (21111)/20102122 (21112), with a slash between the two identification codes to denote relative vertical occurrence. The upper aquifer is classified as unconfined (the aquifer is not confined under pressure beneath relatively impermeable rocks or soil), high level (fresh water not in contact with seawater), and is a perched type aquifer (aquifer on an impermeable layer). This aquifer has potential use for drinking water. The salinity of this irreplaceable aquifer is considered fresh (less than [<] 250 milligrams per liter [mg/L] chloride) and the aquifer is listed as having a high vulnerability to contamination. The lower aquifer is classified as confined (aquifer bounded by impereable formations), high level (aquifer bounded by impermeable or poorly permeable formations), and is a dike type (aquifers in dike compartments). This aquifer has potential use for drinking water. The salinity of this irreplaceable aquifer is considered fresh (<250 mg/L chloride), and the aquifer is listed as having a moderate vulnerability to contamination (Mink and Lau, 1990).

Surface Water

There are no surface water bodies on or adjacent to the project site. The project site is located approximately 0.25 miles southwest of Nāwiliwili Stream, one mile northeast of Puhi Stream, and approximately two miles northwest of Nāwiliwili Harbor, which is contiguous with the Pacific Ocean.

Water Quality

There are no surface water bodies on or adjacent to the project site. A vegetated drainage swale currently runs across the site delivering intermittent surface water flow to the County storm drain system.

Floodplains

According to Federal Emergency Management Agency (FEMA) records, the project site is not located within the 100-year or 500-year floodplain zones (FEMA, 2015) (Figure 5).

Wetlands

The project site is approximately 0.25 miles southwest of Nāwiliwili Stream, which is the closest listed wetland to the site, and is classified as permanently flooded perennial riverine. Several freshwater ponds associated with the Puakea Golf Course are located approximately 0.25 miles southwest of the project site. These ponds are listed as man-made non-tidal palustrine wetlands (Figure 6).

Approach to Analysis

Determination of the significance of potential impacts to water resources is based on: 1) the importance (*i.e.*, legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to the Proposed Action; and 4) the duration of ecological ramifications. Impacts to water resources are significant if the occurrence, water quality, aquatic habitat extent, or visual aesthetic character are adversely affected over a relatively large area.

3.2.4.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the project site would remain unchanged and there would be no impacts to water resources within the vicinity of the project site.

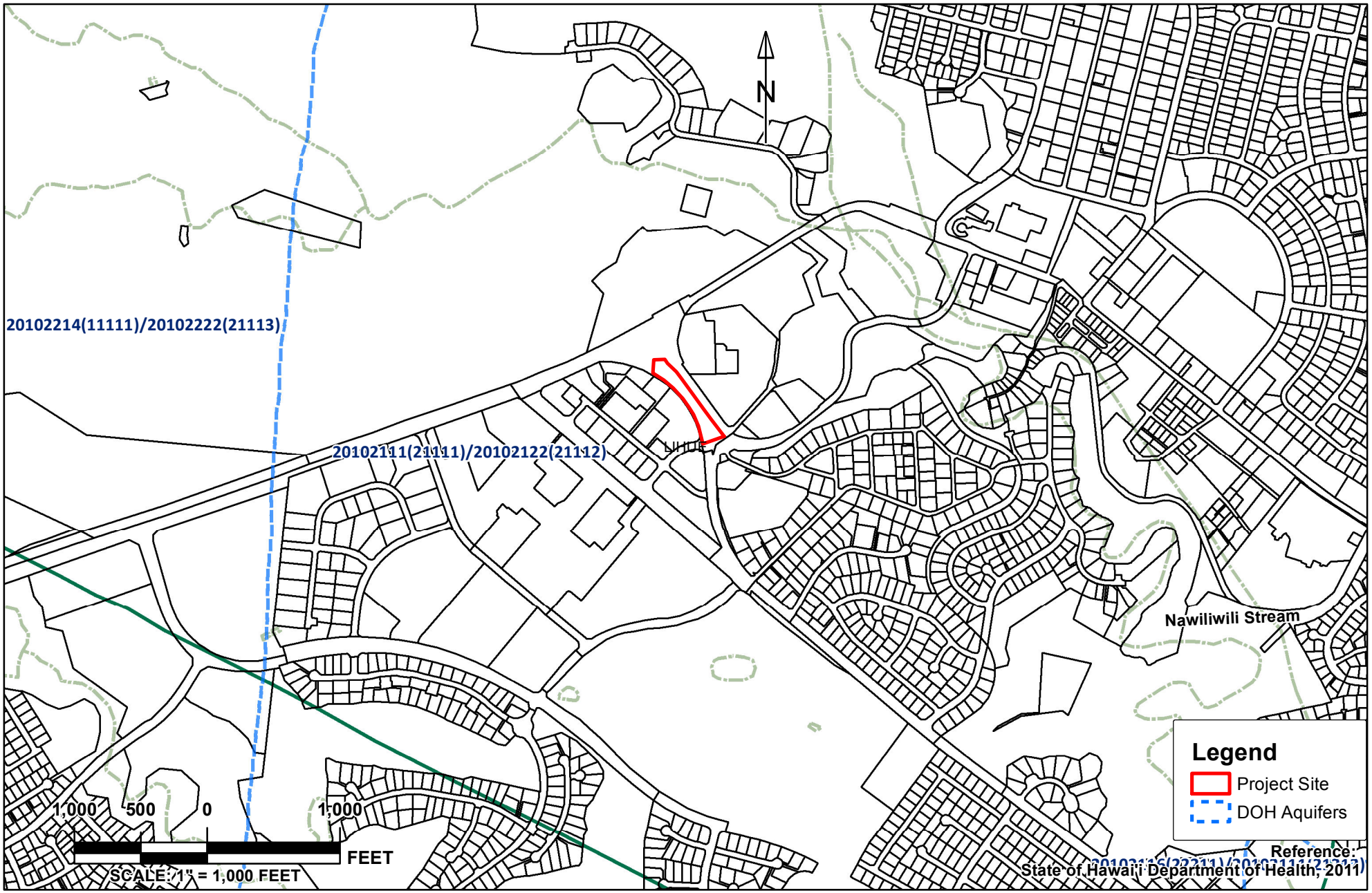
Proposed Action

Under the Proposed Action, there would be less than significant impacts to groundwater. Given the estimated depth to groundwater of approximately 250 feet below ground surface (bgs) (Environet, 2017), groundwater is not anticipated to be encountered. The Proposed Action would require additional withdrawals from the county water supply; however, the maximum demand of the proposed development is not expected to exceed the pumping capacity of the existing water system. Further, the underlying aquifers are not expected to be adversely impacted (*e.g.*, water level drawdown) by the additional demand needed by the Proposed Action. The proposed housing units would be serviced by potable water provided by the DOW, which regularly monitors water quality parameters to ensure adherence to all state and federal standards.

There would be less than significant impacts to surface water quality during the construction period. The Proposed Action would include soil excavation and stockpiling during grading/trenching activities. A stormwater pollution prevention plan would be developed, prior to the start of construction, in order to: 1) identify potential sources of stormwater pollution; 2) describe the practices that would be used to prevent stormwater pollution; and 3) identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. An NPDES Notice of Intent form would be submitted to the DOH-CWB for general coverage during construction if the project disturbs an acre of land or more. BMPs employed during construction (*e.g.*, silt fencing, tarping/covering exposed and stockpiled soils, surface revegetation) would minimize/eliminate impacts from stormwater generated at the project site. All discharges related to project construction and operation would need to comply with DOH regulations HAR 11-55: Water Pollution Control and HAR 11-54: Water Quality Standards.

The Proposed Action would require the construction of a surface water drainage system to collect stormwater flow, due to the construction of impervious surfaces (paved roads and sidewalks). All features of the proposed surface water drainage system would be designed in accordance with the County of Kaua'i Department of Public Works standards. The State of Hawai'i Department of Health (DOH) Clean Water Branch recommends integrating low impact development practices into project design by utilizing stormwater as a resource to maintain natural groundwater infiltration/recharge within the affected environment. This can be done through implementation of applicable guidance from the Hawai'i Watershed guidance (Tetra Tech, 2010), Stormwater Impact Assessments, and Low Impact Development, A Practitioners Guide (Hawai'i Office of Planning, 2006) (Appendix B-1). With the proposed drainage system in place, the Proposed Action would have less than significant impacts on surface water at the project site, as well as the surrounding environment.

The project site is not located within the 1% Annual Chance Flood Hazard area, Regulatory Floodway, or 0.2% Annual Chance Flood Hazard area (FEMA, 2015). Therefore, the Proposed Action would have less than significant impacts on floodplains due to its distance from floodplain and flood hazard areas, and because of the proposed site drainage system that would adequately manage stormwater runoff in accordance with applicable county drainage standards.



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FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

AQUIFERS MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE 4

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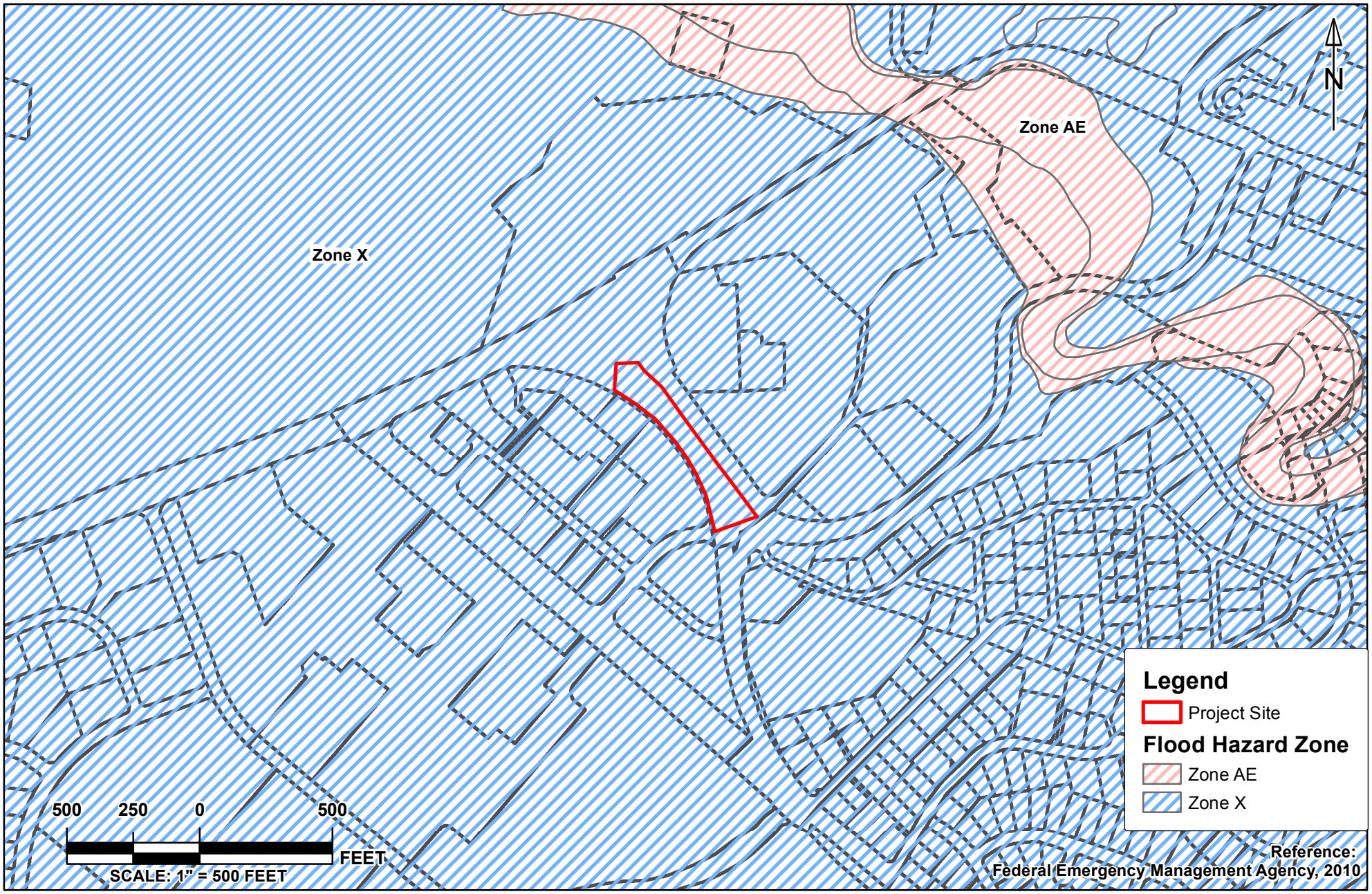

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PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

FLOOD HAZARD MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE 5

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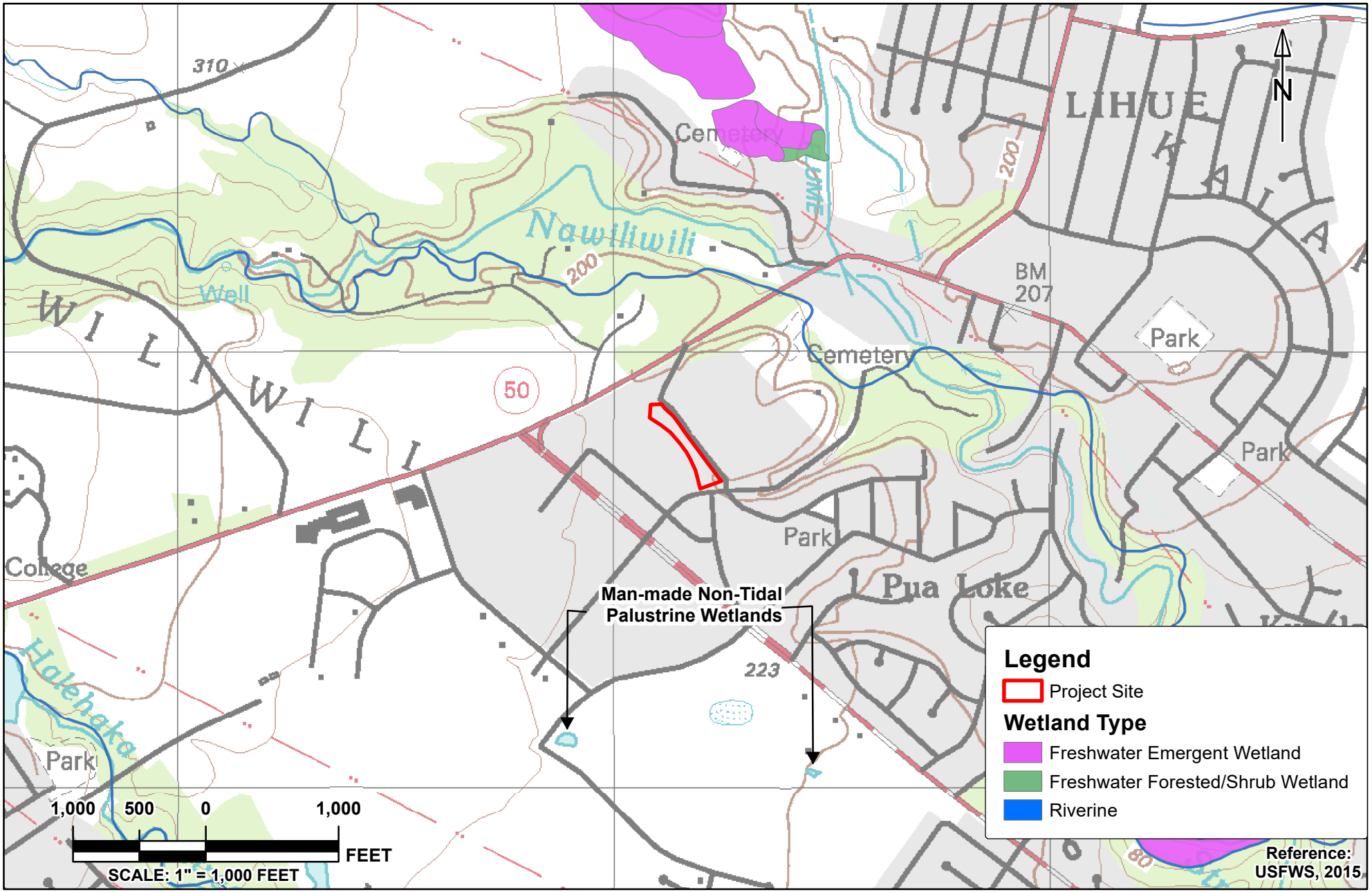

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PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

WETLANDS MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE
6

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3.2.5 SOLID AND HAZARDOUS MATERIALS AND WASTES

Definition of Resources

Solid Waste

Solid waste is defined as garbage, refuse, and other discarded materials, including solid, liquid, semi-solid, or contained gaseous materials resulting from industrial, commercial, mining, and agricultural operations; sludge from waste and water supply treatment plants; and residues from air pollution control facilities and community activities. However, solid waste does not include solid or dissolved materials in domestic sewage or other substances in water sources such as silt, dissolved or suspended solids in industrial waste water effluents, dissolved materials in irrigation return flows, or other common water pollutants; or source, special nuclear, or by-product material as defined by the Federal Atomic Energy Act of 1954, as amended (HAR §11-58.1).

Hazardous Materials and Wastes

Hazardous materials are defined as substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity, which may cause an increase in mortality, serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or to the environment. Hazardous wastes are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or to the environment.

Issues associated with hazardous materials and wastes typically center on underground storage tanks, aboveground storage tanks, and the storage, transport, and use of pesticides and fuel. When such resources are improperly used, they can threaten the health and well-being of wildlife species, botanical habitats, soil systems, water resources, and people.

Regulatory Setting

Solid Waste

Solid Waste management regulations are specified in §HAR 11-58.1, with the intent to:

1) Prevent pollution of the drinking water supply or waters of the state;
2) Prevent air pollution;
3) Prevent the spread of disease and the creation of nuisances;
4) Protect public health and safety;
5) Conserve natural resources; and
6) Preserve and enhance the beauty and quality of the environment.

Hazardous Waste

HAR §11-262 specifies rules regulating hazardous waste management. Hazardous Waste Management regulations are specified in EPA state-specific Universal Waste Regulations and in Identification and Listing of Hazardous Waste (40 CFR §261).

In 1980 the U.S. Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in order to identify and remediate sites where hazardous substances were, or could be, released into the environment. As a result, CERCLA often addresses uncontrolled releases of hazardous substances from facilities no longer in operation. In addition, the Resource Conservation and Recovery Act (RCRA) was enacted in 1976 in order to focus on the prevention and remediation of releases from currently operating facilities. Together the two pieces of legislation effectively form the "safety net" intended to protect the ecosystems in which organisms thrive.

3.2.5.1 EXISTING CONDITIONS

The project site includes a paved asphalt parking lot for County worker vehicles and heavy equipment storage, as well as landscaped grass areas with drainage swales and small patches of bare soil. Overhead electric power poles/lines traverse the Site. A Phase 1 Environmental Site Assessment was performed for the project site in August 2017 by Environet in order to determine if any recognized environmental conditions (RECs) may be present at or around the project site. No RECs were observed during the Phase 1 Environmental Site Assessment. The following de minimis items were observed at the project site:

- The Site and the surrounding area were used for commercial agricultural purposes from the early 1900s to at least 1978. Therefore, soil at the Site may contain potentially harmful chemicals previously used in pesticides and fertilizers. It is recommended that soil at the Site be screened for target chemicals and metals prior to disturbance;
- Small amounts of petroleum staining were observed on the paved parking area at the Site. It appeared that the staining was coming from the heavy equipment stored at the parking area. Only de minimis staining was observed and therefore does not represent a REC for the Site. Oil spill pans or other proper containment should be placed under the heavy equipment in order to prevent future releases of petroleum products;
- A pole-mounted electrical transformer was observed at the Site, and could potentially be a source of polychlorinated biphenyl (PCB) contamination. Kaua'i Island Utility Cooperative (KIUC) was contacted to determine the PCB status of the transformers on site. No PCB status was provided by KIUC for transformers located at the Site. Any disturbance to utility poles and/or transformers at the Site should be closely coordinated with the KIUC to assure proper characterization, handling and disposal of potentially PCB-containing materials.

Approach to Analysis

Numerous local, federal, and state laws regulate the storage, handling, disposal, and transportation of hazardous materials and wastes; the primary purpose of these laws is to protect human health and the environment. The significance of potential impacts associated with hazardous substances is based on their toxicity, reactivity, ignitability, and corrosivity. Impacts associated with hazardous materials and wastes would be significant if the storage, use, transportation, or disposal of hazardous substances substantially increased the human health risk or environmental exposure.

3.2.5.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under implementation of the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. The project site would remain unchanged and there would be no additional hazardous materials or solid wastes generated.

Proposed Action

Solid Waste

During construction of the Proposed Action, solid waste in the form of construction debris will be generated. However, short-term impacts will be reduced to a level of insignificance by the construction contractor's Solid Waste Management Plan developed in accordance with county regulations. The

Proposed Action is expected to result in less than significant long-term impacts on the county solid waste collection system and landfill. Residential solid waste service would be provided by the County of Kaua'i Refuse Division in accordance with current collection policies. All solid waste will be disposed of at a complicit solid waste management facility with HAR Chapter 11-58.1. As a result, the Proposed Action would result in less than significant impacts to the county solid waste disposal system.

Hazardous Materials and Waste

During construction of the Proposed Action, there may be the potential of petroleum spillage associated with construction vehicles and equipment. To minimize this hazard, all applicable spill and prevention control BMPs would be implemented to ensure that accidental releases are minimized and contained. For example, vehicles and equipment would be regularly inspected for leaks and adequate performance, and would be maintained accordingly. Furthermore, oil spill pans or other proper containment would be placed under heavy equipment that is stored at the project site. According to the August 2017 Phase I Environmental Site Assessment (Environet, 2017), there may also be the potential for the presence of chemicals and metals previously used in pesticides and fertilizers in soils at the project site, as well as PCBs in the pole-mounted transformer present at the project site. To minimize these hazards, soils at the project site would be screened for target chemicals prior to disturbance, and any disturbance to utility poles and/or transformers at the project site would be coordinated with KIUC to assure proper characterization, handling, and disposal of material potentially containing PCBs.

In the long-term, there is potential for petroleum spillage from residential sources (*e.g.*, vehicle leaks and improper disposal of hazardous materials). These potential impacts would be reduced by adherence to all applicable county and state regulations. As a result, implementation of the Proposed Action is expected to have a less than significant impact from hazardous materials and waste.

3.2.6 CLIMATE AND AIR QUALITY

Definition of Resource

Climate

Climate is defined as long-term atmospheric patterns that characterize a region or location, and includes measures of temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count, and other meteorological variables. Knowing the climate of an area enables the predictability of short-term weather phenomena; however, only the weather can specify actual short-term atmospheric conditions. Some geographic regions with great topographic variations over relatively short distances (e.g., slope steepness, aspect) have micro climates that are distinct to small areas (e.g., canyons, leeward vs. windward, hilltops, basins).

Air Quality

Air quality at a given location is a function of several factors, including the quantity and type of pollutants emitted locally and regionally, as well as the dispersion rates of these pollutants. Primary factors affecting pollutant dispersion are wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and topography. Air quality is affected by both stationary sources (e.g., industrial development) and mobile sources (e.g., motor vehicles).

Air quality at a given location is determined by the concentration of various pollutants in the atmosphere. National Ambient Air Quality Standards (NAAQS) are established by the EPA for criteria pollutants, including: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than or equal to ten microns in diameter (PM_{10}) and less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). NAAQS represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health and welfare.

Ozone (O_3). The majority of ground-level (or terrestrial) O_3 is formed as a result of complex photochemical reactions in the atmosphere involving volatile organic compounds (VOCs), nitrogen oxides (NO_x), and oxygen. O_3 is a highly reactive gas that damages lung tissue, reduces pulmonary function, and sensitizes the lung to other irritants. Although stratospheric O_3 shields the earth from damaging ultraviolet radiation, terrestrial O_3 is a highly damaging air pollutant and is the primary source of smog.

Carbon Monoxide (CO). CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuel. The health threat from CO is most serious for those who suffer from cardiovascular disease, particularly those with angina and peripheral vascular disease.

Nitrogen Dioxide (NO_2). NO_2 is a highly reactive gas that can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Repeated exposure to high concentrations of NO_2 may cause acute respiratory disease in children. Because NO_2 is a key precursor in the formation of O_3 or smog, control of NO_2 emissions is an important component of overall pollution reduction strategies. The two primary sources of NO_2 in the U.S. are fuel combustion and transportation.

Sulfur Dioxide (SO_2). In Hawai'i, the main source of SO_2 is vog from volcanic eruptions. SO_2 is also emitted from stationary source coal and oil combustion, steel mills, refineries, pulp and paper mills, and from nonferrous smelters. High concentrations of SO_2 may aggravate existing respiratory and cardiovascular disease; asthmatics and those with emphysema or bronchitis are the most sensitive to SO_2 exposure. SO_2 also contributes to acid rain, which can lead to the acidification of lakes and streams and damage trees.

Particulate Matter (PM_{10} and $PM_{2.5}$). Particulate matter (PM) is a mixture of tiny particles that vary greatly in shape, size, and chemical composition, and can be composed of metals, soot, soil, and dust. PM_{10} includes larger, coarse particles less than ten microns in size, whereas $PM_{2.5}$ includes smaller, fine particles less than 2.5 microns in size. Sources of coarse particles include crushing or grinding operations, and dust from paved or unpaved roads. Sources of fine particles include vog, all types of combustion activities (*e.g.*, motor vehicles, power plants, wood burning) and certain industrial processes.

Exposure to PM_{10} and $PM_{2.5}$ levels exceeding current standards can result in increased respiratory- and cardiac-related respiratory illness. Short-term effects from PM may include headaches, breathing difficulties, eye irritation, and sore throat. The EPA has concluded that $PM_{2.5}$ are more likely to contribute to health problems than PM_{10}.

Airborne Lead (Pb). Airborne Pb can be inhaled directly or ingested indirectly by consuming Pb-contaminated food, water, or non-food materials such as dust or soil. Fetuses, infants, and children are most sensitive to Pb exposure. Pb has been identified as a factor in high blood pressure and heart disease. Exposure to Pb has declined dramatically in the last 10 years as a result of the reduction of Pb in gasoline and paint, and the elimination of Pb from soldered cans.

Greenhouse Gases (GHGs). GHGs trap heat in the earth's atmosphere, affecting climate change and contributing to global warming. Both naturally occurring and anthropogenic (man-made) GHGs include: water vapor, carbon dioxide (CO_2), methane (CH_4), nitric oxide (NO), and O_3. According to guidance from the CEQ, during an analysis of direct effects it is appropriate to: (1) quantify cumulative emissions over the life of the project; (2) discuss measures to reduce GHG emissions, including consideration of reasonable alternatives; and (3) qualitatively discuss the link between such GHG emissions and climate change. However, it is not currently useful for NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand. The estimated level of GHG emissions can serve as a reasonable proxy for assessing potential climate change impacts, and provide decision makers and the public with useful information for a reasoned choice among alternatives. The CEQ suggests the emission indicator of 25,000 metric tons of CO_2-equivalent per year to determine if a

federal agency should conduct a GHG emission study on a proposed action (CEQ, 2010). It is not anticipated that the short-term construction emissions associated with implementation of the proposed action would produce GHG emissions at or above the CEQ standard, or emissions at or above NAAQS standards. Once in operation, the proposed subdivision would not result in significant GHG emissions. Therefore, a GHG emission study would not be warranted.

Regulatory Setting

The CAA Amendments of 1990 place most of the responsibility to achieve compliance with NAAQS on individual states. The DOH Clean Air Branch is responsible for air pollution control in the state. The primary services of the branch include: 1) Engineering, which includes engineering analysis and permitting; 2) Monitoring, which performs monitoring and investigations; and 3) Enforcement, in which federal and state air pollution control laws and regulations are enforced.

The EPA requires each state to prepare a State Implementation Plan (SIP). A SIP is a compilation of goals, strategies, schedules, and enforcement actions that would lead the state into compliance with all NAAQS for CO, PM_{10}, $PM_{2.5}$, SO_2, NO_2, and O_3 to thus reach attainment status. Areas not in compliance with a standard can be declared non-attainment areas by EPA or the appropriate state or local agency. There can be lenience for Exceptional Events, which are defined as "unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal state, or local air agencies may implement in order to attain and maintain the NAAQS" (EPA, 2012). An example of an Exceptional Event is a volcanic eruption, which affects air quality by causing exceedances of NAAQS and cannot be controlled by human intervention.

3.2.6.1 EXISTING CONDITIONS

The average annual temperature on Kaua'i is 75.9 degrees Fahrenheit, with an annual average total precipitation of 37.44 inches. The months of the year with the most rainfall occur from October through April (Western Region Climate Center, 2017).

The project site is located in Līhu'e on the eastern coast of the island of Kaua'i. The annual average maximum temperature is 80.8 degrees Fahrenheit, the annual average minimum temperature is 66.4 degrees Fahrenheit, and the annual average total precipitation is 52.02 inches (Western Region Climate Center, 2017).

The prevailing winds on Kaua'i (known as trade winds) are from the east-northeast, with a mean wind speed of 13.1 mph (Western Region Climate Center, 2017). The trade winds prevail approximately nine months of the year. Trade winds blow vog (i.e., volcanic fog) from the Big Island of Hawai'i volcanoes, as well as other air contaminants, to the southwest. During the winter months, winds tend to be less predictable, with longer periods of light and variable winds, and occurrences of strong southerly or "Kona" winds associated with weather fronts and storms. In addition, when trade winds are absent for prolonged periods, vog travels up the island chain and can affect air health by increasing levels of airborne SO_2 and $PM_{2.5}$. Although both of these pollutants are regulated by the EPA, Hawai'i's advisories for volcanic SO_2 and $PM_{2.5}$ have been customized for local conditions. Air monitoring stations in communities near Kīlauea Volcano on the Big Island of Hawai'i record 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 requests exclusion from these NAAQS exceedances for attainment/non-attainment determination (DOH, 2015). Shorter exposure time intervals have also been adopted due to variable wind conditions, which can cause volcanic gas concentrations to change rapidly (USGS, 2014b).

The project site is located in EPA attainment zones for CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb (EPA, 2014). In 2012, Hawai'i was in attainment with NAAQS annual averages of PM_{10}, $PM_{2.5}$, O_3, CO, and SO_2

based upon three year averages of annual mean values from 12 air quality stations (four on O'ahu, one on Maui, seven on the Big Island of Hawai'i, and one on Kaua'i) that represent the State of Hawai'i. The air quality station positioned closest to the project site is located approximately 1.7 miles southwest of the project site in Niumalu. The 24-hour $PM_{2.5}$, one-hour and annual NO_2, and one-hour and three-hour SO_2 averages from this air quality station from 2014 to 2015 indicated that averages of NO_2, $PM_{2.5}$, and SO_2 levels in ambient air were well below their respective state (HAR §11-59) and federal (40 CFR Part 50) standards (DOH, 2015). Levels of PM_{10}, CO, and O_3 were not taken at the Niumalu air quality station, but annual average levels of PM_{10} taken from 2011-2015 at the Kapolei air quality station (the station located closest to the project site that captures PM_{10} levels) were one third or less than the state and federal standards. Similarly, O_3 Fourth Highest Daily Maximum eight-hour averages from the same time period taken at the Kapolei air quality station were two thirds or less than the federal standard. Finally, CO maximum one-hour and eight-hour averages from the Kapolei air quality station from 2011-2015 did not exceed state or federal standards (DOH, 2015).

Approach to Analysis

The 1990 Amendments to the CAA require that federal agency activities conform to the SIP with respect to achieving and maintaining attainment of NAAQS and to addressing air quality impacts. The EPA General Conformity Rule requires that a conformity analysis be performed, which demonstrates that a proposed action does not: 1) cause or contribute to any violation of any NAAQS in the area; 2) interfere with provisions in the SIP for maintenance or attainment of any NAAQS; 3) increase the frequency or severity of any existing violation of any NAAQS; or 4) delay timely attainment of any NAAQS, any interim emission reduction goals, or other milestones included in the SIP. Provisions in the General Conformity Rule allow for exemptions from performing a conformity determination only if total emissions of individual non-attainment area pollutants resulting from the proposed action fall below the *de minimis* threshold values.

3.2.6.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. The project site would remain unchanged from current conditions. The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage, and includes landscaped grass areas with drainage swales and small patches of bare soil; electric poles, lines, and a pole-mounted transformer are also present at the project site. Commercial activities take place at the project site, including vehicle and heavy equipment movement, and regular maintenance activities associated with landscaping and electric utilities. Currently produced less than significant fugitive dust, mowing, and vehicular emissions would continue due to the use of vehicles and landscaping equipment at the project site. No additional impacts to air quality would occur under implementation of the No Action Alternative.

Proposed Action

The Proposed Action would result in less than significant short-term impacts to air quality arising from construction activities. Short-term air quality impacts would occur from the generation of fugitive dust during construction activities. The State of Hawai'i Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the property line. Applicable construction BMPs will be implemented during construction activities in order to control fugitive dust emissions in accordance with Title 11, HAR 11-60.1. These BMPs would include watering active work areas and unpaved work roads; use of wind screens; establishment of a routine road cleaning and/or tire washing program; paving of parking areas; establishment of landscaping early in the construction schedule; and monitoring dust at the project boundary.

The use of construction equipment and personal vehicles to access the project site could lead to temporary increases in vehicular airborne pollutant concentrations. To reduce vehicle and equipment emissions, carpooling and ensuring that equipment is functioning properly would be included in regular construction work practices. Further, increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers may occur. These increased vehicular emissions would be alleviated by moving equipment and personnel to the project site during off-peak traffic hours. As a result, short-term impacts to air quality due to construction activities would be considered less than significant.

Direct long-term impacts to air quality due to increased vehicular traffic are not expected to be significant. The Proposed Action would result in minimal increased annual emissions. However, worst case projected concentrations should remain well within both the state and national ambient air quality standards (below de minimus threshold concentrations for all area pollutants). Therefore, indirect long term impacts to air quality due to the Proposed Action would be considered less than significant.

3.2.7 NOISE

Definition of Resources

Noise is generally defined as unwanted sound. Noise can be any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human responses to noise vary depending on the type and characteristics of the noise, distance between the noise source and receptor, receptor sensitivity, and time of day.

Determination of noise levels are based on: 1) sound pressure level generated (decibels [dB] scale); 2) distance of listener from source of noise; 3) attenuating and propagating effects of the medium between the source and the listener; and 4) period of exposure.

An A-weighted decibel (dBA) sound level is one measurement of noise. The human ear can perceive sound over a range of frequencies, which varies for individuals. In using the A-weighted scale for measurement, only the frequencies heard by most listeners are considered. This gives a more accurate representation of the perception of noise. The noise measure in a residential area, similar to conditions within the project site, is estimated at approximately 70 dBA. Normal conversational speech at a distance of five to ten feet is approximately 70 dBA. The dB scale is logarithmic, so, for example, sound at 90 dBA would be perceived to be twice as loud as sound at 80 dBA. Passenger vehicles, motorcycles, and trucks use the roads in the vicinity of the project site; landscaping activities may also take place periodically at the project site. Noise levels generated by vehicles and landscaping equipment vary based on a number of factors, including vehicle or model type, speed, and level of maintenance. Intensity of noise is attenuated with distance. Some estimates of noise levels from vehicles and landscaping equipment are listed in Table 3-2 (Cavanaugh and Tocci, 1999).

Table 3-1: Typical Noise Sources

Source	Distance (feet)	Noise Level (dBA)
Automobile, 40 mph	50	72
Automobile Horn	10	95
Light Automobile Traffic	100	50
Truck, 40 mph	50	84
Heavy Truck or Motorcycle	25	90
Lawn Mower	N/A	88-94
Weed Whacker	N/A	94-96

Source: Cavanaugh and Tocci, 1998.
(N/A) – not available

Regulatory Setting

HAR Title 11, Chapter 46 Community Noise Control (HAR §11-46) sets permissible noise levels in order to provide for the prevention, control, and abatement of noise pollution in the state. The regulation creates noise districts based on land use that dictate acceptable noise levels. The project site is currently zoned for commercial use. Therefore, the project site is in a Class B zoning district, as defined by HAR §11-46. The maximum permissible sound level in a Class B district is 60 dBA from 7:00 am-10:00 pm and 50 dBA from 10:00 pm-7:00 am.

According to HUD regulations 24 CFR Part 51, Subpart B: Noise Abatement and Control, HUD-funded new construction projects cannot be exposed to noise levels exceeding day-night average sound levels (DNL) of 75 dB. Further, if the DNL noise levels exceed 65 dB then the project would require noise attenuation measures reducing the DNL dB by 5 dB. If the DNL noise levels are above 70 dB then additional noise attenuation measures must be implemented to reduce the DNL dB by 10 dB.

The EPA has identified a range of yearly DNL standards that are sufficient to protect public health and welfare from the effects of environmental noise (EPA, 1977). The EPA has established a goal to reduce exterior environmental noise to a DNL not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to a DNL not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations, as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population would not be at risk from any of the identified effects of noise.

The U.S. Occupational Safety and Health Administration (OSHA) has established acceptable noise levels for workers. Table 3-2 shows OSHA permissible noise levels for varying exposure times.

Table 3-2: OSHA Permissible Noise Exposures

Duration per day-hours	Sound level dBA slow response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Source: OSHA, 2012

3.2.7.1 EXISTING CONDITIONS

The project site is located on the east side of the island of Kaua'i in Līhu'e, and is approximately 1.5 miles west of Līhu'e airport. The noise environment within the vicinity of the project site is presently dominated by traffic, wind, birds, occasional aircraft flyovers, Kukui Grove Shopping Center, neighboring business centers, Kukui Grove Cinema, the County and State offices/baseyard, as well as intermittent noise associated with landscaping and KIUC's maintenance of power lines located at the project site. Noise receptors within the vicinity of the project site include residential subdivisions to the south and shopping and business centers to the west and east.

Approach to Analysis

Noise impact analyses address potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (e.g., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (e.g., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (e.g., if they result in increased exposure to unacceptable noise levels).

3.2.7.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under implementation of the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. No construction activity or accompanying noise associated with the use of construction equipment would occur. The proposed project site would remain unchanged and the noise environment in the project site would continue to be dominated by traffic, wind, birds, occasional aircraft flyovers, Kukui Grove Shopping Center, neighboring business centers, Kukui Grove Cinema, the

County and State offices/baseyard, as well as intermittent noise associated with landscaping and KIUC's maintenance of power lines located at the project site.

Proposed Action

Under the Proposed Action, less than significant short-term noise impacts from construction activities would occur. Development of the project site would involve excavation, grading, and other typical construction activities. BMPs (e.g., construction scheduling; insulation/muffling; reduced power options; equipment substitution, selection, retrofit, and maintenance; utilization of staging areas; and non-permanent noise barriers) would be implemented to reduce or eliminate noise and buffer zones between construction activities and residential areas; and construction work would be limited to the hours between 7:30 am and 5:30 pm on weekdays. If noise levels exceed those specified in HAR Chapter 11-46, a noise permit will be obtained from DOH. Therefore, the Proposed Action is not expected to significantly impact any existing sensitive noise receptors within the vicinity of the project site (i.e., neighboring shopping and business centers, existing residential subdivisions, County and State offices/baseyard).

Upon completion, the Proposed Action would have less than significant long-term impacts to noise receptors. The proposed housing development is expected to incorporate stationary mechanical equipment that is typical for residential buildings. Typical stationary mechanical equipment present in housing developments include, but are not limited to, air handling equipment, condensing units, and refrigeration units. These stationary mechanical units are a source of noise that must meet DOH Community Noise Control rules. In order to comply with noise rules and prevent noise impacts to residences, the Proposed Action would incorporate design considerations to control the noise emanating from stationary mechanical sources. Design features that could be incorporated would include sufficient spacing between noise source(s) and receptor(s) and installing measures such as mufflers, silencers, acoustical enclosures, or noise barrier walls.

Noise associated with future traffic volume increases due to the development of the Proposed Action are expected to be less than significant. The Pua Loke Street subdivision would be designed in accordance with applicable federal and state noise standards, including the Federal Highway Administration and HUD. Noise testing will be completed upon completion of the proposed project in order to assure the project complies with the provisions of 24 CFR Part 51, Subpart B. As a result, long-term impacts to noise generation would be considered less than significant.

3.3 SOCIAL ENVIRONMENT

3.3.1 LAND USE CONSIDERATIONS AND ZONING

Definition of Resources

Land use comprises natural conditions or human-modified activities occurring at a particular location. Human-modified land use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other developed use areas.

Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and are often intended to protect specially designated or environmentally sensitive areas.

Regulatory Setting

The Hawai'i State Land Use Law (HRS Chapter 205) establishes a framework of land use management and regulation in which all lands in the State of Hawai'i are classified into four land use districts (Urban,

Rural, Agricultural, and Conservation). The State Land Use Commission (LUC) was established by the state legislature in order to administer the land use law.

The Council of the County of Kaua'i adopted an amended Comprehensive Zoning Ordinance (CZO) in 2012. The CZO was adopted for multiple purposes including: "implementing the intent and purpose of the adopted General Plan; regulating the use of buildings, structures, and land for different purposes; regulating location, height, bulk, and size of buildings and structures, the size of yards, courts, and other open spaces to maintain the concept of Kaua'i as 'The Garden Isle,' thus assuring that any growth would be consistent with the unique landscape and environmental character of the island; to insure that all physical growth is carried out so as to maintain the natural ecology of the island to the extent feasible; to provide opportunities for desirable living quarters for all residents in all income levels; [and] to guide and control development to take full advantage of the island's form, beauty and climate, and preserve the opportunity for an improved quality of life" (County of Kaua'i, 2012).

3.3.1.1 EXISTING CONDITIONS

Land Use

The project site occupies approximately 1.47 acres of land along Pua Loke Street in Līhu'e on the island of Kaua'i. The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The project site also includes landscaped grass areas with drainage swales and small patches of bare soil; electric power poles, lines, and a pole mounted transformer are also present. Land use activities surrounding the project site include residential and commercial uses.

Zoning

According to the State LUC district classifications, the project site is located within the Urban District (Figure 7). The site is zoned General Commercial (C-G), Residential (R-1), and Special Treatment District-Public Facilities (ST-P) under County zoning (Figure 8). According to the Kaua'i County Zoning Code, the purpose of the Commercial district is to: 1) designate areas suitable for commercial and public or private business activities distributed so as to supply goods and services to the public in a convenient and efficient manner; 2) relate commercial and business activities to established or projected transport, utility and community patterns so that they may contribute to the general health, safety and welfare of the public; and 3) assure that commercial and business development and uses will not detract from the environmental qualities of the surrounding areas. The purpose of the Residential district is to regulate the number of people living in a given area by specifying the maximum allowable number of dwelling units that may be developed on any given parcel of land. The ST-P District includes certain public or quasi-public facilities which are used by the general public or which tend to serve as gathering places for the general public (County of Kaua'i, 2012). The project site is adjacent to the State land use Urban District; per County zoning, these surrounding parcels are designated as Commercial, Residential, and Industrial. The project site is not included within the Important Agricultural Lands (IALs) as defined by the State of Hawai'i Land Evaluation and Site Assessment Commission (Figure 9). The land parcel zoning information for the project site is summarized in Table 3-3.

Table 3-3: Project Site Land Parcel Information

TMK Number	Parcel Area (acres)	State Land Use District	County Zoning Designation	Fee Owner
(4) 3-8-005:028	0.665	Urban	C-G/R-1/ST-P	County of Kaua'i
(4) 3-8-005:029	0.804	Urban	C-G/R-1/ST-P	County of Kaua'i

Notes: C-G = General Commercial
R-1 = One residential unit per acre of developed land
ST-P = Special Treatment District-Public Facilities

Tsunami Hazard Zones

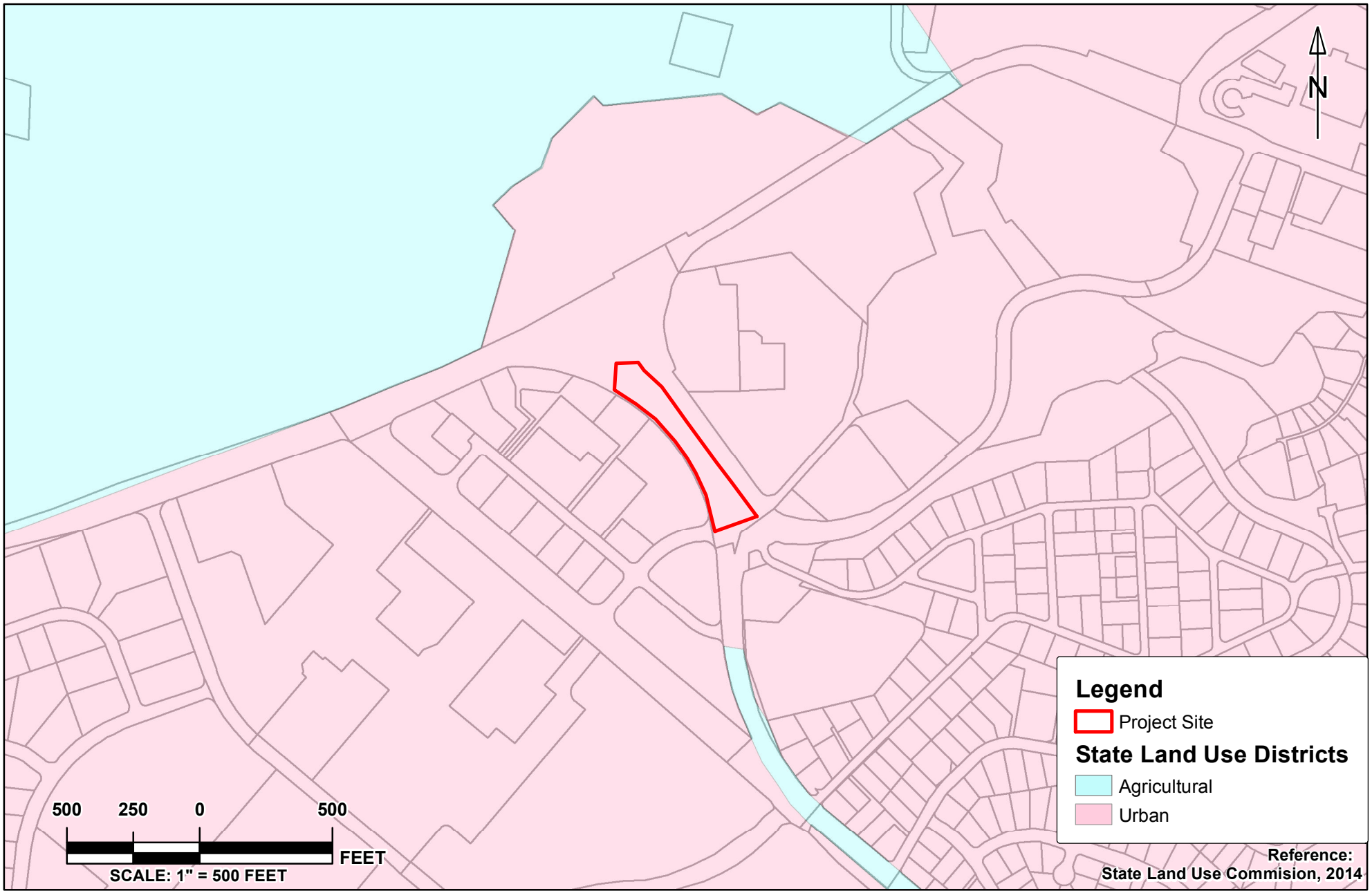
The project site is located outside of the tsunami evacuation zone as determined by the National Oceanic and Atmospheric Administration (NOAA) in partnership with the Hawai'i State Civil Defense (NOAA, 2017; State of Hawai'i, 2017).

Coastal Zone Consistency

The entire island of Kaua'i falls within the coastal zone, and is therefore under the jurisdiction of the CZM Program, which was established in compliance with the CZM Act. The program is administered by the State of Hawai'i Office of Planning and is intended to provide for the effective management, beneficial use, protection, and development of the coastal zone (HRS 205A).

Approach to Analysis

Significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action. In general, land use impacts would be significant if they would: 1) be inconsistent or noncompliant with applicable land use plans or policies; 2) preclude the viability of existing land use; 3) preclude continued use or occupation of an area; or 4) be incompatible with adjacent or vicinity land use to the extent that public health or safety is threatened.



Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

STATE LAND USE DISTRICTS MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE 7

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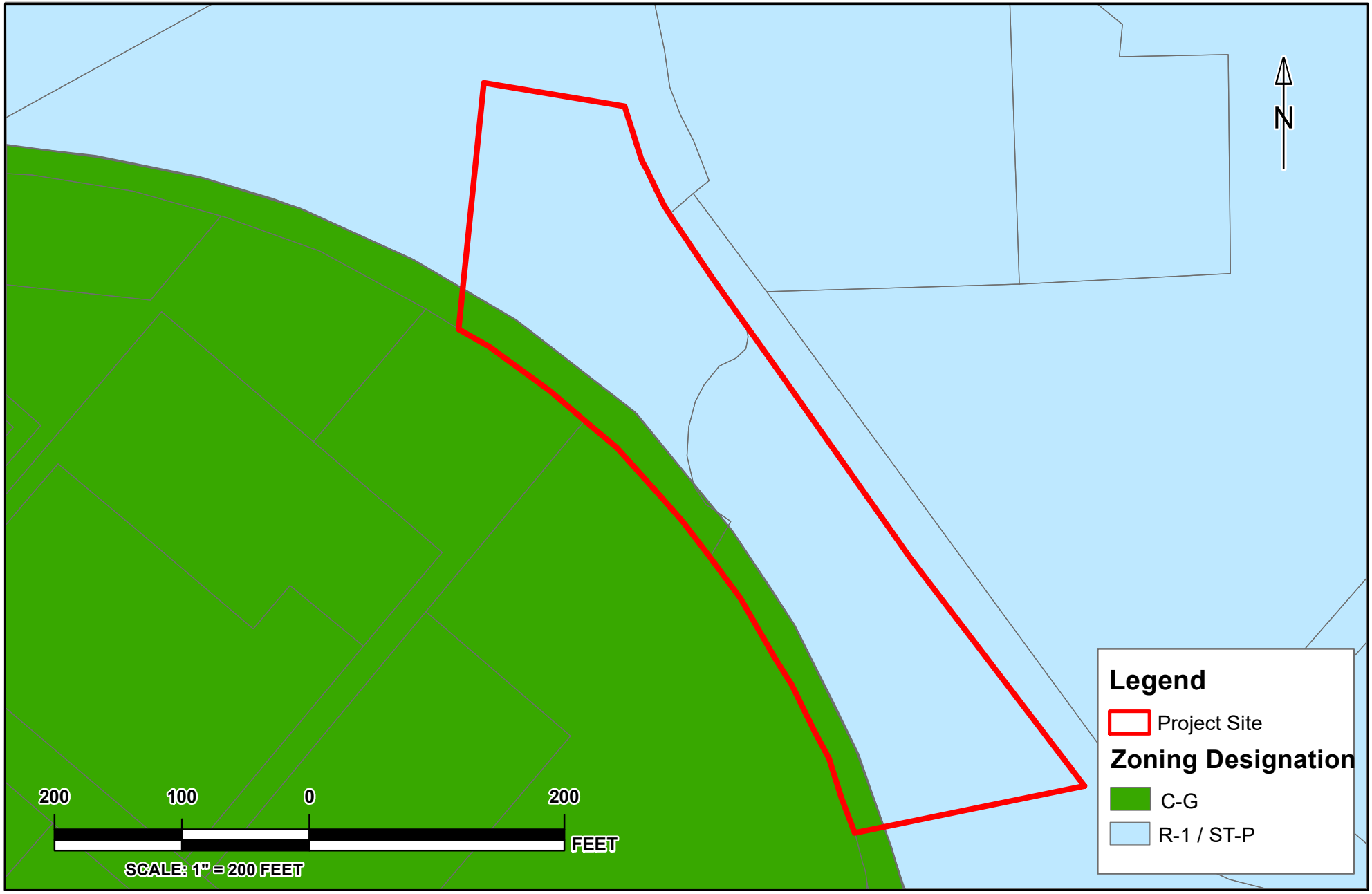

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

COUNTY ZONING DESIGNATION MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE 8

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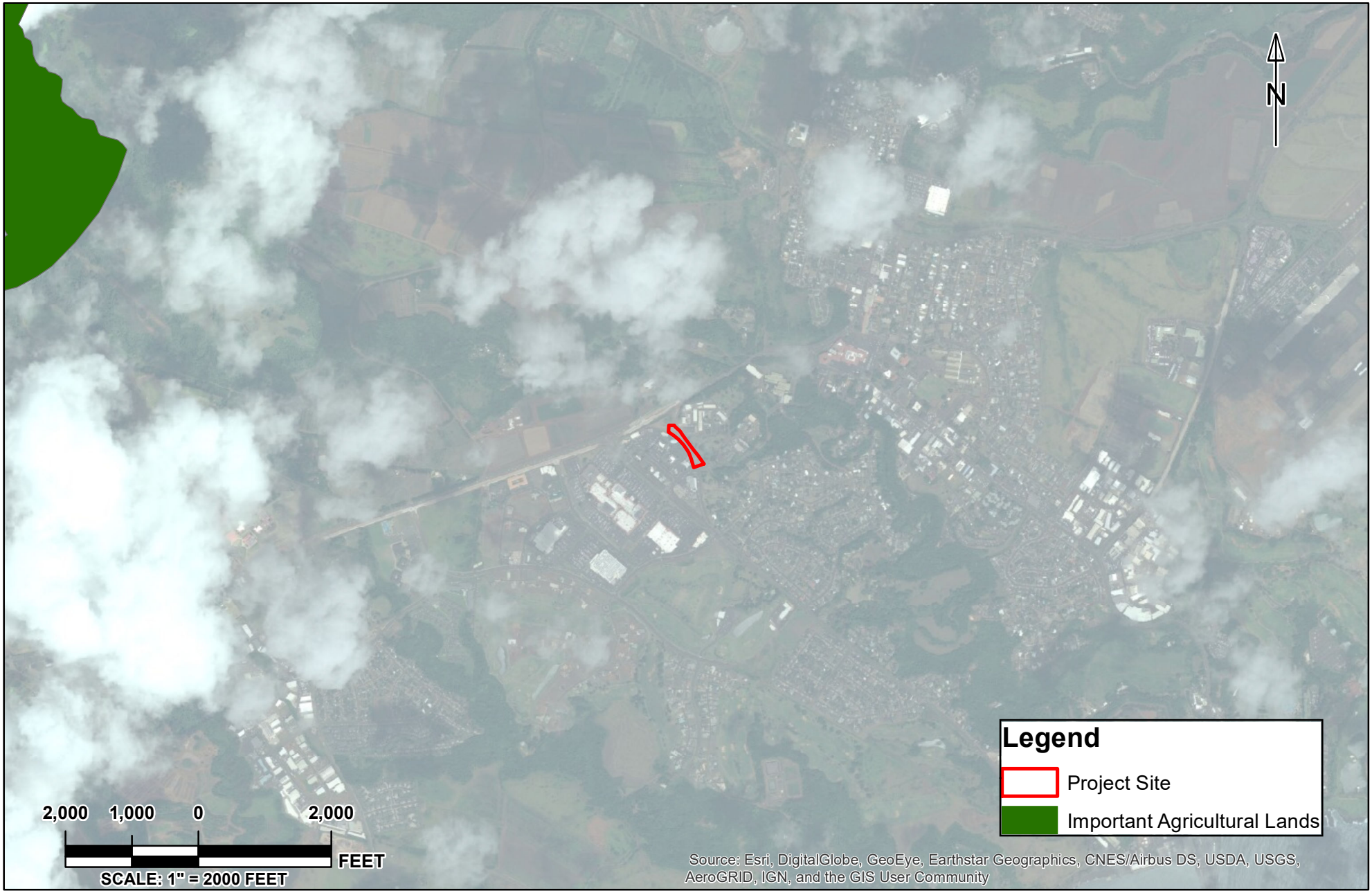

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

IMPORTANT AGRICULTURAL LANDS MAP
LIHU'E, KAUA'I, HAWAI'I

FIGURE 9

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3.3.1.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. No changes to current land use would occur. Therefore, there would be no impact to land use at the project site.

Proposed Action

The Proposed Action would result in less than significant short-term impacts to land use from construction activities. The project site is located west of Pua Loke Street, the Kaua'i County Water Department Base Yard and Offices, and open landscaped area; east of a commercial office building, the Kukui Park Professional Building, and the Kukui Grove Cinema; south of Kaumuali'i Highway; and north of Haleko Road in the town of Līhu'e. The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The project site also includes landscaped grass areas with drainage swales. Access to the project site would temporarily be affected by construction activities, as County workers would not be able to utilize the site for parking or heavy equipment storage; however, short-term impacts to land use arising from construction activities would be less than significant since the County has alternate parking areas within the vicinity of the project site that County workers can utilize.

Once developed, the Proposed Action would be considered compatible, consistent, and not in conflict with any of the objectives of the CZM program due to minimal impact to recreational use and coastal resources. Development of the community would not impact coastal recreation opportunities, impede economic uses, increase coastal hazards, or conflict with development within the coastal zone. Further, the project site is not included in the State of Hawai'i SMA. Therefore, the Proposed Action would be considered compatible and consistent with the program goals, and would not require a SMA permit. Finally, the State of Hawai'i Office of Planning has been consulted during the environmental review process.

The Proposed Action would require obtaining development entitlements, as required by County charter. The project site is zoned for general commercial, residential and ST-P use under County zoning regulations and is located in a State LUC Urban District. The proposed project use (residential) would be consistent with both State and County zoning designations. As an affordable housing project, Chapter 7A of the Kaua'i County Charter and HRS §201H-38 could be used to provide greater flexibility and feasibility by allowing the residential development to vary from zoning regulations, if necessary. Since the project site parcels include residential zoning that allows for one residential dwelling unit per developed acre of land (R-1), the selected developer would need to submit a Project Development Use Permit/Approval to the County planning commission in order to increase the density as planned (approximately 60 multi-family units maximum).

The Proposed Action would meet the criteria established by the County of Kaua'i General Plan and would be consistent with the General Plan Vision (County of Kaua'i, 2000). Kaua'i's General Plan Vision describes Kaua'i as a "rural environment of towns separated by broad open spaces," as well as "a rural place whose population size and economy have been shaped to sustain Kaua'i's natural beauty, rural environment and lifestyle."

The Proposed Action would be consistent with the stated vision by maintaining a rural environment within the project site and providing the needed development for housing to sustain the environment and lifestyle of Kaua'i. The General Plan states that preserving Kaua'i's rural character is the framework for new development, and that "within that framework, enhancing Kaua'i's towns and urban centers and directing new development to towns and urban centers are equally as important as maintaining open space between towns." The Proposed Action would benefit the people of Kaua'i by fulfilling a significant

need for affordable housing, while maintaining the qualities of development identified in the General Plan (i.e., developing within the vicinity of established residential and commercial communities).

The development would be adjacent to commercial and professional buildings to the west, a highway to the north, State of Hawai'i and Kaua'i County office buildings to the north and east, and a residential subdivision and commercial uses to the south. As a result, the development would represent continuity with the established urban area, and the Proposed Action would meet the criteria of the General Plan by "focusing development."

While the Proposed Action would represent a change in land use of the project site, there would be no significant impacts to land use at the project site or the surrounding area. Therefore, long term impacts to land use from the Proposed Action would be less than significant.

3.3.2 HISTORICAL AND CULTURAL RESOURCES

Definition of Resources

Historical and Cultural resources represent and document activities, accomplishments, and traditions of previous civilizations, and link current and former inhabitants of an area. Depending on their conditions and historic uses, these resources may provide insight to living conditions in previous civilizations and may retain cultural and religious significance to modern groups. Traditional cultural resources can include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that native Hawaiians or other groups consider essential for the persistence of traditional culture. The term historic properties refers to cultural resources that meet specific eligibility criteria for listing on the National Register of Historic Places (NRHP), such as age (generally at least 50 years old), architectural integrity, and/or significant association with historical events, activities, or developments.

Regulatory Setting

Several federal laws and regulations have been established to manage cultural resources, including the National Historic Preservation Act (NHPA) of 1966, the Archaeological and Historic Preservation Act (1974), and the Archaeological Resource Protection Act (1979).

The DLNR State Historic Preservation Division (SHPD) works to preserve and sustain historical and cultural resources through three branches: History and Culture, Archaeology, and Architecture. The SHPD maintains the statewide inventory of Historic Properties and reviews development projects in order to lessen the effects of change on Hawai'i's historical and cultural assets. Administrative rules pertaining to historic preservation in Hawai'i can be found in HAR §197-198, 275-284, and 300. Statutes pertaining to historic preservation in Hawai'i are found in HRS §6E.

Traditional cultural practices acknowledged in the State of Hawai'i include rights of access and gathering. Traditional gathering rights have been codified in HRS §1-1 and 7-1, Article 12-7 of the Constitution of the State of Hawai'i.

Articles IX and XII of the State Constitution of Hawai'i (HRS Chapter 343) require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiian and other ethnic groups. The "Guidelines for Assessing Cultural Impacts," adopted by the Environmental Council of the State of Hawai'i (1997), identifies the protocol for conducting cultural assessments. Once a cultural resource has been identified, a significance evaluation is conducted in which resources are assessed for scientific or historic research, for the general public, and for traditional cultural groups. In order for a cultural resource to be considered significant, per HAR §13-275-6, it must meet one or more of the following criteria for inclusion on the NRHP:

A) Associated with events that have made a significant contribution to the broad patterns of our history, or be considered a traditional cultural property;
B) Associated with the lives of persons significant in the past;
C) Embody distinctive characteristics of a type, period, or method of construction, or represent a significant and distinguishable entity whose components may lack individual distinction;
D) Has yielded or may be likely to yield, information important in prehistory or history; and/or
E) Have important value to native Hawaiian people or other ethnicities in the state, due to associations with cultural practices and traditional beliefs that were, or still are, carried out.

3.3.2.1 EXISTING CONDITIONS

Archaeological Resources

An Archaeological Assessment (AA)/Inventory Survey (AIS) was conducted at the project area by Scientific Consultant Services, Inc. (SCS) in December 2017 in order to determine if archaeological or historical resources may be present within the surface and subsurface environment at proposed project area. The AA report is included as Appendix E of this FEA. The scope of work included a systematic surface and subsurface survey within the project area. Eleven backhoe trenches were advanced at the project area, and research on the historic and archaeological background for the project site and general region was conducted. The trenches were mechanically excavated to document stratigraphy and to identify the presence, distribution, and nature of any subsurface features within the project area. No historical properties or other significant features were identified at the project area.

No artifacts or cultural deposits were identified during the surface or subsurface investigation aside from abandoned communication cables and an abandoned water irrigation line. A thin layer of crushed coral atop a layer of crushed basalt pebbles was identified in the trenches, may be remnants of previous roadbed or plantation railbed but no datable materials were found in association with these layers.

Cultural Resources

A cultural impact assessment (CIA) was completed for the proposed project by SCS and LX Gollin Research Hawai'i, LLC from October 2017 through January 2018 in order to determine the existing cultural/historical environment within the vicinity of, and surrounding the project area, and to determine if the proposed project would have an effect on existing cultural practices or resources. The CIA report is included as Appendix F of this FEA. The CIA included historical research and consultation/interviews with knowledgeable community members. The CIA revealed that the proposed project area is currently used as a county parking and landscaped area. And the was formerly used as the Grove Farm plantation fields and a former highway/railroad route. Given this history, remnants of the former roads/rail road tracks and plantation era may be present in the subsurface at the project area. No other known cultural practices or resources were found to occur within or directly surrounding the project area.

Approach to Analysis

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may occur by: 1) physically altering, damaging, or destroying all or part of a resource; 2) altering the characteristics of the surrounding environment that contribute to resource significance; 3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or 4) neglecting the resource to the extent that it is deteriorated or destroyed.

Identifying the locations of Proposed Action and determining the exact locations of cultural resources that could be affected can assess direct impacts. Indirect impacts primarily result from the effects of project-induced population increases and the resultant need to develop new housing areas, utilities

services, and other support functions necessary to accommodate population growth. These activities and the subsequent use of the facilities can disturb or destroy cultural resources.

3.3.2.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. The project site would remain unchanged from current conditions and there would be no direct or indirect impacts to any potential cultural resources.

Proposed Action

Archaeological Impacts

Based on the results of the AA/AIS conducted at the project area, no significant archaeological or historical resources were found at the project area. However, given the possibility of encountering potentially historical features during ground disturbance, it is recommended that archaeological monitoring by qualified personnel be conducted for all ground disturbance during construction. In the event that potentially significant features are discovered during construction, all work shall cease and the SHPD and Grove Farm Sugar Plantation Museum should be contacted for guidance. Given these results and planned mitigation measures, there are no anticipated impacts to archaeological or historical resources from the proposed project.

Cultural Impacts

Based on the results of the CIA conducted for the Proposed Action, the state park/proposed arboretum located across the street from the project area may be impacted by increased use from the proposed development and other users associated with the proposed arboretum. In order to mitigate any potential impacts to the state park, it is recommended that responsible county and state agencies communicate closely in order to maintain adequate health and safety and cleanliness at the state park. It is also recommended that the county coordinate closely with all parties that are currently authorized to use the existing parking lot within the project area to assure adequate parking for state and county workers, and any permitted community events. With these mitigation measures in place, no significant impact to the existing cultural/historical environment are anticipated.

3.3.3 TRAFFIC AND CIRCULATION

Definition of Resources

Traffic and circulation refer to the movement of vehicles throughout a road or highway network. Primary roads are principal arterials, such as major interstates, designed to move traffic and not necessarily to provide access to all adjacent areas. Secondary roads are arterials such as rural routes and major surface streets, which provide access to residential and commercial areas, hospitals, and schools.

Regulatory Setting

State of Hawai'i Department of Transportation (HDOT) Highway Manual for Sustainable Landscape Maintenance, Chapter 4, Section 645: Work Zone Traffic Control describes the following procedures on:

1) Furnishing, installing, maintaining, and subsequently removing work zone traffic control devices and personnel. Work zone traffic control shall include providing flaggers and police officers;

2) Keeping roads for public traffic open and in passable condition; providing and maintaining temporary access crossings for trails, businesses, parking lots, garages, residences, farms, parks, and other driveways; taking necessary work precautions for the protection, safety, and convenience of the public; should pedestrian facilities exist, taking necessary measures for the safe and accessible passage, with route information and Americans with Disabilities Act of 1990 Accessible Guidelines compliance (41 U.S.C. §12101), for pedestrians traveling through or near work zone; and

3) Taking safety and precautionary measures, such as illuminating roadway obstructions during hours of darkness, in accordance with HRS Chapter 286; Title 19, Subtitle 5, Chapters 127, 128, and HAR 129 (HAR §19-5); Manual on Uniform Traffic Control Devices.

Regulations for necessary signs, barricades, traffic delineators, cones, lane closures, advisory signs, and advertisement needed for construction activity shutdowns described in HDOT Section 645 would be adhered to if needed, and a Traffic Control Plan (TCP) would be drafted if construction work extends into the public roadways located adjacent to the project site.

3.3.3.1 EXISTING CONDITIONS

A Traffic Impact Analysis Report (TIAR) that presents an analysis of the existing traffic network volumes, as well as projected traffic volumes resulting from the proposed subdivision, was completed in November 2017 by Austin, Tsutsumi & Associates, Inc (ATA). The findings of the TIAR are included in the following sections and the full TIAR is included as Appendix D.

Roadway Network

The following roadways were selected as the main vehicular roads that would service and be affected by the proposed project.

Pua Loke Street is a two-lane, two-way, undivided collector roadway to the north, Pua Loke Street provides access to the DOW and DLNR-DFW. To the south, Pua Loke Street provides access to residential neighborhoods before terminating at its intersection with Pikake street. The posted speed limit along the roadway is 25 mph.

Haleko Road is a two-lane, two-way, undivided, northwest-southeast roadway that generally runs parallel to Kamualiʻi Highway and connects Rice Street to Nāwiliwili Road. Haleko Road provides direct access to Kukui Grove Shopping Center at its connection with Nāwiliwili Road. The posted speed limit along the roadway is 25 mph.

Wehe Road is a two-lane, two-way, undivided northeast-southwest roadway. Wehe Road begins at its intersection with Pua Loke Street and terminates to the northeast near Līhuʻe Public Cemetery. Wehe Road serves the Kauaʻi Economic Opportunity homeless shelter. There is no posted speed limit along the roadway.

The existing traffic levels at the following intersections were analyzed during typical weekday AM and PM peak hours (Figure 10):

- Haleko Road/Pua Loke Street (unsignalized);
- Pua Loke Street/Wehe Road (unsignalized);
- Pua Loke Street/Existing Driveway 1 (unsignalized;
- Pua Loke Street/Existing Driveway 2/Forestry and Wildlife Division (unsignalized);

- Pua Loke Street/DOW (traffic circle).

Note that turning movement data were not collected at the Pua Loke/DOW intersection, and volumes were determined based on the data collected at the nearby intersections.

Intersection traffic operations were evaluated based on the level of service (LOS) concept. LOS is a qualitative description of an intersection and roadway operation ranging from LOS A to LOS F. LOS A represents free flowing, uncongested traffic conditions. LOS F represents highly congested traffic conditions with what is commonly considered unacceptable delay to vehicles on the road segments and at intersections. The intermediate levels of service represent incremental levels of congestion and delay between those two extremes. Table 3-4 shows the projected future year 2020 traffic LOS without the proposed project at these key intersections. All intersections are projected to operate with an acceptable LOS.

Approach to Analysis

Potential impacts to traffic and circulation patterns are assessed with respect to anticipated disruption or improvement of current transportation patterns and systems, deterioration or improvement of existing levels of service, and changes in existing levels of transportation safety. Beneficial or adverse impacts may arise from physical changes to circulation (*e.g.*, closing, rerouting, or creating roads), construction activity, introduction of construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes created by installation workforce and population changes. Adverse impacts on roadway capacities would be significant if roads with no history of exceeding capacity were forced to operate at or above their full design capacity.

Table 3-4: Future Without Project Traffic Conditions-Year 2020

Intersection	Year 2020 Conditions			
	AM		PM	
	Delay (seconds per vehicle)	LOS	Delay (seconds per vehicle)	LOS
Pua Loke Street / Haleko Road				
NB LT/TH/RT	12.1	B	14.5	B
EB LT/TH/RT	8.0	A	8.2	A
WB LT/TH/RT	7.9	A	8.0	A
SB LT/TH/RT	16.2	C	15.7	C
Pua Loke Street / Wehe Road				
WB LT/RT	9.2	A	9.0	A
SB LT/TH	7.4	A	7.3	A
Pua Loke Street / Project Driveway 1				
EB LT/RT	8.7	A	8.5	A
Pua Loke Street / Forestry and Wildlife Division				
NB LT/TH/RT	7.3	A	0.0	A
WB LT/TH/RT	9.0	A	8.8	A
SB LT/TH/RT	0.0	A	0.0	A
Pua Loke Street / DOW and Project Driveway 2				
NB TH	2.9	A	2.8	A
NB LT/RT	2.7	A	2.7	A
SB TH	2.9	A	2.8	A
Overall	**2.9**	**A**	**2.8**	**A**

Source: ATA, 2017

Notes:
EB = east bound
SB = south bound
LT = left turn
TH = through
NB = north bound
WB = west bound
RT = right turn

3.3.3.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under implementation of the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed, and no short-term construction vehicular traffic would be generated. The project site would remain unchanged, and traffic from the surrounding residential and commercial activity would continue without additional impacts associated with the Proposed Action.

However, traffic within the vicinity of the project site may still be adversely impacted long-term due to cumulative growth from the planned residential developments throughout the Līhu'e area, as shown in Table 3-5.

Proposed Action

Implementation of the Proposed Action would result in less than significant, short-term impacts to traffic and circulation during the construction period. Construction activities would need to comply with HDOT construction traffic control measures, and a TCP would be created prior to commencement of construction activities. Negligible direct impacts resulting from additional vehicle trips to and from the project site by construction workers and contractors via the local roadway network would occur during the construction phase. Contractor parking would be provided in the staging areas established for the various phases of construction activities. As much as possible, the number of vehicles would be reduced through the implementation of vanpooling. As a result, direct and indirect short-term impacts to traffic and circulation due to construction activities would be considered less than significant.

In the future, transit improvements, including a roundabout at the Haleko Road/Pua Loke Street intersection and a new bus stop just west of the intersection, may also be constructed by 2020. Although these improvements may not necessarily be built with the project, scenarios with and without the potential roundabout and bus stop were evaluated for Future Year 2020 to represent the ultimate scenarios in the TIAR (Tables 3-6 and 3-7, respectively).

Table 3-5 shows the projected LOS at the key analyzed intersections once the project is completed but without the planned roundabout and bus stop, and contributing to the local traffic network during the target future year 2020.

Table 3-5: Future with Project Traffic Conditions without Roundabout and Bus Stop - Year 2020

Intersection	Year 2020 Conditions			
	AM		PM	
	Delay (seconds per vehicle)	LOS	Delay (seconds per vehicle)	LOS
Pua Loke Street / Haleko Road				
NB LT/TH/RT	12.2	B	15.0	C
EB LT/TH/RT	8.0	A	8.2	A
WB LT/TH/RT	7.9	A	8.0	A
SB LT/TH/RT	16.9	C	16.6	C
Pua Loke Street / Wehe Road				
WB LT/RT	9.4	A	9.2	A
SB LT/TH	7.4	A	7.4	A
Pua Loke Street / Project Driveway 1				
NB LT/TH	7.4	A	7.3	A
EB LT/RT	8.6	A	8.6	A
Pua Loke Street / Forestry and Wildlife Division				
WB LT/RT	9.1	A	9.0	A
SB LT/TH	0.0	A	0.0	A
Pua Loke Street / DOW and Project Driveway 2				
NB LT/TH	2.9	A	2.8	A
EB LT/RT	2.8	A	2.7	A
WB LT/TH/RT	2.7	A	2.7	A
SB TH/RT	2.9	A	2.9	A
Overall	**2.9**	**A**	**2.8**	**A**

Source: ATA, 2017

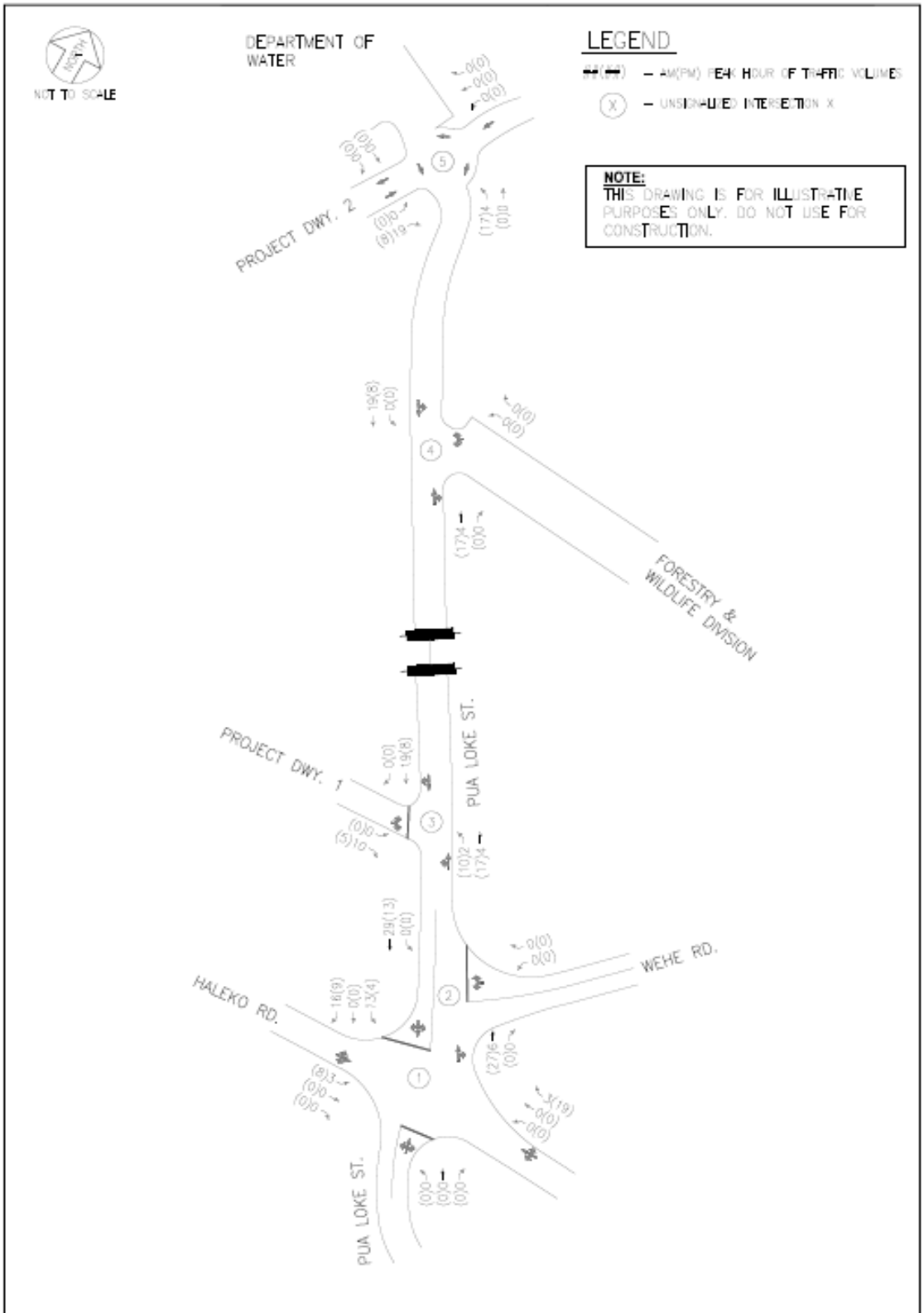
Table 3-6 shows the projected LOS at the key analyzed intersections once the project is completed including the planned roundabout and bus stop, and contributing to the local traffic network during the target future year 2020.

Table 3-6: Future with Project Traffic Conditions with Roundabout and Bus Stop – Year 2020

Intersection	Year 2020 Conditions			
	AM		PM	
	Delay (seconds per vehicle)	LOS	Delay (seconds per vehicle)	LOS
Pua Loke Street / Haleko Road				
NB LT/TH/RT	4.6	A	4.3	A
EB LT/TH/RT	5.2	A	5.4	A
WB LT/TH/RT	5.4	A	6.2	A
SB LT/TH/RT	4.7	A	5.2	A
Pua Loke Street / Wehe Road				
WB LT/RT	9.4	A	9.2	A
SB LT/TH	7.4	A	7.4	A
Pua Loke Street / Project Driveway 1				
NB LT/TH	7.4	A	7.3	A
EB LT/RT	8.6	A	8.6	A
Pua Loke Street / Forestry and Wildlife Division				
WB LT/RT	9.1	A	9.0	A
SB LT/TH	0.0	A	0.0	A
Pua Loke Street / DOW and Project Driveway 2				
NB LT/TH	2.9	A	2.8	A
EB LT/RT	2.8	A	2.7	A
WB LT/TH/RT	2.7	A	2.7	A
SB TH/RT	2.9	A	2.9	A
Overall	**2.9**	**A**	**2.8**	**A**

Source: ATA, 2017

Once completed, the proposed project is anticipated to generate approximately 35 AM peak hour trips and 40 PM peak hour trips. Trips generated by the project are expected to result in minimal growth along major roadways in the study area. With the build out of the proposed project, all study intersections are forecast to operate similar to the Year 2020 without project conditions (Tables 3-4, 3-5, 3-6). As a result, the long-term impacts to traffic would be considered less than significant.



Environet, Inc.	FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY PUA LOKE AFFORDABLE HOUSING DEVELOPMENT	FIGURE 10
	TRAFFIC MAP LIHU'E, KAUA'I, HAWAI'I	

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3.3.4 SOCIOECONOMICS

Definition of Resources

Socioeconomics are defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Human population is affected by regional birth and death rates as well as net in- or outmigration. Economic activity typically comprises employment, personal income, and industrial growth. Impacts on these fundamental socioeconomic indicators can also influence other components such as housing availability and public services provision.

Socioeconomic data in this section are presented at the county, state, and national levels to analyze baseline socioeconomic conditions in the context of regional, state, and national trends. Data have been collected from previously published documents issued by federal, state, and local agencies and from state and national databases (*e.g.*, U.S. Bureau of Economic Analysis [BEA] Regional Economic Information System).

Regulatory Setting

In 1994, *"Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"* (EO 12898) was issued to focus the attention on human health and environmental conditions in minority and low income communities and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed.

Because children may suffer disproportionately from environmental health risks and safety risks *"Protection of Children from Environmental Health and Safety Risks"* (EO 13045) was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that policies, programs, activities, and standards address environmental health risks and safety risks to children.

3.3.4.1 EXISTING CONDITIONS

Social Factors and Community Identity

The project site is located in Census Tract 405, which includes the Līhu'e Census Designated Place (CDP) within the County of Kaua'i.

The racial distribution of the Līhu'e CDP includes the following: individuals with one race were 25.4% White, 0.7% Black or African American, 0.1% American Indian and Alaska Native, 46.6% Asian, and 9.5% Native Hawaiian and other Pacific Islanders. Individuals that consisted of two or more races made up 17.6% of the Līhu'e CDP population. In addition, 20% of the population was either full or part Native Hawaiian and other Pacific Islander, 61.6% of the population was either full or part Asian, and 41% of the population was either full or part White (U.S. Census Bureau, 2017).

According to the 2016 Census, the population of the State of Hawai'i was 1,428,557, with the population of the County of Kaua'i accounting for approximately 72,029 of those residents. The population on Kaua'i in 2016 was approximately 7.4% more than recorded in the 2010 Census (U.S. Census Bureau, 2017). The Līhu'e CDP had a population of 7,360 residents in 2015, which is approximately 10% of the total population of Kaua'i. Persons aged 18 years and over accounted for 77.7% of Kaua'i's population, while this age group made up about 70.2% of the Līhu'e CDP population. Kaua'i's 65 years and older population was approximately 13,433, or 18.6% of the island's population, and this age group consisted of 15.8% of the Līhu'e CDP population.

The County of Kaua'i General Plan, updated in 2000, sets forth community values and a vision for Kaua'i in the year 2020. Community values, formulated by the Citizen's Advisory Committee using

input from 25 outreach meetings with a variety of community, business, and public interest groups, are identified as the following:

- Protection, management, and enjoyment of open spaces, unique natural beauty, rural lifestyle, outdoor recreation and parks;
- Conservation of fishing grounds and other natural resources, so that individuals and families can support themselves through traditional gathering and agricultural activities;
- Access to and along shorelines, waterways, and mountains for all. However, access should be controlled where necessary to conserve natural resources and to maintain the quality of public sites for fishing, hunting, recreation, and wilderness activities valued by the local community;
- Recognition that the environment is Kaua'i's economy, natural capital, the basis of its economic survival and success;
- Balanced management of Kaua'i's built environment, clustering new development around existing communities and maintaining the four-story height limit;
- Diverse job and business opportunities so that people of all skill levels and capabilities can support themselves and their families;
- Government that supports and encourages business;
- Balanced economic growth development providing good jobs and a strong economy, without sacrificing Kaua'i's environment and or quality of life;
- Respect and protection for the values and rights of Kaua'i's many cultures, in compliance with the laws and responsibilities as citizens;
- Preservation of Kaua'i's cultural, historical, sacred and archaeological sites;
- Appreciation and support for the traditions of the Native Hawaiian host culture and the many other cultural traditions and values that make up the Kaua'i community;
- Appreciation and support for the visitor industry's role in preserving and honoring all cultures and their values as Kaua'i's leading source of income and as a supporter of community festivals, recreation, arts and culture;
- Protection of Kaua'i's unique character;
- Recognition of the uniqueness of Kaua'i's communities, supporting people with roots and history in those communities to continue to live and raise their families there;
- Safety for all citizens and visitors;
- Support for Kaua'i's youth, educating them to succeed; and
- Broad participation in the public process.

An essential aspect of the County of Kaua'i's vision and one of the driving forces behind the General Plan is to preserve Kaua'i's special rural character. "Rural" describes many aspects of Kaua'i that people value: green, open lands for raising crops for food; small communities where people know each other; the absence of city noise and lights; and not feeling crowded. Some important elements of Kaua'i's physical environment that contribute to the "rural" classification are:

- Small towns and communities that have a distinct character and are compact rather than spread out;
- Wide expanses of open lands – natural areas and lands in active cultivation – provide separation between the towns and communities. The rhythm of communities alternating with open lands is pleasing; and the separation highlights the special identity of each community;
- Buildings are relatively small in scale and low in height, complementing rather than dominating the landscape; and
- The relatively small scale of Kaua'i roads, the presence of natural vegetation along the roads, and the absence of medial concrete barriers also contribute to the rural ambiance.

However, within the policy framework for maintaining rural character in land use and future growth, enhancing Kaua'i's towns and urban centers and directing new development is equally important as maintaining open space between towns. The County of Kaua'i has generated strategies to develop towns and urban centers while keeping its rural profile. Rather than allowing development to sprawl along Kaua'i's main roads, the intent is to focus development in a way that supports Urban Centers and Town Centers, while allowing already-existing, outlying residential communities and agricultural communities to build outwards (County of Kaua'i, 2000).

The State of Hawai'i has an urgent need for housing in general, especially for households with an annual income of less than or equal to 140% of the area median income (AMI). According to the Hawai'i Housing Planning Study, a total of 5,287 housing units are needed on Kaua'i from 2015 to 2025, about 81% of which are needed by households with an annual income of less than or equal to 120% of the AMI (SMS Inc., 2016). The need for additional affordable housing is evident and the County of Kaua'i views the provision of affordable housing as a fundamental responsibility of local government.

Homelessness is also a housing concern in the State of Hawai'i, with at least 7,620 homeless persons in Hawai'i on any given night in 2015. The County of Kaua'i has the smallest number of homeless persons with 336 in 2015; however, there is still a need to address this growing issue, as Hawai'i had the highest per capita rate of homelessness among the 50 states (SMS, Inc., 2016). Therefore, not only is there a need for additional affordable housing, but also for developments that assist families and individuals experiencing homelessness, which the County of Kaua'i views as a fundamental responsibility of local government.

Socioeconomics

The median household annual income for the Līhu'e CDP was $59,640 in 2015. This figure is less than the median household income for the County of Kaua'i ($65,101) and the State of Hawai'i ($69,515) (U.S. Census Bureau, 2017). According to the County of Kaua'i General Plan, the visitor industry is projected to continue to be the driving force of Līhu'e's economy for the foreseeable future (County of Kaua'i, 2000).

Environmental Justice

In order to comply with EO 12898, ethnicity and poverty status in the vicinity of the project site were examined and compared to regional, state, and national data to determine if any minority or low-income communities could potentially be disproportionately affected by implementation of the Proposed Action.

Based on data contained in the 2011-2015 American Community Survey 5-Year Estimates, the percentage of the population that includes the project site (Līhu'e CDP) below the poverty level is 14.3%, which is greater than the County of Kaua'i (10.7%) and the State of Hawai'i (11.2%), but less than the U.S. national percentage (15.5%).

The percentage of minority residents in the Līhu'e CDP (74.6%) is equal to the percentage of minority residents for the State of Hawai'i (74.6%) and greater than the percentage of minority residents in the County of Kaua'i (66.7%) (U.S. Census Bureau, 2017); it is also significantly greater than the U.S. national percentage (23.1%) (U.S. Census Bureau, 2017).

Protection of Children

In order to comply with EO 13045, the number of children under age 18 in the vicinity of the project site was examined and compared to county, state, and national levels. Additionally, locations where populations of children may be concentrated (e.g., child care centers, schools, and parks) were determined to address potentially disproportionate health and safety risks to children that may result from the implementation of the Proposed Action.

In 2015, there were 2,193 children under the age of 18 in the Līhu'e CDP, comprising 29.8% of the overall CDP population. This is greater than the 22.3% for the County of Kaua'i, 21.9% for the State of Hawai'i, and 23.3% for the U.S. national percentage (U.S. Census Bureau, 2017).

The State of Hawai'i Department of Education (DOE) has a total of eight school districts and 320 public schools statewide. Children living in the vicinity of the project site attend schools in the Kaua'i School District. Wilcox Elementary School, the nearest school to the project site, is located approximately 0.7 miles to the northeast. The nearest middle school is Chiefess Kamakahelei Middle School, located approximately 1.2 miles to the southwest. The nearest high school to the project site is Kaua'i High School, located approximately 1.4 miles southeast. Correspondence with the DOE confirmed that there is sufficient capacity at Wilcox Elementary School, Chiefess Kamakahelei Middle School, and Kaua'i High School to accommodate future students who would reside in the affordable housing (Appendix B-1).

Approach to Analysis

Significance of population and expenditure impacts are assessed in terms of their direct effects on the local economy and related effects on other socioeconomic resources (*e.g.*, housing and health). The magnitude of potential impacts varies depending on the location of a Proposed Action; for example, an action that creates 20 employment positions may be unnoticed in an urban area, but may have significant impacts in a more rural region. If potential socioeconomic impacts would result in substantial shifts in population trends, or adversely affect regional spending and earning patterns, they would be significant.

3.3.4.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. There would be fewer construction jobs, new affordable housing units, and Housing First units available within the area. As a result, there would be indirect adverse effects on affordable housing availability and homeless assistance in the area, as the growing need for affordable housing and homeless assistance in the county would remain.

Proposed Action

Under the Proposed Action, beneficial short- and long-term impacts to socioeconomic resources are expected. The project site is located on two parcels of land currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage; the Kaua'i County Housing Agency proposes to develop the County-owned parcels to provide affordable housing units for Kaua'i residents. Wilcox Elementary School, the nearest school to the project site, is located approximately 0.7 miles to the northeast. Short-term construction activities are not expected to increase the hazard or risk to

children since the construction area would be fenced and inaccessible to the public. Construction activities would result in the short-term creation of jobs and materials spending lasting until project completion. As a result, short-term impacts on socioeconomics on the project site are considered beneficial.

Once completed, the Proposed Action is expected to result in long-term beneficial socioeconomic impacts. The Pua Loke development would create linkages to surrounding public spaces, pathways, recreational areas, and multi-modal transportation. The interconnection of the new community with the existing Līhuʻe area would encourage healthy lifestyle habits such as walking and biking to parks, shopping areas and other community services/recreational activities. The influx of new residents is expected to bring greater economic vitality and civic energy to the area, as well as strengthen the region's sense of community.

The proposed development would have a positive impact on Environmental Justice, as its primary goal is to design and develop a community that provides a range of affordable housing options, as well as Housing First units for persons experiencing homelessness. Affordable housing and Housing First units would be made available to households meeting the County of Kauaʻi Housing Agency's earning and homelessness qualifications. As a result, there would be long-term beneficial socioeconomic impacts from the much needed additional affordable housing options and homeless assistance that would be available to Kauaʻi residents. An increase in affordable housing stock for Kauaʻi's people would increase social connectedness and safety, creating a positive health effect for those who live at the Site, and for their families, friends and larger social community. The proposed project would need to comply with all applicable requirements of the Hawaii Disability and Communication Access Board.

In addition, there would be a positive impact to children. The Proposed Action would provide shelter and create a compact neighborhood that is safe and conducive to children. Further, Wilcox Elementary School is located within walking distance to the project site; approximately 0.7 miles to the northeast.

3.3.5 RECREATIONAL/RESOURCE USE

Definition of Resources

Recreation is comprised of terrestrial and water-based activities associated with the local population or visitors to the island. Recreation may consist of aquatic activities such as swimming, windsurfing, surfing, fishing, jet skiing, kayaking, snorkeling, scuba diving, and water skiing. Terrestrial recreational activities may consist of shopping, indoor shooting ranges, restaurants, hiking trails, biking, jogging, and golfing.

Resource use includes any commitment of natural resources such as aggregate for concrete and petroleum products to fuel construction equipment needed to construct the Proposed Action, as well as to operate and maintain it.

3.3.5.1 EXISTING CONDITIONS

The project site is located on a 1.47-acre parcel in Līhuʻe, on the eastern side of the island of Kauaʻi. Kukui Grove Cinema borders the project site to the west and is a movie theater that is open daily. Kukui Grove Shopping Center is less than one mile southwest of the project site and is a premier shopping and dining destination. The shopping center also hosts events throughout the week, such as farmer's markets and live entertainment. Puakea Golf Course is less than one mile south of the project site and is open daily for golfing and dining, and serves as a venue for events.

There are several County of Kaua'i Department of Parks and Recreation facilities located within the Līhu'e District. The Pua Loke park is located approximately 0.14 miles southeast of the project site along Pua Loke street. A State park is located east of the project site across Pua Loke Street. Līhu'e County Park is a 3.28-acre neighborhood park, located less than one mile east of the project site. Līhu'e County Park includes Little League and Pony fields, a soccer field, and a comfort station. Isenberg Park is located less than one mile northeast of the project site and is 9.16-acre neighborhood park with playground equipment, a football field, comfort stations, and a lighted softball field. Nāwiliwili Park is a 6.27-acre beach park, located approximately 1.7 miles southeast of the project site; the park includes comfort stations, a playground, picnic areas, and volleyball courts. Lastly, Vidinha Stadium is located approximately 1.2 miles east of the project site, and is a 34-acre stadium with an athletic complex, baseball field, lighted football field, track, soccer field, and comfort stations.

The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The project site also includes landscaped grass areas with drainage swales. Public access to the project site is restricted and the site has no known recreational use.

Approach to Analysis

The significance of potential impacts on recreational activities and resources due to the Proposed Action were assessed. The significance of potential impacts is determined by considering the direct effects of the Proposed Action on the beneficial use of recreational activities and natural resources. Substantial secondary impacts such as population changes or effects on public facilities would also be considered.

3.3.5.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be constructed. There would be no use of additional recreational areas or resources. Therefore, there would be no impact to recreational or resource use within the project site.

Proposed Action

Recreation

Under the Proposed Action, no impacts to short-term recreational use in the project site are expected, as no known recreational activities take place at the project site. The recreational activities located closest to the project site include the State park across Pua Loke Street, the county Pua Loke Park, the Kukui Grove Cinema, Kukui Grove Shopping Center, and Puakea Golf Course. The Kukui Grove Cinema is adjacent to the west of the project site and features theater activities. Kukui Grove Shopping Center is also located west of the project site, and is a destination for shopping and dining, as well as events such as farmer's markets and live entertainment. Finally, Puakea Golf Course is south of the project site and features golfing, dining, and special events. It is not anticipated that the proposed development would have a significant impact on these recreation areas, including state and county parks in the region since the addition of up to 60 residential units would not be expected to result in a significant increase in park facility use. Further, there are several basketball courts and park facilities in the area that would likely disperse park facility use by residents. Recreational use in the Līhu'e community is not anticipated to be significantly impacted.

Under the Proposed Action, no long-term impacts to recreational use within the surrounding area are expected. The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. As a result, no long-term recreational uses should be impacted due to construction of the proposed housing development.

Resource Use

Less than significant impacts to short-term resource use would be anticipated due to construction activities at the project site. The Proposed Action would require the commitment of natural resources (e.g., aggregate for concrete, petroleum products to fuel construction equipment). However, the amount of resources needed to complete the housing development would not represent a significant commitment of resources since the needed resources are available within the county and/or state. Therefore, short-term impacts on resource use in the project site due to construction activities would be considered less than significant.

Less than significant long-term impacts to resource use are also expected. Upon completion of construction, various resources would be used within the community. These resources include gasoline and refuse space needed for trash pickup, park and landscaping services, and use of electricity, road, and water services to maintain the Proposed Action. The Proposed Action would not result in a significant increase of resource use within the surrounding area. Therefore, the Proposed Action would not represent a significant increase to these resources in the long-term.

3.3.6 VISUAL AND AESTHETIC RESOURCES

Definition of Resources

Visual resources are defined as the natural and manufactured features that comprise the aesthetic qualities of an area. These features form the overall impressions that an observer receives of an area or its landscape character. Landforms, water surfaces, vegetation, and manufactured features are considered characteristic of an area if they are inherent to the structure and function of a landscape.

Regulatory Setting

The County of Kaua'i General Plan calls for maintaining the rural character of Kaua'i, including its natural beauty and green open spaces that make it the "Garden Isle." In order to accomplish that aim, the plan identifies multiple elements for Kaua'i's physical environment, including small, compact towns and communities; wide expanses of open land; relatively small and low buildings; and relatively small scaled roads with natural vegetation and no concrete barriers (County of Kaua'i, 2000).

Certain major roadways and the lands visible from those roadways are identified by the General Plan as Scenic Roadway Corridors. The corridors afford views of Kaua'i's scenic features and open space. As stated in the Planning Framework, the open spaces separating Kaua'i's towns and communities are crucial to preserving rural character, maintaining the individuality of each town, and preventing the sense of urban sprawl so prevalent in many communities. Equally important are major roadways through urban centers and towns that can be designed and landscaped to maintain a sense of open space. In order to maintain the corridors, the General Plan proposes the adoption of various types of programs and land use regulations to conserve the visual quality of key road corridors. The programs include the acquisition of land, development rights, or visual easements; and the administration of corridor regulations as zoning overlay districts (County of Kaua'i, 2000).

3.3.6.1 EXISTING CONDITIONS

The visual environment at the project site consists of approximately 45% covered with asphalt for the parking lot and the remaining 55% covered with landscaped grass areas, including stormwater swales and small patches of bare soil. Electric power poles, lines, and a pole-mounted transformer are also present at the project site. The project site is bordered by Pua Loke Street to the east, Haleko Road to the south, commercial and professional buildings to the west, and landscaped areas and Kaumuali'i

Highway to the north. The project site is generally flat with an elevation ranging from approximately 220 feet above msl to 225 feet above msl.

Approach to Analysis

Determination of the significance of impacts to visual resources is based on the level of visual sensitivity in the area. Visual sensitivity is defined as the degree of public interest in a visual resource and concern over adverse changes in the quality of the resource. In general, an impact to a visual resource is significant if implementation of the Proposed Action would result in substantial alterations to an existing sensitive visual setting.

3.3.6.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed. There would be no change to visual and aesthetic resources at the project site. Therefore, there would be no impact to visual and aesthetic resources under this alternative.

Proposed Action

Under the Proposed Action, short-term, less than significant impacts to visual and aesthetic resources during construction activities are expected to occur. These impacts would be due to the presence of construction equipment within and around the project site. Construction activities related to the Proposed Action would likely span several years. However, construction would likely be broken down into multiple construction phases. As a result, impacts to visual resources would not be continuous at any one location throughout the construction process.

The surrounding area is mostly urbanized and the presence of construction equipment would be limited to the project site. As a result, the Proposed Action would not be placing construction equipment in a special use area such as a park, beach, or scenic vista. Therefore, short-term impacts to visual and aesthetic resources within the project site would be considered less than significant.

The Proposed Action would result in less than significant long-term impacts to visual and aesthetic resources. The project site is bordered directly to the west by commercial and professional buildings, a major highway to the north that is not in the Scenic Roadway Corridor, Pua Loke Street to the east, and Haleko Road to the south. Due to its location adjacent to major roads, existing residential developments, and numerous commercial buildings and shopping centers, the Proposed Action would not adversely contrast with the existing visual aesthetics of the surrounding area. As a result, long-term impacts to visual and aesthetic resources due to the construction of the Proposed Action are considered less than significant.

3.3.7 PUBLIC INFRASTRUCTURE AND UTILITIES

Definition of Resources

Public infrastructure and utilities comprise functional services provided to a facility by public agencies or by a facility to the community. Such services may include police and fire protection, water and solid waste service, sanitary sewer and wastewater treatment, and recreational facilities. Utilities include infrastructure services that support facility operations, including electricity, natural gas, or telecommunications. On-site utility production, such as power generation or wastewater treatment, occurs at some facilities.

Regulatory Setting

The State of Hawai'i Public Utilities Commission (PUC) regulates all franchised or certificated public service companies operating in the state. Franchised or certified public service companies operating under PUC regulation include:

- Electric providers;
- Telecommunication providers;
- Motor and water carriers; and
- Privately owned water and sewage treatment utilities.

The PUC's primary purpose is to ensure that regulated companies efficiently and safely provide their customers with adequate and reliable services at just and reasonable rates, while providing regulated companies with a fair opportunity to earn a reasonable rate of return.

3.3.7.1 EXISTING CONDITIONS

There are KIUC electric power poles, lines, and a pole mounted transformer present at the project site.

Electricity and Telecommunications

KIUC is a generation, transmission, and distribution cooperative serving more than 33,000 electrical accounts throughout Kaua'i, including the areas around the project site. The average demand for electricity on KIUC's system is approximately 75 megawatts; however, KIUC operates an electric generation fleet capable of producing up to 125 megawatts of electricity (KIUC, 2017). Four KIUC power poles are dispersed throughout the project site.

Hawaiian Telcom (HT) and Spectrum provide telecommunications and cable television service to the surrounding areas.

Potable Water

Water resource and distribution systems for the project site are managed by the County of Kaua'i DOW. The Puhi-Līhu'e-Hanamā'ulu system consists of a series of wells, storage tanks, and transmission lines, as well as the Grove Farm Surface Water Treatment Plant. Five wells and two storage tanks are located in the Puhi area; along with eight wells, ten storage tanks, and the Grove Farm Surface Water Treatment Plant are present in the Līhu'e-Hanamā'ulu area (DOW, 2017).

Wastewater

The Puhi Sewer and Water Company, a subsidiary of Aqua Engineers, Inc. is certified by the Hawai'i Public Utilities Commission to provide wastewater treatment services to the Puhi-Līhu'e area that includes the project site.

Stormwater Drainage System

Elevations within the project site range from approximately 220 to 225 feet above msl. The existing surface water runoff path flows generally in a southeast direction, towards Nāwiliwili Harbor. The subsurface soils at the project site have slow runoff, are well drained, and consist of dark red and dark reddish-brown compact silty clay that have a subangular blocky structure.

Roads and Intersections

Pua Loke Street runs directly along the eastern border of the project site, while Haleko Road borders the southern edge of the project site. To the north of the project site runs Kaumuali'i Highway. The

project site includes a paved asphalt parking lot for County worker vehicles and heavy equipment storage.

Solid Waste

Residential solid waste service in the project site is provided by the County of Kaua'i Refuse Division in accordance with current collection policies.

Law Enforcement

The Kaua'i Police Department serves as the primary law enforcement agency for Līhu'e and the entire island of Kaua'i. The project site is in the Līhu'e District, which encompasses the central, heavily populated region of Kaua'i, extending from Kapa'a Town to the Knudsen Gap near Kōloa (Kaua'i Police Department, 2017).

Fire Protection

The Kaua'i Fire Department protects life and preserves property from all hazards, and enhances the environment of the County of Kaua'i. There are seven fire stations on Kaua'i; the nearest to the project site being the Līhu'e Fire Station located less than a mile east of the project site (Kaua'i Fire Department, 2017).

Approach to Analysis

Significance of public services or utilities systems impacts are assessed in terms of their direct effects on the public service or utility providers. The magnitude of potential impacts varies depending on the location of a proposed action; for example, an action that alters existing utility systems infrastructure may be unnoticed in an urban area, but may have significant impacts in a more rural region. If potential public service and utility system impacts would result in substantial shifts in the amount of services provided, or substantial changes to the utility systems infrastructure, the action would be significant.

3.3.7.2 POTENTIAL IMPACTS AND MITIGATION

No Action Alternative

Under the No Action Alternative, the Pua Loke Affordable Housing Development would not be constructed, and the installation of water, sewer, electric, and telecommunication infrastructure systems and utilities would not occur..

Proposed Action

The Proposed Action would require connection with various utilities and services, including electricity and telecommunications, potable water, wastewater, and roadways. The Proposed Action is anticipated to have less than significant impacts on public infrastructure and utilities. The details of the projected impacts to public infrastructure and utilities systems from the Proposed Action are described in the following paragraphs.

Electricity and Telecommunications

The Proposed Action would include the connection of electrical and telecommunication services to the proposed housing units. Electrical service by KIUC would be extended overhead or underground into the project site from Haleko Road, Pua Loke Street, or the power lines that are already present at the project site. HT and Spectrum would be engaged to provide telecommunications and cable television service. Electrical plans and service requests must be submitted to KIUC, HT, and Spectrum for design coordination and approval.

The current average demand for electricity on KIUC's system is approximately 75 megawatts and the combined capacities of KIUC facilities are approximately 125 megawatts (KIUC, 2017). The Proposed Action is not expected to generate an electrical demand that would exceed the combined KIUC capacity. As a result, the Proposed Action would not significantly impact the existing KIUC electrical grid.

Potable Water

The Proposed Action would require the design and installation of potable water lines at the project site. Consultation with the DOW is ongoing to assure that the planned development would not adversely impact the existing potable water supply in the area. There would be no significant impacts to potable water resources since the Proposed Action would be located in an area where potable water service is available, and since there would not be anticipated adverse impacts to the existing potable water supply.

Wastewater

Wastewater generated by the Proposed Action would be received by the The Puhi Sewer and Water Company system. The Proposed Action would require the design and installation of sewer lines at the project site. All wastewater plans will conform to HAR Chapter 11-62 and County standards. Consultation is ongoing with the Puhi Sewer and Water Company to ensure that the wastewater demand from the Proposed Action would not adversely impact the affected wastewater treatment transmission and treatment system. Therefore, the Proposed Action would have a less than significant impact on the local wastewater system.

Stormwater Drainage System

The Proposed Action would include the construction of additional impervious surfaces (paved roads and sidewalks) that would collect and convey stormwater runoff. Therefore, an on-site stormwater drainage system would be implemented.

The proposed drainage system would be designed in accordance with the County of Kaua'i Department of Public Works Standards. An NPDES permit would be necessary for the construction period of the Proposed Action. With a drainage system in place, the Proposed Action would have less than significant impacts on stormwater drainage at the project site, as well as the surrounding environment since the planned drainage system would comply with the provisions of the County of Kaua'i Department of Public Works Standards, as well as provisions of an NPDES permit for construction work.

Solid Waste

During the construction period, the contractor would be required to complete and follow a waste minimization plan in order to control construction-related waste generation. The Proposed Action would require residential solid waste service that would be provided by the County of Kaua'i Refuse Division in accordance with current collection policies. Since the Proposed Action would comply with County of Kaua'i Refuse Division policies and procedures, there would be less than significant impacts to the existing county solid waste collection process.

Law Enforcement

The Proposed Action would be included in the patrol area for the Kaua'i Police Department Līhu'e District, which provides police services from Kapa'a Town to the Knudsen Gap near Kōloa (Kaua'i Police Department, 2017). Since the Proposed Action would be located within close proximity of existing towns that are currently patrolled (Līhu'e), it would not represent a significant impact to existing law enforcement services.

Fire Protection

The Proposed Action would be in the response vicinity of the Līhuʻe Fire Station, which is located less than a mile from the project site. Since the Proposed Action is in close proximity to an existing fire

station and would conform to county fire protection standards, including the installation of fire hydrants and smoke alarms, it would not represent a significant impact to existing fire protection services.

3.3.8 CUMULATIVE IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

Cumulative impacts on environmental resources result from incremental impacts of the Proposed Action that, when combined with other past, present, and reasonably foreseeable future projects in an affected area, may collectively cause more substantial adverse impacts. Cumulative impacts can result from minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, or local) or persons. In accordance with NEPA and the CEQ memorandum of "Guidance on the Consideration of Past Actions in Cumulative Effects Analysis," a discussion of cumulative impacts resulting from projects which are proposed, under construction, recently completed, or anticipated to be implemented in the near future is required.

There are no other known major public infrastructure or development projects planned within the project site at this time. However, future and ongoing residential subdivision and major road projects are planned within the Līhuʻe area. Future and ongoing residential subdivision projects include developments proposed by Amfac/JMB and Grove Farm. Northeast of the project site, Amfac/JMB is constructing a residential community/urban center consisting of 1,000 single-family (SF) and 400 MF units. The 223 acres set aside for this development are designated for urban, residential, and urban mixed land use. West of the project site, Grove Farm is constructing the Puakea/Puako urban center consisting of 430 SF and 530 MF units. The 180.7 acres set aside for this development are designated for urban mixed land use. Additionally, Grove Farm is planning to construct the Puakea/Hulemanu residential community west of the project site. Based on the proposed site's residential (R-4) land use, the development would consist of approximately 900 SF units. The Grove Farm Museum Sugar Plantation Locomotive Interactive Learning Park is also planned to be built in the project area vicinity, and will be approximately 1.1 acres.

The County of Kauaʻi General Plan proposed four major roadway improvements for the Līhuʻe area. The proposed improvements include:

- Constructing a new two-lane Līhuʻe-Hanamāʻulu Bypass Road;
- Widening the Līhuʻe-Hanamāʻulu Bypass Road to a four-lane divided roadway;
- Constructing a new four-lane Nuhou Road between Puhi Road and Nāwiliwili Road; and
- Widening Kapule Highway to a four-lane divided roadway.

In addition, the improvements incorporating transit-oriented development principles may be constructed to support multi-modal transit in the Project area. These improvements may include a roundabout at the Haleko Road /Pua Loke Street intersection and a new bus stop just west of the intersection. If implemented, the roundabout would reduce delay to the major street approaches by reducing turning movement delay, and would also encourage lower vehicle speeds along Haleko Road. The proposed bus stop may increase pedestrian volumes in the area; thus additional crosswalks and sidewalks along nearby roadways should be considered where necessary to allow pedestrian access to and from the bus stop.

Increased bicycle traffic may also be seen in the future within the project vicinity. HDOT currently provides the Bike Plan Hawaiʻi Master Plan, which identifies existing and proposed bicycle routes that could potentially be implemented in the future. Currently, a signed shared roadway is provided along Kaumualiʻi Highway in the vicinity of the project area. Additional bicycle facilities are proposed in the Project area:

- Haleko Road (Nāwiliwili Road to Rice Street) – Priority Level III Bike Lane;
- Rice Street (Kuhui Highway to Kapule Highway) – Priority Level II Bike Lane;
- Nāwiliwili Road (Kaumualiʻi Highway to Lala Road) – Priority Level I Signed Shared Road; and
- Līhuʻe Community Pathway (Along Nāwiliwili Stream) Priority Level II Bike Path.

The nearby developments and planned road construction and improvement projects would contribute to the impacts on the Līhuʻe area. The foreseeable cumulative impacts that would result would be an increase in traffic due to the short-term construction activities and long-term increased population of residents. In the long term; however, traffic oriented developments would likely mitigate traffic caused by the increased resident population. Short- and long-term impacts on resource use (*e.g.*, potable water, electricity, and sewer) would also occur. Close coordination between project proponents and the County of Kauaʻi would need to occur in order to avoid cumulative impacts to available resources and traffic flow patterns. Since the Proposed Action is evaluated based on its incremental impact to the existing environment and would be closely coordinated with the community and applicable regulatory agencies, it would not represent a significant incremental impact that would contribute to adverse cumulative impacts.

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4 RELATIONSHIP TO ENVIRONMENTAL REGULATIONS

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The purpose of this section is to summarize the relationship of the relevant 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.

4.1 FEDERAL REGULATIONS

Clean Water Act (CWA)

The CWA (33 U.S.C. §1251 – 1387) establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. Under Section 402 of the CWA, the EPA establishes the NPDES permit program to regulate point source discharges of pollutants into waters of the U.S.

Discussion:

Since the Proposed Action may include disturbance of more than one acre of land, an NPDES permit would be required for construction activities and would be applied for with DOH. No other permits or approvals under the CWA are anticipated for the Proposed Action.

Clean Air Act (CAA)

The CAA (42 U.S.C. §7401) requires the adoption of national ambient air quality standards to protect public health, safety, and welfare from known or anticipated effects of air pollution. The DOH Clean Air Branch is responsible for air pollution control in the state.

Discussion:

The Proposed Action would be in compliance with the provisions of the CAA since its implementation would be subject to approval from DOH. It is not anticipated that the Proposed Action would result in any necessary air quality permits since it would not result in significant or chronic emissions.

Endangered Species Act (ESA) of 1973

The ESA of 1973 (16 U.S.C. §1531) provides a legal means by which identified ecosystems that are determined to be essential to the sustainability of an endangered or threatened species can be conserved. Under this act, the USFWS is responsible for all terrestrial and freshwater species, as well as migratory birds. Likewise, the NMFS in the Department of Commerce is responsible for the protection of marine, estuarine, and anadromous species.

Discussion:

The USFWS has jurisdiction over endangered and threatened terrestrial flora, fauna, and birds in the State of Hawai'i. Consultation with USFWS and DLNR-DFW is in progress and will continue during the project planning process. Control measures discussed in Section 3.2.3.2 of this FEA would reduce potential impacts to endangered species that may be present within or around the project area.

Coastal Zone Management (CZM) Act of 1972

In 1972, the federal government enacted the CZM Act (16 U.S.C §1451) to protect, preserve, develop, restore, and enhance the resources of the nation's coastal zone for current and future generations. This process is achieved by providing assistance to coastal states, including Hawai'i, to develop and manage Coastal Management Programs. Enforcement authority for the Federal Coastal Management Program (Public Law 104-150, as amended in 1996) has been delegated to the State of Hawai'i (HRS §205A).

Discussion:

Through the CZM Program promulgated by HRS Chapter 205A, each county is required to establish SMAs and shoreline setbacks within which permits are required for development. The proposed project would comply with HRS Chapter 205A since it is not located on the shoreline or within the SMA.

HUD Environmental Review

HUD regulations promulgated in 24 CFR Part 58 require a separate Environmental Review to be conducted when funding through HUD programs are utilized. Factors to be considered during the review are listed in 24 CFR Part 58 and include documentation that must be provided, public notice and comment requirements, and the process for obtaining environmental clearances.

Discussion:

Since the Proposed Action may utilize potential funding through the HUD programs a separate Environmental Review in accordance with 24 CFR Part 58 procedures must be conducted. The HUD Environmental Review is included in Appendix A.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, as amended establishes a Federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention [...] for the protection of migratory birds [...] or any part, nest, or egg of any such bird" (16 U.S.C. 703).

Discussion:

The endangered Hawaiian petrel, or 'ua'u (*Petrodroma sandwichensis*), the endangered band-rumped storm petrel, or 'akē'akē (*Oceanodroma castro*), and Newell's shearwater or a'u (*Puffinsus newelli*) have not been documented in the project area, nor does suitable nesting habitat exist in the project area. However, suitable nesting habitat may exist in nearby forested areas at upper elevations, suggesting the potential for these birds to fly over the area at night while transiting between nest sites and the ocean.

The endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered band-rumped storm petrel (*Oceanodroma castro*), and threatened Newell's shearwater (*Puffinus auricularis newelli*) have not been documented in the project area, nor does suitable nesting habitat exist in the project area. However, suitable nesting habitat may exist in nearby forested areas at upper elevations, suggesting the potential for these birds to fly over the area at night while transiting between nest sites and the ocean. The following control measures are recommended to avoid and minimize light attraction of the endangered Hawaiian petrel, endangered band-rumped storm petrel, and threatened Newell's shearwater to the project site:

- Construction activity should be restricted to daylight hours as much as practicable during the seabird peak fallout period (September 15 through December 15) to avoid the use of nighttime lighting that could be an attraction to seabirds;
- Although not anticipated, should nighttime construction be required, construction lighting should be shielded, directed downward, and fitted with non-white lights if construction safety is not compromised in order to minimize the attractiveness of construction lights to seabirds and other wildlife. Furthermore, if nighttime construction occurs during the seabird peak fallout period, a biological monitor should be present in the construction area between approximately 0.5 hours before to 0.5 hours after sunrise to watch for the presence of seabirds. Should a

seabird be observed and appear affected by the lighting, the monitor should notify the construction manager to reduce or turn off construction lighting until the individual(s) move out of the area; and

- Operational on-site lighting should consist of fixtures that will be shielded and/or directed downward to prevent upward radiation, triggered by a motion detector, and fitted with non-white light bulbs to the extent possible.

National Historical Preservation Act

The NHPA (Public Law 89-665; 16 U.S.C. 470 et seq.) is legislation intended to preserve historical and archaeological sites in the U.S. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices.

Discussion:

If federal funding is sought, the NHPA would apply to the proposed project. An AA/AIS, as well as a CIA were conducted at the project area in order to identify any historical resources. The AA/AIS did not find any burials or cultural materials in the project area. Archaeological monitoring during construction is recommended since historic features from a previous railroad may exist in the subsurface. No other significant historical resources were identified during the site studies. Consultation with SHPD has been initiated, and will continue during the planning process. The AIS and CIA are included as Appendices E and F, respectively.

4.2 STATE LAND USE PLANS AND POLICIES

4.2.1 STATE OF HAWAI'I

Environmental Impact Statements Chapter 343, HRS

Compliance with Chapter 343, HRS is required as previously described in Section 2.1 Scope and Authority.

§343-5 Applicability and Requirements. (a) Except as otherwise provided, an environmental assessment shall be required for actions that:

> **Propose the use of the state or county lands or the use of state or county funds, other than funds to be used for feasibility or planning studies for possible future programs or projects that the agency has not approved, adopted, or funded, or funds to be used for the acquisition of unimproved real property; provided that the agency shall consider environmental factors and available alternatives in its feasibility or planning studies; provided further that an environmental assessment for proposed uses under section [205-2(d)(10)] or [205-4.5(a)(13)] shall only be required pursuant to Section 205-5(b).**
>
> **HRS Chapter 343, defines the State of Hawai'i's environmental review process by which an environmental impact statement must be conducted to identify any potential impacts that could result from a proposed action involving state or county lands or funds.**

Discussion: The County of Kaua'i is titled to the land within the project site; therefore, an environmental review under HRS Chapter 343 is required. This FEA document has been prepared to meet HRS Chapter 343 requirements and will be processed through the OEQC.

Environmental Impact Statement Rules Title 11, Chapter 200, HAR

HAR Title 11, Chapter 200 provides the procedures, definitions and criteria for completing EAs and environmental impact statements in compliance with HRS Chapter 343.

Discussion: Evaluation of the potential environmental, social and economic impacts from the Proposed Action have followed the applicable procedures, definitions and criteria outlined in HAR §11-200 in completing this FEA.

Hawai'i State Plan, Chapter 226, HRS

The Hawai'i State Plan (HRS §226) was developed as a guideline for the future growth of the State of Hawai'i. The State Plan identifies goals, objectives, policies, and priorities for the development and growth of the state. It provides a basis for prioritizing and allocating the limited resources such as public funds, services, human resources, land, energy, and water. The State Plan establishes a system for the formulation and program coordination of state and county plans, policies, programs, projects, and regulatory activities. The State Plan also facilitates the integration of all major state and county activities.

The following is an analysis of how the proposed Kaua'i County Housing Agency Pua Loke Affordable Housing Project, located in TMK (4) 3-8-005, Parcels 028 and 029 Līhu'e, Kaua'i (proposed project) would conform or be in conflict with the Hawai'i State Plan, Chapter 226, HRS.

Part 1: Overall Theme, Goals, Objectives and Policies

§226-3: Overall Theme

Discussion:

(1) *Individual and family self-sufficiency*: The proposed project would create opportunities for Hawai'i's citizens to be more self-sufficient/reliant through offering much needed affordable housing options for individuals and families.
(2) *Social and economic mobility:* The proposed project would create additional opportunities for social and economic mobility by offering additional housing options, which would allow Kaua'i's citizens to have more opportunities close to an existing work center.
(3) *Community or social well*-being: The proposed project includes a new community that will allow its occupants a sense of community value. Gaining access to new housing options could create a sense of social responsibility for the community occupants.

§226-4: State Goals

Discussion:

(1) *A strong, viable economy*: The proposed project would create construction jobs and would offer much needed affordable housing, which would allow citizens more opportunities to fulfil the needs and expectations of Hawai'i's present and future generations.
(2) *A desired physical environment*: The proposed project would alter the existing physical environment within the project area, which is currently a paved parking area. The proposed project would conform to adjacent residential and resort land uses, and would not represent a significant alteration to the existing physical environment.
(3) Physical, social, and economic well-being: The proposed project would result in a new residential community that would nourish a sense of community responsibility, of caring, and of participation in community life.

§226-5 Objective and Policies for Population

Discussion:

(1) *Manage population growth*: The proposed project would provide increased opportunities for Hawai'i's people to pursue their aspirations through recognizing the people of Kaua'i County's need for affordable housing options.
(2) *Encourage an increase in economic activities and employment*: The proposed project would create construction jobs and allow for increased employment through providing housing near a job center.
(3) *Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands:* The proposed project would allow Hawai'i's citizens to pursue the important socio-economic aspiration of acquiring new affordable housing.
(4) *Encourage research activities and public awareness programs:* This objective/policy is not applicable to the proposed project.
(5) *Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members:* This objective/policy is not applicable to the proposed project.
(6) *Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population:* This objective/policy is not applicable to the proposed project.
(7) *Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area:* The proposed project is planned based on current and planned land use within the vicinity of the project area. All development will follow applicable County and State regulations in order to assure an appropriate use of land and water resources.

§226-6 Objective and Policies for the economy-in general

Discussion: The proposed project would result in the expansion of economic activity by creating construction and engineering jobs in the State. It would also result in improved living standards for Hawai'i's people by providing new affordable housing. The proposed project would not result in further diversification of the economy. The remaining policies included in §226-6 are not applicable to the proposed project.

The objectives and policies included in §226-7 through §226-10 are not applicable to the proposed project since the proposed project does not include proposed economic activities related to the following fields:

Agriculture, visitor industry, federal expenditures, potential growth activities, or information industry.

§226-11 Objective and Policies for the physical environment-land-based, shoreline, and marine resources

Discussion: The proposed project would include prudent use of Hawai'i's land-based, shoreline and marine resources by utilizing a central and environmentally stable area to provide affordable housing. Mitigation measures included in this FEA are State and County BMPs. Adherence to Kaua'i County building codes would help to protect Hawai'i's unique and fragile environmental resources, and help to manage the relationship between the built environment and natural ecological systems without causing significant impacts to the natural environment.

§226-12 Objective and Policies for the physical environment-land-based, scenic, natural beauty, and historic resources

Discussion: The proposed project would include the conversion of a paved asphalt parking lot to an affordable housing community, which would not alter the existing scenic environment. The project site is bordered by the Kukui Park Professional Building and the Kukui Grove Cinema to the west, Pua Loke Street to the east, Kaumualiʻi Highway to the north, and Haleko Road to the south and does not include significant scenic resources, such as hills or mountains. The proposed housing units would comply with County height and zoning standards, and would not adversely contrast with the existing visual aesthetics of the surrounding area.

An AIS and CIA were completed for the proposed project. The findings of the AIS study concluded that there were no historic properties, burials, or cultural resources in the project area. The CIA describes concern and mitigation measures that may be implemented. No other significant historical or prehistoric resources were identified during the site studies. Additionally, SHPD was consulted during the environmental review process. As a result, no further work is recommended and alteration of the features by the proposed project would not represent a significant impact to historic or prehistoric resources.

§226-13 Objective and Policies for the physical environment-land-based, land, air, and water quality

Discussion: The proposed project would include measures to achieve desired quality in Hawaiʻi's surface, ground, and coastal waters, as well as land and air quality by adhering to State water quality standards and County Construction BMPs. The proposed development would adhere to County drainage standards in order to prevent excess stormwater generated at the project site from impacting Nāwiliwili and Puhi Streams, Nāwiliwili Harbor, and the surrounding environment on a long-term basis. The proposed project would only include development within FEMA Flood Zone X, which would minimize/eliminate project-induced water quality impacts to the water bodies and the surrounding environment, as well as reduce the threat to life and property from erosion and flooding. Dust fences and other dust control measures would be implemented during construction in order to minimize/eliminate significant impacts to air quality.

§226-14 Objective and Policies for facility systems-in general

Discussion: The proposed project includes an affordable housing development that has been planned to meet the high demand for affordable housing within existing job centers. This is consistent with both the County and State general plans.

§226-15 Objective and Policies for facility systems-solid and liquid wastes

Discussion: The proposed project would include a wastewater system that would be designed in accordance with the latest County and State standards, and would therefore be in conformity with §226-15.

§226-16: Objective and Policies for facility systems-water

Discussion: The proposed project would require additional withdrawals from the county water supply; however, the maximum demand of the proposed development is not expected to exceed the pumping capacity of the existing water system. Further, the underlying aquifers are not expected to be adversely impacted (*e.g.*, water level drawdown) by the additional demand needed by the Proposed Action. The proposed housing units would be serviced by potable water provided by the DOW, which regularly monitors water quality parameters to ensure adherence to all state and federal standards.

§226-17: Objective and Policies for facility systems-transportation

Discussion: The proposed project is planned within close proximity to existing job centers in Līhu'e. This would reduce worker commute times and distance traveled. The project area is also located along

existing public transportation routes. Therefore, the proposed project would conform to the objectives and policies included in §226-17.

§226-18: Objective and Policies for facility systems-energy

Discussion: The proposed project would not require substantial energy consumption. The KIUC currently has the capacity to supply the proposed residential community with the needed electricity service. Additionally, the community residences are planned to incorporate energy saving measures, such as solar hot water and photovoltaic electricity panels. Therefore, the proposed project would conform to the objectives and policies included in §226-18.

§226-19: Objective and Policies for socio-cultural advancement-housing

Discussion: The proposed project would result in greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environment that satisfactorily accommodates the needs and desires of families and individuals. The project will be a collaboration between the Kaua'i County Housing Agency and developers to ensure maximum affordability while not compromising quality since the proposed development would comply with all applicable County codes and State regulations. Therefore, the proposed project would conform to the objectives and policies included in §226-19.

The objectives and policies included in §226-20 through §226-24 are not applicable to the proposed project since the proposed project does not include facilities providing healthcare, education, social services or leisure.

§226-25: Objective and Policies for socio-cultural advancement-culture

Discussion: A CIA was completed for the proposed project. The findings of this study concluded there is strong support for affordable housing for homeless and low income residents of Līhu'e, and that the plan for affordable housing continues the best aspects of the plantation legacy by taking care of families and creating a sense of community. Additionally, SHPD was consulted during the environmental review process. As a result, the proposed project proponent, the County Housing Agency, has considered and created additional awareness of the effect that the proposed development will have on cultural values.

§226-26: Objective and Policies for socio-cultural advancement-public safety

Discussion: The proposed project would result in the creation of new affordable housing that would adhere to all applicable County building codes, as well as State regulations. This would create a heightened assurance of public safety and adequate protection of life and property for residents inhabiting the proposed community.

§226-27: Objective and Policies for socio-cultural advancement-government

Discussion: The proposed project is proposed by a governmental entity (the County Housing Agency). The County Housing Agency is facilitating this project, along with other planned public housing projects on Kaua'i in response to public need for more affordable housing alternatives on Kaua'i.

Part II: Planning Coordination and Implementation

Discussion: Part II of HRS §226 discusses the purpose, duties and guidance relating to the preparation and implementation of state functional plans as well as county general plans. Since the proposed action does not include any amendments to these plans, Part II of HRS §226 is not relevant to the proposed project.

Part III: Priority Guidelines

§226-102: Overall Direction

Discussion: The proposed project would improve the quality of life for Hawai'i's present and future population by providing affordable housing, economic development through the creation of additional jobs to build the proposed community in order to accommodate population expansion through planned growth and land resource management. The proposed project would include sustainable development features such as low impact development practices and use of high efficiency appliances and solar energy, to the extent feasible and practical.

§226-103: Economic Priority Guidelines

Discussion: The proposed project would generate local construction jobs in order to design and build the workforce housing community. This would stimulate economic growth by reinvesting in the local economy. The proposed project would not provide the remaining economic priority guidelines included in this section.

§226-104: Population growth and land resources priority guidelines

Discussion: The proposed project has been planned in accordance with available resources required. The county Housing Agency has consulted with various county and state agencies, as well as local utility providers to assure that the proposed action would not significantly impact available resources in the area, such as water, electricity and waste water service. The proposed project is planned within an existing developed area that is in close proximity to a major county job center and established residential community.

§226-105: Crime and Justice

Discussion: The proposed project would not result in a significant impact to local law enforcement services since it would include a permitted residential community that is in close proximity to police and emergency services. The county police department has been consulted during the planning process.

§226-106: Affordable housing. Priority guidelines for the provision of affordable housing:

Discussion: The proposed project is a Kaua'i County Housing Agency workforce housing project that would meet the housing needs of various low income households. The proposed project prioritizes providing high quality housing for Hawai'i's residents rather than individuals outside Hawai'i.

§226-107 is not relevant for the proposed project since it would not include the promotion of education programs in the State.

§226-108: Sustainability

Discussion: The proposed project reflects sustainable planning principles that call for development within existing urban and job centers to reduce vehicular traffic and the associated release of greenhouse gasses and dependence on petroleum products. The proposed development has been planned to balance economic, social, community and environmental priorities by providing much needed affordable housing to the people of Kaua'i, while making sure development practices comply with state and county environmental regulations and policies.

§226-109: Climate change adaptation priority guidelines

Discussion: The proposed project would be sited well above the shoreline SMA that is most vulnerable to impacts from sea level rise. The housing community would be constructed from modern materials in accordance with Kaua'i County Code and all applicable state regulations relating to proper protection of land, water and other natural resource systems that could be affected by construction activities. The

modern community would be resilient to more frequent storm events associated with climate change, giving Hawai'i's people the ability to adapt to a changing environment.

Historic Preservation Chapter 6E, HRS

Regulatory statutes related to historic preservation issues are provided in Chapter 6E of the HRS, which mandates that the SHPD of the DLNR must review proposed state projects, which may have an impact upon historic and cultural resources that are located within the project site. Furthermore, Chapter 6E also provides procedural guidelines in the event of an inadvertent discovery of burial sites during project development.

Discussion: Consultation with SHPD was implemented throughout the project planning process. A CIA was conducted in accordance with HRS Chapter 6E at the project site in order to determine if cultural and/or historical resources are present at the project site. The CIA is included as Appendix F of this FEA.

State of Hawai'i Land Use Commission Rules, Chapter 15-15, HAR

Chapter 15-15, HAR promulgates the State Land Use Commission Rules. The purpose of the rules are to preserve, protect, and encourage the development of lands in the State of Hawai'i for uses that are best suited to the public health and welfare of its people. The LUC classifies all land into four districts: Urban, Conservation, Agriculture, and Rural.

Discussion: The project site is designated within the State LUC Urban District. The proposed project would be used for residential purposes; therefore, the Proposed Action would be in accordance with the State LUC designation.

State of Hawai'i Coastal Zone Management Law, Chapter 205 A, HRS

HRS § 205A-2 provides the State of Hawai'i CZM program objectives and policies. The following is an analysis of how the proposed Kaua'i County Housing Agency Pua Loke Affordable Housing Project, located in TMK (4) 3-8-005, Parcels 028 and 029 Līhu'e, Kaua'i (proposed project) would conform or be in conflict with the outlined CZM program objectives and policies included in HRS § 205A-2:

Objectives

(1) Recreational resources;

(A) Provide coastal recreational opportunities accessible to the public.

Discussion: The proposed project would not impact any existing public coastal recreational opportunities since the existing site parcel does not include any public access/trails or other recreation opportunities. The proposed project would not impede access to other existing coastal or other recreation areas currently available to the public. Therefore, the proposed project would conform to objective 1(A) of HRS § 205A-2.

(2) Historic resources;

(A) 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.

Discussion: An AIS and CIA were completed for the proposed project. The findings of these studies concluded that there are no burials or cultural materials known to be present at the project site. No other significant historical or prehistoric resources were identified during the site studies. Additionally, the SHPD was consulted during the environmental review process. As a result, no further work is recommended and alteration of the features by the proposed project would not represent a significant

impact to historic or prehistoric resources. Therefore, the proposed project would conform to objective 2(A) of HRS § 205A-2.

(3) Scenic and open space resources;

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

Discussion: The proposed project would include the conversion of a paved asphalt parking lot to an affordable housing community, which would not alter the existing scenic environment. The project site is located on the east side of the island of Kaua'i in Līhu'e town. The project site is bound immediately by the Kukui Park Professional Building and the Kukui Grove Cinema to the west; Pua Loke Street to the east; Kaumuali'i Highway to the north; and Haleko Road to the south. The DOW offices and baseyard are located to the north/northeast of the project site, there is a park directly east across of Pua Loke Road, and King Auto Center, Līhu'e United Church, and a residential subdivision located across Haleko Road to the south. The site does not include significant scenic resources, such as hills or mountains. The proposed housing units would comply with County height and zoning standards and would not adversely contrast with the existing visual aesthetics of the surrounding area. As a result, the proposed project would conform to objective 3(A) of HRS § 205A-2.

(4) Coastal ecosystems;

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

Discussion: A biological survey was conducted at the project site in September 2017 in order to determine the status of the existing ecological conditions at the project site. Consultation with the USFWS and the State DOFAW was also conducted as part of the environmental review process to determine the natural biological conditions at the project site. It was determined that several endangered and threatened native Hawaiian bird species, as well as the Hawaiian hoary bat, may traverse the project site.

Mitigation measures to minimize/eliminate impacts to these biological species are presented in Section 3.2.3 of this FEA. With the implementation of these mitigation measures, it was determined that there would be no significant impact to these protected species. Significant impacts to Nāwiliwili Stream, Puhi Stream and Nāwiliwili Harbor from stormwater and other runoff from the proposed project would be minimized/eliminated by adhering to State water quality standards and County construction BMPs. Therefore, the proposed project would conform to objective 4(A) of HRS § 205A-2.

(5) Economic uses;

(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

Discussion: The State of Hawai'i Department of Business, Economic Development and Tourism, Hawai'i Housing Finance and Development Corporation (HHFDC) 2017 State Housing Functional Plan states the following; "A*pproximately 36 percent of Hawai'i's households are cost-burdened, meaning they pay more than 30 percent of their income for housing costs. Approximately half of these households pay more than 50 percent of their income for housing*" (HHFDC, 2017 p. 4).

Given the high cost of living in the State of Hawai'i, the proposed project would provide much needed affordable housing to the people of Kaua'i. The project site was identified as a suitable location to provide the needed affordable housing to Kaua'i residents since it is located in a central location within close proximity to existing job centers, schools, recreational activities, shopping, and an established residential community. Therefore, the proposed project would result in providing private housing

facilities that would help relieve the financial burden experienced by Kaua'i's residents, resulting in improved economic conditions for the State.

(6) Coastal hazards;

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

Discussion: The proposed project site is located outside the tsunami evacuation zone and the State SMA. The project site is located within FEMA Flood Zone X (outside of the 0.2% annual chance floodplain). The proposed project would have less than significant impacts on floodplains because the proposed site drainage system would adequately manage stormwater runoff in accordance with County drainage standards, and construction areas are located within Flood Zone X.

A stormwater pollution prevention plan would be developed prior to the start of construction in order to: identify potential sources of stormwater pollution; describe the practices that would be used to prevent stormwater pollution; and identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. BMPs employed during construction (e.g., silt fencing, tarping/covering exposed and stockpiled soils, surface revegetation) would minimize/eliminate impacts from stormwater generated at the project site. With these controls in place, there would be no increased hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

(7) Managing development;

(A) Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Discussion: The proposed project has gone through the environmental review process in compliance with the State of Hawai'i Environmental Policy Act, NEPA, as well as U.S. HUD Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. A public review/comment period has been conducted during the environmental review process, which allowed for public participation/agency communication. The development process will proceed in accordance with all applicable County codes and State regulations. This will result in a housing community that will be resilient to natural hazards, as well as anthropogenic-induced hazards.

(8) Public participation;

(A) Stimulate public awareness, education, and participation in coastal management.

Discussion: As stated above, the proposed project has gone through the environmental review process which included a public review/comment period. Additional public awareness and education in matters of coastal management are not applicable to the proposed project.

(9) Beach protection;

(A) Protect beaches for public use and recreation.

Discussion: The proposed project would include disturbance of soil and construction activities that could result in the discharge of sediment and other pollutants into stormwater that could get transported to the shoreline/beaches. In order to mitigate the potential impact to beaches, a stormwater pollution prevention plan would be developed prior to the start of construction in order to: identify potential sources of stormwater pollution; describe the practices that would be used to prevent stormwater pollution; and identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. BMPs employed during construction would minimize/eliminate impacts from stormwater generated at the project site.

Once developed, the proposed project would have less than significant impacts to downstream receptors, including beaches from increased stormwater runoff because the proposed site drainage system would adequately manage stormwater runoff in accordance with County drainage standards. With these controls in place, there would be no increased impact to public use/recreation at beaches.

(10) Marine resources;

(A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Discussion: As stated above, the proposed project would include disturbance of soil and construction activities that could result in the discharge of sediment and other pollutants into stormwater that could get transported to the coastal and marine environments. In order to mitigate the potential impacts to these natural resources, a stormwater pollution prevention plan would be developed prior to the start of construction in order to: identify potential sources of stormwater pollution; describe the practices that would be used to prevent stormwater pollution; and identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. BMPs employed during construction would minimize/eliminate impacts from stormwater generated at the project site.

Once developed, the proposed project would have less than significant impacts to downstream receptors, including coastal resources and the marine environment from increased stormwater runoff, because the proposed site drainage system would adequately manage stormwater runoff in accordance with County drainage standards. With these controls in place, there would be no increased impact to coastal resources or the marine environment. No other protection, use or development of marine or coastal resources are applicable for the proposed project.

Policies

(1) Recreational resources;

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.

Discussion: The proposed project would be in conformance with Policy (1)(B)(vi) since all construction activities would comply with State water quality regulations. None of the other policies are applicable to the proposed project since it would not include the creation or conversion of recreational or shoreline areas.

(2) Historic resources;

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Discussion: An AIS and CIA were completed for the proposed project. The findings of these studies concluded there are no burials or cultural materials at the project site. As a result, no further work is recommended and alteration of the features by the proposed project would not represent a significant impact to historic or prehistoric resources.

(3) Scenic and open space resources;

(A) Identify valued scenic resources in the coastal zone management area;

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments that are not coastal dependent to site at inland areas.

Discussion: The proposed project would include the conversion of a paved asphalt parking lot to an affordable housing community, which would not alter the existing scenic environment. The project site is immediately bordered by the Kukui Park Professional Building and the Kukui Grove Cinema to the west, Pua Loke Street to the east, Kaumualiʻi Highway to the north, Haleko Road to the south and does not include significant scenic resources, such as hills or mountains. The proposed housing units would comply with County height and zoning standards and would not adversely contrast with the existing visual aesthetics of the surrounding area. The project would not be coastal dependent since it would be located well outside the shoreline and SMA.

(4) Coastal ecosystems;

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) **Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and**

(E) **Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.**

Discussion: A biological survey was conducted at the project site in September 2017 in order to determine the status of the existing ecological conditions at the project site. Consultation with the USFWS and the DLNR-DFW was also conducted as part of the environmental review process to determine the natural biological conditions at the project site. It was determined that several protected native Hawaiian bird species, as well as the Hawaiian hoary bat may traverse the project site.

Mitigation measures to minimize/eliminate impacts to these biological species were presented in this FEA. With the implementation of these mitigation measures, it was determined that there would be no significant impact to these protected species. Nearby Nāwiliwili Stream, Puhi Stream, and Nāwiliwili Harbor are within two miles of the project site. Significant impacts to the streams and harbor from stormwater and other runoff from the proposed project would be minimized/ eliminated by adhering to State water quality standards and County construction BMPs. The proposed development would adhere to County drainage standards in order to prevent excess stormwater generated at the project site from impacting Puhi Stream, Nāwiliwili Harbor, and the surrounding environment on a long-term basis. The proposed project only includes development within FEMA Flood Zone X, which would minimize/eliminate project-induced water quality impacts to Nāwiliwili Stream, Puhi Stream, and Nāwiliwili Harbor.

(5) **Economic uses;**

(A) **Concentrate coastal dependent development in appropriate areas;**

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

(C) **Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:**

(i) **Use of presently designated locations is not feasible;**

(ii) **Adverse environmental effects are minimized; and**

(iii) **The development is important to the State's economy.**

Discussion: The proposed project would provide much needed affordable housing to the people of Kaua'i. The project site was identified as a suitable location to provide the needed affordable housing to Kaua'i residents since it is located in a central location within close proximity to existing job centers, schools, recreational activities, shopping, and an established residential community. Therefore, the proposed project would result in providing private housing facilities that would help relieve the financial burden experienced by Kaua'i's residents, resulting in improved economic conditions for the State.

(6) Coastal hazards;

(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.

Discussion: The proposed project site is located outside the tsunami evacuation zone and the SMA. The project site is located within FEMA Flood Zone X (outside of the 0.2% annual chance floodplain). The proposed project would have less than significant impacts on floodplains because the proposed site drainage system would adequately manage stormwater runoff in accordance with County drainage standards, and construction would occur in areas located within Flood Zone X.

A stormwater pollution prevention plan would be developed prior to the start of construction in order to: identify potential sources of stormwater pollution; describe the practices that would be used to prevent stormwater pollution; and identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. BMPs employed during construction (e.g., silt fencing, tarping/covering exposed and stockpiled soils, surface revegetation) would minimize/eliminate impacts from stormwater generated at the project site. With these controls in place, there would be no increased hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

(7) Managing development;

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Discussion: The proposed project has gone through the environmental review process in compliance with the State of Hawai‘i Environmental Policy Act, NEPA, as well as U.S. HUD Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. A public review/comment period has been conducted during the environmental review process, which allowed for public participation/agency communication. The development process will proceed in accordance with all applicable County codes and State regulations. This will result in a housing community that will be resilient to natural hazards, as well as anthropogenic-induced hazards.

(8) Public participation;

(A) Promote public involvement in coastal zone management processes;

(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion: A public review/comment period that included a public information meeting was conducted during the environmental review process, which has allowed for public participation/agency communication. Given the scope of the project, additional public outreach, workshops or other dialogue is not applicable since all known pertinent information regarding the project has been included in the FEA.

(9) Beach protection;

(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;

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline;

(D) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and

(E) Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.

Discussion: The proposed project would include disturbance of soil and construction activities that could result in the discharge of sediment and other pollutants into stormwater that could get transported to the shoreline/beaches. In order to mitigate the potential impact to beaches, a stormwater pollution prevention plan would be developed prior to the start of construction in order to: identify potential sources of stormwater pollution; describe the practices that would be used to prevent stormwater pollution; and identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. BMPs employed during construction would minimize/eliminate impacts from stormwater generated at the project site.

Once developed, the proposed project would have less than significant impacts to downstream receptors, including beaches from increased stormwater runoff because the proposed site drainage system would adequately manage stormwater runoff in accordance with County drainage standards. With these controls in place, there would be no increased impact to public use/recreation at beaches. The proposed project would comply with HRS 205 A-2 (c)(9): Beach Protection since the proposed project would be located inland from the shoreline setback, and would not include construction of any erosion-protection structures seaward of the shoreline.

(10) Marine resources;

(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 U.S. 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.

Discussion: The proposed project would include disturbance of soil and construction activities that could result in the discharge of sediment and other pollutants into stormwater that could get transported to the coastal and marine environment. In order to mitigate the potential impact to these natural resources, a stormwater pollution prevention plan would be developed prior to the start of construction in order to: identify potential sources of stormwater pollution; describe the practices that would be used to prevent stormwater pollution; and identify procedures the contractor would implement to comply with all requirements of a NPDES permit during construction. BMPs employed during construction would minimize/eliminate impacts from stormwater generated at the project site.

Once developed, the proposed project would have less than significant impacts to downstream receptors, including coastal resources and the marine environment from increased stormwater runoff because the proposed site drainage system would adequately manage stormwater runoff in accordance with County drainage standards. With these controls in place, there would be no increased impact to coastal resources or the marine environment. No other protection, use or development of marine or coastal resources are applicable for the proposed project.

Act 127, Session Laws of Hawai'i 2016

Pursuant to Act 127, Session Laws of Hawai'i 2016, a Special Action Team on affordable rental housing was established in 2016 to make recommendations on actions to promote affordable rental housing. One of the key goals of Act 127 is to achieve 22,500 affordable rental housing units by December 31, 2026.

Discussion:

The proposed project would align with the goals of Act 127 since it would include affordable rental housing units. Thus, the proposed project would help to achieve the Act 127 goal to create 22,500 affordable rental housing units by December 31, 2026.

4.3 COUNTY LAND USE PLANS AND POLICIES

4.3.1 COUNTY OF KAUA'I

4.3.1.1 GENERAL PLAN (AMENDED OCTOBER 2000)

Pursuant to the provisions of the Charter for the County of Kaua'i, the General Plan sets forth policies to govern the future physical development of the county. The General Plan is intended to improve the physical environment of the county and the health, safety and general welfare of Kaua'i's people.

Discussion:

Chapter 6 of the General Plan discusses the enhancement of communities and providing for growth on Kaua'i. The Proposed Action would be located directly adjacent to the established commercial buildings and would provide much needed housing for population growth. Therefore, the Proposed Action would be in accordance with the guidance established in the County General Plan.

4.3.1.2 KAUA'I COUNTY CODE

The Kaua'i County Code 1987, as amended, was prepared pursuant to the authority of Section 4.05 of the Kaua'i County Charter, and sets forth guidelines and rules for various County functions, including development standards, taxation, County administration organization, and other matters affecting the general public.

Chapter 8 of the Kaua'i County Code: CZO

The purpose of the CZO is to provide regulations and standards for land development and the construction of buildings and other structures in the County of Kaua'i (County of Kaua'i, 2012). The project site is located in an Urban District area.

Discussion:

The project site is currently zoned for general commercial, residential and Special Treatment-Public Use use under County zoning regulations. The proposed project use (residential) would be consistent with both State and County zoning designations. As an affordable housing project, Chapter 7A of the Kaua'i County Charter and HRS 201H-38 could be used to provide greater flexibility and feasibility by allowing the residential development to vary from zoning regulations, if necessary.

4.3.2 PERMITS AND APPROVALS

4.3.2.1 SECTION 402 NPDES PERMIT

Discharge of pollutants into surface waters of the U.S. are controlled under the NPDES program, pursuant to Section 402 of the CWA. This program is administered by the DOH under HAR Title 11, Chapter 55 Water Pollution Control (HAR §11-55). This chapter requires submission of a NPDES application or a Notice of Intent for NPDES General Permit coverage, for discharges of regulated pollutants, or for substantially altering the quality of any discharge, or for substantially increasing the quantity of discharge.

The State NPDES General Permit program regulates discharges into Class 2 and AA waters such as Nāwiliwili Stream and the Pacific Ocean, respectively. Any discharges associated with construction activities such as dewatering or hydrotesting must comply with the provisions of HAR Title 11, Chapters 54 and 55.

4.3.2.2 REQUIREMENTS FOR CONSTRUCTION ACTIVITIES

The following County of Kaua'i permits are associated with construction activities and are expected to be required for the Proposed Action:

- Project Development Use Permit/Approval
- Grading Permit from the Department of Public Works, Building Department;
- Building Permits from the Department of Public Works, Building Department;
- Sewer Connection Approval from the Puhi Sewer and Water Company; and
- Potable water connected approval from the DOW.

5 FINDINGS AND DETERMINATIONS

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In accordance with the provisions set forth in HRS Chapter 343 and NEPA, this FEA has determined that the project would not have significant adverse impacts on the environment. As such, a Finding of No Significant Impact (FONSI) is being issued for the Proposed Action. Anticipated impacts would be temporary and would not adversely impact the environmental quality of the area or result in adverse health or other socioeconomic effects on the affected population/environment. Therefore, an Environmental Impact Statement is not required.

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, as established under HRS Chapter 343.

Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The Proposed Action would not provide irrevocable commitment to loss or the destruction of any natural or cultural resources since the research conducted did not reveal any known significant cultural resources that would be adversely affected by the Proposed Action. Control measures relating to construction activities included in the Proposed Action would reduce potential impacts to protected natural resource biological species to a level of insignificance. The details of these control measures are discussed in Section 3.2.3.2 of this FEA.

Curtails the range of beneficial uses of the environment;

The Proposed Action would not curtail the range of beneficial uses of the environment. The project site is currently used for overflow parking. The Proposed Action would not curtail beneficial uses of the environment at the project site since all planned development would comply with applicable county and state BMPs that would minimize changes to the existing environmental function.

Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The Proposed Action would not be in conflict with HRS 343 as discussed in this FEA.

Substantially affects the economic or social welfare of the community or state;

The Proposed Action would have a beneficial impact on the economic and social welfare of the community and state. The proposed project would have short-term beneficial impacts by creating temporary construction jobs for the duration of the construction period, as well as long-term beneficial impacts by providing much needed affordable housing to the residents of Kaua'i.

Substantially affects public health;

The Proposed Action is expected to have a positive effect on public health since its location would encourage healthy lifestyle habits such as walking and biking to parks, shopping areas and other community services/recreational activities. Further, An increase in affordable housing stock for Kaua'i's people would increase social connectedness and safety, creating a positive health effect for those who live at the Site, and for their families, friends and larger social community.

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

The Proposed Action would not result in substantial secondary impacts, such as population changes or effects on public facilities. Since there is currently a need for affordable housing for the existing county population, it is not anticipated that the residents of the planned community would represent an increase in overall county population. Rather, the existing population would utilize the planned

affordable housing units. Further, the public facilities in the area are not anticipated to be significantly impacted by the community residents.

Involves a substantial degradation of environmental quality;

The Proposed Action would not likely result in a substantial degradation of environmental quality. All construction activities would be implemented in compliance with applicable county and state BMPs/regulations.

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

The Proposed Action is one of several planned residential communities within the area. The Proposed Action would adhere to all applicable county construction BMPs, and would not have an adverse effect on the environment, nor would it involve a commitment for larger actions.

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

The Proposed Action is not anticipated to have substantial effects on a rare, threatened, or endangered species, or any critical habitat. Measures to avoid or minimize impacts to protected species within the vicinity of the project site are included in Section 3.2.3.2 of this FEA.

Detrimentally affects air or water quality or ambient noise levels;

No significant impacts on the long-term air or water quality or ambient noise levels within the affected environment are anticipated to result from the Proposed Action. Construction noise that exceeds DOH guidelines should be controlled to reduce the potential of noise level exceedances. Water quality impacts would be reduced with the use of silt fences and other applicable BMPs, including an NPDES permit during construction activities to contain runoff that may potentially reach receiving waters. Dust abatement measures should be used to reduce potential of impact to air quality during construction. With these measures in place, the project would not detrimentally affect air, water, or noise quality within the affected environment.

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

All construction activities will occur outside of the flood plain. The project site is not located within a tsunami zone, beach, erosion prone area, geologically hazardous land, estuary, freshwater, or coastal waters. As a result, no significant short- or long-term impacts are expected due to the presence of an environmentally sensitive area within a portion of the project site.

Substantially affects scenic vistas and view planes identified in county or state plans or studies; and

The Proposed Action would not substantially affect the visual aesthetics of the area identified in the county or state plans and studies. The residences would adhere to county zoning restrictions and the County of Kaua'i General Plan.

Requires substantial energy consumption.

The Proposed Action would not require substantial energy consumption. The KIUC currently has the capacity to supply the proposed residential community with the needed electricity service. Additionally, the community residences are planned to incorporate energy saving measures, such as solar hot water and photovoltaic electricity panels.

6 AGENCIES AND ORGANIZATIONS CONSULTED

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Table 6-1 includes a list of agencies and organizations to which preconsultation letters were sent. The same group of agencies organizations were sent notification letters with a link to review and provide comments on the draft EA, which was published in the February 8, 2018 State OEQC Environmental Notice. All preconsultation letters and written comments on the draft EA received were responded to. Appendix B-1 of this FEA includes all preconsultation letters received and responses. Appendix B-2 includes all written comments received on the draft EA during the 30-day comment period, and responses to comments received. Appendix B-2 also includes the meeting minutes and presentation from the public information meeting which was held at the Kaua'i County Līhu'e Civic Center, Pi'ikoi Conference Room A on March 8, 2018. Notice of the public meeting was published in the Garden Island newspaper and sent in the county bulletin.

Table 6-1: List of Agencies and Organizations Consulted

Agency/Group Type	Consulted Agency or Organization (preconsultation and DEA Publication Notification Letter Sent)	Draft EA Comments Received	Responses to Draft EA Comments
Federal Agencies	Postmaster - Līhu'e Post Office		
	EPA, Region 9 Pacific Islands Contact Office		
	USFWS Pacific Islands Fish and Wildlife Office		
State Agencies	HDOT Kaua'i District		
	HDOT Highways Division		
	Office of Planning	X	X
	DOH Environmental Planning Office	X	X
	DOH District Environmental Health Program Kaua'i		
	DOH Office of Environmental Quality Control		
	DOH Clean Water Branch	X	X
	Līhu'e Public Library		
	DLNR Division of Forestry and Wildlife		
	DLNR, Land Division		
	SHPD-DLNR		
	DOE		
	Department of Agriculture		
	Office of Hawaiian Affairs		
County of Kaua'i Agencies	Agency on Elderly Affairs		
	Planning Department		
	Kaua'i Fire Department		

Agency/Group Type	Consulted Agency or Organization (preconsultation and DEA Publication Notification Letter Sent)	Draft EA Comments Received	Responses to Draft EA Comments
County of Kaua'i Agencies (continued)	Kaua'i Police Department		
	Public Works Department		
	Transportation Agency		
	Department of Water	X	X
	Kaua'i Civil Defense Agency		
	Office of Economic Development		
	Līhu'e Neighborhood Center		
	Department of Parks & Recreation		
	Kaua'i County Council		
	KIUC		
Utility Companies	Hawaiian Telcom		
	Spectrum		
	Hui Kako'o 'Aina Ho'opulapula		
Citizen Groups and Individuals	Kaua'i/Ni'ihau Island Burial Council		
	Royal Order of Kamehameha, Kaumuali'i Chapter III		
	Queen Deborah Kapule Hawaiian Civic Club		
	Grove Farm		

7 REFERENCES

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16 U.S.C. §470aa-470mm. Archaeological Resource Protection Act of 1979 (1979).

16 U.S.C. § 1451. Coastal Zone Protection Act (1996).

16 U.S.C. Ch. 35, § 1531 et seq. Endangered Species Act. (1973).

16 U.S.C. §470 (As Amended Through 1992). National Historic Preservation Act of 1966.

24 CFR §58 – Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities

33 U.S.C. § 1251 – 1387. Clean Water Act (1987).

42 U.S.C. Ch. 85, subch. I § 7401 et seq. Clean Air Act (1990).

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APPENDIX A: ENVIRONMENTAL ASSESSMENT FOR HUD-FUNDED PROPOSALS

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Environmental Assessment

for HUD-funded Proposals

Recommended format per 24 CFR 58.36, revised March 2005
[Previously recommended EA formats are obsolete].

Project Identification: Pua Loke Affordable Housing Development

Preparer: Environet, Inc.

Responsible Entity: Kaua‘i County Housing Agency

Month/Year: April 2018

Environmental Assessment

Responsible Entity: Kaua‘i County Housing Agency
[24 CFR 58.2(a)(7)]

Certifying Officer: Kanani Fu - Housing Director
[24 CFR 58.2(a)(2)]

Project Name: Pua Loke Affordable Housing Development

Project Location: Līhu‘e, Island of Kaua‘i, State of Hawai‘i

Estimated Total Project Cost: To be determined

Grant Recipient: Kauai County Housing Agency
[24 CFR 58.2(a)(5)]

Recipient Address: Pi‘ikoi Building, 4444 Rice Street, Suite 330, Līhu‘e, Hawai‘i 96766

Project Representative: Kanani Fu, Kaua‘i County Housing Agency

Telephone Number: 808-241-4444

Conditions for Approval: (List all mitigation measures adopted by the responsible entity to eliminate or minimize adverse environmental impacts. These conditions must be included in project contracts and other relevant documents as requirements). [24 Code of Federal Regulations (CFR) 58.40(d), 40 CFR 1505.2(c)]

Control measures are anticipated during the construction and operation phase which would include County of Kauai construction best management practices (BMPs), adherence to County drainage, utility and infrastructure standards, along with recommendations to reduce/eliminate potential impacts to special status biological species.

Hazards, Nuisances including Site Safety
Project construction will increase the possibility of safety issues, hazards and nuisances. The developer(s)/contractor(s) are responsible for controlling these issues through the incorporation of County of Kauai BMPs. With the control measures in place, the proposed development is not expected to generate hazards or nuisances.

Energy Consumption
Kauai Island Utility Cooperative (KIUC) is expected to supply the necessary power to the housing development. The proposed project will increase the electrical load demand of the local substation. The proposed development may require an electrical line extension and other upgrades to service the proposed development. However, the housing development is not expected to generate an electrical demand that would exceed the existing KIUC capacity. Thus, the effects are expected to be insignificant as a result of the proposed project. Any electrical issues shall be resolved prior to development. Once the electrical improvements are conducted, the energy supply should meet the demand of the project site with respect to the surrounding area. Additional energy demand for the proposed project shall be accommodated by the KIUC; therefore, no significant impacts to energy consumption are expected to result from the project.

Noise
Construction BMPs to reduce short-term noise impacts would include; insulation/muffling, equipment substitution, selection, retrofit, and maintenance, utilization of staging areas and non-permanent noise barriers would be implemented to reduce construction noise. Further, buffer zones between construction activities and residential areas would be created, and construction work would be limited to the hours between 7:30 am and 5:00 pm on weekdays. According to HUD regulations 24 CFR Part 51, Subpart B: Noise Abatement and Control, HUD-funded new construction projects cannot be exposed to noise levels exceeding day-night average levels (DNL) of 75 decibels (dB). Further, if the DNL noise levels exceed 65 dB then the project would require noise attenuation measures reducing the DNL dB by 5 dB. If the DNL noise levels are above 70 dB then additional noise attenuation measures must be implemented to reduce the DNL dB by 10 dB. Noise testing will be completed upon completion of the proposed project in order to assure the project complies with the provisions of 24 CFR Part 51, Subpart B.

Air Quality
BMPs to reduce dust emissions during the construction period would include watering active work areas and unpaved work roads; use of wind screens; establishment of a routine road cleaning and/or tire washing program; paving of parking areas; establishment of landscaping early in the construction schedule; and monitoring dust at the project boundary. As a result, short-term construction activities would be considered less than significant. Direct long-term impacts to air quality due to increased vehicular traffic are also not expected to be significant. Although minimal annual emissions would increase due to increased vehicular traffic, the worst case projected concentrations should remain well below the state and national ambient air quality standards.

Wastewater
Wastewater will increase in the general location of the project area as more residents will be using the utilities and infrastructure provided. The current treatment plant is sufficient to serve existing areas, and sewer lines will be installed at the project site. The housing development will not adversely impact the affected wastewater treatment transmission and treatment system. Therefore, there is no significant impact expected to result from the changes in wastewater production.

Stormwater
The contractor is responsible to comply with National Pollution Discharge Elimination System (NPDES) requirements which include a Contractors Certification of NPDES Compliance including the BMP checklist and a written BMP plan. The State of Hawai‘i Department of Health (DOH) will require a NPDES permit during the construction period as the project site is greater than one acre in size. BMPs would include erosion control measures to minimize potential sediment runoff to surfacewater and potentially groundwater. Any temporary discharge will be treated and/or controlled to the criteria established by the State Water Quality Standards. Additionally, a permanent stormwater drainage system will be designed for the planned development in compliance with Kauai County drainage standards. Because these practices will be implemented, no significant impacts to water resources are anticipated under the proposed action.

Water Resources
Construction activities should comply with BMPs to reduce the potential of sediment runoff. Runoff in the project area will be controlled by using silt fences and County approved BMPs for reducing the potential of sediment impacts on the wetlands or other water resources. Construction activities will implement BMPs to include sediment barriers to protect neighboring sites and coastal waters from the potential of runoff from the project activities.

Vegetation and Wildlife
The threatened Newell’s shearwater, the endangered band-rumped storm petrel, and the endangered Hawaiian petrel are known to traverse the project area when flying between the ocean and mountain nesting sites. Seabirds are vulnerable to collision with above ground objects throughout their breeding season of March through December 15. Once grounded, seabirds are vulnerable to predators and are often struck by vehicles along roadways. The United States (U.S.) Fish and Wildlife Service (USFWS)

and the Department of Land and Natural Resources – Division of Forestry and Wildlife (DLNR-DFW) recommends using only essential lights, fully shielding all lights and avoiding nighttime construction that requires lighting to avoid and minimize potential impacts to seabirds. Nighttime construction is not anticipated.

The endangered Hawaiian hoary bat roosts in exotic native woody vegetation and, while foraging, will leave their young unattended in “nursery” trees and shrubs. If trees and shrubs suitable for bat roosting are cleared during the breeding season, there is risk that young bats could inadvertently be harmed or killed. As a result, woody plants greater than 15 feet (4.6 meters) tall should not be removed or trimmed from June 1 and September 15. In addition, any fences that are erected as part of construction will have a barbless top-strand wire to prevent entanglements with the bats.

The USFWS and the DLNR-DFW recommend that construction activities be coordinated closely with their agency during construction in order to avoid creating standing water and other attractive nuisances, such as standing water that could attract protected Hawaiian waterbirds to unsafe construction conditions. The USFWS and DLNR-DFW also recommended that a qualified biologist survey the project area prior to construction, and after a delay of at least 3 days in construction for the presence of Hawaiian Nene goose nests. If a nest is discovered, work should cease immediately and the USFWS and DLNR-DFW should be contacted for further guidance. With these control measures in place, impacts to biological resources from the Proposed Action would be reduced to a level of insignificance.

FINDING: [58.40(g)]

_X__ **Finding of No Significant Impact**
(The project will not result in a significant impact on the quality of the human environment)

___ **Finding of Significant Impact**
(The project may significantly affect the quality of the human environment)

Preparer Signature:

Date: April 8, 2018

Name/Title/Agency: _Max Solmssen/Environmental Planner/Environet, Inc.

RE Approving Official Signature: _____**Date:** _____

Name/Title/Agency: _____

Statement of Purpose and Need for the Proposal: [40 CFR 1508.9(b)]

The purpose of the Proposed Action is to satisfy the need for affordable housing on the island of Kaua‘i. The Kaua‘i County Housing Agency's mission is to provide the much needed affordable housing to families on Kaua‘i, as the population of Kaua‘i residents is increasing. Facilitating affordable housing opportunities for Kaua‘i residents is one of the county's top priorities.

Description of the Proposal: Include all contemplated actions which logically are either geographically or functionally a composite part of the project, regardless of the source of funding. [24 CFR 58.32, 40 CFR 1508.25]

The Proposed Action is the development of a County of Kaua‘i affordable housing project that would provide the growing County population much needed affordable housing. The Pua Loke Affordable Housing Development will include a maximum of 60 dwelling units to provide multi-family housing to accommodate a blend of affordable incomes, as well as designated units to serve those experiencing homelessness. All residential units will comply with state law and county charter. The Proposed Action would be located along Pua Loke Street bordering the eastern boundary of the project site, and Haleko Road would border the southern boundary of the project site **[Exhibits 1, 2]**.

Existing Conditions and Trends: Describe the existing conditions of the project area and its surroundings, and trends likely to continue in the absence of the project. [24 CFR 58.40(a)]

The project site is located on the east side of the island of Kaua‘i in Līhu‘e town. The project site includes Tax Map Key (TMK) (4) 2-6-004: Parcels 028 and 029. The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The project site also

includes landscaped grass areas with drainage swales and small patches of bare soil; electric power poles, lines, and a pole-mounted transformer. Land use activities surrounding the project site include residential and commercial uses. The project site is bound by a immediately bound by the Kukui Park Professional Building and the Kukui Grove Cinema to the west; Pua Loke Street to the east; Kaumualiʻi Highway to the north; and Haleko Road to the south. The County of Kaua'i Department of Water (DOW) offices and baseyard are located to the north/northeast of the project site, there is a park directly east across of Pua Loke Road, and King Auto Center, Līhu'e United Church, and a residential subdivision located across Haleko Road to the south.

Statutory Checklist

[24CFR §58.5]

Record the determinations made regarding each listed statute, executive order or regulation. Provide appropriate source documentation. Note reviews or consultations completed as well as any applicable permits or approvals obtained or required. Note dates of contact or page references. Provide compliance or consistency documentation. Attach additional material as appropriate. Note conditions, attenuation or mitigation measures required.

Factors	Determination and Compliance Documentation
Historic Preservation [36 CFR 800]	The archaeological inventory survey and cultural impact analysis conducted for the project site concluded that there were no significant historical or cultural resources present within the project area. The State of Hawaii Historic Preservation Division will be provided with the archaeological/cultural reports for review **[Exhibit 3]**.
Floodplain Management [24 CFR 55, Executive Order 11988]	The project area is designated as Federal Emergency Mangement Agency (FEMA) Zone X, outside of the 100-year or 500-year floodplain hazard area. Additionally, the proposed project should not be impacted by flooding as it is located outside the designated flood hazard area. The topography is generally flat. The site drainage at the housing development will be designed to adequately manage storm water runoff in accordance with applicable county drainage standards. Thus, the proposed housing development is not anticipated to have an adverse impact on floodplain function. **[Exhibit 4].**
Wetlands Protection [Executive Order 11990]	The project site is approximately 0.25 miles southwest of Nāwiliwili Stream, which is the closest listed wetland to the site, and is classified as permanently flooded perennial riverine. Several freshwater ponds associated with the Puakea Golf Course are located approximately 0.25 miles southwest of the project site. These ponds are listed as man-made non-tidal palustrine wetlands. Loss or destruction of wetlands is not expected based on the distance of the wetlands to the project site. Runoff produced during construction activities would be controlled using silt fences and County of Kauai-approved BMPs to reduce the potential of sediment impact to wetlands **[Exhibit 5].**
Coastal Zone Management Act [Sections 307(c), (d)]	The Coastal Zone Management (CZM) Program is promulgated by Chapter 205A, Hawaii Revised Statutes (HRS). The objectives and policies of the program are administered by the State of Hawaiʻi Office of Planning. Through the CZM Program, each County is required to establish Special Management Areas (SMA) and shoreline setbacks within which permits are required for development. CZM regulations such as the SMA and Shoreline Setback provisions, which are administered by the Counties, may apply to Housing and Urban Development (HUD)-assisted projects. Each County Planning Department should be consulted for the applicability of SMA and Shoreline Setback requirements. The proposed project is not located within the SMA. The proposed project is not anticipated to have an adverse impact on the coastal zone. The County of Kauaʻi Planning Department has been consulted during the environmental review process **[Exhibit 6]**.

Sole Source Aquifers [40 CFR 149]	Based on the EPA sole source aquifer designation, the island of Kaua'i does not have any sole source aquifers. The proposed action would be closely coordinated with the DOW. The availability of water should not be impacted or have adverse impacts to the underlying aquifers. Therefore, no significant impacts to drinking water sources are expected from the proposed action **[Exhibit 7]**.
Endangered Species Act [50 CFR 402]	A terrestrial flora and fauna survey was conducted at the project site in order to identify the presence of special status habitats. No state or federally listed threatened, endangered, or candidate plant species, or rare native Hawaiian plant species were observed within the surveyed area, and no designated critical plant habitat occurs within the area. The endangered Hawaiian petrel (*Pterodroma sandwichensis*), endangered band-rumped storm petrel (*Oceanodroma castro*), and threatened Newell's shearwater (*Puffinus auricularis newelli*), may fly over the project site at night while traveling to and from their upland nesting sites to the ocean. The following control measures are recommended to avoid and minimize light attraction of the endangered Hawaiian petrel and threatened Newell's shearwater to the project site: • Construction activity should be restricted to daylight hours as much as practicable during the seabird breeding season (April through November) to avoid the use of nighttime lighting that could be an attraction to seabirds. • All outdoor lights should be shielded to prevent upward radiation at the housing development. This has been shown to reduce the potential for seabird attraction. • Outside lights that are not needed for security and safety should be turned off from dusk through dawn during the fledgling fallout period (September 15–December 15). The endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) was not detected at the project site, but could roost or forage in the nearby area. To prevent direct impacts to the Hawaiian hoary bat, the following control measures are recommended: • No trees taller than 15 feet within the project site should be trimmed or removed between June 1 and September 15 when non-volant juvenile bats (bats that cannot fly) may be roosting in the trees. • Any fences that are erected as part of the Proposed Action should have a barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. For existing fences at the project site, the top strand of barbed wire should be removed or replaced with barbless wire.

	The USFWS and DLNR-DFW will continue to be consulted during the planning process in compliance with Section 7 of the Endangered Species Act. The USFWS and DLNR-DFW also recommended that construction activities be coordinated closely with their agency during construction in order to avoid creating standing water and other attractive nuisances, such as standing water that could attract protected Hawaiian waterbirds to unsafe construction conditions. The USFWS and DLNR-DFW also recommended that construction barriers be installed around the proposed site to prevent Hawaiian geese from entering the project site. If a Hawaiian goose or nest is discovered, work should cease immediately and the USFWS and DLNR-DFW should be contacted for further guidance **[Exhibit 8].**
Wild and Scenic Rivers Act [Sections 7(b), (c)]	There are no designated wild and scenic rivers in the state of Hawai'i. There are no anticipated compliance requirements under the wild and scenic rivers act for the proposed housing development **[Exhibit 9]**.
Air Quality [Clean Air Act, Sections 176(c) and (d), and 40 CFR 6, 51, 93]	The project site is located in EPA attainment zones for EPA National Ambient Air Quality Standards, for all criteria pollutants. The proposed project would result in less than significant short-term impacts to air quality arising from construction activities. The major potential short-term air quality impacts would occur from the generation of fugitive dust. Applicable BMPs would be implemented during construction activities in order to control fugitive dust emissions. These BMPs would include watering active work areas and unpaved work roads; use of wind screens; establishment of a routine road cleaning and/or tire washing program; paving of parking areas; establishment of landscaping early in the construction schedule; and monitoring dust at the project boundary.
Farmland Protection Policy Act [7 CFR 658]	The proposed project site is not used for commercial agricultural purposes.
Environmental Justice [Executive Order 12898]	The proposed project will provide affordable housing to Kaua‘i residents. The proposed housing development complies with Executive Order 12898 and ensures environmental justice for members of the community, including minority and low-income populations.

HUD Environmental Standards Determination and Compliance Documentation

Noise Abatement and Control [24 CFR 51 B]	According to HUD regulations 24 CFR Part 51, Subpart B: Noise Abatement and Control, HUD-funded new construction projects within the vicinity of highways or airports cannot be exposed to noise levels exceeding DNL of 75 dB. Further, if the DNL noise levels exceed 65 dB then the project would require noise attenuation measures reducing the DNL dB by 5 dB. If the DNL noise levels are above 70 dB then additional noise attenuation measures must be implemented to reduce the DNL dB by 10 dB. Noise testing will be completed upon completion of the proposed project in order to assure the project complies with the provisions of 24 CFR Part 51, Subpart B. Less than significant short-term noise impacts from construction activities would occur. BMPs (e.g., construction

	scheduling; insulation/muffling; reduced power options; equipment substitution, selection, retrofit, and maintenance; utilization of staging areas; and non-permanent noise barriers) would be implemented to reduce or eliminate noise. Further, buffer zones between construction activities and residential areas would be created, and construction work would be limited to the hours between 7:30 am and 3:30 pm on weekdays. As a result, short-term impacts from construction activities would be less than significant to the surrounding environment.
Toxic/Hazardous/Radioactive Materials, Contamination, Chemicals or Gases **[24 CFR 58.5(i)(2)]**	A Phase I Environmental Site Assessment (ESA) conducted in August 2017 observed staining from heavy equipment, which indicates small oil spills that occurred at the site. Soil sampling will be conducted for target chemicals prior to soil disturbance to determine if the extent of soil contamination. In addition, a pole-mounted electrical transformer was observed at the Site; a potential source of polychlorinated biphenyls (PCB) contamination. Disturbance of the onsite transformer will be coordinated with KIUC to assure proper characterization, handling, and disposal of potentially PBC-containing materials (Environet, 2017). During construction, there may be the potential of petroleum spillage associated with construction vehicles and equipment. To minimize this hazard, all applicable spill and prevention control BMPs would be implemented to ensure that accidental releases are minimized and contained. For example, vehicles and equipment would be regularly inspected for leaks and adequate performance, and would be maintained accordingly. In the long-term, there is potential for petroleum spillage from residential sources (e.g., vehicle leaks and improper disposal of hazardous materials). These potential impacts would be reduced by adherence to all applicable county and state regulations. As a result, implementation of the Proposed Action is expected to have a less than significant impact from hazardous materials and wastes.
Siting of HUD-Assisted Projects near Hazardous Operations [24 CFR 51 C]	Surrounding land uses include commercial and residential use. There are no potentially hazardous operations that are near the project site.
Airport Clear Zones and Accident Potential Zones [24 CFR 51 D]	The project site is located approximately 2.5 miles southwest from the Līhu'e airport. These distances are outside of the potential airport clear zone or accident potential zone of 2,500 feet.

Environmental Assessment Checklist

[Environmental Review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Evaluate the significance of the effects of the proposal on the character, features and resources of the project area. Enter relevant base data and verifiable source documentation to support the finding. Then enter the appropriate impact code from the following list to make a determination of impact. **Impact Codes**: (**1**) - No impact anticipated; (**2**) - Potentially beneficial; (**3**) - Potentially adverse; (**4**) - Requires mitigation; (**5**) - Requires project modification. Note names, dates of contact, telephone numbers and page references. Attach additional material as appropriate. Note conditions or mitigation measures required.

Land Development	Code	Source or Documentation
Conformance with Comprehensive Plans and Zoning	1	According to the State Land Use Commission district classifications, the parcel is located in a State Land Use Commission (LUC) Urban District and in a General Commercial Use County Zoning District. The housing project site would therefore be consistent with both State and County zoning designations. An affordable housing project would provide greater flexibility and feasibility by allowing the residential development to vary from zoning regulations, if necessary in accordance with HRS 201H **[Exhibit 10, 11]**.
Compatibility and Urban Impact	1	The project area would be consistent and compatible with State and County zoning designations, as well as the land use of the surrounding area.
Slope	1	The project site topography is generally flat with an elevation ranging from approximately 220 feet above mean sea level (msl) to 225 above msl.
Erosion	4	Soils at the project site are designated as Līhu'e silty clay (LhB) **[Exhibit 12]**. This soil type is found on the tops of broad interfluves in the uplands. The soil type includes Class B – moderate infiltration rate soils that are moderately to well drained with moderately coarse textures. Construction BMPs, including silt fences/barriers, and following the site NPDES construction permit would reduce erosion impacts during the construction period to a level of insignificance.
Soil Suitability	1	The subsurface soils at the project site have slow runoff, are well drained, and consist of dark red and dark reddish-brown compact silty clay that has a subangular blocky structure. These soils are suitable for development.
Hazards and Nuisances including Site Safety	1	Project construction will increase the possibility of safety issues, hazards and nuisances. The developer(s)/ contractor(s) is/are responsible for addressing these issues through the incorporation of County of Kaua'i BMPs and adherence to state and federal worker safety regulations, including securing the work site from the public during working and non-working hours.
Energy Consumption	1	KIUC is expected to supply the necessary power to the housing development. The Proposed Action would not require substantial energy consumption. The KIUC currently has the capacity to supply the proposed residential community with the needed electricity service. Additionally, the community residences are planned to incorporate energy saving measures, such as solar hot water and photovoltaic electricity panels. No significant impact to energy consumption is expected to result from the

		proposed project.

Noise - Contribution to Community Noise Levels	1	Under the Proposed Action, less than significant short-term noise impacts from construction activities would occur. Development of the project site would involve excavation, grading, and other typical construction activities. The Proposed Action is not expected to significantly impact any existing sensitive noise receptors within the vicinity of the project site. However, residences from the initial phase of construction may be impacted by construction-related noise due to subsequent phases of work. However, these impacts would be less than significant.
Air Quality Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	1	Dust may be generated during construction activities. Also, increased vehicular traffic to and from the project area is anticipated. Traffic is expected to increase in the long-term with the development of housing and increased population. Small long-term increases in exhaust emissions are anticipated within the vicinity of the project area; however, this does not constitute a significant island-wide effect. Long-term impacts to air quality from increased traffic circulation within the project area are anticipated to be minimal. Overall, potential impacts to air quality resulting from short-term and long-term changes are minimal and not significant.
Environmental Design Visual Quality - Coherence, Diversity, Compatible Use and Scale	1	The Proposed Action would include a compact residential community that would blend into the adjacent established Līhu'e community, already used for commercial and residential purposes. The project would include a diverse mix of residential options, pedestrian/bike paths and other sustainable features, solar hot water and photovoltaic electricity panels. The proposed action is consistent with the County of Kaua'i General Plan.

Socioeconomic	**Code**	**Source or Documentation**
Demographic Character Changes	1	Demographic changes are expected to be insignificant. Increases in population have been steady on Kaua'i and therefore there is a need for additional housing. The proposed housing project would include multi-family housing units. The addition of housing options would likely attract families and a diverse range of age groups and demographics.
Displacement	1	The project site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. Access to the project site would temporarily be affected by construction activities; however, there are alternate parking areas within the vicinity of the project area. Once developed, the land use would not change, as the housing development is consistent with State and County Zoning. Thus, short and long-term impacts are considered to be insignificant.
Employment and Income Patterns	1	The Proposed Action would lead to intermittent construction employment as the construction phasing occurs over the years.

Community Facilities and Services	Code	Source or Documentation
Educational Facilities	1	The Proposed Action would likely result in a slight increase in school enrollment at schools within the vicinity of the project area, such as Wilcox Elementary, Chiefess Kamakahelei Middle School, and Kaua'i High School. Correspondence with the State Department of Education confirmed that there is sufficient capacity at Wilcox Elementary School, Chiefess Kamakahelei Middle School, and Kauai High School to accommodate future students who would reside in the affordable housing **[Exhibit 13]**. In addition, the proposed development would have positive long-term socioeconomic impacts since it would interconnect the new community with the existing Līhu'e community, which would provide shelter and create a compact neighborhood that is safe and conducive to children. Further, Wilcox Elementary School is located within walking distance to the project site; approximately 0.7 miles to the northeast. Therefore, the increase of students would be beneficial and less than significant to the public school system.
Commercial Facilities	1	Businesses in the vicinity of the project area may experience gradual increased economic activity from the additional population. There would be no anticipated adverse impacts to commercial facilities.
Health Care	1	Health care facilities within the vicinity of the project area include Kaiser Permanente Līhu'e Clinic, Kaua'i Urgent Care, and VA Kaua'i. It is not anticipated that the proposed project would adversely impact these facilities.
Social Services	1	The project area is served by several social service providers in Kaua'i that can meet the demand created by the proposed action.
Solid Waste	1	Solid waste disposal services are available in the area through the County of Kaua'i Refuse Division. The County has a variety of solid waste services that include a landfill, greenwaste diversion, refuse collections, refuse transfer stations, and recycling and waste management programs. The proposed action is not anticipated to adversely impact solid waste collection services within the area.
Waste Water	1	Wastewater generated by the Proposed Action would be serviced by The Puhi Sewer and Water Company, a subsidiary of Aqua Engineers, Inc, which has sufficient capacity for the new housing development. The project would require the design and installation of sewer lines to the project site. The proposed development would generate an average wastewater flow well within the treatment capacity of the Puhi Sewer and Water Company facility. Therefore, the Proposed Action would have a less than significant impact on wastewater.
Storm Water	4	The Proposed Action would include the construction of additional impervious surfaces (paved roads and sidewalks) that would collect and convey stormwater runoff.

		Therefore, an on-site drainage system would be designed and implemented in accordance with the County of Kaua'i Department of Public Works Standards. An NPDES permit also would be obtained for construction work.
Water Supply	1	The Proposed Action would require the design and installation of potable water lines at the project site. No significant impacts to the existing potable water supply are expected. Coordination with the DOW will continue to ensure that the proposed water system is implemented in accordance with County standards.
Public Safety - Police	1	The Proposed Action would be included in the patrol area for the Kaua'i Police Department Līhu'e District, which provides police services from Kapa'a Town to the Knudsen Gap near Kōloa. Since the Proposed Action would be located within an existing town that is currently patrolled (Līhu'e), it would not represent a significant impact to existing law enforcement services.
- Fire	1	The Proposed Action would be in the response vicinity of the Līhu'e Fire Station, located approximately 1 mile to the east. Since the Proposed Action is in close proximity to an existing fire station and would conform to county fire protection standards, including the installation of fire hydrants and smoke alarms, it would not represent a significant impact to existing fire protection services.
- Emergency Medical	1	Emergency medical services are available at the Wilcox Medical Center in Līhu'e.
Open Space and Recreation - Open Space	1	The housing development does not include open space or recreation areas. However, no short or long-term impacts to existing surrounding open space areas are expected during and after construction of the Pua Loke housing development.
- Recreation	1	There are several County of Kaua'i Department of Parks and Recreation facilities located within the Līhu'e District. Līhu'e County Park is a 3.28-acre neighborhood park, located less than one mile east of the project site. Līhu'e County Park includes Little League and Pony fields, a soccer field, and a comfort station. Isenberg Park is located less than one mile northeast of the project site and is a 9.16-acre neighborhood park with playground equipment, a football field, comfort stations, and a lighted softball field. Nāwiliwili Park is a 6.27-acre beach park, located approximately 1.7 miles southeast of the project site; the park includes comfort stations, a playground, picnic areas, and volleyball courts. Lastly, Vidinha Stadium is located approximately 1.2 miles east of the project site, and is a 34-acre stadium with an athletic complex, baseball field, lighted football field, track, soccer field, and comfort stations. None of these recreational areas would be adversely affected by the Proposed Action.

- Cultural Facilities	1	There would be no cultural facilities adversely affected by the proposed project since the project area is currently used as a paved parking lot.
Transportation	4	Implementation of the Proposed Action would result in less than significant, short-term impacts to traffic and circulation during the construction period. Construction activities will comply with the State of Hawai‘i Department of Transportation (HDOT) construction traffic control measures. Upon completion, the Proposed Action is expected to generate small long-term traffic and circulation impacts on traffic in the area. A Traffic Impact Analysis Report (TIAR) was conducted to determine traffic conditions with and without the proposed plan. The TIAR determined that with the build out of the proposed project, all study intersections are forecasted to operate similarly in the Year 2020 to those without project conditions. In order to address the project-induced projected impacts, a roundabout at the Haleko Road/Pua Loke Street intersection and a new bus stop just west of the intersection may be constructed by 2020. Therefore, there would be no significant impact to the surrounding roadway network (ATA, 2014).

Natural Features		**Source or Documentation**
Water Resources	1	The Proposed Action would not result in adverse effects to water resources within the vicinity of the project area.
Surface Water	4	A NPDES permit will be applied for during the construction period. Provisions of the NPDES permit and county construction BMPs would provide controls to reduce/eliminate silt runoff during construction. Long-term surface water would be managed in accordance with the County of Kaua'i Department of Public Works Standards.
Unique Natural Features and Agricultural Lands	1	The project area includes areas designated as State of Hawaii Agricultural Lands of Importance (ALISH). However, the project area is not included within the Important Agricultural Lands (IALs) as defined by the State of Hawai‘i Land Evaluation and Site Assessment Commission **[Exhibit 14]**.
Vegetation and Wildlife	4	No state or federally listed threatened, endangered, or candidate plant species, or rare native Hawaiian plant species were observed within the surveyed area, and no designated critical plant habitat occurs within the area. The endangered Hawaiian petrel (*Pterodroma sandwichensis*), endangered band-rumped storm petrel (*Oceanodroma castro*), and threatened Newell's shearwater (*Puffinus auricularis newelli*), may fly over the project site at night while traveling to and from their upland nesting sites to the ocean. The endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) may also roost or forage near the project site. To prevent potential impacts to these special status species, along with other species listed in the FEA that may be affected, control measures stated above will be

		implemented **[Exhibit 8]**.

Other Factors		Source or Documentation
Flood Disaster Protection Act [Flood Insurance] [§58.6(a)]	1	The project area is categorized as FEMA Zone X and defined as an area outside of the 0.2% annual chance floodplain. Flood insurance is available for the project area **[Exhibit 4].**
Coastal Barrier Resources Act/ Coastal Barrier Improvement Act [§58.6(c)]	1	The project area is not located within the Coastal Barriers Resource System (CBRS). Currently, there are no CBRS map units established within the State of Hawai‘i (http://www.fws.gov/CBRA/Maps/Mapper.html).
Airport Runway Clear Zone or Clear Zone Disclosure [§58.6(d)]	1	The project site is located approximately 2.5 miles southwest of the Līhu’e airport.
Other Factors	1	Not applicable.

Summary of Findings and Conclusions

ALTERNATIVES TO THE PROPOSED ACTION

Alternatives and Project Modifications Considered [24 CFR 58.40(e), Ref. 40 CFR 1508.9]

(reasonable courses of action that were considered and not selected, such as other sites, design modifications, or other uses of the subject site. Describe the benefits and adverse impacts to the human environment of each alternative and the reasons for rejecting it.)

The County of Kaua‘i has considered the possibility of developing other sites within the County. However, the selection of alternate sites is not a viable alternative to the proposed action, due to the high cost of land within the County and scarce availability of lands for development. After a detailed review of options, the project site was considered the most viable site to provide diverse quality housing options to the most people for an affordable cost.

No Action Alternative [24 CFR 58.40(e)]

(Discuss the benefits and adverse impacts to the human environment of not implementing the preferred alternative).

Under the No Action Alternative, the affordable housing development project would not be constructed. There would be no disturbance of the existing environment; however, additional needed affordable housing would not be provided to residents on the island of Kaua‘i. There is a substantial need for additional affordable housing in the area and the Kaua‘i County Housing Agencies’ mission is to facilitate affordable housing opportunities to the residents of Kaua‘i.

Mitigation Measures Recommended [24 CFR 58.40(d), 40 CFR 1508.20]

(Recommend feasible ways in which the proposal or its external factors should be modified in order to minimize adverse environmental impacts and restore or enhance environmental quality.)

Mitigation measures include construction BMPs to reduce common construction-related impacts to the affected environment. Other mitigation measures include an archaeological monitor during construction and avoidance measures for protected biological species. These measures are described in this document, as well as the accompanying FEA.

Additional Studies Performed

(Attach studies or summaries)

- Traffic Impact Analysis to document existing transportation roadway and intersection conditions, as well as anticipated impacts from the proposed project.

- Biological Study to document existing biological resources within the project site.
- Archaeological/Cultural Impact Analysis to document any existing archaeological/cultural resources within the project area.

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

16 United States Code (U.S.C). §469-469c. Archaeological and Historic Preservation Act of 1974 (1974).

16 U.S.C. §470aa-470mm. Archaeological Resource Protection Act of 1979 (1979).

16 U.S.C. § 1451. Coastal Zone Protection Act (1996).

16 U.S.C. Ch. 35, § 1531 et seq. Endangered Species Act. (1973).

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33 U.S.C. § 1251 – 1387. Clean Water Act (1987).

42 U.S.C. Ch. 85, subch. I § 7401 et seq. Clean Air Act (1990).

40 CFR §50. National Primary and Secondary Ambient Air Quality Standards (1971).

40 CFR §261. Identification and Listing of Hazardous Waste (1980).

40 CFR §1500-1508. Protection of Environment. Chapter V Council on Environmental Quality (2011).

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HAR §11-59. Ambient Air Quality, Department of Health (2001).

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Exhibit 1: Project Location Map

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Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

PROJECT LOCATION MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT
1

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Exhibit 2: Conceptual Site Plan

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CONCEPTUAL SITE PLAN

PUA LOKE AFFORDABLE HOUSING

North

Graphic Scale 0 20 40 80 FEET

PBR HAWAII & ASSOCIATES, INC.

OCTOBER 2017

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Exhibit 3: State Historic Preservation Division Letters

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Environet, Inc.

October 13, 2017

Ms. Susan Lebo
Archaeology Branch Chief, State Historic Preservation District
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaii 96707

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Lebo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Area of Potential Effect [APE] Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your consultation to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kaua‘i would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 13, 2017

Kaʻahiki Solis
Cultural Historian, State Historic Preservation District
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaiʻi 96707

Subject: Pre-consultation for the Kauaʻi County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihuʻe, Kauaʻi

Dear Ms. Solis,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Area of Potential Effect [APE] Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your consultation to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kauaʻi would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 13, 2017

Mr. Alan Downer
Administrator
State Historic Preservation District, Department of Land and Natural Resources
601 Kamokila Boulevard, Kakuhihewa Building, Suite 555
Kapolei, Hawai‘i 96707

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Downer,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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Exhibit 4: Flood Hazard Map

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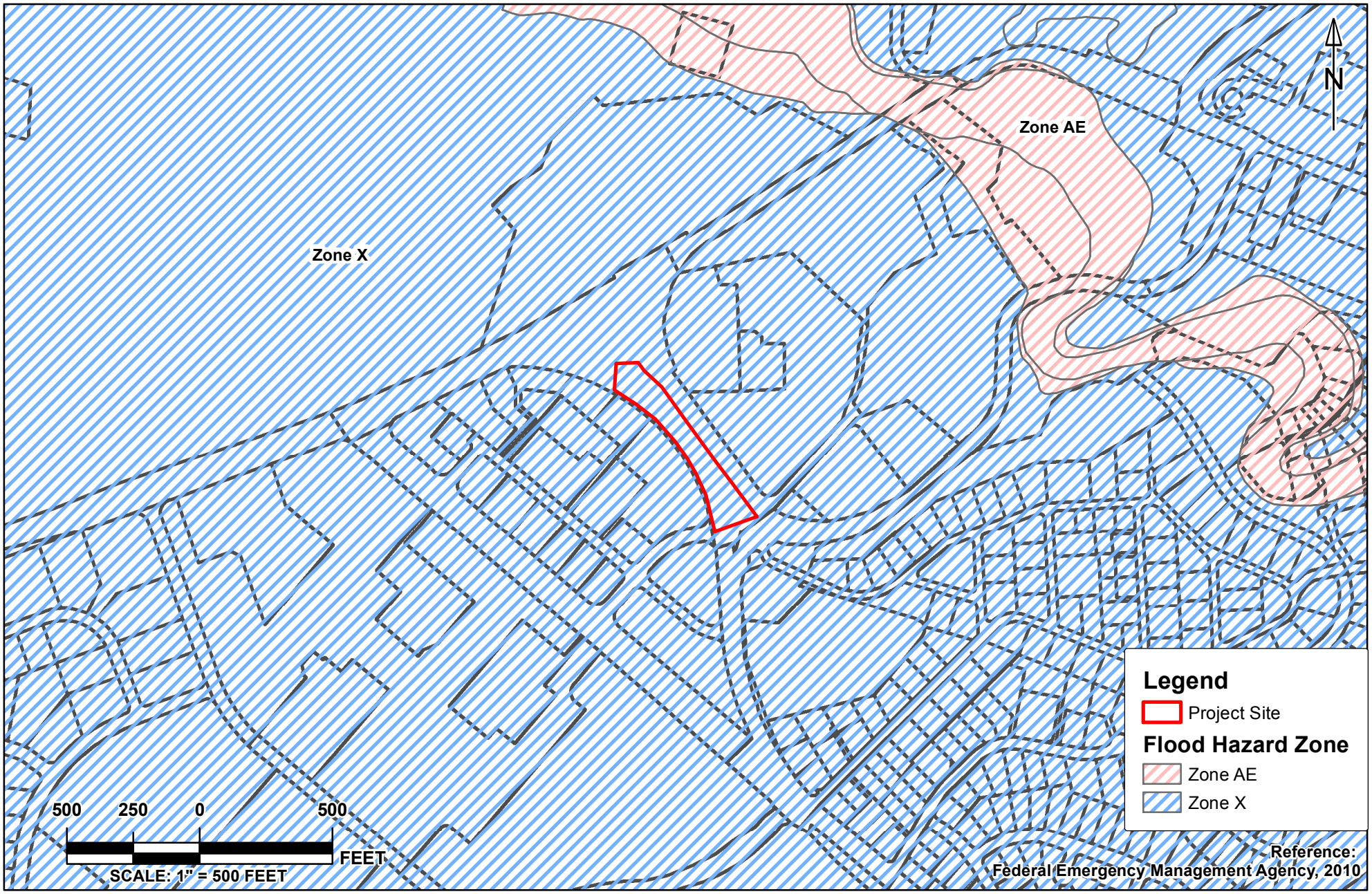

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

FLOOD HAZARD MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT
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Exhibit 5: Wetlands Map

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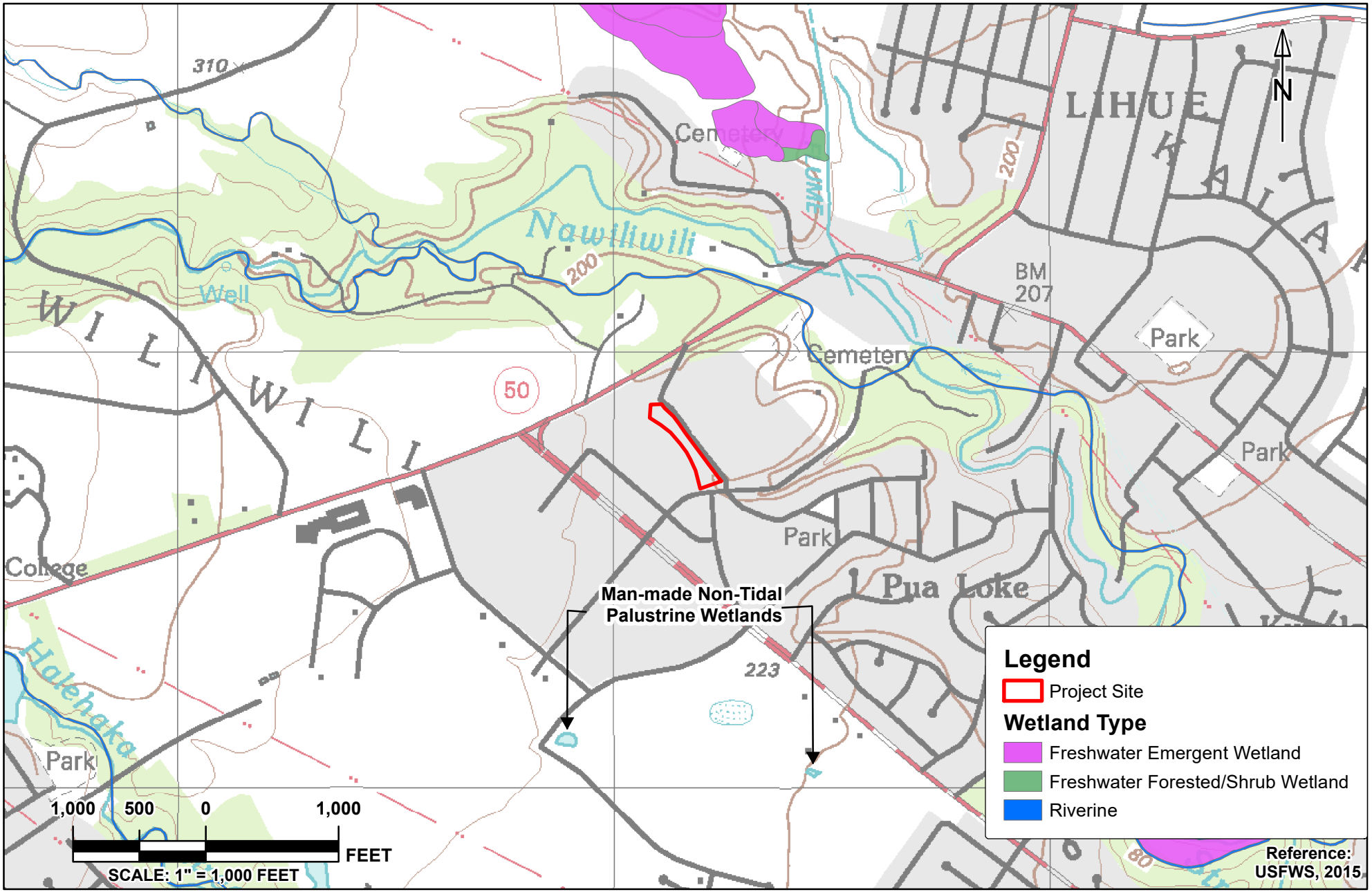

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

WETLANDS MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT
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Exhibit 6: Coastal Zone Management Consistency Letter

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Environet, Inc.

October 11, 2017

Mr. Michael Dahilig
Planning Director
County of Kaua‘i Planning Department
4444 Rice Street, Suite A473
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Dahilig,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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Exhibit 7: Sole Source Aquifer Designation

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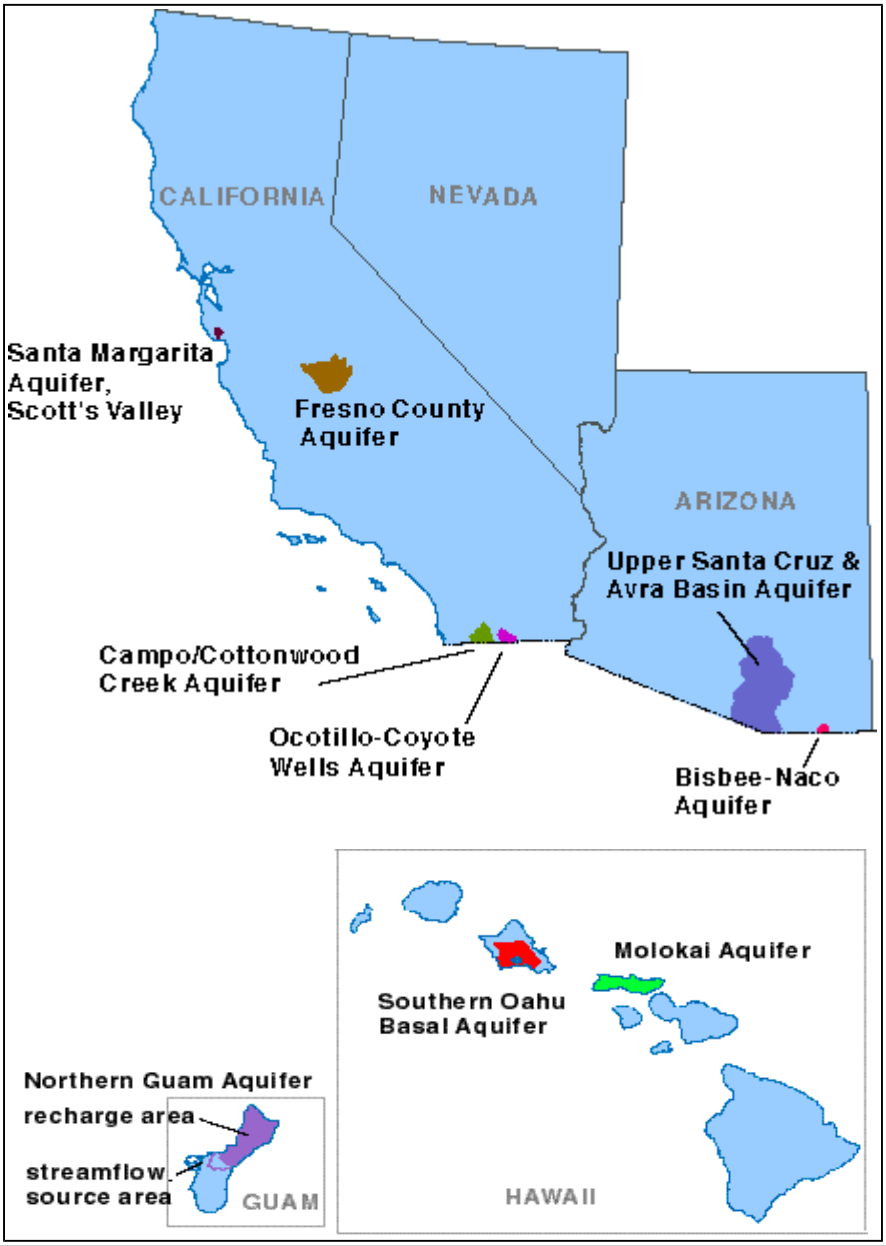
Designated Sole Source Aquifiers in EPA Region IX

Arizona, California, Hawaii, Nevada, Guam, and American Samoa



Hillary Hecht
EPA Region 9
Ground Water Office, WTR-9
75 Hawthorne Street
San Francisco, CA 94105
phone: (415) 972-3530
e-mail: hecht.hillary@epa.gov

The 9 designated Sole source aquifers in Region IX are listed below. Contact the coordinator above for more information.

DESIGNATED SOLE SOURCE AQUIFERS IN REGION IX:

State	Sole Source Aquifer Name	Federal Reg. Cit.	Publ. Date	GIS map
AZ	Upper Santa Cruz & Avra Basin Aquifer	49 FR 2948	01/24/84	yes (PDF)
AZ	Bisbee-Naco Aquifer	53 FR 38337	09/30/88	yes (PDF)
CA	Fresno County Aquifer	44 FR 52751	09/10/79	yes (PDF)
CA	Santa Margarita Aquifer, Scotts Valley	50 FR 2023	01/14/85	yes (PDF)
CA	Campo/Cottonwood Creek	58 FR 31024	05/28/93	yes (PDF)
CA	Ocotillo-Coyote Wells Aquifer	61 FR 47752	09/10/96	yes (PDF)
GU	Northern Guam Aquifer System	43 FR 17867	04/26/78	yes (PDF)
HI	Southern Oahu Basal Aquifer	52 FR 45496	11/30/87	yes (PDF)

HI	Molokai Aquifer	59 FR 23063	04/20/93	yes (PDF)

Return to: Sole Source Aquifer program home page

Exhibit 8: United States Fish and Wildlife Service and State Department of Land and Natural Resources-Division of Forestry and Wildlife Correspondence

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Environet, Inc.

October 12, 2017

Mr. Aaron Nadig
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

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Nadig,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, we are requesting early consultation to determine if any special status or endangered species habitats exist at, or within close proximity to the subject parcel at the Site. If deemed necessary, formal consultation under Section 7 of the Endangered Species Act (ESA) will be initiated at a later date in compliance with NEPA. The County of Kaua‘i would represent the United States Department of Housing and Urban Development (HUD) as the responsible federal agency requesting a determination under Section 7 of the ESA if HUD funding is requested.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

United States Department of the Interior

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

In Reply Refer To:
01EPIF00-2018-TA-0032

NOV 13 2017

Mr. Max Solmssen
Environet Inc.
1286 Queen Emma Street
Honolulu, HI 96813

Subject: Pre-consultation for the Kauai County Housing Agency Pua Loke Affordable Housing Development, TMK (4) 3-8-005, Parcels 028 and 029, Lihue, Kauai

Dear Mr. Solmssen:

The U.S. Fish and Wildlife Service (Service) received your letter on October 17, 2017, requesting early consultation to assist with your preparation of an Environmental Assessment (EA) for the proposed construction of a multi-family affordable housing development located within TMK (4) 3-8-005, Parcels 028 and 029 along Pua Loke Street in Lihue, Kauai We understand that Environet, Inc. is preparing the EA on behalf of the Kauai County Housing Agency for the project in accordance with Chapter 343, Hawaii Revised Statute and Hawaii Administrative Rules Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities.

The County of Kauai owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas. The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihue.

We offer the following comments for your consideration. Our comments are provided under the authorities of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA); National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 401], as amended (NEPA); Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661 *et seq.*; 48 Stat. 401); and Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. 703-712), among others.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program as it pertains to listed species and designated critical habitat in accordance with section 7 of the ESA. There is no federally designated critical habitat within the immediate vicinity of the proposed project. Our data

indicate that the following federally listed species may occur or transit through the vicinity of the proposed project area: the federally threatened Newell's shearwater (*Puffinus auricularis newelli*), the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered Band-rumped storm-petrel (*Oceanodroma castro*) (hereafter collectively referred to as seabirds), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) and the endangered Hawaiian goose (*Branta sandvicensis*). The project as described does not appear to be located in a location that would be utilized by the Hawaiian goose, however the Service recommends the following measures to avoid and minimize project impacts to the Hawaiian hoary bat.

Hawaiian Seabirds

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

To minimize potential project impacts to seabirds:

- All outdoor lights should be fully shielded so the bulb can only be seen from below bulb height and only used when necessary.
- Automatic motion sensor switches and controls should be installed on all outdoor lights or lights should be turned off when human activity is not occurring in the lighted area.
- Nighttime construction should be avoided during the seabird fledging period, September 15 through December 15.

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.

To minimize impacts to the endangered Hawaiian hoary bat we recommend you consider incorporating the following measure into your project description:

- Woody plants greater than 15 feet tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may further assist you with ESA compliance.

We look forward to reviewing the Draft EA. If you have questions regarding these comments, please contact Michelle Clark, Fish and Wildlife Biologist (phone: 808-822-4315, email: michelle_clark@fws.gov). When referring to this project, please include this reference number: 01EPIF00-2018-TA-0032.

Sincerely,

Aaron Nadig
Island Team Manager
O'ahu, Kaua'i, North Western Hawaiian Islands and American Samoa

Environet, Inc.

March 26, 2018

Aaron Nadig
United States Department of the Interior
Fish and Wildlife Service-Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Nadig:

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated November 13, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments: *There is no federally critical habitat within the immediate vicinity of the proposed project. Our data indicate that the following federally listed species may occur or transit through the vicinity of the proposed project area: the federally threatened Newell's shearwater (*Puffinus auricularis newelli*), the endangered Hawaiian petrel (*Pterodroma sandwichensis), *the endangered Band-rumped storm petrel* (Oceanodroma castro) *hereafter collectively referred to as seabirds), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus), *and the endangered Hawaiian goose (*Branta sandvicensis). *The project as described does not appear to be located in a location that would be utilized by the Hawaiian goose, however the Service recommends the following measures to avoid and minimize project impacts to the Hawaiian hoary bat.*

Hawaiian seabirds may traverse the project area at night during the breeding season (March 1 to December 15) […] To minimize potential project impact to seabirds:

- *All outdoor lights should be fully shielded so the bulb can only be seen from below bulb height and only used when necessary.*
- *Automatic motion sensor switches and controls should be installed on all outdoor lights or lights should be turned off when human activity is not occurring in the lighted area.*
- *Nighttime construction should be avoided during the seabird fledging period, September 15 through December 15.*

[…] to minimize impacts to the endangered Hawaiian hoary bat we recommend you consider incorporating the following measure into your project description:

- *Woody plants greater than 15 feet tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).*

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may further assist you with ESA compliance.

Response: The above information and suggestions to avoid and minimize the potential project impacts to seabirds and Hawaiian hoary bats will be incorporated into the Draft EA. If any federally listed species are observed within the project area, the USFWS will be contacted immediately.

Please feel free to contact us should you have any additional comments on the proposed project.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 12, 2017

Mr. David Smith
Administrator
Department of Land and Natural Resources, Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Smith,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, we are requesting early consultation to determine if any special status or endangered species habitats exist at, or within close proximity to the subject parcel at the Site. If deemed necessary, formal consultation under Section 7 of the Endangered Species Act (ESA) will be initiated at a later date in compliance with NEPA. The County of Kaua‘i would represent the United States Department of Housing and Urban Development (HUD) as the responsible federal agency requesting a determination under Section 7 of the ESA if HUD funding is requested.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

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

JEFFREY T. PEARSON, P.E.
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

NOV 24 2017

Environet, Inc.
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

Dear Mr. Solmssen:

The Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the Environmental Assessment Pre-consultation for the Kaua'i County Housing Agency. The proposed project would include the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu'e, Kaua'i. The site currently serves as a parking and storage area that includes landscaped grass areas with drainage swales on the 1.46 acre parcel.

The State and Federally listed Hawaiian hoary bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has historically been sighted in the vicinity of the proposed project area. DOFAW strongly recommends avoiding the use of barbed wire, as bat mortalities have been documented as a result of becoming ensnared by barbed wire during flight.

DOFAW cautions that artificial lighting can adversely impact endangered and threatened seabirds that may pass through the area at night, causing disorientation which could result in collision with manmade artifacts or grounding of birds. DOFAW recommends that any lights used be fully shielded to minimize impacts. Seabird friendly lighting resources can be found on the Kaua'i Seabird Habitat Conservation Plan website here: http://kauaiseabirdhcp.com/lighting-homes-businesses/.

DOFAW recommends installing construction barriers around the proposed site to prevent the endangered Hawaiian Goose or Nēnē (*Branta sandvicensis*) from entering the construction site. If Nēnē are observed or if a Nēnē nest is discovered on the project site during construction, we request you notify the DOFAW Kauai Branch immediately at (808) 274-3433 and halt all activity.

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 Katherine Cullison, Conservation Initiatives Coordinator at (808) 587-4148 or Katherine.cullison@hawaii.gov.

Sincerely,

DAVID G. SMITH
Administrator

Environet, Inc.

December 19, 2017

Mr. David G. Smith
Administrator
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii, 96813

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Smith,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated November 24, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities, for the proposed development. Below are responses to your comments:

Summary of Comments:

- *The State and Federally listed Hawaiian hoary bat […] has historically been sighted in the vicinity of the proposed project area. DOFAW strongly recommends avoiding the use of barbed wire.*
- *Artificial lighting can adversely impact endangered and threatened seabirds that may pass through the area at night […]. DOFAW recommends that any lights used be fully shielded to minimize impacts.*
- *DOFAW recommends installing construction barriers around the proposed site to prevent the endangered Hawaiian Goose […] from entering the construction site. If Nēnē are observed or if a Nēnē nest is discovered on the project site during construction, we request that you notify the DOFAW Kauai Branch.*

Responses:

- No barbed wire will be used at the project site to prevent the injury or mortality of any potential Hawaiian hoary bats that may be in the vicinity of the project area.
- All artificial lighting planned for the proposed project will be adequately shielded in compliance with the Kaua‘i Seabird habitat Conservation Program to minimize impacts to seabirds that may pass through the project site.
- Construction barriers will be installed around the project site to prevent the unintentional entry of Nēnē into the project area during the construction period. If any Nēnē are observed, all work will cease and the DOFAW Kauai Branch will be notified immediately.
- Thank you for your comments and provided resources.

Please feel free to contact us should your agency have any additional comments.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Exhibit 9: Wild and Scenic Rivers Designation

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HAWAII

Hawaii has approximately 3,905 miles of river, but no designated wild & scenic rivers.

Hawaii does not have any designated rivers.

Choose a State Go

Choose a River Go

Dark and foreboding one minute, sun-drenched and exploding with color the next, tropical rivers span every mood.

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Exhibit 10: State Land Use Designation Map

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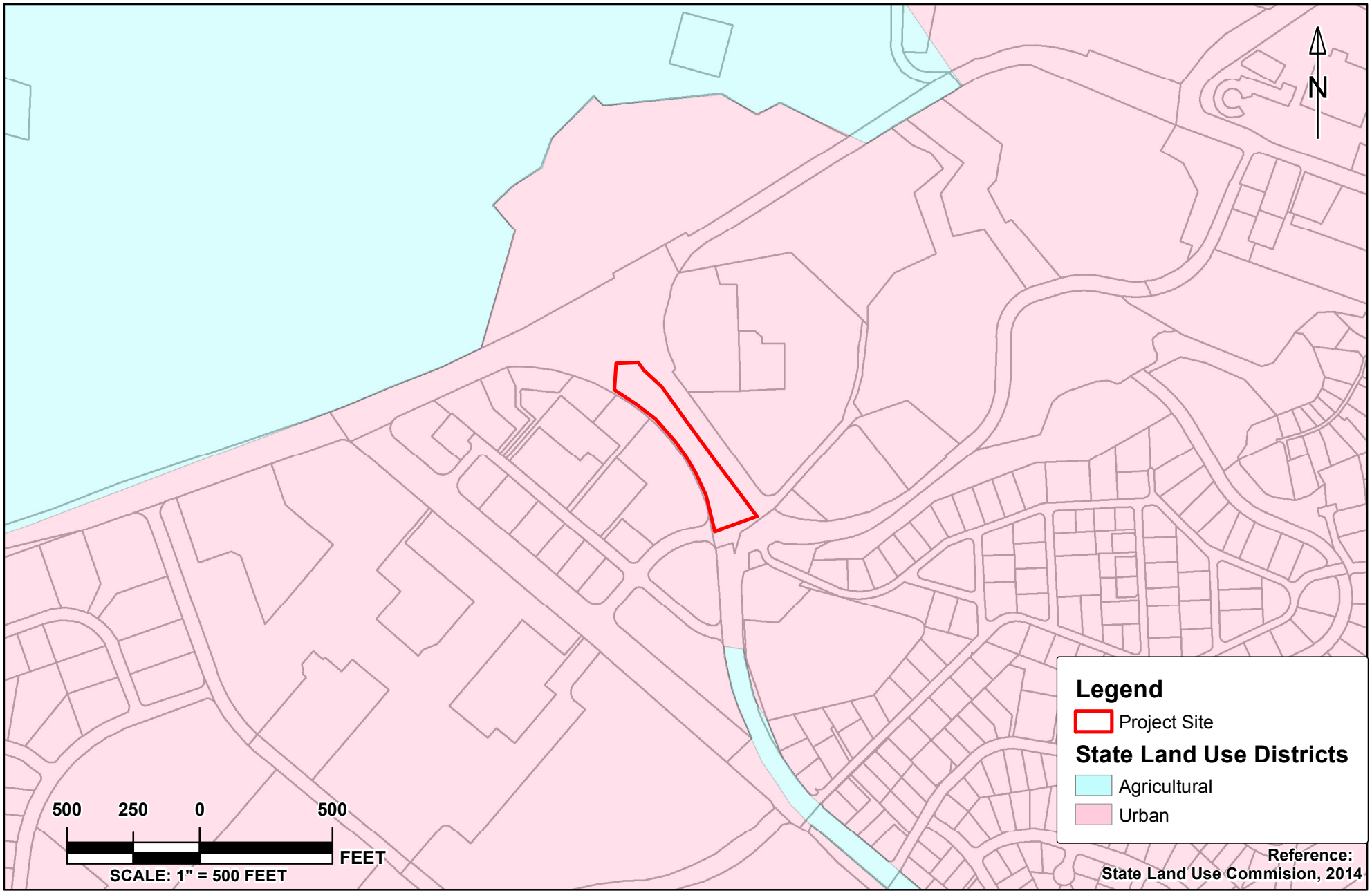

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

STATE LAND USE DISTRICTS MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT
10

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Exhibit 11: County Zoning Map

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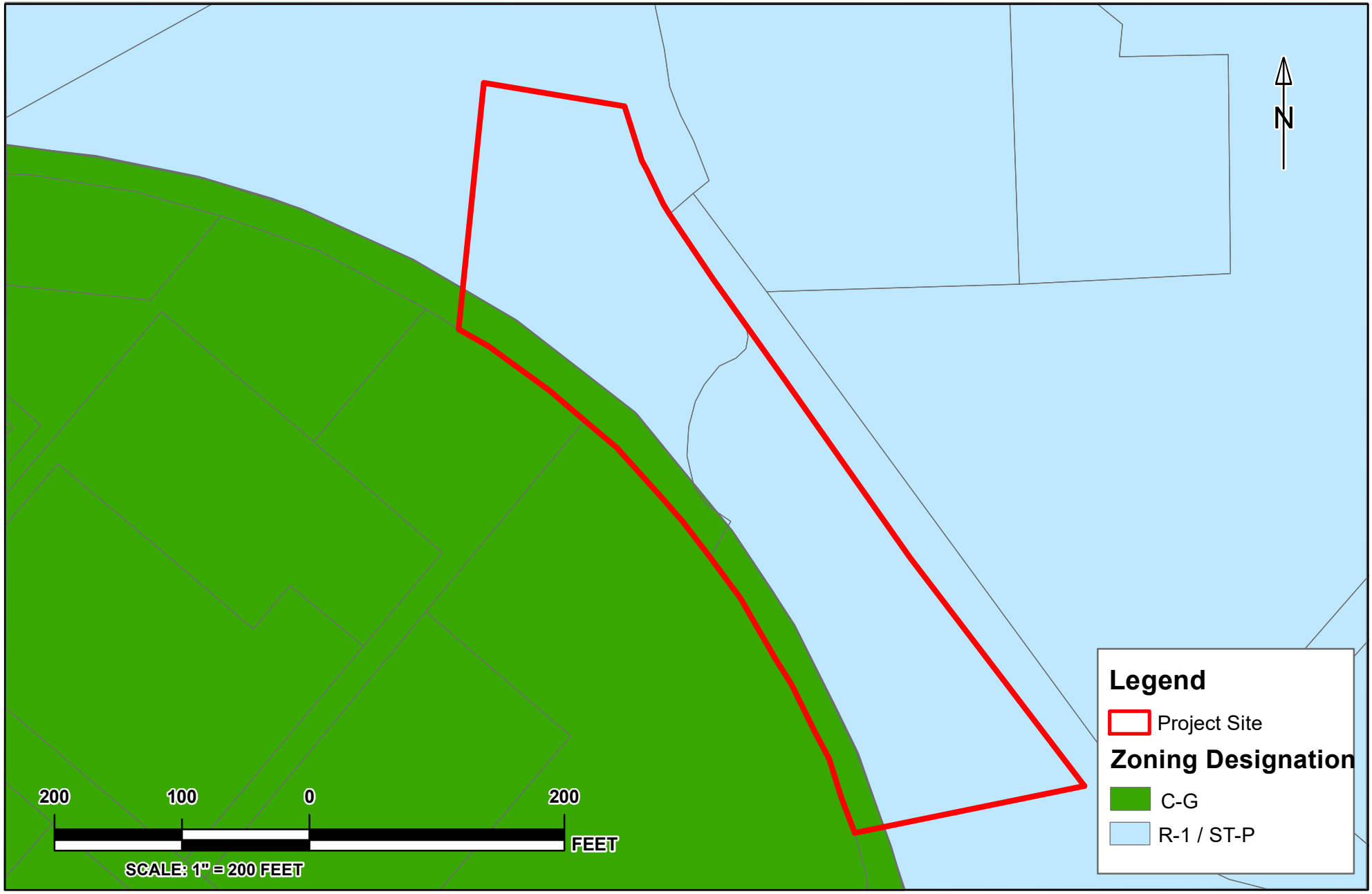

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

COUNTY ZONING DESIGNATION MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT 11

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Exhibit 12: Soil Map

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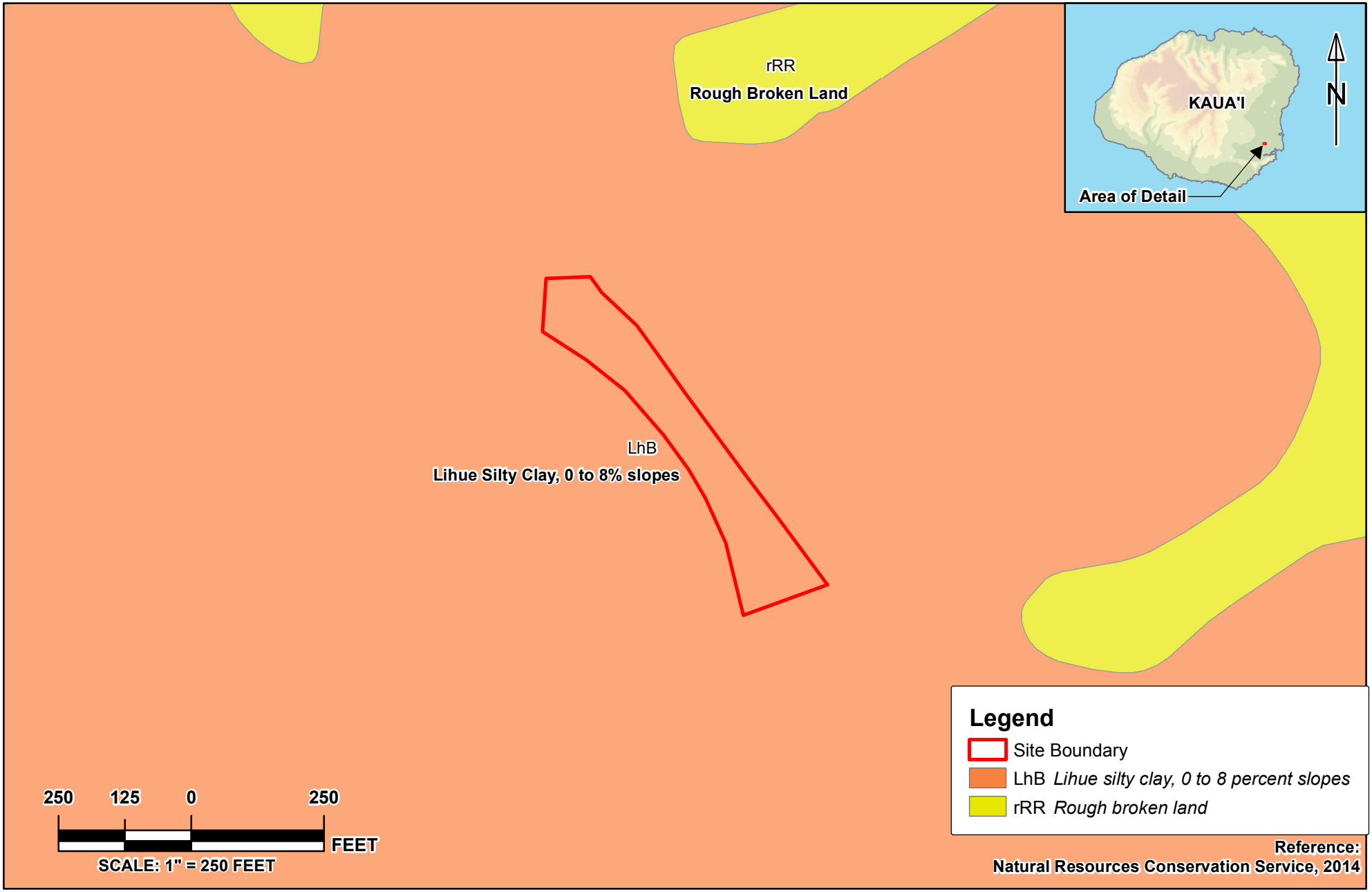

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

SOIL MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT 12

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Exhibit 13: Department of Education Correspondence

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Environet, Inc.

October 11, 2017

Ms. Christina Kishimoto
Superintendent
State of Hawai‘i Department of Education
1390 Miller Street, Room 309
Honolulu, Hawai‘i 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Kishimoto,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

DAVID Y. IGE
GOVERNOR

DR. CHRISTINA M. KISHIMOTO
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

October 31, 2017

Mr. Max Solmssen, Project Manager
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813

Re: Pua Loke Affordable Housing Development, Lihue, Kauai, TMK No. 3-8-005:028 & 029

Dear Mr. Solmssen:

The Department of Education (DOE) Facilities Development Branch appreciates the opportunity to review the Pua Loke project (project) at the stage of early consultation.

The DOE believes that there is sufficient capacity at Wilcox Elementary, Chiefess Kamakahelei Middle, and Kauai High School to accommodate future DOE students living in the project. The DOE currently doesn't have an estimate of the number of students who would reside there. That will depend on the product mix between affordable units and facilities designed for homeless families. Spaces reserved exclusively for the elderly or homeless individuals would have no impact on school enrollments. We would appreciate more information as it becomes available. It would also be helpful to know if all units would be rentals.

We look forward to reviewing the Environmental Assessments. If you have any questions, please contact Heidi Meeker of the Planning Section, Facilities Development Branch, at (808) 784-5094.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: William Arakaki, Complex Area Superintendent, Kauai Complex Area

Environet, Inc.

March 26, 2018

Kenneth G. Madsen II
Public Works Manager Planning Section
Department of Education
P.O. Box 2360
Honolulu, HI 96804

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Madsen,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 31, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments:

- *The DOE believes that there is sufficient capacity of Wilcox Elementary, Chiefess Kamakahelei Middle, and Kauai High School to accommodate future DOE students living in the project. The DOE currently doesn't have an estimate of the number of students who would reside there. That will depend on the product mix between affordable units and facilities designed for homeless families. Spaces reserved exclusively for the elderly or homeless individuals would have no impact on school enrollments.*

Responses:

- Thank you for your comments. The County Housing Agency will provide more information regarding the project unit mix and demographics as this information becomes available, and will be in communication with your agency as the planning process progresses.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

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Exhibit 14: Important Agricultural Lands Map

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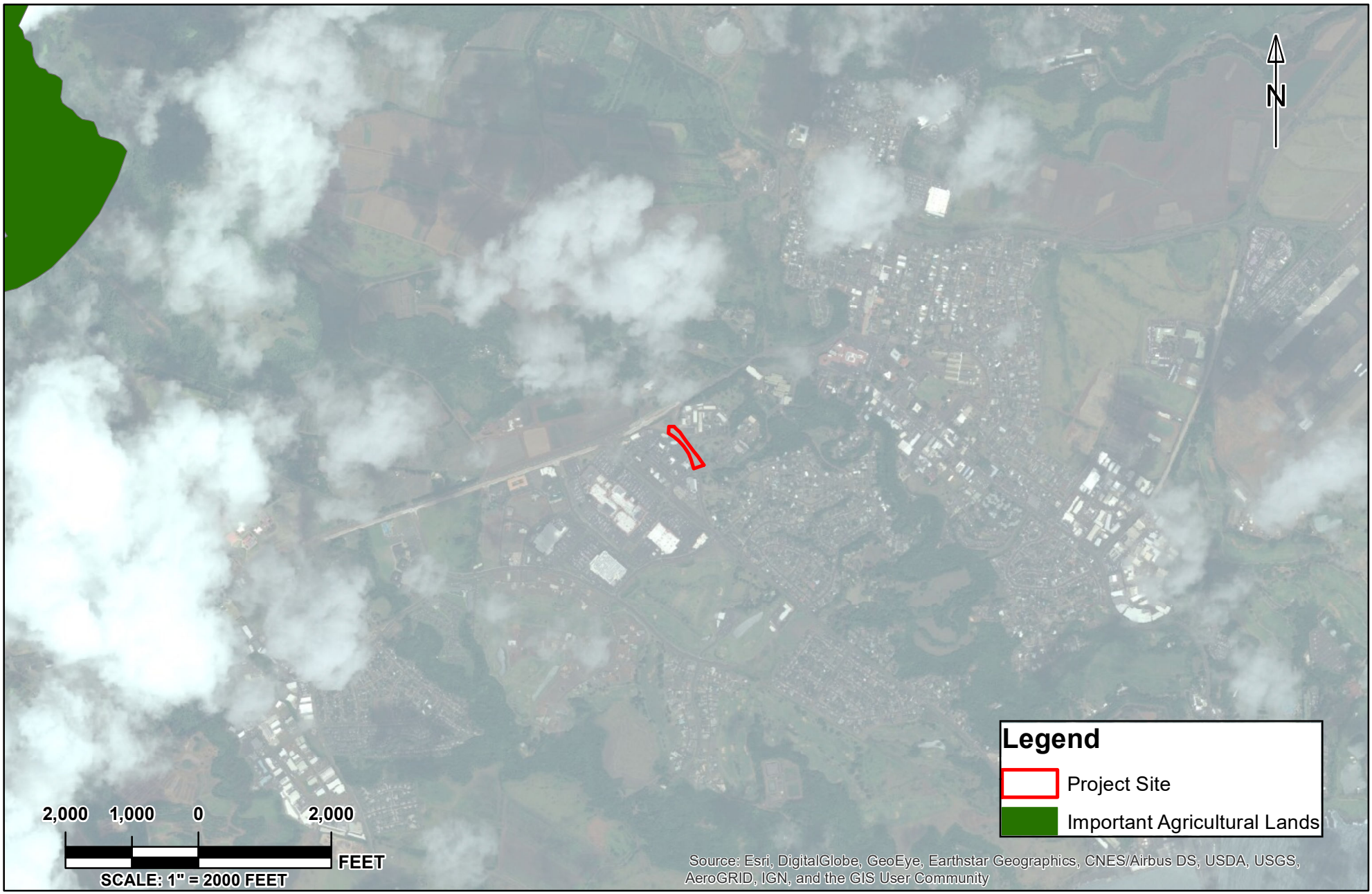

Environet, Inc.

FINAL ENVIRONMENTAL ASSESSMENT FOR THE KAUA'I COUNTY HOUSING AGENCY
PUA LOKE AFFORDABLE HOUSING DEVELOPMENT

IMPORTANT AGRICULTURAL LANDS MAP
LIHU'E, KAUA'I, HAWAI'I

EXHIBIT 14

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APPENDIX B-1: PRECONSULTATION LETTERS AND RESPONSES

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Environet, Inc.

October 11, 2017

Ms. Kealoha Takahashi
Executive on Aging
County of Kaua‘i Agency on Elderly Affairs
4444 Rice Street, Suite 330
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Takahashi,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Elton Ushio
Emergency Management Administrator
County of Kaua‘i Civil Defense Agency
3990 Kaana Street, Suite 100
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Ushio,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Kirk Saiki
Manager and Chief Engineer
County of Kauai Department of Water
4398 Pua Loke Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Saiki,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Department of
Water
County of Kaua'i

Water has no substitute.....Conserve it

November 3, 2017

Mr. Max Solmssen
Environet, Inc.
1286 Queen Emma Street
Honolulu, HI 96813

Dear Mr. Solmssen:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment: Kauai County Housing Agency, Pua Loke Affordable Housing Development, TMK: 3-8-05:028 and TMK: 3-8-05:029, Lihue, Kauai

This is in regard to your letter dated October 11, 2017 that requested our review and comments.

Any actual development of this area will be dependent on the adequacy of the source, storage, and transmission facilities existing at that time. At the present time, these facilities are adequate for the proposed housing development that includes a maximum density of approximately 50 dwelling units and associated parking area.

Prior to the Department of Water (DOW) recommending building permit or water service approval, the applicant will be required to:

1. Submit a formal request for water service. Submit detailed water demand calculations and the proposed water meter size for DOW's for review and approval. The DOW's comments may change based on the approved water demand calculations.
2. Prepare and receive DOW's approval of construction drawings for the necessary water system facilities and construct said facilities. These facilities shall include but not be limited to:
   a) The domestic service connection.
   b) The fire service connection, if applicable.
   c) The interior plumbing plans with the appropriate backflow prevention device.
3. Pay the applicable charges in effect at the time of payment to the DOW. At the present time, these charges include the Facilities Reserve Charge (FRC) which is based on $4,940 per unit or the FRC based on the approved water meter size, whichever amount is greater.
4. Receive a "Certification of Completion" notice for the construction of the necessary water system facilities from the DOW.

4398 Pua Loke St., P.O. Box 1706, Lihue, HI 96766 Phone; 808-245-5400
Engineering and Fiscal Fax: 808-245-5813, Operations Fax: 808-245-5402, Administration Fax: 808-246-8628

If you have any questions concerning the construction drawings, please contact Mr. Bryan Wienand at (808) 245-5449. For questions concerning the Certification of Completion, please contact Mr. Joel Bautista at (808) 245-5413. For other questions, please contact Ms. Regina Flores at (808) 245-5418.

Sincerely,

Edward Doi

Edward Doi
Chief of Water Resource and Planning Division

RF:mlm
3-8-05-028,029, T-19165, Pre-Consultation, Pua Loke Affordable Housing Development

Environet, Inc.

January 29, 2018

Mr. Edward Doi
Chief of Water Resource and Planning Division
County of Kaua'i Department of Water
4398 Pua Loke Street, P.O. Box 1706
Lihu'e, HI 96766,

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Doi,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated November 3, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, as well as the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments:

- *Submit a formal request for water service;*
- *Prepare and receive DOW's approval of construction drawings for the necessary water system facilities;*
- *Pay the applicable charges in effect at the time of payment to the DOW; and*
- *Receive a "Certification of Completion" notice for the construction of the necessary water system facilities from the DOW.*

Responses:

- A formal request for water service will be submitted to the DOW;
- Construction drawings for the necessary water system facilities will be submitted to the DOW;
- Applicable charges will be payed to the DOW after approval of the plans; and
- A "Certification of Completion" notice for the construction will be obtained from the DOW.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Mr. Robert Westerman
Fire Chief
County of Kaua‘i Fire Department
4444 Rice Street, Suite 315
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Westerman,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Darryl D. Perry
Chief of Police
County of Kaua‘i Police Department
3990 Kaana Street, Suite 200
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Perry,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. George K. Costa
Director
County of Kaua‘i Office of Economic Development
4444 Rice Street, Suite 200
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Costa,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your office for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Lenny Rapozo
Director
County of Kaua‘i Department of Parks and Recreation
4444 Rice Street, Suite 105
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Rapozo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Leonard A. Rapozo Jr.
Director

Ian K. Costa
Deputy Director

DEPARTMENT OF PARKS & RECREATION
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 105, Līhu'e, Hawai'i 96766
TEL (808) 241-4460 FAX (808) 241-5126

October 24, 2017

Max Solmssen
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawai'i 96813

Dear Mr. Solmssen,

The County of Kaua'i, Department of Parks and Recreation, is responding to your letter dated October 11, 2017. The Department supports the Pua Loke Affordable Housing Development. As a County Department, our concern would be the impact that would be seen at the nearest County facility located in the Pua Loke Subdivision. The Department ask for any impacts that the Environmental Assessment may provide that would be associated with the development of this facility.

Thank you for providing the opportunity to comment on this project and should you have any questions please contact me at 241-4456.

Sincerely,

Leonard A. Rapozo Jr., Director
County of Kaua'i
Department of Parks and Recreation

Environet, Inc.

January 29, 2018

Lenny Rapozo
Director
County of Kaua‘i - Department of Parks and Recreation
4444 Rice Street, Suite 105
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Rapozo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 24, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, as well as the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities, for the proposed affordable housing project. Below are responses to your comments:

Summary of Comments:

- *Support of the Pua Loke Affordable Housing Development;*
- *Concern over impact to the nearest County facility located in the proposed Pua Loke Subdivision.*

Responses:

- The proposed project site planned for the Pua Loke affordable housing project does not currently include any County parks. Rather, it includes a parking lot currently used by County workers, as well as landscaped areas. The closest county park to the proposed project site is Pua Loke Park located approximately 0.14 miles southeast of the project site along Pua Loke street. The EA will discuss any potential impacts to Pua Loke Park from the proposed development. It is not anticipated that the proposed development would have a significant impact on Pua Loke Park since the addition of 60 residential units would not be expected to result in a significant increase in park facility use. Further, there are additional basketball courts and park facilities in the area that would likely disperse park facility use by residents. Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Mr. Michael Dahilig
Planning Director
County of Kaua‘i Planning Department
4444 Rice Street, Suite A473
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Dahilig,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Lyle Tabata
Acting County Engineer
County of Kaua‘i Public Works Department
4444 Rice Street, Suite 275
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Tabata,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Aaron Nadig
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

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Nadig,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, we are requesting early consultation to determine if any special status or endangered species habitats exist at, or within close proximity to the subject parcel at the Site. If deemed necessary, formal consultation under Section 7 of the Endangered Species Act (ESA) will be initiated at a later date in compliance with NEPA. The County of Kaua‘i would represent the United States Department of Housing and Urban Development (HUD) as the responsible federal agency requesting a determination under Section 7 of the ESA if HUD funding is requested.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

United States Department of the Interior

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

In Reply Refer To:
01EPIF00-2018-TA-0032

NOV 13 2017

Mr. Max Solmssen
Environet Inc.
1286 Queen Emma Street
Honolulu, HI 96813

Subject: Pre-consultation for the Kauai County Housing Agency Pua Loke Affordable Housing Development, TMK (4) 3-8-005, Parcels 028 and 029, Lihue, Kauai

Dear Mr. Solmssen:

The U.S. Fish and Wildlife Service (Service) received your letter on October 17, 2017, requesting early consultation to assist with your preparation of an Environmental Assessment (EA) for the proposed construction of a multi-family affordable housing development located within TMK (4) 3-8-005, Parcels 028 and 029 along Pua Loke Street in Lihue, Kauai We understand that Environet, Inc. is preparing the EA on behalf of the Kauai County Housing Agency for the project in accordance with Chapter 343, Hawaii Revised Statute and Hawaii Administrative Rules Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities.

The County of Kauai owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas. The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihue.

We offer the following comments for your consideration. Our comments are provided under the authorities of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA); National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 401], as amended (NEPA); Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661 *et seq.*; 48 Stat. 401); and Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. 703-712), among others.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program as it pertains to listed species and designated critical habitat in accordance with section 7 of the ESA. There is no federally designated critical habitat within the immediate vicinity of the proposed project. Our data

indicate that the following federally listed species may occur or transit through the vicinity of the proposed project area: the federally threatened Newell's shearwater (*Puffinus auricularis newelli*), the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered Band-rumped storm-petrel (*Oceanodroma castro*) (hereafter collectively referred to as seabirds), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) and the endangered Hawaiian goose (*Branta sandvicensis*). The project as described does not appear to be located in a location that would be utilized by the Hawaiian goose, however the Service recommends the following measures to avoid and minimize project impacts to the Hawaiian hoary bat.

Hawaiian Seabirds

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

To minimize potential project impacts to seabirds:

- All outdoor lights should be fully shielded so the bulb can only be seen from below bulb height and only used when necessary.
- Automatic motion sensor switches and controls should be installed on all outdoor lights or lights should be turned off when human activity is not occurring in the lighted area.
- Nighttime construction should be avoided during the seabird fledging period, September 15 through December 15.

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.

To minimize impacts to the endangered Hawaiian hoary bat we recommend you consider incorporating the following measure into your project description:

- Woody plants greater than 15 feet tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may further assist you with ESA compliance.

We look forward to reviewing the Draft EA. If you have questions regarding these comments, please contact Michelle Clark, Fish and Wildlife Biologist (phone: 808-822-4315, email: michelle_clark@fws.gov). When referring to this project, please include this reference number: 01EPIF00-2018-TA-0032.

Sincerely,

Aaron Nadig
Island Team Manager
O'ahu, Kaua'i, North Western Hawaiian Islands and American Samoa

Environet, Inc.

January 29, 2018

Aaron Nadig
United States Department of the Interior
Fish and Wildlife Service-Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Nadig:

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated November 13, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments: *There is no federally critical habitat within the immediate vicinity of the proposed project. Our data indicate that the following federally listed species may occur or transit through the vicinity of the proposed project area: the federally threatened Newell's shearwater (*Puffinus auricularis newelli*), the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered Band-rumped storm petrel* (Oceanodroma castro) *hereafter collectively referred to as seabirds), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), and the endangered Hawaiian goose (*Branta sandvicensis*). The project as described does not appear to be located in a location that would be utilized by the Hawaiian goose, however the Service recommends the following measures to avoid and minimize project impacts to the Hawaiian hoary bat.*

Hawaiian seabirds may traverse the project area at night during the breeding season (March 1 to December 15) […] To minimize potential project impact to seabirds:

- *All outdoor lights should be fully shielded so the bulb can only be seen from below bulb height and only used when necessary.*
- *Automatic motion sensor switches and controls should be installed on all outdoor lights or lights should be turned off when human activity is not occurring in the lighted area.*
- *Nighttime construction should be avoided during the seabird fledging period, September 15 through December 15.*

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

[…] to minimize impacts to the endangered Hawaiian hoary bat we recommend you consider incorporating the following measure into your project description:

- *Woody plants greater than 15 feet tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).*

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may further assist you with ESA compliance.

Response: The above information and suggestions to avoid and minimize the potential project impacts to seabirds and Hawaiian hoary bats will be incorporated into the Draft EA. If any federally listed species are observed within the project area, the USFWS will be contacted immediately.

Please feel free to contact us should you have any additional comments on the proposed project.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. David Smith
Administrator
Department of Land and Natural Resources, Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Smith,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, we are requesting early consultation to determine if any special status or endangered species habitats exist at, or within close proximity to the subject parcel at the Site. If deemed necessary, formal consultation under Section 7 of the Endangered Species Act (ESA) will be initiated at a later date in compliance with NEPA. The County of Kaua‘i would represent the United States Department of Housing and Urban Development (HUD) as the responsible federal agency requesting a determination under Section 7 of the ESA if HUD funding is requested.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

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

JEFFREY T. PEARSON, P.E.
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

NOV 24 2017

Environet, Inc.
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

Dear Mr. Solmssen:

The Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the Environmental Assessment Pre-consultation for the Kaua'i County Housing Agency. The proposed project would include the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu'e, Kaua'i. The site currently serves as a parking and storage area that includes landscaped grass areas with drainage swales on the 1.46 acre parcel.

The State and Federally listed Hawaiian hoary bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has historically been sighted in the vicinity of the proposed project area. DOFAW strongly recommends avoiding the use of barbed wire, as bat mortalities have been documented as a result of becoming ensnared by barbed wire during flight.

DOFAW cautions that artificial lighting can adversely impact endangered and threatened seabirds that may pass through the area at night, causing disorientation which could result in collision with manmade artifacts or grounding of birds. DOFAW recommends that any lights used be fully shielded to minimize impacts. Seabird friendly lighting resources can be found on the Kaua'i Seabird Habitat Conservation Plan website here: http://kauaiseabirdhcp.com/lighting-homes-businesses/.

DOFAW recommends installing construction barriers around the proposed site to prevent the endangered Hawaiian Goose or Nēnē (*Branta sandvicensis*) from entering the construction site. If Nēnē are observed or if a Nēnē nest is discovered on the project site during construction, we request you notify the DOFAW Kauai Branch immediately at (808) 274-3433 and halt all activity.

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 Katherine Cullison, Conservation Initiatives Coordinator at (808) 587-4148 or Katherine.cullison@hawaii.gov.

Sincerely,

DAVID G. SMITH
Administrator

Environet, Inc.

January 29, 2018

Mr. David G. Smith
Administrator
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii, 96813

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Smith,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated November 24, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities, for the proposed development. Below are responses to your comments:

Summary of Comments:

- *The State and Federally listed Hawaiian hoary bat […] has historically been sighted in the vicinity of the proposed project area. DOFAW strongly recommends avoiding the use of barbed wire.*
- *Artificial lighting can adversely impact endangered and threatened seabirds that may pass through the area at night […]. DOFAW recommends that any lights used be fully shielded to minimize impacts.*
- *DOFAW recommends installing construction barriers around the proposed site to prevent the endangered Hawaiian Goose […] from entering the construction site. If Nēnē are observed or if a Nēnē nest is discovered on the project site during construction, we request that you notify the DOFAW Kauai Branch.*

Responses:

- No barbed wire will be used at the project site to prevent the injury or mortality of any potential Hawaiian hoary bats that may be in the vicinity of the project area.
- All artificial lighting planned for the proposed project will be adequately shielded in compliance with the Kaua‘i Seabird habitat Conservation Program to minimize impacts to seabirds that may pass through the project site.
- Construction barriers will be installed around the project site to prevent the unintentional entry of Nēnē into the project area during the construction period. If any Nēnē are observed, all work will cease and the DOFAW Kauai Branch will be notified immediately.
- Thank you for your comments and provided resources.

Please feel free to contact us should your agency have any additional comments.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Mr. Leo R. Asuncion, Jr.
Director
Department of Business, Economic Development & Tourism, Office of Planning
P.O. Box 2359
Honolulu, Hawai‘i 96804

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Asuncion,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

OFFICE OF PLANNING
STATE OF HAWAII

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

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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

DTS201710301718

October 31, 2017

Mr. Max Solmssen
Project Manager
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813

Dear Mr. Solmssen:

Subject: Pre-consultation for the Kauai County Housing Agency, Pua Loke Affordable Housing Development, Lihue, Kauai; TMK: (4) 3-8-005: 028 and 029

Thank you for the opportunity to provide comments on the pre-consultation request for the preparation of a Draft Environmental Assessment (Draft EA) on the Pua Loke affordable housing development project proposed by the Kauai County Housing Agency. The pre-consultation review material was transmitted to our office via letter dated October 13, 2017.

It is our understanding that this project seeks the construction of a multi-family affordable housing development along Pua Loke Street in Lihue, Kauai. Currently the site is used to store heavy equipment and serves as a vehicle parking area for County of Kauai workers. The housing project will consist of approximately 50 units and associated parking areas.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics, this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies. Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Planning Act, provides goals, objectives, policies, planning coordination and implementation, and priority guidelines for growth, development, and the allocation of resources throughout the state.

   The Draft EA should include a discussion on the project's ability to meet all parts of HRS Chapter 226. The analysis should examine consistency with these statutes or clarify where it is in conflict with them. If any of these statutes are not applicable to the project, the analysis should affirmatively state such determination, followed by discussion paragraphs.

2. The coastal zone management (CZM) area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" (HRS § 205A-1).

   HRS Chapter 205A-5(b) requires all state and county agencies to enforce the CZM objectives and policies. The Draft EA should include an assessment as to how the proposed action conforms to each of the goals and objectives as listed in HRS § 205A-2. Compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.

3. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the surface water and marine resources of the island of Kauai remain protected, the negative effects of stormwater inundation, potentially caused by the proposed development activities, should be evaluated in the Draft EA.

   Issues that may be examined include, but are not limited to, project site characteristics in relation to flood and erosion prone areas, open spaces, the potential vulnerability of surface water resources, drainage infrastructure currently in place, soil absorption characteristics of the area, and examining the amount of permeable versus impervious surfaces in the project area. These items should be considered when developing mitigation measures for the protection for surface water resources and the coastal ecosystem, pursuant to HAR § 11-200-10(7).

   OP has developed a number of resources and recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent nearshore water contamination while considering the best management practices (BMP) suited for the project and the types of contaminants affecting the project area. The evaluative tools that should be used during the design process include:

   - Hawaii Watershed Guidance provides direction on mitigation strategies for urban development activities that will safeguard watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf
   - Stormwater Impact Assessments can be used to identify and analyze information on hydrology, sensitivity of coastal and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area.

http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_storm water_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural BMPs for stormwater control management, onsite infiltration techniques, water reuse methods, and building layout designs that minimize negative environmental impacts. http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

4. Pursuant to Act 127, Session Laws of Hawaii 2016, a Special Action Team on affordable rental housing was established in 2016 to make recommendations on actions to promote affordable rental housing. One of the key goals of Act 127 is to achieve 22,500 affordable rental housing units by December 31, 2026. The review material does not indicate whether this project will include rental units in its blend of affordable income. If the proposed project does include rental units, the Draft EA should include analysis on how this project aligns with the goals of Act 127.

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

Environet, Inc.

January 29, 2018

Leo R. Asuncion, Jr., AICP
Director
State of Hawaii Office of Planning
235 South Beretania Street
Honolulu, Hawaii 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Asuncion,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 31, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, as well as the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments:

- *Pursuant to Hawaii Administrative Rules (HAR) 11-200-10(4) – general description of the action's technical, economical, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies. Hawaii Revised Statues (HRS) Chapter 226, the Hawaii State Planning Act, provides goals, objectives, policies, planning coordination and implementation, and priority guidelines for growth, development, and the allocation of resources through the state. The Draft EA should include a discussion on the project's ability to meet all parts of HRS Chapter 226. The analysis should examine the project's consistency with these statutes or clarify where it is in conflict with them. If any of these statues are not applicable to the project, the analysis should affirmatively state such determination, followed by discussion paragraphs.*

Response: The Draft EA will include an analysis of the project's technical, economic, social, and environmental characteristics in compliance with HAR 11-200. The Draft EA will also analyze the project's consistency or non-consistency with HRS Chapter 226.

- *HRS Chapter 205A-5(b) requires all state and county agencies to enforce the Coastal Zone Management (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed action conforms to each of the goals and objectives as listed in HRS 205A-2. Compliance with HRS 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.*

Response: The Draft EA will include an assessment as to how the proposed action conforms or is in conflict with each of the goals and objectives as listed in HRS 205A-2.

- *Pursuant to HAR 11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the surface water and marine resources of the island of Kauai remain protected, the negative effects of stormwater inundation and polluted runoff from the proposed development activities should be evaluated in the Draft EA. Issues that may be examined include, but are not limited to, project site characteristics in relation to flood and erosion prone areas, open spaces, the potential vulnerability of surface water resources, drainage infrastructure currently in place, soil absorption characteristics of the area, and examining the amount of permeable versus impervious surfaces in the project area. These items should be considered when developing mitigation measures for the protection for surface water resources and the coastal ecosystem, pursuant to HAR 11-200-10(7).*

- *The Office of Planning has developed a number of resources and recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff...*

Response: The effects of stormwater inundation and polluted runoff from the proposed housing development will be evaluated in the Draft EA. Reference to applicable County and State regulations relating to stormwater management will also be included in the Draft EA. The guidance documents and stormwater evaluative tools provided by your agency will be referenced in the EA as mitigative measures in managing stormwater runoff.

- *Pursuant to Act 127, Session Laws of Hawaii 2016, a Special Action Team on affordable rental housing was established in 2016 to make recommendations on actions to promote affordable rental housing. One of the key goals of Act is to achieve 22,500 affordable rental housing units by December 31, 2026. The review material does not indicate whether this project will include rental units in its blend of affordable income. If the proposed project does include rental units, the Draft EA should include analysis on how this project aligns with the goals of Act 127.*

Response: The Pua Loke housing development is planned to include affordable rental housing units. The Draft EA will include an analysis on how the project aligns with the goals of Act 127.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Ms. Christina Kishimoto
Superintendent
State of Hawai‘i Department of Education
1390 Miller Street, Room 309
Honolulu, Hawai‘i 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Kishimoto,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

DAVID Y. IGE
GOVERNOR

DR. CHRISTINA M. KISHIMOTO
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

October 31, 2017

Mr. Max Solmssen, Project Manager
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813

Re: Pua Loke Affordable Housing Development, Lihue, Kauai, TMK No. 3-8-005:028 & 029

Dear Mr. Solmssen:

The Department of Education (DOE) Facilities Development Branch appreciates the opportunity to review the Pua Loke project (project) at the stage of early consultation.

The DOE believes that there is sufficient capacity at Wilcox Elementary, Chiefess Kamakahelei Middle, and Kauai High School to accommodate future DOE students living in the project. The DOE currently doesn't have an estimate of the number of students who would reside there. That will depend on the product mix between affordable units and facilities designed for homeless families. Spaces reserved exclusively for the elderly or homeless individuals would have no impact on school enrollments. We would appreciate more information as it becomes available. It would also be helpful to know if all units would be rentals.

We look forward to reviewing the Environmental Assessments. If you have any questions, please contact Heidi Meeker of the Planning Section, Facilities Development Branch, at (808) 784-5094.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: William Arakaki, Complex Area Superintendent, Kauai Complex Area

Environet, Inc.

January 29, 2018

Kenneth G. Madsen II
Public Works Manager Planning Section
Department of Education
P.O. Box 2360
Honolulu, HI 96804

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Madsen,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 31, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments:

- *The DOE believes that there is sufficient capacity of Wilcox Elementary, Chiefess Kamakahelei Middle, and Kauai High School to accommodate future DOE students living in the project. The DOE currently doesn't have an estimate of the number of students who would reside there. That will depend on the product mix between affordable units and facilities designed for homeless families. Spaces reserved exclusively for the elderly or homeless individuals would have no impact on school enrollments.*

Responses:

- Thank you for your comments. The County Housing Agency will provide more information regarding the project unit mix and demographics as this information becomes available, and will be in communication with your agency as the planning process progresses.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Ms. Laura McIntyre
Manager
State of Hawaii Department of Health Environmental Planning Office
919 Ala Moana Boulevard, Room 312
Honolulu, Hawai‘i 96814

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. McIntyre,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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:
File:

EPO 17-260

October 24, 2017

Mr. Max Solmssen, Project Manager
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813
Email: msolmssen@environetinc.com

Dear Mr. Solmssen:

SUBJECT: Pre-consultation (PC) for Kauai County Housing Agency, Pua Loke Affordable Housing Development, Lihue, Kauai
TMK: (4) 3-8-005, Parcels 028, 029

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PC to our office on October 17, 2017.

We understand from the project summary that *"The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihue, Kauai."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch (WWB) at (808) 586-4294.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

A phase I Environmental Site Assessment (ESA) and site investigation should be conducted for residential development or redevelopment projects in current or formerly used industrial areas and on formerly and currently zoned agricultural land used for growing sugar, pineapple or other agricultural products. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants may have occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and/or groundwater sampling plan. Please refer to Sections 3 and 4 of the HEER Office Technical Guidance Manual http://www.hawaiidoh.org. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with State Law (HRS, Chapter 128D, "Environmental Response Law", Chapter 451, "State Contingency Plan"). To identify HEER records related to the property, visit http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records. For information on site assessment and cleanup programs review: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs. Any specific questions should be directed to the HEER office at (808) 586-4249.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

The construction of all public buildings, facilities, and sites by the State or county or on behalf of the State or any county shall be prepared so the buildings, facilities, and sites are readily accessible to and usable by persons with disabilities. Readily accessible to and usable by people with disabilities means compliance with the Americans with

Disabilities Act Accessibility Guidelines (ADAAG), and the Fair Housing Amendments Act Accessibility Guidelines, as adopted and amended by the disability and communication access board. If you have any questions please contact dcab@doh.hawaii.gov

An example of social influences include access to safe pedestrian corridors such as pathways, sidewalks, bike lanes, greenways and open space. §11-200-17(h), HAR, says EISs must discuss how proposed actions may conform or conflict with any policies for the affected area. This includes Hawaii's 2009 Complete Streets law, which requires the state and counties to establish policies to accommodate all users of the road, no matter age, ability, or mode of transportation.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed an environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

c: DOH: CWB, WWB, CAB,SHWB, IRHB, HEER, PHP, DCAB {via email only}

Attachment: U.S. EPA EJSCREEN Report for Project Area

Please be advised:
The Environmental Planning Office (EPO), along with the Clean Air, Clean Water, and Wastewater Branches will be moving in December 2017. The new address, for EPO, **as of January 1, 2018**, will be:
Environmental Planning Office, DOH, Hale Ola, 2827 Waimano Home Road #109, Pearl City, Hawaii 96782
Please feel free to come and visit our new offices anytime. Please note that there is a security guard at the bottom of the hill (before entering DOH property). Our office phone numbers, email and website will all remain the same.

Attachment: U.S. EPA EJSCREEN Report for Project Area

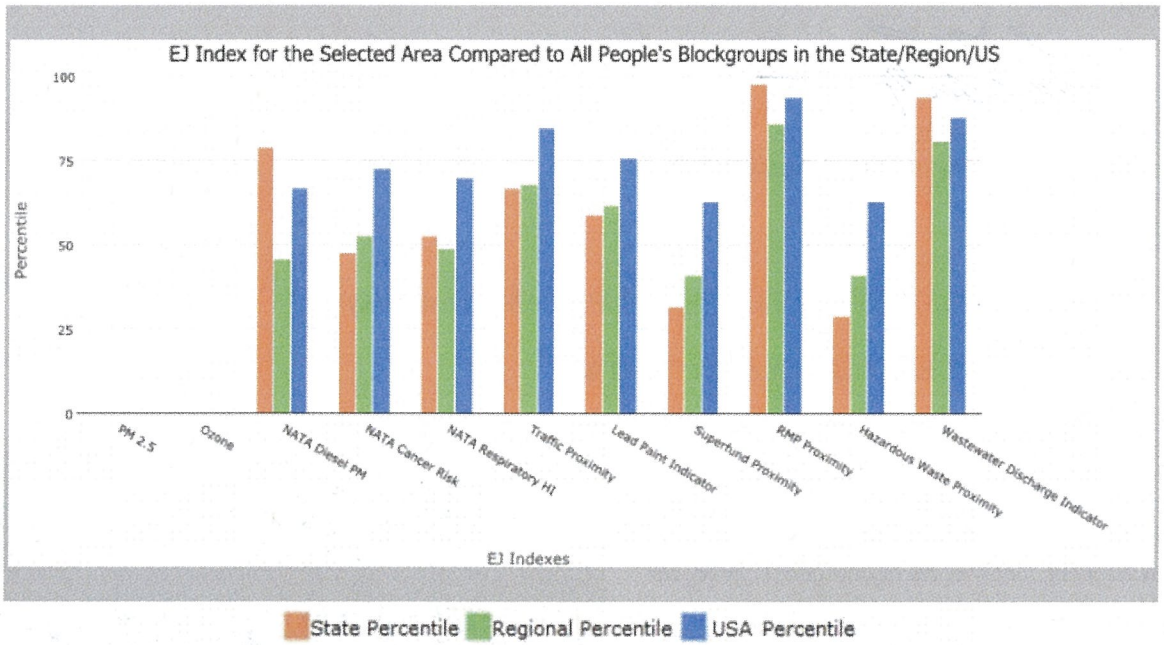
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.972528,-159.376372, HAWAII, EPA Region 9

Approximate Population: 6,107

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	79	46	67
EJ Index for NATA* Air Toxics Cancer Risk	48	53	73
EJ Index for NATA* Respiratory Hazard Index	53	49	70
EJ Index for Traffic Proximity and Volume	67	68	85
EJ Index for Lead Paint Indicator	59	62	76
EJ Index for Superfund Proximity	32	41	63
EJ Index for RMP Proximity	98	86	94
EJ Index for Hazardous Waste Proximity	29	41	63
EJ Index for Wastewater Discharge Indicator	94	81	88



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.

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.972528,-159.376372, HAWAII, EPA Region 9

Approximate Population: 6,107

Input Area (sq. miles): 3.14

October 24, 2017

Digitized Point

1:2,257

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.972528,-159.376372, HAWAII, EPA Region 9

Approximate Population: 6,107

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.207	0.149	79	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	28	34	28	43	<50th	40	<50th
NATA* Respiratory Hazard Index	0.84	1	45	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	400	1000	63	1100	55	590	74
Lead Paint Indicator (% Pre-1960 Housing)	0.11	0.16	51	0.24	47	0.29	38
Superfund Proximity (site count/km distance)	0.0068	0.1	27	0.15	5	0.13	1
RMP Proximity (facility count/km distance)	3.1	0.39	99	0.98	93	0.73	96
Hazardous Waste Proximity (facility count/km distance)	0.0062	0.1	23	0.12	2	0.093	2
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0022	0.04	92	13	72	30	72
Demographic Indicators							
Demographic Index	55%	51%	62	47%	62	36%	77
Minority Population	74%	77%	34	59%	63	38%	81
Low Income Population	37%	26%	77	36%	55	34%	58
Linguistically Isolated Population	5%	6%	60	9%	45	5%	71
Population With Less Than High School Education	8%	9%	58	17%	36	13%	41
Population Under 5 years of age	8%	6%	76	7%	70	6%	73
Population over 64 years of age	15%	16%	49	13%	69	14%	62

* 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 provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Environet, Inc.

January 29, 2018

Ms. Laura Leialoha Phillips McIntyre
Program Manager
State of Hawaii Department of Health Environmental Planning Office
P.O. Box 3378
Honolulu, Hawai‘i 96801-3378

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. McIntyre,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 24, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities, for the proposed development. Below are responses to your comments:

Summary of Comments:

- *Consider health in the discussion and mitigation measures of the EA to reduce negative impacts.*
- *Consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and well-being.*
- *Conduct regular review of State and Federal environmental health land use guidance during the development process.*
- *Review requirements of the Clean Water Branch (HAR Chapter 11-54-1.1, -3, 4-8).*
- *Wastewater plans must conform to applicable provisions (HAR, Chapter 11-62)*
- *Effective air pollution control measures need to be provided (HAR Chapter 11-60.1).*
- *Any waste generated by the project […] needs to be disposed of in accordance with HAR 11-58.1.*
- *A noise permit may be required (HAR Chapter 11-46).*
- *A Phase I Environmental Site Assessment (ESA) and site investigation should be conducted.*
- *The construction of all public buildings, facilities, and sites […] shall be prepared in accordance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Fair Housing Amendments Act Accessibility Guidelines.*

Responses:

- All phases of the project will be conducted in accordance with all applicable state and federal laws relating to human and environmental health. The EA will analyze potential human health and socioeconomic impacts from the proposed project. An NPDES permit will be submitted to comply with HAR Section 11-55. All state laws relating to air quality, noise and water management will be complied with, and all necessary permits will be obtained prior to construction.

- A Phase I Environmental Assessment for the site was conducted in August 2017. A Phase II soil investigation is planned prior to disturbance of site soils for development.

- Thank you for the provided resources.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Dr. Janet M. Berreman
Chief, District Environmental Health Program Kaua‘i
State of Hawai‘i Department of Health
3040 Umi Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Dr. Berreman,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

JANET M. BERREMAN, M.D., M.P.H., F.A.A.P.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
KAUAI DISTRICT HEALTH OFFICE
3040 UMI STREET
LIHUE, HAWAII 96766

October 20, 2017

Environet, Inc.
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813
Email: msolmssen@environtec.com

Dear Mr. McCormick:

SUBJECT: **Pre-consultation for Environmental Assessment**
Project: **Pua Loke Affordable Housing Development**
Applicant: **Kaua`i County Housing Development**

Based on our review, we offer the following environmental health concerns for your consideration, which should be addressed and included in this document.

1. The subject project is located within Aqua Engineers' Puhi Sewer and Water wastewater sewer system. All wastewater generated shall be disposed into Aqua Engineers' Puhi Sewer and Water sewer system. All lots in the proposed development/subdivision shall connect to Aqua Engineers' Puhi Sewer and Water sewer system

2. Individual wastewater systems (IWS) would not be allowed for this development as the property is located within 1000' of a public drinking water well and only one aerobic unit would be allowed on each lot. This would not be sufficient for the proposed development of the property.

3. Noise will be generated during the construction phase of this project. The applicable maximum permissible sound levels as stated in Title 11, Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control", shall not be exceeded unless a noise permit is obtained from the State Department of Health (DOH).

4. Temporary fugitive dust emissions could be emitted when the project site is prepared for construction and when construction activities occur. In accordance with Title 11, HAR, Chapter 11-60.1, "Air Pollution Control", effective air pollution control measures shall be provided to prevent or minimize any fugitive dust

emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures include but are not limited to the use of water wagons, sprinkler systems, dust fences, etc.

5. The construction waste that will be generated by the project shall be disposed of at a solid waste disposal facility that complies with the applicable provisions of Title 11, HAR, Chapter 11-58.1, "Solid Waste Management Control", the open burning of any of these wastes on or off site prohibited.

6. The Department of Health (DOH), Clean Water Branch (CWB) has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf

7. 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).

8. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

   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.

9. 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 (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6);
   Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

   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.

10. 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 bioengineering 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. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at:http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

11. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for pollutant discharges into State surface waters and for certain situations involving storm water (HAR, Chapter 11-55).

a. Discharges into Class 2 or Class A State waters can be covered under an NPDES general permit only if all of the NPDES general permit requirements are met. Please see the DOH-CWB website (http://health.hawaii.gov/cwb/) for the NPDES general permits and instructions to request coverage.

b. All other discharges into State surface waters (including discharges from Concentrated Animal Feeding Operations) and discharges into Class 1 or Class AA State waters require an NPDES individual permit. To request NPDES individual permit coverage, please see the DOH-CWB forms website located at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms/

c. NPDES permit coverage for storm water associated with construction activities is required if your project will result in the disturbance of one (1) acre or more of total land area. 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. NPDES permit coverage is required before the start of the construction activities.

Land disturbance includes, but is not limited to clearing, grading, grubbing, uprooting of vegetation, demolition (even if leaving foundation slab), staging, stockpiling, excavation into pavement areas which go down to the base course,

and storage areas (including areas on the roadway to park equipment if these areas are blocked off from public usage, grassed areas, or bare ground).

12. 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.

Should you have any questions, please call me at 241-3323.

Sincerely,

Gerald N. Takamura

Gerald N. Takamura, Chief
District Environmental Health Program Kaua'i

GNT: DTT

Cc: Laura McIntyre, Environmental Planning Office

Environet, Inc.

January 29, 2018

Mr. Gerald N. Takamura
Chief
State of Hawaii Department of Health
Kaua‘i District Health Office
3040 Umi Street
Lihu‘e, Hawai‘i 96766

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Takamura,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 20, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, the National Environmental Policy Act (NEPA) and United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. Below are responses to your comments:

Summary of Comments:

- *All wastewater generated shall be disposed into Aqua Engineers' Puhi Sewer and Water sewer system.*
- *Individual Wastewater Systems (IWS) would not be allowed for this development.*
- *Maximum permissible sound levels stated in Title 11, HAR 11-46 shall not be exceeded unless a noise permit is obtained.*
- *Effective air pollution control measures shall be provided to prevent or minimize any fugitive dust emissions in accordance with Title 11, HAR 11-60.1.*
- *The construction waste shall be disposed of in accordance with Title 11, HAR 11-58.1.*
- *DOH CWB mandates that the following criteria must be met:*
    - *Antidegradation policy (HAR 11-54-1.1);*
    - *Designated users (HAR 11-54.3);*
    - *Water quality criteria (HAR 11-55);*
    - *NPDES permit coverage (HAR 11-55) if needed;*
    - *State's Water Quality Standards; and*
    - *Reduce, reuse, and recycle to protect, restore, and sustain water quality.*
    - *Treat storm water as a resource to protected by integrating it into project planning and permitting.*
    - *Consider storm water BMP approaches that minimize the use of potable water for irrigation through storm water reuse.*

Responses:

- Wastewater generated at the proposed development would be routed to Aqua Engineers' Puhi Sewer and Water sewer system, and no IWS are planned. Consultation is ongoing with Aqua Engineers, the Division of Wastewater Management, and Department of Public Works to ensure that the wastewater

demand from the Proposed Action would not adversely impact the affected wastewater treatment transmission and treatment system.

- All phases of the project will be conducted in accordance with all state and federal laws. Permits from applicable agencies will be required as needed. A NPDES permit application will be submitted in accordance with HAR Section 11-55.
- The County will work to treat storm water as a resource to be protected by integrating it into project planning and permitting, to the extent feasible.
- The County will consider storm water BMP approaches that minimize the use of potable water for irrigation through storm water reuse.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Mr. Alec Wong P.E.
Chief
State of Hawaii Department of Health-Clean Water Branch
P.O. Box 3378
Honolulu, Hi 96801-3378

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Wong,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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

10021PST.17

October 23, 2017

Mr. Max Solmssen
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813

Dear Mr. Solmssen:

SUBJECT: Comments on the Pre-consultation for Environmental Assessment for the Pua Loke Affordable Housing Development Lihue, Island of Kauai, Hawaii TMKs: (4) 3-8-005, Parcels 028 and 029

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated October 11, 2017, requesting comments on the subject project. The DOH-CWB has reviewed the document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. The *Kauai County Housing Agency* may be responsible for fulfilling additional requirements related to our program. We recommend that they also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

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. The Applicant may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

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 an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, the Applicant 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). The Applicant can open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. They will be asked to do a one-time registration to obtain their login and password. After they register, they can click on the Application Finder tool and locate the appropriate form. They can then follow the instructions to complete and submit the form.

3. If the Applicant's project involves work in, over, or under waters of the United States, it is highly recommended that they contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

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.

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. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

c: DOH-EPO [via e-mail Noella.Narimatsu@doh.hawaii.gov only]

Environet, Inc.

January 29, 2018

Mr. Alec Wong P.E.
Chief
State of Hawaii Department of Health-Clean Water Branch
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Wong,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 23, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, as well as the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments:

- *Any project and its potential impacts to State waters must follow […] a) Antidegredation policy (HAR, Section 11-54-1.1) […] b) Designated uses (HAR, Section 11-54-3) […], c) Water quality criteria (HAR, Sections 11-5-4 through 11-54-8).*
- *An NPDES permit may be required […](HAR, Chapter 11-55).*
- *May need to contact the Army Corps of Engineers, Regulatory Branch, regarding their permitting requirements. Need to act in accordance with Clean Water Act, Paragraph 401A.*
- *All discharges […] must comply with State's Water Quality Standards.*
- *[…] 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; b) Clearly articulate the State's position on water quality and the beneficial uses of State waters; c) Consider storm water BMPs; d) Consider the use of green building practices; e) Identify opportunities for retrofitting or bioengineering existing storm water infrastructure.*

Responses:

- All phases of the project will be conducted in accordance with all state and federal laws. A NPDES permit will be submitted to comply with HAR Section 11-55.
- The Pua Loke Housing Development will include the construction of a surface water drainage system to collect storm water flow, and will be designed in accordance with the County of Kaua‘i Department of Public Works standards.
- The proposed project would not include discharges into navigable waters. Therefore, a Clean Water Act 401 permit is not anticipated.

Environet, Inc.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Ms. Celia Wooton-Mahikoa
Executive on Transportation
County of Kaua‘i Transportation Agency
3220 Ho‘olako Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Wooton-Mahikoa,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as w ell as U nited States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

From:	Jeremy Lee
To:	Max Solmssen
Cc:	Celia Mahikoa; Lee Steinmetz; Kanani Fu; Keith Perry
Subject:	RE: pre-consultation for the Kauai County Housing Agency (Pua Loke Affordable Housing Development) TMK: (4)3-83005, Parcels 028 and 029
Date:	Wednesday, October 25, 2017 1:55:27 PM

Mr. Solmssen,
The County of Kauai, Transportation Agency is thankful for the opportunity to engage in the development process this early.
We would like to note the following about the subject EA consultation.
We believe that there is a clear nexus between the development of fifty (50) affordable housing units and the need for public transit services to serve the development.
That being said, we would like to be consulted throughout the development process in regards to on property paratransit service, fixed route transit service and accessibility features to public transportation.
Mahalo,

Jeremy Kalawaia Lee
The Kauai Bus
Program Specialist III
3220 Hoolako Street
Lihue, HI 96766
(808)246-8112
jlee@kauai.gov

Environet, Inc.

January 29, 2018

Mr. Jeremy Kalawaia Lee
Program Specialist III
The Kaua‘i Bus
3220 Ho‘olako Street
Lihu‘e, Hawai‘i 96766

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Lee,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your email dated October 25, 2017 in response to pre-consultation as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities for the proposed development. Below are responses to your comments:

Summary of Comments:

- *There is a clear nexus between the development of fifty (50) affordable housing units and the need for public transit services to serve the development.*
- *The Kauai Bus would like to be consulted throughout the development process in regards to on property paratransit service, fixed route service, and accessibility features to public transportation.*

Responses:

- Thank you for your comments, the County will continue to include the Kaua‘i Bus in discussion throughout the development process in regards to property paratransit service, fixed route service, and accessibility features to public transportation.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Mr. Scott Glenn
Director
State of Hawaii Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai‘i 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Glenn,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your office for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Joshua Martin
Plant Supervisor
Spectrum
2956 Aukele Street, Suite 101
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Martin,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your company for any comments on the proposed action based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Ka‘ahiki Solis
Cultural Historian, State Historic Preservation District
Department of Land and Natural Resources
601 Kamokila Boulelvard, Suite 555
Kapolei, Hawai‘i 96707

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Solis,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Area of Potential Effect [APE] Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your consultation to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kaua‘i would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 11, 2017

Ms. Susan Lebo
Archaeology Branch Chief, State Historic Preservation District
Department of Land and Natural Resources
601 Kamokila Boulelvard, Suite 555
Kapolei, Hawaii 96707

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Lebo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Area of Potential Effect [APE] Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your consultation to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kaua‘i would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 11, 2017

Mr. Russell Y. Tsuji
Administrator
State of Hawaii Department of Land and Natural Resources, Land Division
1151 Punchbowl Street, Room 220
Honolulu, Hawaii 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Tsuji,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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

November 13, 2017

Environet, Inc.
Attention: Mr. Max Solmssen
1286 Queen Emma Street
Honolulu, Hawaii 96813

via email: msolmssen@environetinc.com

Dear Mr. Solmssen:

SUBJECT: Pre-Consultation for the Kauai County Housing Agency Pua Loke Affordable Housing Development

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

At this time, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2017 OCT 23 AM 10: 43
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

'17 OCT 19 PM01:56 ENGINEERING

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

October 18, 2017

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
From X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__ Office of Conservation & Coastal Lands
X Land Division – Kauai District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Consultation for the Kauai County Housing Agency Pua Loke Affordable Housing Development
LOCATION: Lihue, Island of Kauai; TMK: (4) 3-8-005:028 & 029
APPLICANT: Kauai County Housing Agency

Transmitted for your review and comment is information on the above referenced project. We would appreciate your comments on this project. Please submit any comments by **November 10, 2017.**

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

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

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 10/20/17

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Pre-Consultation for the Kauai County Housing Agency Pua Loke Affordable Housing Development, Lihue, Island of Kauai; TMK: (4) 3-8-005:028 & 029

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). 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: 10/28/17

Environet, Inc.

January 29, 2018

Ms. Carty S. Chang
Chief Engineer
Department of Land and Natural Resources
Engineering Division
1151 Punchbowl Street #221
Honolulu, Hawaii 96813

Subject: **Pre-consultation for the Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Chang,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated October 20, 2017 in response to pre-consultation as part of the environmental review process. Below are responses to your comments:

Summary of 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). Be advised that 44 CFR 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).

Responses:

- Thank you for your comments and provided resources. According to Federal Emergency Management Agency (FEMA) records, the project site is not located within the 100-year or 500-year floodplain zones, and therefore does not include any Special Flood Hazard Areas.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

October 11, 2017

Mr. Peter Kea, Jr.
Royal Order of Kamehameha, Kaumualiʻi Chapter III
P.O. Box 1381
Līhuʻe, Hawaiʻi 96766

Subject: Pre-consultation for the Kauaʻi County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihuʻe, Kauaʻi

Dear Mr. Kea,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking early consultation with your group for any comments on the proposed action based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Ms. Liberta Lilia Hussey Albao
President
Queen Deborah Kapule Hawaiian Civic Club
P.O. Box 164
Kapaʻa, Hawaiʻi 96746

Subject: Pre-consultation for the Kauaʻi County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihuʻe, Kauaʻi

Dear Ms. Albao,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking early consultation with your group for any comments on the proposed action based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Ms. D. Kaliko Santos
Community Outreach Coordinator
Office of Hawaiian Affairs
4405 Kukui Grove Street, Suite 103
Lihu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Santos,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Area of Potential Effect [APE] Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your office for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your consultation to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kaua‘i would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 11, 2017

Mr. Kamanaʻopono Crabbe
Chief Executive Officer
Office of Hawaiian Affairs
560 Nimitz Highway, Suite 200
Honolulu, Hawaiʻi 96817

Subject: Pre-consultation for the Kauaʻi County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihuʻe, Kauaʻi

Dear Mr. Crabbe,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Area of Potential Effect [APE] Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking early consultation with your office for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your consultation to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kauaʻi would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Environet, Inc.

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 11, 2017

Ms. Carolyn Larson
Branch Manager
Līhu‘e Public Library
4344 Hardy Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Larson,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as w ell as U nited States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your group for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Postmaster - Kaua‘i
Līhu‘e Post Office
4441 Rice Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Sir or Madam,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your office for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Andra Ota
Center Manager
Līhu‘e Neighborhood Center
3353 Eono Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Ota,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your center for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. David Bissell
President and CEO
Kaua‘i Island Utility Cooperative
4463 Pahe‘e Street, Suite 1
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Bissell,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your company for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Kaua‘i / Ni‘ihau Burial Counsel
C/O Ms. Kauanoe Ho‘omanawanui
Cultural Historian, State Historic Preservation District
Department of Land and Natural Resources
PO Box 1729
Lihue, Hawaii 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Ho‘omanawanui,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) please see the enclosed Area of Potential Effect [APE] Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

As part of the environmental review process, and in accordance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking consultation from the Kaua‘i / Ni‘ihau Burial Counsel to determine if any documented historic or culturally significant resources exist at, or within close proximity to the subject parcel. Section 106 consultation under the NHPA is triggered due to potential project funding from the United States Department of Housing and Urban Development (HUD). The County of Kaua‘i would represent HUD as the responsible federal agency requesting consultation under Section 106 of the NHPA.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

October 11, 2017

Mr. Mel Rapozo
Council Chair
Kaua‘i County Council
4396 Rice Street, Suite 209
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Rapozo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your group for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Hui Kakoʻo ʻAina Hoʻopulapula
P.O. Box 37958
Honolulu, Hawaiʻi 96837

Subject: Pre-consultation for the Kauaʻi County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihuʻe, Kauaʻi

To whom it may concern,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking early consultation with your group for any comments on the proposed action based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Larry Dill
District Engineer
Hawaii Department of Transportation, Kaua‘i District
1720 Haleukana Street
Līhu‘e, Hawai‘i 96766

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Dill,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Marshall Ando
Acting Highways Administrator
Hawai‘i Department of Transportation Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawai‘i 96813

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Ando,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

From:	McCormick, Raymond J
To:	Max Solmssen
Subject:	RE: Pre-Consultation for Kauai County Housing Agency -- Pua Loke Affordable Housing Development
Date:	Tuesday, October 24, 2017 9:53:23 AM
Attachments:	image001.png image002.png image003.png image004.png

Great – thanks Max

From: Max Solmssen [mailto:MSolmssen@environetinc.com]
Sent: Tuesday, October 24, 2017 9:28 AM
To: McCormick, Raymond J <raymond.j.mccormick@hawaii.gov>
Subject: RE: Pre-Consultation for Kauai County Housing Agency -- Pua Loke Affordable Housing Development

Aloha Ray,

Thanks so much for your reply to the County Housing Agencies' request for pre-consultation comment as part of our preparation of the Environmental Assessment (EA) for the proposed affordable housing project along Pua Loke Road in Lihue, Kauai. In response to your comment, the County Housing Agency is not considering connecting Pua Loke Road to Kaumualii Highway as part of the proposed project. Attached is a conceptual site plan that we just obtained. We will be including this conceptual site plan in the draft environmental assessment when it is published and distributed for public review. Please let me know if you have any other questions or concerns at this time.

Thanks,

Max Solmssen

SR. PROJECT MANAGER T/ 808.833.2225 EXT.1012 C/ 808.341.3546 F/ 808.833.2231 E/ MSOLMSSEN@ENVIRONETINC.COM
ENVIRONET, INC. 1286 QUEEN EMMA STREET, HONOLULU, HAWAII 96813
-
www.environetinc.com
HUBZone & SBA Certified Small Business / Native Hawaiian and Veteran-Owned

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From: McCormick, Raymond J [mailto:raymond.j.mccormick@hawaii.gov]
Sent: Monday, October 23, 2017 8:16 AM
To: Max Solmssen <MSolmssen@environetinc.com>

Subject: FW: Pre-Consultation for Kauai County Housing Agency -- Pua Loke Affordable Housing Development

---

From: McCormick, Raymond J
Sent: Monday, October 23, 2017 7:39 AM
To: 'msolmssen@environetine.com' <msolmssen@environetine.com>
Subject: Pre-Consultation for Kauai County Housing Agency -- Pua Loke Affordable Housing Development

Aloha Max,

We are in receipt of your request for pre consultation on the subject project. We do have one concern/question regarding this proposed subdivision.
It is uncertain from your location map whether or not a connection is being proposed, but we wanted to make sure that it is understood that HDOT Highways Division will not allow a connection onto Kaumualii Highway.

Thanks

Ray

Environet, Inc.

October 11, 2017

Mr. Scott Enright
Chairperson/Director
State of Hawai‘i Department of Agriculture
1428 South King Street
Honolulu, Hawai‘i 96814

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Enright

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your department for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Mr. Jason Thune
Director, Network Development
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawai‘i 96841

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Thune,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your company for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

October 11, 2017

Pacific Islands Contact Office
United States Environmental Protection Agency, Region 9
300 Ala Moana Boulevard, Room 5124
Honolulu, Hawai‘i 96850

Subject: Pre-consultation for the Kaua‘i County Housing Agency
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Sir or Madam,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, is in the process of preparing an Environmental Assessment (EA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The EA will also comply with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. The EA is being prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 50 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking early consultation with your agency for any comments on the proposed project based on your field of expertise.

In conjunction with this work, we are requesting that you please send your written comments to the following physical or email addresses by November 13, 2017:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

We appreciate your timely review and response to this request.

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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APPENDIX B-2: LETTERS RECEIVED DURING THE DRAFT COMMENT PERIOD AND RESPONSES

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Environet, Inc.

February 20, 2018

Ms. Kealoha Takahashi
Executive on Aging
County of Kaua‘i Agency on Elderly Affairs
4444 Rice Street, Suite 330
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. Takahashi,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Elton Ushio
Emergency Management Administrator
County of Kaua‘i Civil Defense Agency
3990 Kaana Street, Suite 100
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Ushio,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Edward Doi
Chief of Water Resource and Planning Division
County of Kaua'i Department of Water
4398 Pua Loke Street, P.O. Box 1706
Lihu'e, HI 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Doi,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Department of Water
County of Kaua'i

Water has no substitute.....Conserve it

March 12, 2018

Ms. Kanani Fu
Housing Director
County of Kaua'i, Housing Agency
4444 Rice St., Suite 330
Lihu'e, Kaua'i, HI 96766

Dear Ms. Fu:

Subject: Comments for Draft Environmental Assessment: County of Kaua'i Housing Agency Proposed Pua Loke Affordable Housing Development
TMK (4) 3-8-005, parcels 28 and 29, Lihu'e, Kaua'i

Thank you for the opportunity to provide comments on the subject project's Draft Environmental Assessment. The Department of Water would like to comment on two items of interest.

1. Parking: The Department of Water, County of Kaua'i, currently utilizes the existing park and ride parking facilities adjacent to Pua Loke Street. Our front office staff utilize the new parking lot that was constructed with our new office building, which opened in September, 2016. This facility was designed with adequate parking space for our office staff. However, at our current staffing levels, approximately 12 to 15 of our operations staff utilize the parking at the park and ride lot, which will be removed with your project. These numbers also do not account for future expansion and potential increases in staffing levels. In light of this, we respectfully request for your consideration of parking facilities for our staff as a part of your development. We would greatly appreciate the opportunity to work with you and your designers to find a workable solution for both the Housing Agency and the Department of Water's needs.

2. Existing sewer line in Pua Loke Street: Please see the attached correspondence between the Department of Water (DOW) and Puhi Sewer and Water (PSW). Please be aware that DOW owns the sewer line fronting the subject property and no connections to the sewer shall be made unless PSW takes ownership of the sewer line within the County right of way. The DOW worked with PSW when owned by Grove Farm Company to complete a design that was satisfactory to PSW prior to Aqua Engineers purchase of PSW. The new 8-inch sewer line was sized to accommodate future customers in our areas should requirements become necessary near our potable water well, or if they so desire.

Should you have further questions, please contact me at (808) 245-5449 or at bwienand@kauaiwater.org

Sincerely,

Bryan Wienand, P.E.
Deputy Manager-Engineer

Department of Water
County of Kaua'i

Water has no substitute.....Conserve it

May 19, 2016

Hugh Strom
General Manager
Puhi Sewer and Water
3560 Kōloa Road
Kalāheo, HI 96741

RE: <u>Līhu'e Baseyard Improvements for the Department of Water, Water Plan 2020</u>
<u>Project No. PLH-39</u>
Puhi Sewer & Water 8" Sewer Line Connection

Dear Mr. Strom:

Thank you for May 9, 2016 response regarding the connection of the new Department of Water (DOW) 8" sewer line to the Puhi Sewer and Water (PSW) system. As you are aware, the DOW worked with PSW when owned by Grove Farm Company to complete a design that was satisfactory to PSW prior to Aqua Engineers purchase of PSW. The new 8" sewer line was sized to accommodate future customers in our area should requirements become necessary near our potable water well or should they desire. Your letter has a few items that I think are worthy of a response by DOW at this time.

You stated the following, "*As we understand, the sewer line from the DOW's property was designed and installed with insufficient slope to permit gravity flow to the sewer main. DOW has attempted to cure this flaw by installing a water line that would periodically flush water in the line to push the sewage to PSW's sewer main. As we have previously indicated to you, the use of water to flush the sewage to the sewer main does not comply with the applicable sewer system standards or PSW's own Rules and Regulations. Rule 6.2 specifically requires the installation of a lift station in this situation.*" You further stated, "*Wherever any drain is too low to permit <u>gravity flow</u> to the Company's Sewer System, sewage carried by such drain shall, at the Customers' cost, bee lifted by an approved means to a level necessary to permit its discharge into the Building Sewer.*"

The understanding that the sewer line is not engineered per current sewer design standard to accommodate gravity flow is inaccurate. The current Sewer Design Standards for the County of Kaua'i Department of Public Works, 1973 edition which mirrors the current City & County of Honolūlū Design Standards of the Department of Wastewater Management, Volume I, July 1993, section 23.2 states the minimum slope for an 8" sewer line is 0.0044 ft. per ft. As you can see on our approved construction drawings, we maintain that minimum for all gravity sewer lines with

the 0.44% slope. Thus, our current design meets the applicable standards provided and is constructed properly for gravity flow. Furthermore, by standards related to your rules, a lift station is not necessary at this time for sewer lines at 0.44%. It shall be noted that the "flushing station" was not done to fix a design flaw but to provide a mechanism to create additional flow that would not be seen by neighboring properties until they connected to the new 8" sewer line in the future.

The DOW has designed lift stations when necessary for this project such as onsite where our existing building connections could not accommodate gravity flow to the 0.44% gravity main. In this situation, a lift station was appropriate so we designed it and recently installed the force main. With regards to your request to add a lift station for PSW to accept the dedicated sewer line, this is something that the DOW should not be required to do based on meeting section 23.2 of the applicable Sewer Design Standards with 0.44% slope meeting the minimum 0.0044 ft. per ft. slope requirement.

That being said, I think we have been very fair and patient while working with PSW (Grove Farm Company and Aqua Engineers) over the past few years to engineer a sewer line that is within the applicable sewer design standards while making accommodations for future users. We are at a point where connection is imminent and although we expended much effort and resources to dedicate the sewer line to PSW, it looks like that will not happen amicably. For that reason, we will not dedicate the new sewer line to PSW. We will become a customer and treat the new sewer line as a long "private lateral" and maintain the line as if it were within our base yard. However, the DOW will not allow neighboring properties to connect to the line until such time PSW accepts and owns the 8" main as designed and constructed per the subject project plans. Please provide the DOW an application for service that appropriately reflects this situation so we can introduce flow to your system as soon as possible. We would like to physically connect and utilize the sewer line in June 2016 if possible. Please contact me should you have any questions.

Warmly,

Dustin Moises, P.E.
Construction Project Management Officer

Attachments: PSW Letter Dated 5/9/16
County of Kauai Department of Public Works, Sewer Design Standards June 1973
Sewer Line "A" Profile Sheet C-302
Sewer Line "A" and Waterline "A" Profile Sheet C-303

cc: Kirk Saiki, P.E.
Andrea Suzuki

DM/ce

AQUA ENGINEERS
AN EMPLOYEE OWNED COMPANY

3560 Koloa Road
Kalaheo, Hawai'i 96741

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May 9, 2016

16 MAY 11 P1:26

DEPT. OF WATER
COUNTY OF KAUAI

CC: Dustin
Andrea
Kirk

Dustin Moises. P.E.
Civil Engineer
Construction Project Management Officer
Construction Management Division Head
P.O. Box 1706
Lihue, Hawaii 96766

Dustin:

I appreciate your patience concerning the connection of DOW's sewer line to PSW's sewer system. While PSW will accept DOW as a customer, PSW will not accept dedication of DOW's sewer line except at the physical service connection point on PSW's sewer main.

Under PSW's tariff filed with the Hawaii Public Utilities Commission ("HPUC"), the normal rule is that the customer is responsible for the maintenance and repair of the lines located within the customer's property, while PSW is responsible for the maintenance and repair of the lines located outside the customer's property, including the service connection. See, **Rule 6.3, Service Connection**. However, in the DOW's case, the sewer line leaves the DOW property and crosses through additional lands before connecting to PSW's sewer main located at Old Nawiliwili Road.

Under **Rule 6.2, Building Sewer**, the Building Sewer (which is defined in Rule 1 as the "sewer lines and facilities originating within the Customer's property, which receive and pass the discharge from waste and other drainage pipes of the Customer to the Company's Sewer System via the Service Connection") shall at all times remain the property of the customer, who shall be responsible for its maintenance and repair. Rule 6.2 further provides the following:

> The size, slope, alignment, materials and method of construction of the Building Sewer, including, but not limited to, methods to be used in excavating, placing of pipe, jointing, testing and back filling the trench, shall conform in all respects to all building and plumbing codes and/or other applicable ordinances, rules and regulations of the County of Kauai, State of Hawaii and the Rules and Regulations of the Company. In the event of any conflict between the requirements of these Rules and Regulations and

such ordinances, rules and regulations of the County of Kauai or State of Hawaii, the strictest shall apply, unless the same may under the law and is waived by the Company, in its sole discretion. **Wherever any drain is too low to permit gravity flow to the Company's Sewer System, sewage carried by such drain shall, at the Customer's cost, be lifted by an approved means to a level necessary to permit its discharge into the Building Sewer**.

As we understand, the sewer line from the DOW's property was designed and installed with insufficient slope to permit gravity flow to the sewer main. DOW has attempted to cure this flaw by installing a water line that would periodically flush water in the line to push the sewage to PSW's sewer main. As we have previously indicated to you, the use of water to flush the sewage to the sewer main does not comply with the applicable sewer system standards or PSW's own Rules and Regulations. Rule 6.2 specifically requires the installation of a lift station in this situation.

Unless the DOW installs an appropriate lift station to resolve this flaw, PSW is unwilling and unable to accept dedication of the sewer line since PSW considers this line to be part of the Building Sewer, which by definition must be maintained by DOW. To do so would result in PSW potentially being in violation of its own Rules, and the cost to maintain or repair this defective sewer line would eventually be passed on to the other ratepayers, something that PSW not willing to do.

Thank you,

Hugh A. Strom
General Manager

cc via e-mail:

Suzuki, Andrea, asuzuki@kauaiwater.org
Saiki, Kirk, ksaiki@kauaiwater.org

OFFICE COPY
F. NAKAMURA

SEWER DESIGN STANDARDS

DEPARTMENT OF PUBLIC WORKS

COUNTY OF KAUAI

DEPARTMENT OF PUBLIC WORKS —— COUNTY OF KAUAI

SEWER DESIGN STANDARDS

JUNE 1973

1st. EDITION

Approved :

HERBERT H. MINAKAMI, COUNTY ENGINEER

5.	Apartment (R10)	2,500 gad
6.	General Industrial	6,000 gad
7.	Light Industry	4,000 gad
8.	School	25 gcd
9.	Institutional	200 gcd

22.2.3 Maximum Flow of Sewage: The maximum rate of sewage flow is obtained by multiplying the average rate by a flow factor. Except as noted in Section 11.1.6, Figure 22.2.3 shall be used to obtain the flow factor for the maximum rate of sewage flows. The average rate of daily sewage flow is the sum of the applicable sewage flow obtained in 22.2.1 and 22.2.2 above.

22.2.4 Ground Water Infiltration: The following rates shall be used in the design of sewers.

a. 2750 gad - Sewers laid below the normal ground water table.
b. 1250 gad - Sewers laid above the normal ground water table.

22.2.5 Peak Flow of Sewage: The peak flow of sewage is the sum of the applicable quantities obtained from 22.2.3 and 22.2.4.

22.2.6 Organization of Computation: Figure 22.2.6 shows the format desired for tabulating the results of computations for the design of sewers.

23. Hydraulics of Sewers

All gravity sewers shall be designed to carry the peak flow of sewage without surcharging and to transport suspended solids in such a manner that deposits in sewers and odor nuisances therefrom are kept to a minimum.

23.1 Formula and "n" Values: All sewer design shall be based on the Manning

Formula $(V = \frac{1.486}{n} r^{2/3} s^{1/2})$ $V = \frac{1.486}{n} \cdot r^{2/3} s^{1/2}$

using the "n" values given below:

a. 0.015 -- All pipes up to and including 18 inches in diameter.
b. 0.013 -- All pipes larger than 18 inches in diameter.
c. 0.015 -- Cast-in-place reinforced concrete conduits.

23.2 Velocities: All sewers shall be so designed to give mean velocities, when flowing full, of not less than 2.0 feet per second. The following minimum slopes are to be used for the different size pipes:

Kauai Standards

DIAMETER (inches)	MINIMUM SLOPE (ft. per ft.)
6	0.0060
8	0.0044
10	0.0032
12	0.0028
15	0.0020
18	0.0016
21	0.0010
24	0.0008

In the design of a sewer, an attempt shall be made to obtain adequate scouring velocities at average flow. The maximum velocities generally permitted is 10 feet per second. Where velocities greater than this are unavoidable special provisions shall be made to protect against erosion and displacement by shock. Specific approval of the Engineer shall be obtained when these higher velocities are used.

23.3 Transitions: Whenever there are changes in size, grades, or alignment of sewers, the invert of the downstream sewer shall be designed to allow for transitional, manhole, and bend losses.

24. Design of Sewer System

24.1 Minimum Size: The minimum sizes permitted for sewers are as follows:

a. 8 in. diameter for mains and branch mains in roadway areas.
b. 6 in. diameter for branch mains in easements, provided such branch mains shall serve not more than 10 residential lots with no possibility of future extensions.
c. 6 in. diameter for laterals.

24.2 Alignment and Grades: Sewers less than 36 in. in diameter shall be laid with constant grades and straight alignment between manholes. Sewers 36 in. and larger in diameter may be laid on a curved alignment. The minimum curve radius shall be four times the inside diameter of the pipe. A manhole shall be placed immediately before or after a segment of curved sewer.

24.3 Depth of Sewers: In general sewers shall be designed deep enough to serve all properties within the tributary area and to drain all basements when it is feasible and economical to do so. All properties which are considered unsewerable because of the designed depth of sewer shall be clearly shown on the plans as UNSEWERABLE.

24.4 Minimum Cover over Sewers: The following minimum cover should be provided over all sewers:

a. 4 ft.-- minimum cover in paved areas.
b. 3 ft.-- minimum cover in sidewalk areas.
c. 2 ft.-- minimum cover in easements in private property.

Where these depths are not provided, additional protection shall be provided by means of jacketing or other means acceptable to the Engineer.

24.5 Easement Widths: Wherever possible, sewers shall be laid within roads or where existing easements are available. Where the former is unavailable, or where new easements are necessary, the following widths shall be considered as standard widths for easements:

24.5.1 Lateral and Branch Sewers: 10 ft. for 6 in. and 8 in. diameter pipes.

24.5.2 Trunk and Interceptor Sewers:

a. 10 ft. for 8 in. to 21 in. diameter pipes.
b. 15 ft. for 24 in. to 36 in. diameter pipes.
c. 20 ft. for 42 in. to 60 in. diameter pipes.

24.5.3 Variations: The widths of easements specified in 24.5.1 and 24.5.2 may be modified by the Engineer when unusual conditions exist.

24.6 Manhole Location and Spacing: Manholes shall be installed at the ends of each line, at all changes in grade, size, or alignment, and at all points where sewer lines intersect. When manhole spacing is not controlled by the preceding limitations, they shall be spaced as equally as possible but not at a distance greater than that described below:

a. 350 ft.--pipes up to and including 36 in. in diameter in street areas.
b. 250 ft.--pipes up to and including 18 in. in diameter in easement areas.
c. 350 ft.--pipes larger than 18 in. and up to and including 36 in. in diameter in easement areas.
d. 600 ft.--pipes larger than 36 in. in diameter.

Manhole locations in low points subject to flooding such as in gutters are to be avoided. Junction manholes may be omitted when a pipe 8 in. or smaller joins an interceptor sewer 30 in. or larger and the interceptor sewer is on a long tangent alignment and when the addition of a manhole at this location would give a spacing of less than 50 ft. from the nearest manhole and less than 300 feet from the other manhole. When the junction manhole on the interceptor is omitted, a manhole on the side sewer shall be provided at a distance of not more than 15 ft. from the interceptor sewer.

24.7 Drop Manholes: A drop pipe should be provided where a sewer enters a manhole at an elevation of 12 in. or more above the manhole invert.

24.8 Lateral Sewers: Laterals shall not exceed 100 feet in length. All laterals should end with a 6 in. by 4 in. reducer at the property line.

24.9 Chimneys: Chimneys shall be provided for local service connections if the sewer is deeper than 10 ft. (top of pipe to ground line). The maximum height of chimneys shall be 12 ft. The chimney should extend to approximately 6 ft. below the ground surface.

24.10 Protection of Water Systems:

24.10.1 Water Supply Interconnections: There shall be no physical connection between a public or private potable water supply system and a sewer, or appurtenance thereto which could permit the passage of any sewage of polluted water into the potable supply.

24.10.2 Relation to Water Works Structures: While no general statement can be made to cover all conditions, it is generally recognized that sewers shall be kept remote from any public water supply wells or other water supply sources and structures.

24.10.3 Relation to Water Mains:

a. Horizontal separation: Sewers shall be laid at least 6 ft., horizontally, from any existing or proposed water main. Where conditions prevent a lateral separation of 6 ft., a sewer may be laid as close as 3 feet to the water main if it is laid in a separate trench and the elevation of the top (crown) of the sewer is at least 12 inches below the bottom (invert) of the water main.

b. Vertical separation: Whenever a sewer line crosses water mains, the sewer line must be jacketed with reinforced concrete for a minimum of 5 feet on both sides of the point of crossing if the sewer is above the water main and for 3 feet on both sides if the sewer is below the water main. However, jacketing may be eliminated if the sewer line is below the water main and the separation is greater than 18 inches.

24. Appurtenances

25.1 Manholes: A standard 48-inch diameter manhole shall be provided for pipes less than 30 inches in diameter. Special manholes shall be provided for pipes 30 inches and larger in diameter. Manholes for these larger pipes may be of shapes other than round. However, the shaft shall have a minimum dimension of 48 inches. Ventilation shafts may have a diameter of 24 inches or larger.

DESIGN STANDARDS

of the

DEPARTMENT OF WASTEWATER MANAGEMENT

Volume I

July, 1993

DEPARTMENT OF WASTEWATER MANAGEMENT
CITY AND COUNTY OF HONOLULU
STATE OF HAWAII

MUNICIPAL REFERENCE LIBRARY CATALOGING-IN-PUBLICATION:

Honolulu. Department of Wastewater Management.
Design standards.

1. Sewer design - Standards. 2. Sewage disposal plants - Design and construction - Standards.
TD658.H67

DEPARTMENT OF WASTEWATER MANAGEMENT
CITY AND COUNTY OF HONOLULU
STATE OF HAWAII

DESIGN STANDARDS

Volume I

GENERAL REQUIREMENTS FOR WASTEWATER FACILITIES

DESIGN OF SEWERS AND PUMP STATIONS

JULY, 1993

APPROVED:

DIRECTOR

22.2.7 Design Maximum Flow: The design maximum flow is the sum of the maximum flow and the applicable dry weather infiltration/inflow rate.

22.2.8 Wet Weather Infiltration/Inflow: The following rates shall be used in the design of sewers:

a. 2750 gad* - sewers laid below the normal ground water table.

b. 1250 gad - sewers laid above the normal ground water table.

* gad = Gallon Per Acre Per Day

22.2.9 Design Peak Flow: The design peak flow of wastewater is the sum of the applicable quantities obtained from Sections 22.2.7 and 22.2.8.

22.2.10 Organization of Computation: Figure 22.2.10 shows the format desired for tabulating the results of computations for the design of sewers.

23. Hydraulics of Sewers

All gravity sewers shall be designed to carry the peak flow of wastewater without surcharging and to transport suspended solids in such a manner that deposits in sewers and odor nuisances therefrom are kept to a minimum.

23.1 Formula and "n" Values: All sewer design shall be based on the Manning Formula ($V = \frac{1.486}{n} r^{2/3} s^{1/2}$) using the "n" values given below:

23.1.1 0.015 - All pipes up to and including 18 inches in diameter.

23.1.2 0.013 - All pipes larger than 18 inches in diameter.

23.1.3 0.015 - Cast-in-place reinforced concrete conduit.

23.2 Velocities: All sewers shall be designed to give mean velocities of not less than 2.0 feet per second when flowing full. The following minimum slopes are to be

used for the different sized pipes:

DIAMETER (inches)	MINIMUM SLOPE (ft. per ft.)
6	0.0060
8	0.0044
10	0.0032
12	0.0028
15	0.0020
18	0.0016
21	0.0010
24	0.0008

In the design of a sewer, an attempt shall be made to obtain adequate scouring velocities at average flow. Where the initial flows are small or soil conditions are poor, adjustment in the minimum slope may be necessary. The maximum velocity generally permitted is 10 feet per second. Where velocities greater than this are unavoidable, special provisions shall be made to protect against erosion and displacement by shock. Specific approval of the City shall be obtained when these higher velocities are used.

23.3 Transitions: Whenever there are changes in size, grades, or alignment of sewers, the invert of the downstream sewer shall be designed to allow for transitional, manhole, and bend losses.

24. Design of Sewer System

24.1 Minimum Size: The minimum sizes permitted for sewers are as follows:

24.1.1 8 inch diameter for mains and branch mains in roadway areas.

24.1.2 6 inch diameter for branch mains in easements, provided such branch mains shall serve not more than 10 residential lots and there are no possibilities of future extensions.

24.1.3 6 inch diameter for laterals.

Environet, Inc.

March 20, 2018

Mr. Bryan Wienand, P.E.
Deputy Manager-Engineer
County of Kaua‘i Department of Water
4398 Pua Loke Street
Līhu‘e, Hawai‘i 96766

Subject: **Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Wong,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your comment letter dated March 12, 2018 on the Draft Environmental Assessment for the subject project as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. Below are responses to your comments:

Summary of Comments:

- ***Parking****: The Department of Water, County of Kaua‘i, currently utilizes the existing park and ride parking facilities adjacent to Pua Loke Street. Our front office staff utilize the new parking lot that was constructed with our new office building, which opened in September, 2016. This facility was designed with adequate parking space for our office staff. However, at our current staffing levels, approximately 12 to 15 of our operations staff utilize the parking and the park and ride lot, which will be removed with your project. These numbers also do not account for future expansion and potential increases in staffing levels. In light of this, we respectfully request for your consideration of parking facilities for our staff as a part of your development. We would greatly appreciate the opportunity to work with you and your designers to find a solution for both the Housing Agency and the Department of Water's needs.*

- ***Existing sewer line in Pua Loke Street****: Please see the attached correspondence between the Department of Water (DOW) and Puhi Sewer Water (PSW). Please be aware that DOW owns the sewer line fronting the subject property and no connections to the sewer shall be made unless PSW takes ownership of the sewer line within the County right of way. The DOW worked with PSW when owned by Grove Farm Company to complete a design that was satisfactory to PSW prior to Aqua Engineers purchase of PSW. The new 8-inch sewer line was sized to accommodate future customers in our areas should requirements become necessary near our potable water well, or if they so desire.*

Responses:

- Thank you for your comments, as the County moves forward with the planning process and selection of a developer for the proposed affordable housing project, the County Housing Agency will be in discussion with the Department of Water with regards to parking at the proposed project site.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

- The County Housing Agency and the project engineers will work closely with the Department of Water and Puhi Sewer Water in establishing sewer service for the proposed affordable housing development.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

February 20, 2018

Mr. Robert Westerman
Fire Chief
County of Kaua‘i Fire Department
4444 Rice Street, Suite 315
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Westerman,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. George K. Costa
Director
County of Kaua‘i Office of Economic Development
4444 Rice Street, Suite 200
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Costa,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Lenny Rapozo
Director
County of Kaua‘i Department of Parks and Recreation
4444 Rice Street, Suite 105
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Rapozo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Phone (808) 833-2225 / Fax (808) 833-2231

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Michael Dahilig
Planning Director
County of Kaua‘i Planning Department
4444 Rice Street, Suite A473
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Dahilig,

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The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Darryl D. Perry
Chief of Police
County of Kaua‘i Police Department
3990 Kaana Street, Suite 200
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Perry,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Lyle Tabata
Acting County Engineer
County of Kaua‘i Public Works Department
4444 Rice Street, Suite 275
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Tabata,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Jeremy Kalawaia Lee
Program Specialist III
The Kaua‘i Bus
3220 Ho‘olako Street
Lihu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Lee,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Leo R. Asuncion, Jr., AICP
Director
State of Hawaii Office of Planning
235 South Beretania Street
Honolulu, Hawaii 96813

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Asuncion,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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

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

DTS 201803021425BE

March 5, 2018

Ms. Kanani Fu, Housing Director
County of Kauai Housing Agency
4444 Rice Street Suite 330
Lihue, Hawaii 96766

Dear Ms. Fu:

Subject: Draft Environmental Assessment, Pua Loke Affordable Housing Development, Lihue, Kauai, Hawaii
Tax Map Keys: (4) 3-8-005: 028 and 029

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for the Pua Loke Affordable Housing Development. The DEA review material was sent to our office via letter dated February 8, 2018.

The Kauai County Housing Agency (KCHA) seeks to develop a multi-family housing project along Pua Loke Street in Lihue, Kauai. The housing project is envisioned as an affordable housing development that will consist of a mix of multi-family rental and units for those experiencing homelessness for a maximum of 60 units with support infrastructure and amenities.

The Office of Planning (OP) has reviewed the DEA and offers the following comments:

1. The OP supports the Pua Loke Affordable Housing development as part of Kauai's Transit Ready Development (TRD) plan which includes increasing transit oriented affordable housing and the redevelopment of Lihue's town core to a more pedestrian oriented model. The site is within 600 feet of an existing bus stop, with plans for the concurrent development of a new stop to service the complex.

2. Our pre-consultation response letter dated October 31, 2017 (DTS 201710301718), recommended that the DEA:

   - Evaluate the project's consistency with all parts of the Hawaii State Planning Act, Hawaii Revised Statutes (HRS) Chapter 226.
   - Assess the project's ability to meet the objectives and policies of the Hawaii Coastal Zone Management (CZM) program, as listed in HRS § 205A-2.

- Analyze the impact of storm water inundation, develop mitigation strategies to offset the effects of polluted runoff to the surface and marine water resources, and consider the use of low-impact development (LID) features in the planning and design use of design elements in the commercial center's layout; and
- Consider how this project aligns with Act 127, Session Laws of Hawaii 2016, affordable rental housing goals.

OP acknowledges that the comments and concerns cited above in our pre-consultation letter have been addressed in the DEA

3. We note the following:

- Page 85, "State of Hawaii Land Use Law Chapter 205A, HRS" should be corrected to "State of Hawaii Coastal Zone Management Law, Chapter 205A, HRS"
- Act 120, Session Laws of Hawaii (SLH) 2013, made permanent Act 160, SLH 2010. Beach protection for the Draft EA, page 98, should refer to HRS § 205A-2 (c)(9), as amended.

If you should have any questions, please contact Josh Hekekia of CZM Program at (808) 587-2845 or Tomas Oberding of our Land Use Division at (808) 587-2885.

Sincerely,

Leo R. Asuncion
Director

c: Max Solmssen, Environet, Inc.

Environet, Inc.

March 20, 2018

Mr. Leo R. Asuncion
Director
State of Hawaii Office of Planning
P.O. Box 2359
Honolulu, Hawaii, 96804

Subject: **Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Mr. Asuncion,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your comment letter dated March 5, 2018 on the Draft Environmental Assessment for the subject project as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. Below are responses to your comments:

Summary of Comments:

- *The OP supports the Pua Loke Affordable Housing development as part of Kauai's Transit Ready Development (TRD) plan which includes increasing transit oriented affordable housing and the redevelopment of Lihue's town core to a more pedestrian oriented model. The site is within 600 feet of an existing bus stop, with plans for the concurrent development of a new stop to service the complex.*
- *OP acknowledges that the comments submitted in their pre-consultation letter have been addressed in the DEA.*
- *Page 85, "State of Hawaii Land Use Law Chapter 205A, HRS" should be corrected to "State of Hawaii Coastal Zone Management Law, Chapter 205 A, HRS".*
- *Act 120, Session Laws of Hawaii (SLH) 2013, made permanent Act 160, SLH 2010. Beach protection for the Draft EA, page 98, should refer to HRS Chapter 205A-2 (c)(9), as amended.*

Responses:

- Thank you for your support of the Proposed Action as part of Kauai's TRD plan.
- The reference to "State of Hawaii Land Use Law Chapter 205A, HRS" will be revised to "State of Hawaii Coastal Zone Management Law, Chapter 205 A, HRS" in the final environmental decision document.
- The final decision document will be revised to include reference to compliance with HRS Chapter 205A-2 (c)(9) Beach Protection since the proposed project would be located mauka of the shoreline setback area and would not include any erosion-protection structures seaward of the shoreline.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

February 20, 2018

Mr. David Smith
Administrator
Department of Land and Natural Resources, Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Smith,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Russell Y. Tsuji
Administrator
Department of Land and Natural Resources
Land Division
1151 Punchbowl Street #221
Honolulu, Hawaii 96813

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Tsuji,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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c/o Max Solmssen
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Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ms. Carty S. Chang
Chief Engineer
Department of Land and Natural Resources
Engineering Division
1151 Punchbowl Street #221
Honolulu, Hawaii 96813

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. Chang,

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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

March 22, 2018

Environet, Inc.
Attention: Mr. Max Solmssen, Project Manager via email: msolmssen@environetinc.com
1286 Queen Emma Street
Honolulu, Hawaii 96813

Dear Mr. Solmssen:

SUBJECT: Draft Environmental Assessment (DEA) for **Pua Loke Affordable Housing Development**

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

At this time, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
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

February 22, 2018

'18 FEB 26 PM01:02 RECEIVED ENGINEERING LAND DIVISION

2018 MAR -9 AM 11:13 DEPT OF LAND & NATURAL RESOURCES STATE OF HAWAII

MEMORANDUM

~~TO:~~ FROM

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 – Kauai District
X Historic Preservation

~~FROM:~~ TO

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for **Pua Loke Affordable Housing Development**
LOCATION: Lihue, Island of Kauai; TMK No. (4) 3-8-005:028 and 029
APPLICANT: Kauai County Housing Agency

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **March 21, 2018.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click Online Library of EAs and EISs – Publication Date: February 8, 2018).

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 Lydia Morikawa at 587-0410. Thank you.

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

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 3/8/18

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Draft Environmental Assessment (DEA) for Pua Loke Affordable Housing Development, Lihue, Island of Kauai; TMK No. (4) 3-8-005:028 and 029

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: 3/9/12

Environet, Inc.

March 23, 2018

Ms. Carty S. Chang
Chief Engineer
Department of Land and Natural Resources
Engineering Division
1151 Punchbowl Street #221
Honolulu, Hawaii 96813

Subject: **Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. Chang,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your letter dated March 22, 2018 on the Draft Environmental Assessment (DEA) for the subject project as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. Below are responses to your comments:

Summary of 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). Be advised that 44 CFR 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 the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

Responses:

- Thank you for your comments and provided resources. According to FEMA records, the project site is not located within the 100-year or 500-year floodplain zones, and therefore does not include any Special Flood Hazard Areas.

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

February 20, 2018

Kenneth G. Madsen II
Public Works Manager Planning Section
Department of Education
P.O. Box 2360
Honolulu, HI 96804

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Madsen,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ms. Laura Leialoha Phillips McIntyre
Program Manager
State of Hawaii Department of Health Environmental Planning Office
P.O. Box 3378
Honolulu, Hawai‘i 96801-3378

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. McIntyre,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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:
File:

EPO 18-037

February 15, 2018

Mr. Max Solmssen
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813
Email: msolmssen@environetinc.com

Dear Mr. Solmssen:

SUBJECT: Draft Environmental Assessment (DEA) for Pua Loke Affordable Housing Development, Kauai TMK: (4) 3-8-005: 028 & 029

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

We understand from the OEQC publication form project summary that *"The Proposed Action is the development of the Pua Loke Affordable Housing Development; a County of Kauai affordable housing project. The development would include a maximum of 60 dwelling units to provide multi-family rental housing units to accommodate a blend of affordable incomes, as well as designated units to serve those experiencing homelessness. The Proposed Action would be located along Pua Loke Street and Haleko Road in the town of Lihue, Kauai."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease.

An example of social influences include access to safe pedestrian corridors such as pathways, sidewalks, bike lanes, greenways and open space. §11-200-17(h), HAR, says EISs must discuss how proposed actions may conform or conflict with any policies for the affected area. This includes Hawaii's 2009 Complete Streets law, which requires the state and counties to establish policies to accommodate all users of the road, no matter age, ability, or mode of transportation. In 2015, Hawaii passed Act 97 which amended Hawaii's Renewable Portfolio Standards by setting a goal for Hawaii to become one hundred percent renewable by the year 2045. To reach this goal Hawaii should transform its transportation sector from the use of fossil fuels to renewable fuel, electric vehicles (EV)s, and public transit systems including bikeshare programs. To address "range anxiety" and facilitate the adoption of EVs, it is essential that EV charging stations be added to any planned parking areas open to the EV driving public. Plans

should strive to encourage the use of personal bicycles though the development of designated bike lanes and class A bike trails. All efforts should be made to reduce harmful vehicle emissions, reduce vehicle miles travelled (VMT's), encourage alternative modes of transport and increase physical activity.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

If you haven't already, EPO recommends that you review the new Healthy Communities Policy Guide: https://planning-org-uploaded-media.s3.amazonaws.com/document/Healthy-Communities-Policy-Guide.pdf, Plan4health website: http://plan4health.us and the free, on-demand, six part Plan4Health webinar series available on the American Planning Association website.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch (WWB) at (808) 586-4294.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

A phase I Environmental Site Assessment (ESA) and site investigation should be conducted for residential development or redevelopment projects in current or formerly used industrial areas and on formerly and currently zoned agricultural land used for growing sugar, pineapple or other agricultural products. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants may have occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and/or groundwater sampling plan. Please refer to Sections 3 and 4 of the HEER Office Technical Guidance Manual http://www.hawaiidoh.org.

If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with State Law (HRS, Chapter 128D, "Environmental Response Law", Chapter 451, "State Contingency Plan"). To identify HEER records related to the property, visit http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records. For information on site assessment and cleanup programs review: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs. Any specific questions should be directed to the HEER office at (808) 586-4249.

The property may harbor vectors which may disperse to the surrounding areas when the site is cleared. In accordance with Title 11, HAR, Chapter 11-26, "Vector Control", the applicant shall ascertain the presence or absence of rodents on the property. Should the presence of vectors be determined, the applicant shall eradicate the vectors prior to clearing the site.

The Hawaii Disability and Communication Access Board (DCAB) recommends the inclusion of access for persons with disabilities through all phases of design and construction. New construction and alteration work shall comply with all applicable accessibility requirements. Projects covered by §103-50, Hawaii Revised Statutes, and HAR Title 11 Chapter 216 shall seek advice and recommendations from DCAB on any construction plans prior to commencing with construction. If you have any questions please contact DCAB at (808) 586-8121 or dcab@doh.hawaii.gov.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed an environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,

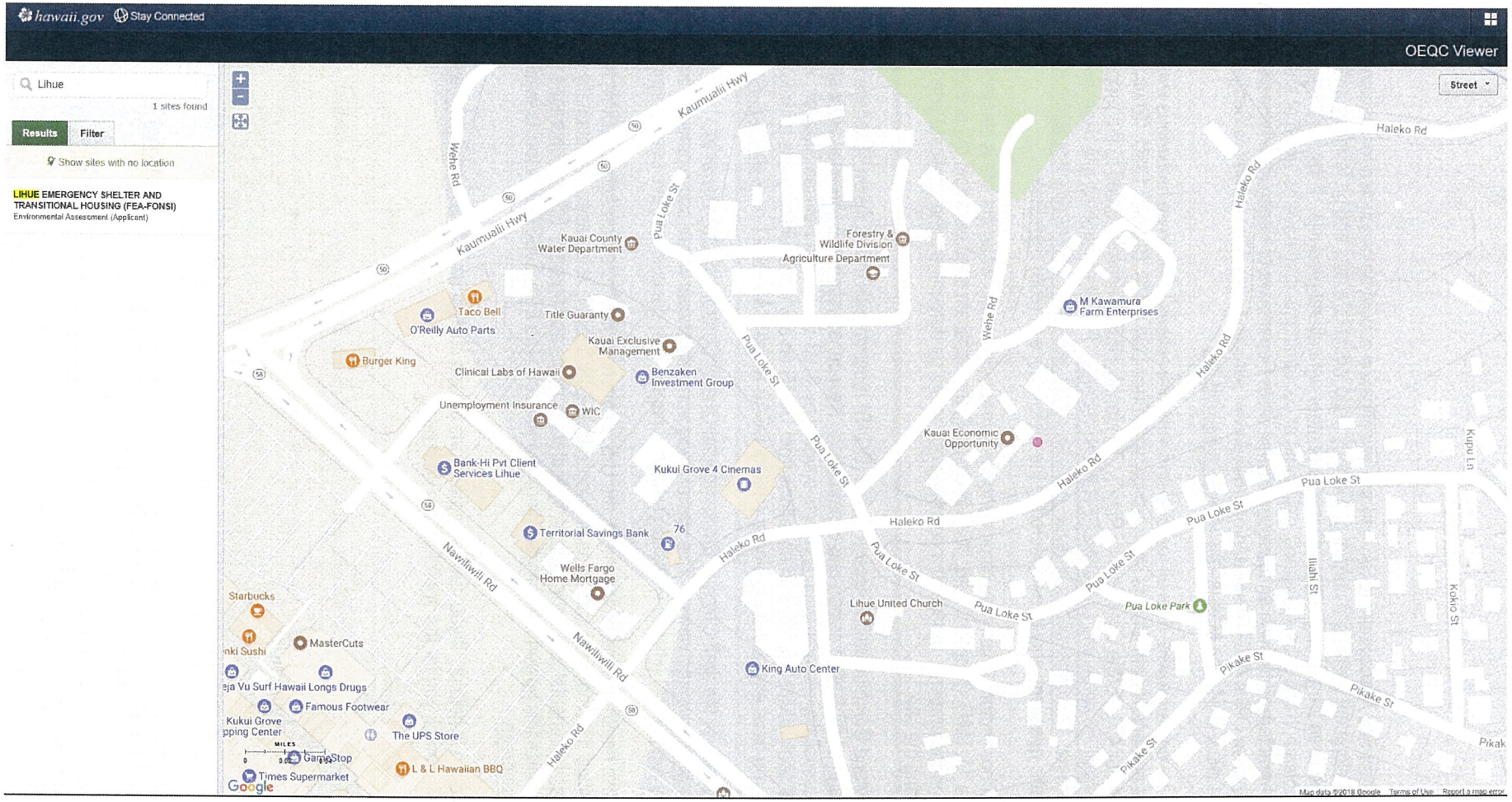
Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office

LM:nn

c: Kanani Fu, Housing Director, Kauai County Housing Agency (via email: kananifu@kauai.gov)
DOH: DHO Kauai, CWB, WWB, CAB, IRHB, HEER, DCAB, PHP {via email only}

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)
Attachment 2: U.S. EPA EJSCREEN Report for Project Area

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)



Attachment 2: U.S. EPA EJSCREEN Report for Project Area

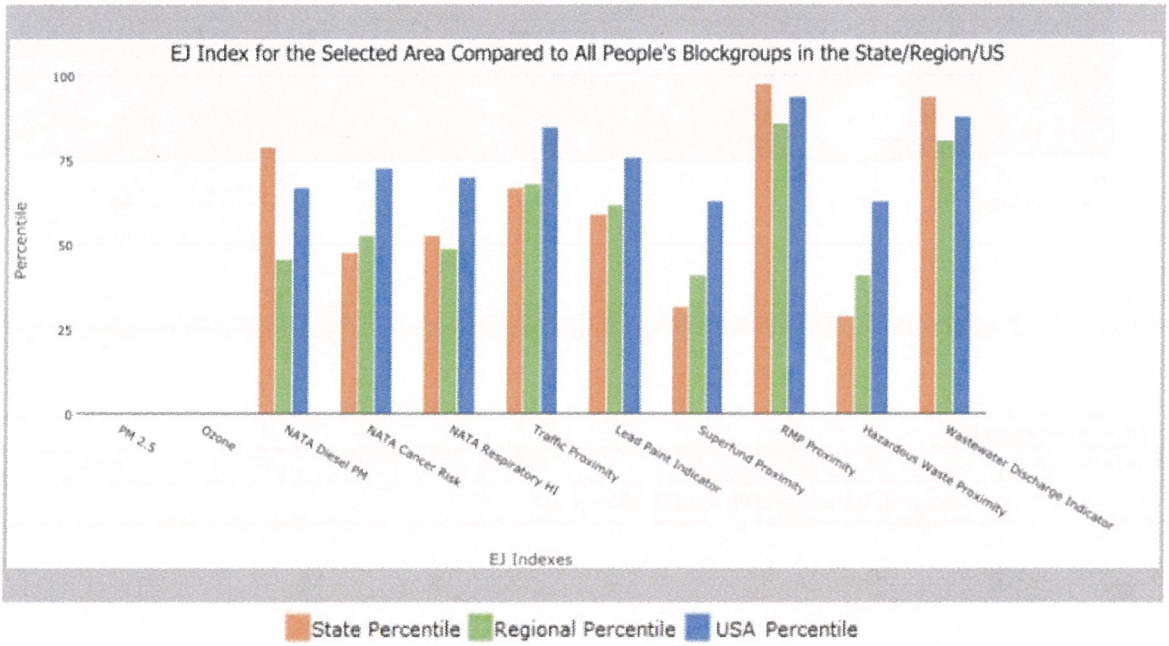
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.972591,-159.376354, HAWAII, EPA Region 9

Approximate Population: 6,107

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	79	46	67
EJ Index for NATA* Air Toxics Cancer Risk	48	53	73
EJ Index for NATA* Respiratory Hazard Index	53	49	70
EJ Index for Traffic Proximity and Volume	67	68	85
EJ Index for Lead Paint Indicator	59	62	76
EJ Index for Superfund Proximity	32	41	63
EJ Index for RMP Proximity	98	86	94
EJ Index for Hazardous Waste Proximity	29	41	63
EJ Index for Wastewater Discharge Indicator	94	81	88



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.

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.972591,-159.376354, HAWAII, EPA Region 9

Approximate Population: 6,107

Input Area (sq. miles): 3.14

February 15, 2018

Digitized Point

1:1,128

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.972591,-159.376354, HAWAII, EPA Region 9

Approximate Population: 6,107

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.207	0.149	79	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	28	34	28	43	<50th	40	<50th
NATA* Respiratory Hazard Index	0.84	1	45	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	400	1000	63	1100	55	590	74
Lead Paint Indicator (% Pre-1960 Housing)	0.11	0.16	51	0.24	47	0.29	38
Superfund Proximity (site count/km distance)	0.0068	0.1	27	0.15	5	0.13	1
RMP Proximity (facility count/km distance)	3.1	0.39	99	0.98	93	0.73	96
Hazardous Waste Proximity (facility count/km distance)	0.0062	0.1	23	0.12	2	0.093	2
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0022	0.04	92	13	72	30	72
Demographic Indicators							
Demographic Index	55%	51%	62	47%	62	36%	77
Minority Population	74%	77%	34	59%	63	38%	81
Low Income Population	37%	26%	77	36%	55	34%	58
Linguistically Isolated Population	5%	6%	60	9%	45	5%	71
Population With Less Than High School Education	8%	9%	58	17%	36	13%	41
Population Under 5 years of age	8%	6%	76	7%	70	6%	73
Population over 64 years of age	15%	16%	49	13%	69	14%	62

* 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 provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Environet, Inc.

March 20, 2018

Ms. Laura Leialoha Phillips McIntyre
Program Manager
State of Hawaii Department of Health Environmental Planning Office
P.O. Box 3378
Honolulu, Hawai‘i 96801-3378

Subject: **Kaua‘i County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihu‘e, Kaua‘i

Dear Ms. McIntyre,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, received your comment letter dated February 15, 2018 on the Draft Environmental Assessment (DEA) for the subject project as part of the environmental review process under Hawai‘i Revised Statutes (HRS) Chapter 343, Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. Below are responses to your comments:

Summary of Comments:

- *Hawaii environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts [...]*

- **Response:** Section 3.3.4.2 of the DEA discusses the socioeconomic impacts of the proposed project. A more detailed discussion relating to community health will be added to the final environmental decision document. The proposed affordable housing development would have a positive effect on community health since its location would encourage healthy lifestyle habits such as walking and biking to parks, shopping areas and other community services/recreational activities. Further, An increase in affordable housing stock for Kaua‘i’s people would increase social connectedness and safety, creating a positive health effect for those who live at the Site, and for their families, friends and larger social community.

- *We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing [...]*

- **Response:** Section 3.3.4.2 of the DEA discusses the socioeconomic impacts of the proposed project. A more detailed discussion relating to community health will be added to the final environmental decision document.

- *[...] All efforts should be made to reduce harmful vehicle emissions, reduce vehicle miles travelled (VMTs), encourage alternative modes of transport, and increase physical activity.*

- **Response:** As stated in the DEA, the proposed development would be located in the urban core of Līhu‘e town within close proximity to jobs, public transit and services, which would reduce the VMT

for occupants at the proposed housing development, and encourage use of public transit. This information will also be included in the final environmental decision document.

- *In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable health design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.*

- **Response**: The State and Federal environmental health land use guidance has been reviewed and incorporated into the environmental review process, as applicable to the proposed project.

- *If you haven't already, EPO recommends that you review the new Health Communities Policy Guide:* http://planning-org-uploaded-media.s3.amazonaws.com/document/Health-Communities-Policy-*Guide.pdf , Plan4health website:* http://plan4health.us *and the free, on-demand, six part Plan4Health webinar series available on the American Planning Association website.*

- **Response**: Thank you for the resource, the APA new Health Communities Policy Guide has been reviewed and has been incorporated into the environmental review process.

- *EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at:* https://eha-cloud.doh.hawaii.gov.

- **Response:** Thank you for the resource, the Hawaii Environmental Health Portal has been reviewed and has been incorporated into the environmental review process.

- *We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at:* http://health.hawaii.gov/cwb.

- **Response:** Consultation is ongoing with the Department of Health Clean Water Branch. The project will comply with applicable provisions of HAR 11-55 and 11-54 with respect to water quality standards and discharges.

- *Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems").*

- **Response:** All wastewater plans will conform to HAR Chapter 11-62. Wastewater will be discharged into the Puhi Sewer and Water Company System. Please refer to Section 3.3.7.2 of the DEA for further information.

- *If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control").*

- **Response:** Applicable best management practices (BMPs) would be implemented during construction activities in order to control fugitive dust emissions in accordance with Title 11, HAR 11-60.1. These BMPs would include watering active work areas and unpaved work roads; use of wind screens; establishment of a routine road cleaning and/or tire washing program; paving of parking areas; establishment of landscaping early in the construction schedule; and monitoring dust at the project boundary. Please refer to Section 3.2.6.2 of the DEA for more information.

- *Any waste generated by the project […] needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control").*

- **Response:** The selected contractor will create a Solid Waste Management Plan developed in accordance with county regulations. All solid waste will be disposed of at a solid waste management facility in compliance with HAR Chapter 11-58.1. The development is not expected to have a long-term impact on the county solid waste collection system and landfill. Residential solid waste service would be provided by the County of Kaua'i Refuse Division in accordance with current collection policies. Please refer to Section 3.2.5.2 of the DEA for more details.

- *If noise is created during the construction phase of the project that may exceed the maximum allowable levels (HAR, Chapter 11-46 "Community Noise Control"), then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at:* http://health/hawaii.gov/irhb/noise. *[...].*

- **Response:** BMPs (e.g., construction scheduling; insulation/muffling; reduced power options; equipment substitution, selection, retrofit, and maintenance; utilization of staging areas; and non-permanent noise barriers) would be implemented to reduce or eliminate noise and buffer zones between construction activities and residential areas; and construction work would be limited to the hours between 7:30 am and 5:30 pm on weekdays. If noise levels exceed those specified in HAR Chapter 11-46, a noise permit will be obtained from DOH. Please refer to Section 3.2.7.2 of the DEA for more information.

- *A Phase I Environmental Site Assessment (ESA) and site investigation should be conducted [...].*

- **Response:** A Phase I ESA was conducted for the site in August 2017. According to the August 2017 Phase I ESA, there may be the potential for the presence of chemicals previously used in pesticides in soils at the project site, as well as PCBs in the pole-mounted transformer present at the project site. To minimize these hazards, a Phase II soil investigation of soils at the project site would be conducted prior to disturbance of soils. Soils would be screened for target chemicals prior to disturbance, and any disturbance to utility poles and/or transformers at the project site would be coordinated with KIUC to assure proper characterization, handling, and disposal of material potentially containing PCBs. Please refer to Section 3.2.5.1 of the DEA for further information.

- *[...] In accordance with Title 11, HAR, Chapter 11-26 "Vector Control", the applicant shall ascertain the presence or absence of rodents on the property. Should the presence of vectors be determined, the applicant shall eradicate the vectors prior to clearing the site.*

- **Response:** If encountered, vectors shall be eradicated prior to clearing the site for construction activities.

- *The Hawaii Disability and Communication Access Board (DCAB) recommends the inclusion of access for persons with disabilities throughout all phases of design and construction [...].*

- **Response:** The final environmental decision document will discuss how the project would comply with all applicable accessibility requirements.

- *You may also wish the review the draft Office of Environmental Quality Control (OEQC) viewer at:* http://eha-web.doh.hawaii.gov/oeqc-viewer. *[...]*

- **Response:** Thank you for the resource. The draft OEQC viewer has been reviewed and EA/EISs near to the project site have been reviewed.

- *To better protect health and the environment, the U.S. Environmental Protection Agency (EPA) has developed an environmental justice (EJ) mapping and screening tool called EJSCREEN [...] EPO encourages you to explore, launch, and utilize this powerful tool in planning your project. The EPA EJSCREEN is available at:* http://www.epa.gov/ejscreen.

- **Response:** Thank you for the resource. The EPA EJSCREEN around the project area has been reviewed and incorporated into the DEA. There are no Superfund National Priority List sites nor any hazardous waste treatment, storage, and disposal facilities (TSDF) located within a 1-mile radius of the project site. Environmental and demographic indicators around the site have also been considered.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

February 20, 2018

Mr. Scott Glenn
Director
State of Hawaii Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai‘i 96813

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Glenn,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Alec Wong P.E.
Chief
State of Hawaii Department of Health-Clean Water Branch
P.O. Box 3378
Honolulu, Hi 96801-3378

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Wong,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

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

03007PKP.18

March 7, 2018

Mr. Max Solmssen
Project Manager
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawaii 96813

Dear Mr. Solmssen:

SUBJECT: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauai County Housing Agency Pua Loke Affordable Housing Development TMK: (4) 3-8-005, Parcels 028 and 029 Lihue, Kauai, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated February 20, 2018, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf

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 discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

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.

3. 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 (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

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.

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. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

KP

c: DOH-EPO [via e-mail Noella.Narimatsu@doh.hawaii.gov only]

Environet, Inc.

March 20, 2018

Mr. Alec Wong P.E.
Chief
State of Hawaii Department of Health Clean Water Branch
P.O. Box 3378
Honolulu, Hawaiʻi 96801-3378

Subject: **Kauaʻi County Housing Agency**
Pua Loke Affordable Housing Development
TMK (4) 3-8-005, Parcels 028 and 029
Lihuʻe, Kauaʻi

Dear Mr. Wong,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, received your comment letter dated March 7, 2018 on the Draft Environmental Assessment for the subject project as part of the environmental review process under Hawaiʻi Revised Statutes (HRS) Chapter 343, Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200, the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities. Below are responses to your comments:

Summary of Comments:

- *Any project and its potential impacts to State waters must follow […] a) Antidegradation policy (HAR, Section 11-54-1.1) […] b) Designated uses (HAR, Section 11-54-3) […], c) Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).*
- *A National Pollutant Discharge Elimination System (NPDES) permit may be required […](HAR, Chapter 11-55).*
- *If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch, regarding their permitting requirements. Need to act in accordance with Clean Water Act, Paragraph 401A.*
- *All discharges […] must comply with State's Water Quality Standards.*
- *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 [...]; b) Clearly articulate the State's position on water quality and the beneficial uses of State waters[...]; c) Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse [...]; d) Consider the use of green building practices[...]; e) Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing hydraulic capacity [...].*

Responses:

- The proposed project does not include in water work. Any discharges that may occur from the project area would need to comply with HAR 11-54.
- An NPDES permit application for coverage under Section 402 of the Clean Water Act will be submitted to DOH Clean Water Branch in compliance with HAR 11-55 if the final project design disturbs an acre or more of land area.

- The proposed project would not include discharges into, or work within navigable waters/ streams. Therefore, a Clean Water Act 401 permit or other permits regulated by the Army Corps of Engineers are not anticipated.
- All discharges from the project site during construction and operation will need to comply with State water quality standards HAR 11-54 and 11-55.
- The proposed housing development will include the construction of a surface water drainage system to collect storm water flow, and will be designed in accordance with the County of Kaua‘i Department of Public Works standards. The incorporation of sustainable features will be incorporated into the project design, to the extent feasible.

Please feel free to contact us should your agency have any additional comments.

Phone: (808) 833-2225, ext. 1012
E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager

Environet, Inc.

February 20, 2018

Pacific Islands Contact Office
United States Environmental Protection Agency, Region 9
300 Ala Moana Boulevard, Room 5124
Honolulu, Hawai‘i 96850

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Sir or Madam,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Reginald Gage
Vice President
Grove Farm
P.O. Box 1631
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Gage,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Jason Thune
Director, Network Development
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawai‘i 96841

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Thune,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Phone (808) 833-2225 / Fax (808) 833-2231

Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Scott Enright
Chairperson/Director
State of Hawai‘i Department of Agriculture
1428 South King Street
Honolulu, Hawai‘i 96814

Subject: **Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i**

Dear Mr. Enright

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Gerald N. Takamura
Chief
State of Hawaii Department of Health
Kaua‘i District Health Office
3040 Umi Street
Lihu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Takamura,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Marshall Ando
Acting Highways Administrator
Hawai‘i Department of Transportation Highways Division
869 Punchbowl Street, Room 513
Honolulu, Hawai‘i 96813

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Ando,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Raymond McCormick
District Engineer
Hawaii Department of Transportation, Kaua‘i District
1720 Haleukana Street
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Dill,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Hui Kakoʻo ʻAina Hoʻopulapula
P.O. Box 37958
Honolulu, Hawaiʻi 96837

Subject: **Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi**

To whom it may concern,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Mel Rapozo
Council Chair
Kaua‘i County Council
4396 Rice Street, Suite 209
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Rapozo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc.

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c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Kaua‘i / Ni‘ihau Burial Counsel
C/O Ms. Kauanoe Ho‘omanawanui
Cultural Historian, State Historic Preservation District
Department of Land and Natural Resources
PO Box 1729
Lihue, Hawaii 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. Ho‘omanawanui,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. David Bissell
President and CEO
Kaua‘i Island Utility Cooperative
4463 Pahe‘e Street, Suite 1
Līhu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Bissell,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Andra Ota
Center Manager
Līhuʻe Neighborhood Center
3353 Eono Street
Līhuʻe, Hawaiʻi 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi

Dear Mr. Ota,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Postmaster - Kaua‘i
Līhu‘e Post Office
4441 Rice Street
Līhu‘e, Hawai‘i 96766

Subject: **Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i**

Dear Sir or Madam,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ms. Carolyn Larson
Branch Manager
Līhuʻe Public Library
4344 Hardy Street
Līhuʻe, Hawaiʻi 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi

Dear Ms. Larson,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc.

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Kamanaʻopono Crabbe
Chief Executive Officer
Office of Hawaiian Affairs
560 Nimitz Highway, Suite 200
Honolulu, Hawaiʻi 96817

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi

Dear Mr. Crabbe,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ms. D. Kaliko Santos
Community Outreach Coordinator
Office of Hawaiian Affairs
4405 Kukui Grove Street, Suite 103
Lihu‘e, Hawai‘i 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. Santos,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ms. Liberta Lilia Hussey Albao
President
Queen Deborah Kapule Hawaiian Civic Club
P.O. Box 164
Kapaʻa, Hawaiʻi 96746

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi

Dear Ms. Albao,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

Below is a link to download/review the DEA on the State of Hawaii Office of Environmental Quality Control (OEQC) Environmental Notice share point.

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-02-08-KA-DEA-Pua-Loke-Affordable-Housing-Development.pdf

1286 Queen Emma Street, Honolulu, HI 96813
Phone (808) 833-2225 / Fax (808) 833-2231

We are requesting that you please send any written comments on the DEA to the following physical or email addresses by March 12, 2018:

Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Peter Kea, Jr.
Royal Order of Kamehameha, Kaumualiʻi Chapter III
P.O. Box 1381
Līhuʻe, Hawaiʻi 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi

Dear Mr. Kea,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihuʻe. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ms. Susan Lebo
Archaeology Branch Chief, State Historic Preservation District
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaii 96707

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. Lebo,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Ka‘ahiki Solis
Cultural Historian, State Historic Preservation District
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, Hawai‘i 96707

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Ms. Solis,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

The Site is currently used as a paved asphalt parking lot for County worker vehicles and heavy equipment storage. The Site also includes landscaped grass areas with drainage swales. The Site occupies approximately 1.46 acres of land along Pua Loke Street in Lihu‘e. As part of the environmental review process, we are seeking consultation with your agency for any comments on the DEA based on your field of expertise.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Alan Downer
Administrator
State Historic Preservation District, Department of Land and Natural Resources
601 Kamokila Boulevard, Kakuhihewa Building, Suite 555
Kapolei, Hawai‘i 96707

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Downer,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Joshua Martin
Plant Supervisor
Spectrum
2956 Aukele Street, Suite 101
Līhuʻe, Hawaiʻi 96766

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kauaʻi County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihuʻe, Kauaʻi

Dear Mr. Martin,

Environet, Inc. (Environet), on behalf of the Kauaʻi County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 343 and Hawaiʻi Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihuʻe, Kauaʻi (the Site) (please see the enclosed Location Map). The County of Kauaʻi owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Environet, Inc.

February 20, 2018

Mr. Aaron Nadig
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

Subject: Notice of the Publication of the Draft Environmental Assessment (DEA) for the Kaua‘i County Housing Agency Pua Loke Affordable Housing Development TMK (4) 3-8-005, Parcels 028 and 029 Lihu‘e, Kaua‘i

Dear Mr. Nadig,

Environet, Inc. (Environet), on behalf of the Kaua‘i County Housing Agency, has prepared a Draft Environmental Assessment (DEA) in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and Hawai‘i Administrative Rules (HAR) Title 11, Chapter 200. The DEA also complies with the National Environmental Policy Act (NEPA), as well as United States Department of Housing and Urban Development (HUD) Code of Federal Regulations (CFR) Title 24 Part 58: *Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities*. The DEA has been prepared in order to evaluate the potential environmental, social, and economic consequences associated with the proposed project. The proposed project includes the construction of a multi-family affordable rental housing development located within the subject parcels along Pua Loke Street in Lihu‘e, Kaua‘i (the Site) (please see the enclosed Location Map). The County of Kaua‘i owns the subject parcels and is proposing an affordable rental housing development that is planned to accommodate a blend of affordable incomes, as well as serve families and individuals experiencing homelessness. The housing development would include a maximum density of approximately 60 dwelling units and associated parking areas.

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Environet, Inc
c/o Max Solmssen
1286 Queen Emma Street
Honolulu, HI 96813

E-mail: msolmssen@environetinc.com

Sincerely,

Max Solmssen
Project Manager
Environet, Inc.

Pua Loke Affordable Housing Project Public Meeting
March 8, 2018
Lihue Civic Center, Piikoi Conference Room A
6:00 p.m. – 8:00 p.m.

Representing County of Kaua'i:
Housing: Koa Duncan, Kanani Fu, Steve Franco
CPE – Anson Murayama, Frank Camacho
Environet, Inc. - Max Solmssen

Koa and Max provided power point presentation of the Pua Loke Affordable Housing Project (Attachment 1). The meeting was then opened for questions from the attendees.

Summary of Questions/Responses

Question:
Do you have a completion date?

Response:
Generally, completion date is 24 months because of Low Income Housing Tax Credits (LIHTC). If construction commences March 2020 the project could take up to 24 months. Most County projects usually takes 10-14 months barring weather issues.

Question:
One of the slides mentioned community support. Is there general community support positive for this project?

Response:
Comment letters were received with support for the proposed project.

Follow up Question:
How many agencies?

Response:
Not sure on the exact amount but more than five agencies.

Follow up Question:
What type of agencies? State agencies? Community Groups?

Response:
We reached out to community groups and government agencies. It was confirmed that a total of 41 pre-consultation and notice of draft EA publication letters were sent.

Question:
How did the County acquire the parcel and what was there before the acquisition?

Response:
We are unaware of how the County obtained this parcel.

Follow up Comment:
It is unusual that the County would own land and there are concerns with the proximity of the parcel to Lihue Cemetery.

Question/Comment:
What is the traffic impact based on the traffic study and pleased with the roundabout proposal. Very supportive of the roundabout.

Response:
Per the traffic study with 60 units, a roundabout traffic flow or service would remain the same. Without a roundabout, there is minimal increase in delay. The level of service would not trigger the housing agency to make improvements.

Question:
What is the square footage of the units?

Response:
The plan is conceptual. 1,280 square feet for a three bedroom. Again, this is just a conceptual design. When the developer is selected they have design control of the unit. The design could change.

Comment:
Pollution issues with the development. www.holotech.biz is a resource for pollution issues tied to development and long term concerns with public transportation.

Question/Comment:
I am a member of a group that was listed in the draft EA and I work in the area. Who the heck does 1.25 parking spots? The reality is that a 3 bedroom unit would have at least have 2 cars. Parking will be all over the nearby neighborhood and will overflow everywhere. Kauai is not urban and its people are used to houses with lots. Also concerns with the proximity to the Lihue Cemetery and cultural issues. Native Hawaiians think holistically. Safety concerns in the surrounding area.

Comment:
Suggestions provided to other options for parking. Possibly underground. Possible security cameras to address safety concerns.

Question/Comment:
Only one Handicap accessible parking stall of the 53 parking stalls?

Response:
This is just a conceptual drawing. What was presented will probably not be close to the final design. Between now and 2020 there may be new requirements for DCAB that will have to be taken into account.

Question:
Has this project been considered for Senior Housing?

Response:
This project will not be just for senior housing. It will serve various types of households.

Question:
What does one bedroom units start at?

Response:
We do conceptual drawings because we need to put in the parameters of the project. When we go out to solicit a developer the developer will dictate the design within the parameters of the zoning code. But it's all about financing. Whatever the developer can proforma out on the project. What we are seeing right now with tax credits is 30-38 units. The County's role is to entitle the land and to clear all the environmental regulations. We then hand it over to a developer which will create a final design which would need to be approved by all applicable county agencies. Community outreach would be done again once the final design details are completed by the developer. This usually takes 18 months.

Question:
Will this project be accessible to a bus stop?

Response:
Without a widening improvement project on Haleko Road, a bus stop can't fit. There are other bus stops within walking distance.

Question:
Will the project be accessible to the current bus stop near the office/businesses?

Response:
The County currently does not have any agreements with any nearby property owners. At the Class IV permitting process we will finalize the plans for this type access.

Question:
Will there be a fence around the building?

Response:
This will be put into the design when a developer is selecting through the planning process. The Planning Department will determine what is required through Class IV permitting process.

Question:
Will there be indoor washrooms or outside clothes hanging allowed?

Response:
Again this would be determined by the developer. All of our current projects have indoor washing.

Comment:
Kauai thinks rural even in Lihue. We need to start thinking and changing the mindset to urban.

Question:
Is there any additional land larger than the 1.4 acres?

Response:
Yes this parcel is currently owned by the County of Kauai and under our site control. We currently have other projects in development.

Question:
Is the County of Kauai 100% green?

Response:
This project could potentially have green features but it is not a requirement to be 100% green.

Question:
Are you open to that or net zero?

Response:
For affordable projects the type and amount of investment would influence final design. The County of Kauai will not be required to be net zero. The County supports energy efficiency but it is not a requirement.

Question:
What is your budget?

Response:
We do not have a budget for development. The County of Kauai is responsible to complete the environmental regulations.

ADDITIONAL COMMENTS:
Look at protecting the area as long as we can keep the project it in the parameters.

Policy movements are happening and the project could be affected.

Very happy to hear about the roundabout. Traffic impact is at a crisis.

Issues with Haleko Road. Possibly link it to the project.

Do not touch the kukui trees on the property.

Response:
The RFP will include all the project parameters including but not limited to green initiatives. The developer will work with the community to address concerns and requirements. The County of Kauai is responsible for the environmental review process.

PUA LOKE HOUSING PROJECT
Community Meeting – Draft EA
Piikoi Conference Rooms AB
March 8, 2018
6:00 PM-8:00 PM

Mahalo for our attendance. Please sign in and print your contact information below.

NAME	AFFILIATION	CONTACT INFO: Phone/Email Address/Mailing Address
1 Liberta Albao	QDKHCC - President	libertaha@hotmail.com
2 D. Kaliko Santos	• Na Kuleana O Kanaka Oiwi - Pres • Puna Moku-Aha Moku ~~Ato~~ (AMAC)	kaliko08@outlook.com
3 A Ballares Bernadez	Awesome Finders (ACT) Sovereign Hawaii Native American Church	GoldeERA Media @ gmail.com
4 Peace Emissary	World Peace collage on Facebook	8080 8000 9 N S T
5		
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Attachment 1: Public Meeting Presentation

Pua Loke Affordable Housing Development

Public Meeting

Presented by: Kaua'i County Housing Agency

Līhu'e Civic Center, Piikoi Building A

Thursday, March 8, 2018

6:00 pm

Pua Loke Affordable Housing Development

The purpose of this meeting:

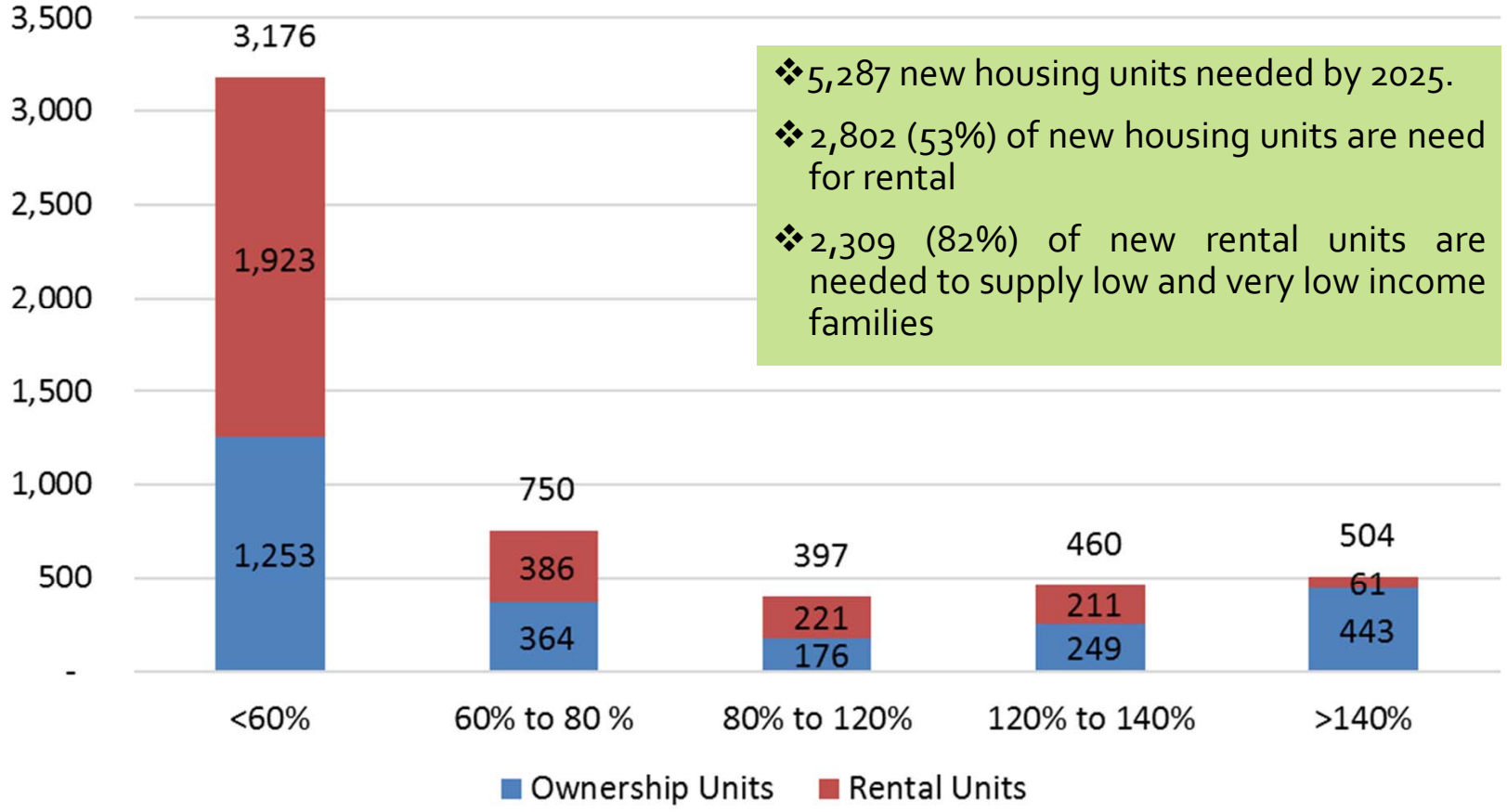
- Present the proposed action of this project,
- Present the Draft Environmental Assessment for public comment and review, and
- Inform the public on the Project's timeline

Public meeting guidelines:

- Question and comment period will follow the presentation.
- One speaker at a time.
- Comments requiring more time will be scribed.
- Follow-up questions will be addressed in writing and responded to by letter or email.

Kaua'i's Housing Demand by HUD Income Guideline, 2015-2025

HAWAI'I HOUSING PLANNING STUDY, 2016



- ❖5,287 new housing units needed by 2025.
- ❖2,802 (53%) of new housing units are need for rental
- ❖2,309 (82%) of new rental units are needed to supply low and very low income families

Pua Loke Affordable Housing Development

Proposed Action: The development of an affordable rental multi-family project that may include a maximum of 60 dwelling units to accommodate a blend of affordable incomes, as well as designated units to serve those experiencing homelessness.

Pua Loke Affordable Housing Development

- **Project Site:** Pua Loke Road, Līhuʻe, Kauaʻi, Hawaiʻi which includes Tax Map Key (4) 3-8-005, Parcels 28 and 29
- **Area:** 1.47 acres
- **County Zoning:** Commercial
- **State Land Use District:** Urban
- **General Plan Designation:** Urban

PARKING SUMMARY:

(53) PARKING STALLS TOTAL AT 1.25 STALLS /UNIT
- (50) STALLS - 8.5' X 16'
- (1) ADA CAR - 8.5' X 16'
- (2) ADA VAN - 11' X 16'

NOTES:
1. ADDITIONAL 2' OVERHANG FOR ALL STALLS
2. POSSIBLE OFF-STREET PARKING ALONG PUA LOKE

HOUSING SUMMARY:

3 BEDROOM UNITS (1280 SF, 32'X40') = 18 UNITS — 3 STORIES EA. BUILDING

1 BEDROOM UNITS (768 SF, 24'X32') = 24 UNITS

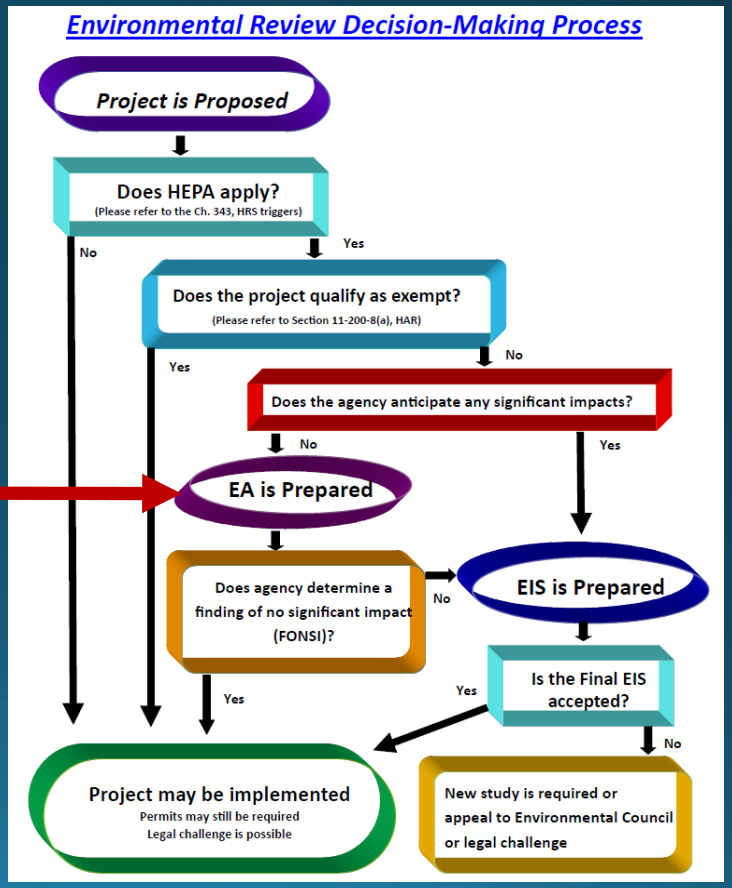
42 UNITS TOTAL

Conceptual design and subject to changes

Pua Loke Affordable Housing Development

The Draft Environmental Assessment (EA) was published in the State Environmental Notice on 2/8/18. The public comment period for the EA ends on 3/12/18.

We are here



Pua Loke Affordable Housing Development

The Draft Environmental Assessment (EA) contains the following:

- Project Description
- Environmental Setting and Potential Impacts
  - Physical Environment
  - Social Environment
- Relationship to Environmental Regulations
  - Federal, State, and County
- Findings and Determinations
- Agencies and Organizations Consulted (38)

Pua Loke Affordable Housing Development

The Draft Environmental Assessment (EA) contains the following studies:

- Traffic Impact Analysis Report
  - Future project (60 units) w/ roundabout no increases in delay. LOS A.
  - Future project (60 units) w/out roundabout, minimal increases in delay. LOS C or better
- Archaeological Assessment
  - Based on results of excavations/historic maps, unlikely for there to be cultural materials in the project area
- Biological Survey
  - No federal or state listed endangered, proposed or candidate species were observed on the parcels.
- Cultural Impact Assessment
  - Community outreach undertaken for this study showed there was strong support for affordable housing for homeless and low income residents of Lihue.

Pua Loke Affordable Housing Development

Projected timeline for project:

- Environmental Assessment: May 2018
- Issue Request for Proposal (RFP) to solicit a developer: July 2018
- Select Developer: September 2018
- Apply for Tax Credits and funding: February 2019
- Apply for applicable zoning permits: August 2019
- Commence Construction: March 2020

Pua Loke Affordable Housing Development

MAHALO! QUESTIONS OR COMMENTS?

Proposing Agency:

Kaua'i County Housing Agency

4444 Rice Street, Suite 330

Līhu'e, HI 96766

Contact: Koa Duncan, Project Coordinator

(808) 241-4426

kduncan@kauai.gov

Agent:

Environet, Inc.

1286 Queen Emma Street

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APPENDIX C: BIOLOGICAL SURVEY

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APPENDIX C: BIOLOGICAL SURVEY

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October 10, 2017

TTCES-PTLD-2017-165

Max Solmssen
Project Manager
Environet, Inc.
1286 Queen Emma Street
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MSolmssen@environetinc.com

Subject: Pua Loke Street Affordable Housing Condominium Project – Biological Survey Results Letter

Dear Mr. Solmssen,

Pursuant to Environet, Inc.'s (Environet) request, Tetra Tech, Inc. (Tetra Tech) conducted a one-day biological survey for the proposed Pua Loke Street Affordable Housing Condominium Project (Project). The Project Area is located on 1.4 acres west of Pua Loke Street in Lihue, Island of Kaua'i (see Figure 1). This letter report summarizes the results of the biological survey conducted on September 27, 2017.

1.0 Methods

Prior to the field survey, Tetra Tech conducted a review of relevant publically available literature and data with respect to biological resources in and near the Project Area. This review included scientific journals and reports, environmental assessments and environmental impact statements, geospatial data, aerial photographs, National Wetlands Inventory (NWI) data, U.S. Geological Survey (USGS) topographic maps, and available unpublished data that were relevant to the natural history and ecology of the area. This information was also used to identify known occurrences of federal or state listed species, or habitats that could harbor these species.

1.1 Plants

A pedestrian survey was conducted to record common plant species and dominant vegetation types, as well as rare or state or federally listed plant species within the Project Area. A comprehensive list of all plant species present in the Project Area was not within the scope of this

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survey. Plants recorded during this survey are indicative of the season and environmental conditions at the time of the survey. Plants are dynamic, and influenced by seasonal and temporal changes; therefore, there may be additional species that occur on site, but that were not present during this survey.

1.2 Wildlife

A wildlife survey was conducted in conjunction with the pedestrian flora survey and consisted of documenting observations of birds, mammals, reptiles, amphibians, and large invertebrate species. All species detected by sight and sound were recorded.

Acoustic bat detectors for the endangered Hawaiian hoary bat or ʻōpeʻapeʻa (*Lasiurus cinereus semotus*) were not deployed as part of the survey; however, the presence/absence of suitable bat foraging and roosting habitat was noted. Additional habitats or plants that could support other federal or state-listed threatened, endangered, proposed listed, or candidate species were also identified, if present (e.g., water features as potential habitat for Hawaiian waterbirds).

2.0 Results, Discussion, & Recommendations

No federal or state-listed threatened, endangered, proposed listed, or candidate species for listing were observed during the survey. The Project Area does not encompass any designated or proposed critical habitat for threatened or endangered species. Although not observed the Newell's shearwater, Hawaiian petrel, and Hawaiian hoary bat may be present or transverse the area. These species are discussed further below. Representative photographs from the site visit of the survey are presented in Appendix A.

2.1 Plants

No federal or state-listed threatened, endangered, proposed, or candidate plant species were observed in the Project Area during the survey. Approximately 19 plant species were observed during the biological survey. Of these, none are native to the Hawaiian Islands.

The vegetation in the Project Area is primarily a manicured lawn of *Cynodon dactylon* (Bermuda grass) and *Axonopus fissifolius* (Narrow-leaved carpetgrass). Two *Aleurites moluccana* (kukui) are also present at the north end of the site and a single small *Macaranga tanarius* (parasol leaf tree) is growing in the parking lot. Weedy herbaceous species are scattered throughout the lawn, including *Heliotropium procumbens* (fourspike heliotrope), *Sida rhombifolia* (Cuban jute), *Melinis repens* (natal redtop), *Axonopus compressus* (Wide-leaved carpetgrass), *Euphorbia hirta* (hairy spurge), *Indigofera spicata* (creeping indigo), *Mimosa pudica* (Sleeping grass), and *Megathyrsus maximus* (Guinea grass). Along the edges of the parking lot several weedy species can be found including *Ipomoea obscura* (morning glory), *Setaria parviflora* (yellow foxtail), *Amaranthus spinosus* (spiny amaranth), and *Cenchrus echinatus* (Sandbur).

If landscaping is required as part of the Project, Tetra Tech recommends that native Hawaiian plants, or non-invasive plants, be employed for landscaping to the maximum extent possible.

2.2 Wildlife

Wildlife observed during the survey were primarily species not native to Hawaiʻi. No federal or state-listed threatened, endangered, proposed, or candidate wildlife species were recorded in the Project Area. However, some listed wildlife that were not observed have the potential to occur or transit through the Project Area (see below).

Birds

In all, 8 bird species were documented during the survey: Japanese white-eye (*Zosterops japonicas*), common myna (*Acridotheres tristis*), Java sparrow (*Lonchura oryzivora*), house finch (*Haemorhous mexicanus*), zebra dove (*Geopelia striata*), red junglefowl (*Gallus gallus*), spotted dove (*Streptopelia chinensis*) and Pacific golden-plover (*Pluvialis fulva*).[1] All of these birds have been introduced to the Hawaiian Islands, with the exception of the Pacific golden-plover, and all are commonly found in rural or agricultural areas. Two bird species recorded (the Pacific golden-plover and house finch) are protected by the Migratory Bird Treaty Act (MBTA).

The endangered Hawaiian petrel or ʻuaʻu (*Pterodroma sandwichensis*) and threatened Newell's shearwater or ʻaʻo (*Puffinus newelli*) have not been documented in the Project Area, and suitable nesting habitat does not exist in the Project Area; however, suitable nesting habitat may exist in nearby forested areas at upper elevations, suggesting the potential for these birds to fly over the area at night while transiting between nest sites and the ocean. Disorientation and fallout as a result of light attraction could occur to seabird individuals due to nighttime construction lighting and unshielded nighttime facility lighting. Juvenile birds are particularly vulnerable to light attraction, and grounded birds are vulnerable to mammalian predators or vehicle strikes (USFWS 2011).

Although the chances of adversely affecting listed seabirds as a result of the proposed Project are likely small, Tetra Tech recommends the following measures to avoid and minimize potential impacts to listed seabirds:

- Construction activity should be restricted to daylight hours as much as possible during the seabird peak fallout period (September 15–December 15) to avoid the use of nighttime lighting that could attract seabirds.
- Although not anticipated, should nighttime construction be required, construction lighting should be shielded, directed downward, and fitted with non-white lights if construction

[1] Scientific nomenclature for fauna follows American Ornithologists' Union (1998) for birds, Tomich (1986) for mammals, and Nishida (2002) for insects.

safety is not compromised, to minimize the attractiveness of construction lights to seabirds and other wildlife. Furthermore, if nighttime construction occurs during the seabird peak fallout period, a biological monitor should be present in the construction area between approximately 0.5 hour before sunset to 0.5 hour after sunrise to watch for the presence of seabirds. Should a seabird be observed, and appears affected by the lighting, the monitor should notify the construction manager to reduce or turn off construction lighting until the individual(s) move out of the area.

- Operational on-site lighting should consist of fixtures that will be shielded and/or directed downward to prevent upward radiation, triggered by a motion detector, and fitted with non-white light bulbs to the extent possible.

Mammals

No mammals were observed during the survey. Introduced mammals, such as dogs (*Canis familiaris*), cats (*Felis catus*), house mice (*Mus musculus*), small Indian mongoose (*Herpestes auropunctatus*), and rats (*Rattus* spp.) are likely to occur within the Project Area due to the proximity to shopping centers and residences.

Hawai'i's only native, extant terrestrial mammal—the endangered Hawaiian hoary bat—could roost or forage near the Project Area. Hawaiian hoary bats typically roost in woody vegetation over 4.5 meters (15 feet) tall, in a wide variety of native and introduced trees (Bonaccorso et al. 2015). The only trees over 15 feet tall observed within the project area were two Kukui nut trees, which are documented roost trees for the Hawaiian hoary bat. The Hawaiian hoary bat also forages over a wide range of habitat and vegetation types (U.S. Department of Agriculture 2009), and the area may also provide suitable foraging habitat.

Direct impacts to bats could occur if a juvenile bat that is too small to fly, but too large to be carried by a parent, was present in a tree that was cut down. Although the chances of adversely affecting the Hawaiian hoary bat as a result of the proposed Project is likely small, Tetra Tech recommends the following avoidance measures:

- Any fences that are erected as part of the Project should have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences in the Project Area were observed with barbed wire during the survey; however, if fences are present, the top strand of barbed wire should be removed or replaced with barbless wire.

- No trees taller than 15 feet (4.6 m) should be trimmed or removed as a result of this Project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.

Insects

One insect species was recorded in the Project Area, a non-native butterfly, the lesser grass blue (*Zizina otis*).

3.0 Conclusions

The Project Area is dominated by non-native species and has been disturbed by a variety of anthropogenic activities. No federal or state-listed threatened, endangered, proposed, or candidate species were observed during the survey. Although not observed, several listed species (particularly Newell's shearwater, Hawaiian petrel, and the Hawaiian hoary bat) have the potential to occur or transverse the area. Tetra Tech recommends the above mentioned measures be implemented to avoid and minimize potential impacts.

Sincerely,

TETRA TECH, INCORPORATED

Jacob Dutton

Jacob Dutton
Biologist

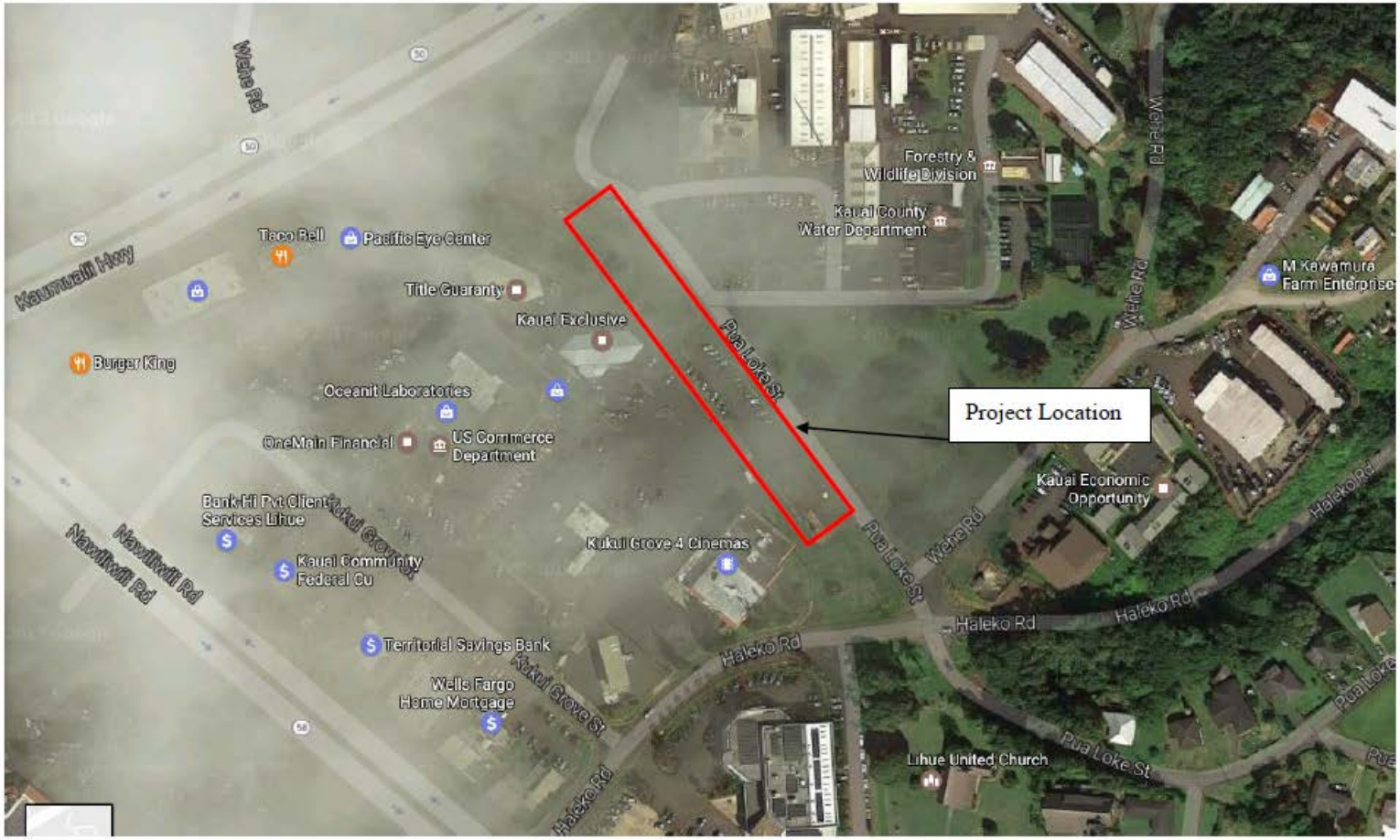

Figure 1. Project Area.

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Appendix A

Representative Photographs of the Project Area

Photo 1: View of the southern end of the Project Area looking north.

Photo 2: View of the northern end of Project Area looking south.

APPENDIX D: TRAFFIC IMPACT ANALYSIS REPORT

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TRAFFIC IMPACT ANALYSIS REPORT
PUA LOKE AFFORDABLE HOUSING

Lihue, Kauai, Hawaii

March 15, 2018

Prepared for:
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TRAFFIC IMPACT ANALYSIS REPORT
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March 15, 2018

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(To be submitted with Final Draft)

B. LEVEL OF SERVICE CRITERIA
(To be submitted with Final Draft)

C. LEVEL OF SERVICE CALCULATIONS
(To be submitted with Final Draft)

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CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

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TRAFFIC IMPACT ANALYSIS REPORT

PUA LOKE AFFORDABLE HOUSING

Lihue, Kauai, Hawaii

1. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from the proposed Pua Loke Affordable Housing (hereinafter referred to as the "Project").

1.1 Location

The Project is located on TMKs: (4) 3-8-005:028 & 029 with total land acreage of approximately 1.5 acres. The site is located along the western side of Pua Loke Street between Haleko Road and Kaumualii Highway. The Project site is currently occupied by an approximately 50-stall parking lot. Figure 1.1 shows the Project location.

1.2 Project Description

The Project proposes to develop between 30-60 multi-family (MF) units. Parking for the Project will be provided at two (2) separate lots located at both the north and south ends of the site. Access to the southern lot will be provided along Pua Loke Street, and access to the northern lot will be provided at the traffic circle connecting Pua Loke Street and the Kauai County Department of Water access. The Project is anticipated to be completed by 2020. Figure 1.2 shows the proposed Project site plan.

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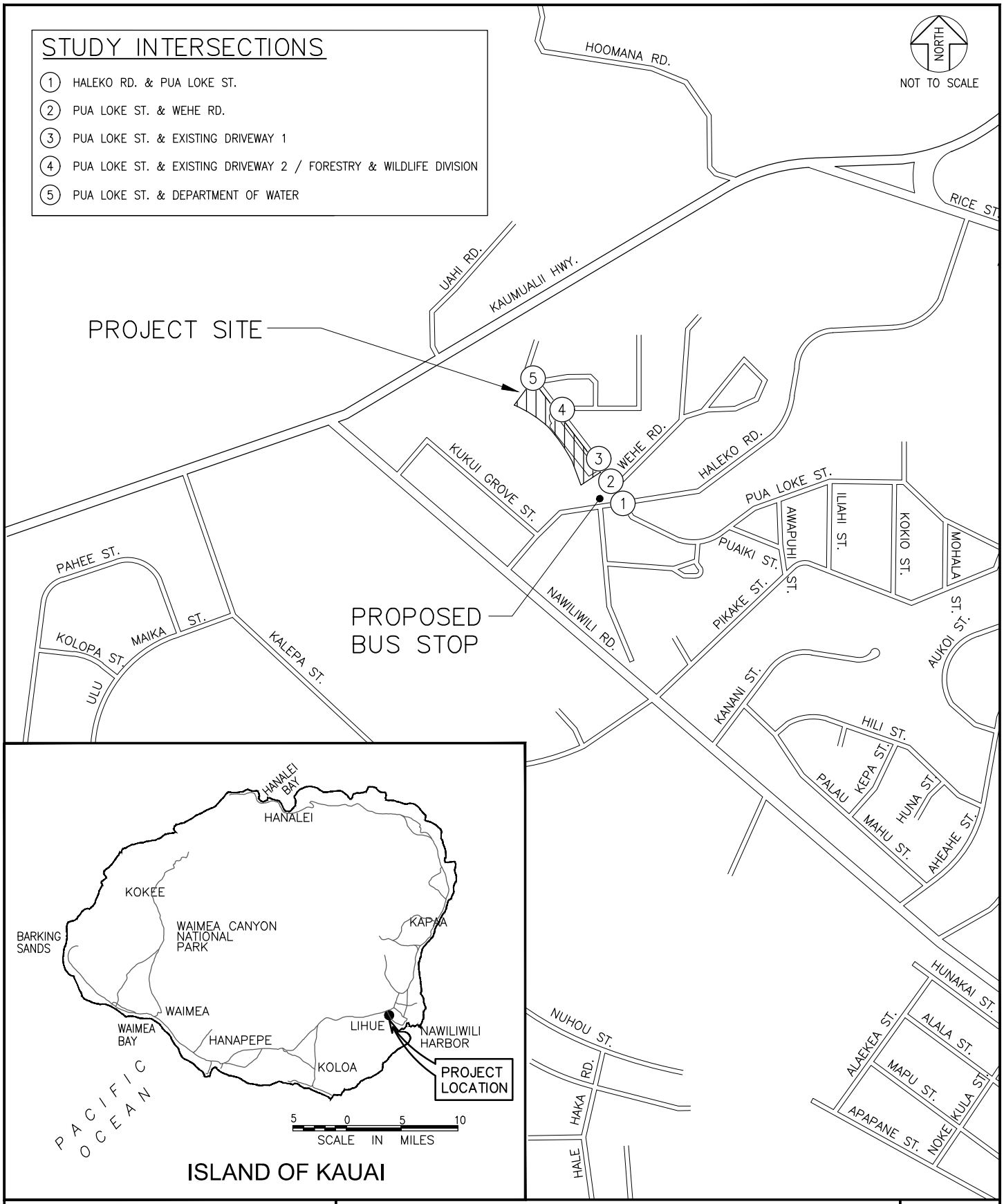


PUA LOKE AFFORDABLE HOUSING
TIAR

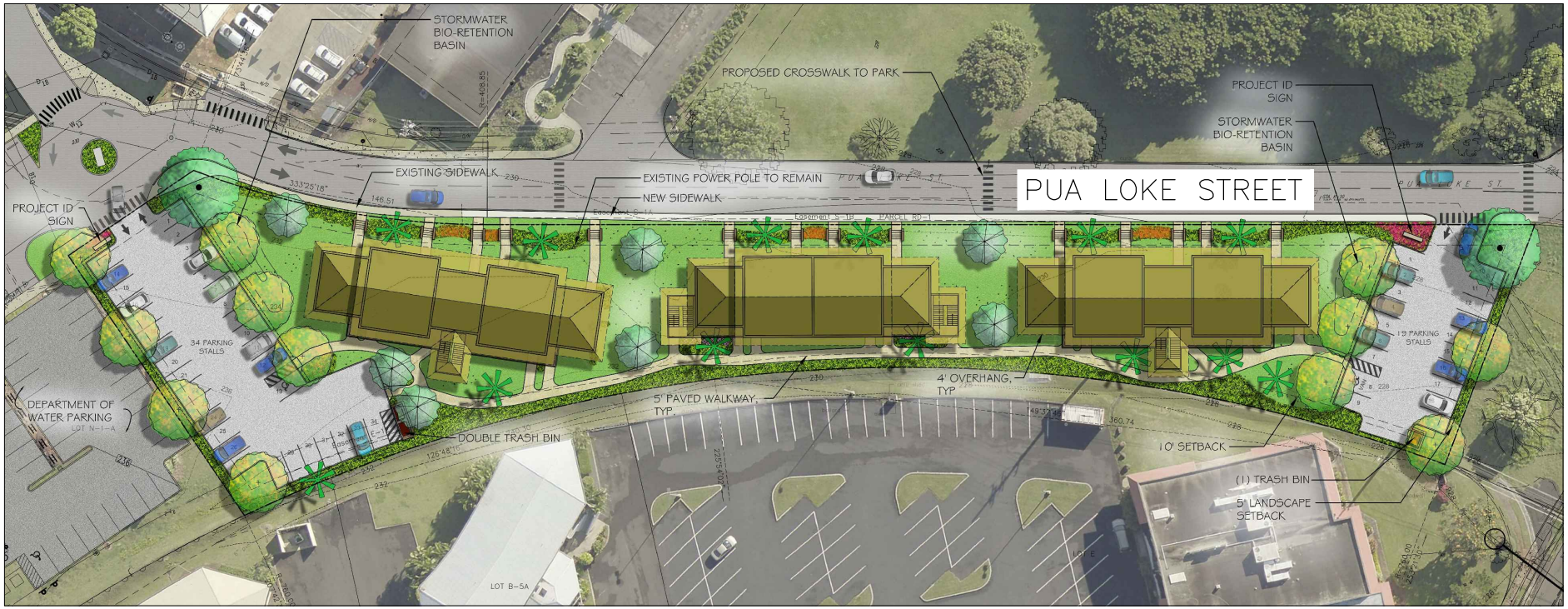
AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS,SURVEYORS • HONOLULU,HAWAII

LOCATION MAP

FIGURE
1.1

NORTH

NOT TO SCALE



PUA LOKE AFFORDABLE HOUSING TIAR

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SITE PLAN

FIGURE

1.2

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 2020 (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 2020 (with the Project), which includes Base Year traffic volumes in addition to traffic volumes generated by the Project.
- Recommendations for Base Year and 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 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:

Haleko Road is a two-lane, two-way, undivided, northeast-southwest roadway that generally runs parallel to Kaumualii Highway and connects Rice Street to Nawiliwili Road. Haleko Road provides direct access to the Kukui Grove Shopping Center at its connection with Nawiliwili Road. The posted speed limit along the roadway is 25 miles per hour (mph).

Pua Loke Street is a two-lane, two-way, undivided, northwest-southeast roadway. To the north, Pua Loke Street provides access to the Kauai County Department of Water and the Forestry and Wildlife Division. To the south, Pua Loke Street provides access to residential neighborhoods before terminating at its intersection with Pikake Street. The posted speed limit along the roadway is 25 mph.

Wehe Road is a two-lane, two-way, undivided northeast-southwest roadway. Wehe Road begins at its intersection with Pua Loke Street and terminates to the northeast near the Lihue Public Cemetery. Wehe Road serves the Kauai Economic Opportunity homeless shelter. There is no posted speed limit along the roadway.

3.2 Existing Traffic Volumes

The AM and PM hourly turning movement data utilized in this report were collected on August 29, 2017 and August 30, 2017. Based on the proximity to the proposed Project site, the following intersections were studied in the existing conditions scenario.

- [1] Haleko Road/Pua Loke Street (unsignalized)
- [2] Pua Loke Street/Wehe Road (unsignalized)
- [3] Pua Loke Street/Existing Driveway 1 (unsignalized)
- [4] Pua Loke Street/Existing Driveway 2/Forestry and Wildlife Division (unsignalized)
- [5] Pua Loke Street/Department of Water (traffic circle)

Note that turning movement data was not collected at the Pua Loke Street/Department of Water intersection, and volumes were determined based on the data collected at the nearby intersections.

Based on traffic count data, the weekday morning peak hour was determined to occur between 7:15 AM and 8:15 AM, and the weekday afternoon peak hour was determined to occur between 3:30 PM and 4:30 PM. The turning movement count data may be found in Appendix A.

The AM and PM peak hours of traffic were observed to generally coincide with the operating hours of the Kauai County Department of Water, the Kauai Branch of the Forestry and Wildlife Division and the Kauai Economic Opportunity homeless shelter. Based on best available information, operating hours are as follows:

- Kauai County Water Department – 8:00 AM to 4:15 PM
- Kauai Branch Forestry and Wildlife Division – 7:45 AM to 4:30 PM

- Kauai Economic Opportunity – 7:45 AM to 4:30 PM

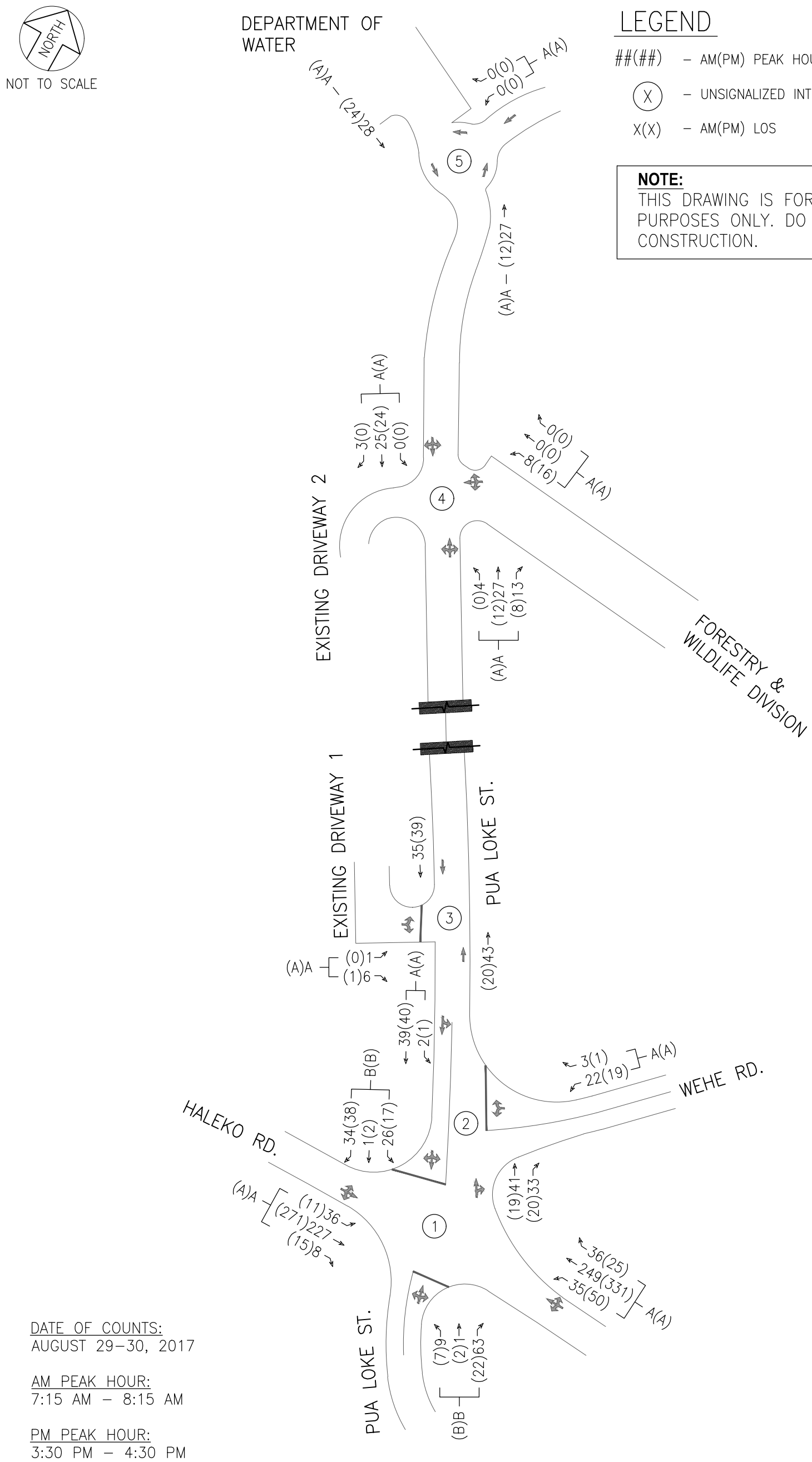
3.3 Existing Traffic Conditions Observations and Analysis

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.

3.3.1 Existing Intersection Analysis

Traffic volumes in the Project area were generally light with no more than 700 vehicles traveling along Haleko Road and no more than 100 vehicles traveling along Pua Loke Street during either peak hour of traffic. Due to the low volumes, queues were not observed to form at any of the study intersections, and all movements operated at LOS B or better.

Figure 3.1 illustrates the existing lane configurations, volumes and LOS. See Table 3.1 for a summary of the existing conditions analysis.



LEGEND

##(##)	– AM(PM) PEAK HOUR OF TRAFFIC VOLUMES
(X)	– UNSIGNALIZED INTERSECTION X
X(X)	– AM(PM) LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

DATE OF COUNTS:
AUGUST 29–30, 2017

AM PEAK HOUR:
7:15 AM – 8:15 AM

PM PEAK HOUR:
3:30 PM – 4:30 PM

PUA LOKE AFFORDABLE HOUSING TIAR	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	EXISTING LANE CONFIGURATION, VOLUMES AND MOVEMENT LOS	3.1

TABLE 3.1: LOS SUMMARY TABLE
EXISTING CONDITIONS

Intersection	Existing 2017 Conditions					
	AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Pua Loke St & Haleko Rd						
NB LT/TH/RT	11.3	0.12	B	13.0	0.07	B
EB LT/TH/RT	8.0	0.03	A	8.1	0.01	A
WB LT/TH/RT	7.8	0.03	A	8.0	0.04	A
SB LT/TH/RT	14.6	0.15	B	14.3	0.14	B
OVERALL	3.2	-	-	2.2	-	-
2: Pua Loke St & Wehe Rd						
WB LT/RT	9.1	0.03	A	9.0	0.02	A
SB LT/TH	7.4	0.00	A	7.3	0.00	A
OVERALL	1.7	-	-	1.9	-	-
3: Pua Loke St & Existing Dwy 1						
EB LT/RT	8.6	0.01	A	8.5	0.00	A
OVERALL	0.7	-	-	0.1	-	-
4: Pua Loke St & Existing Dwy 2/Forestry & Wildlife Div						
NB LT/TH/RT	7.3	0.00	A	0.0	0.00	A
WB LT/TH/RT	8.9	0.01	A	8.8	0.02	A
SB LT/TH/RT	0.0	0.00	A	0.0	0.00	A
OVERALL	1.3	-	-	2.3	-	-
5: Pua Loke St/Dept of Water						
NB TH	2.8	0.02	A	2.7	0.01	A
WB LT/RT	2.7	0.00	A	2.6	0.00	A
SB TH	2.8	0.02	A	2.8	0.02	A
OVERALL	2.8	-	A	2.8	-	A

4. BASE YEAR 2020 TRAFFIC CONDITIONS

The Base Year 2020 was selected to reflect the completion year of the Project. The Base Year 2020 scenario represents the traffic conditions within the study area without the Project. Base Year traffic projections were formulated by applying a defacto growth rate to the existing 2017 traffic count volumes and adding trips generated by known developments in the vicinity of the Project.

4.1 Defacto Growth Rate

Projections for Base Year 2020 traffic were based upon HDOT's Kauai Regional Travel Demand Model (KRTDM). Based on the KRTDM for years 2007 and 2020, traffic along Haleko Road is anticipated to decrease in the vicinity of the Project. To be conservative, an annual ambient growth rate of 1% was applied to the roadway.

4.2 Traffic Forecasts for Known Developments

4.2.1 Background Projects

By Base Year 2020, the following project is expected to be completed in the immediate vicinity of the Project. The location of the background project is shown in Figure 4.1.

- Grove Farm Museum Sugar Plantation Locomotive Interactive Learning Park – This project proposes to extend the existing historic steam train route by 3500 feet, construct reception/restroom facilities and exhibit spaces and restore the Lihue Plantation water tank. The learning park will be located near the original Lihue Plantation, adjacent to the historic Lihue sugar mill. Completion of the project is expected by 2020. Trips generated by the project are shown in Table 4.1. Note that the exact location and size of the project were not available at the time of this report, and information included in Figure 4.1 and Table 4.1 were based upon best available information.

Although several other projects are currently being constructed or are planned for construction in the Lihue region, the majority of peak hour traffic generated by these projects is not anticipated to pass through the study area because the Project is not located along any major roadways. Additional traffic from background developments in the greater Lihue region is assumed to be included in the defacto growth rate in Section 4.1 above.

Table 4.1: Background Development Trip Generation

Land Use (ITE Code)	Independent Variable	AM Peak Hour			PM Peak Hour		
		Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
Grove Farm Museum Sugar Plantation Locomotive Interactive Learning Park (580)	50,000 SF	12	2	14	1	8	9

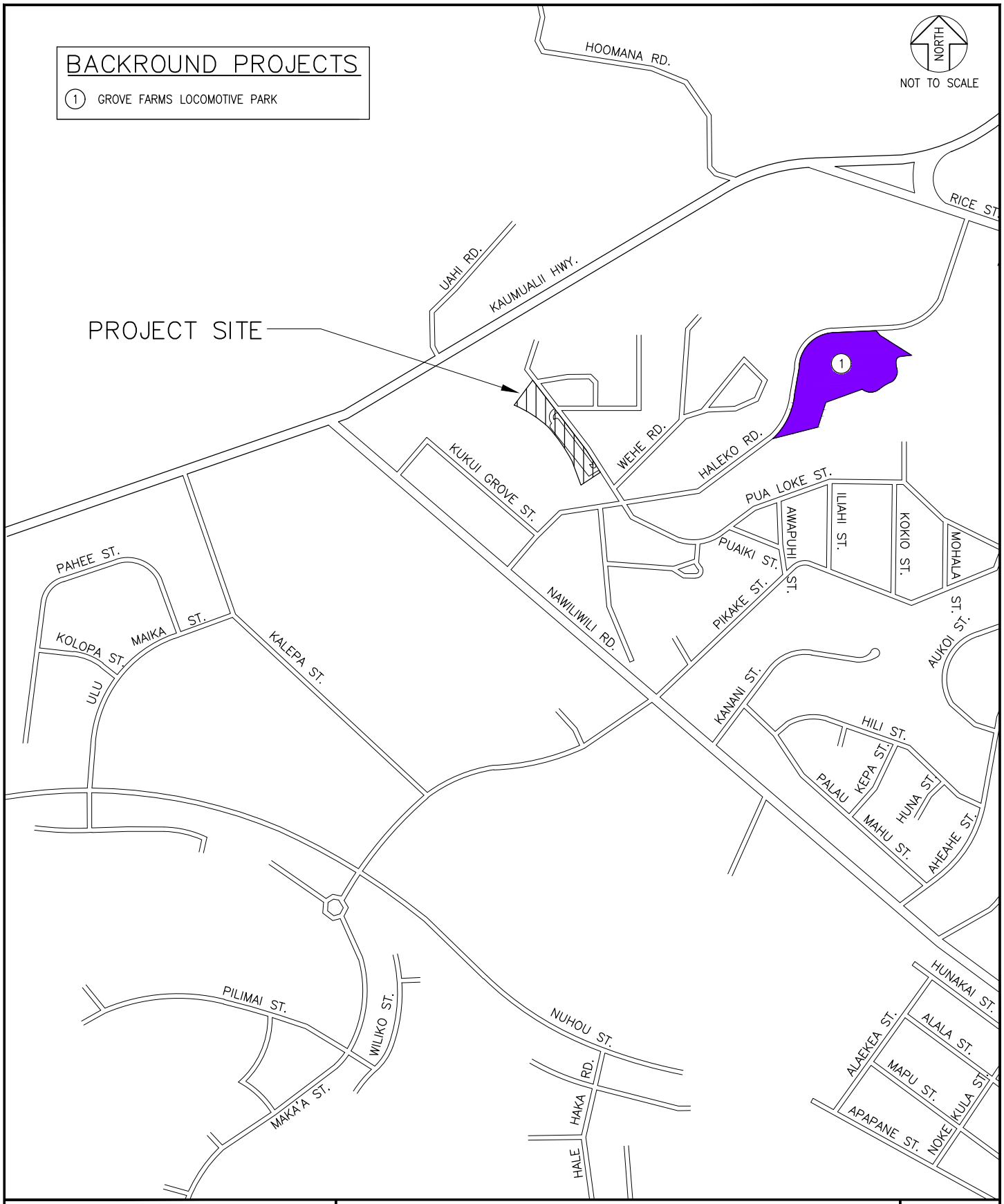
4.3 Planned Roadway Improvements

There are currently no roadway improvements planned within the immediate vicinity of the Project.

4.4 Base Year 2020 Analysis

By Base Year 2020 without the Project, traffic along the studied roadways is expected to operate similar to existing conditions. Intersection movements are expected to experience at most 1-3 seconds of additional delay over existing conditions.

Figure 4.2 illustrates the Base Year 2020 forecast traffic volumes and LOS for the study intersection movements. Table 4.2 summarizes the Base Year 2020 LOS at the study intersections compared to existing conditions. LOS worksheets are provided in Appendix C.



PUA LOKE AFFORDABLE HOUSING
TIAR

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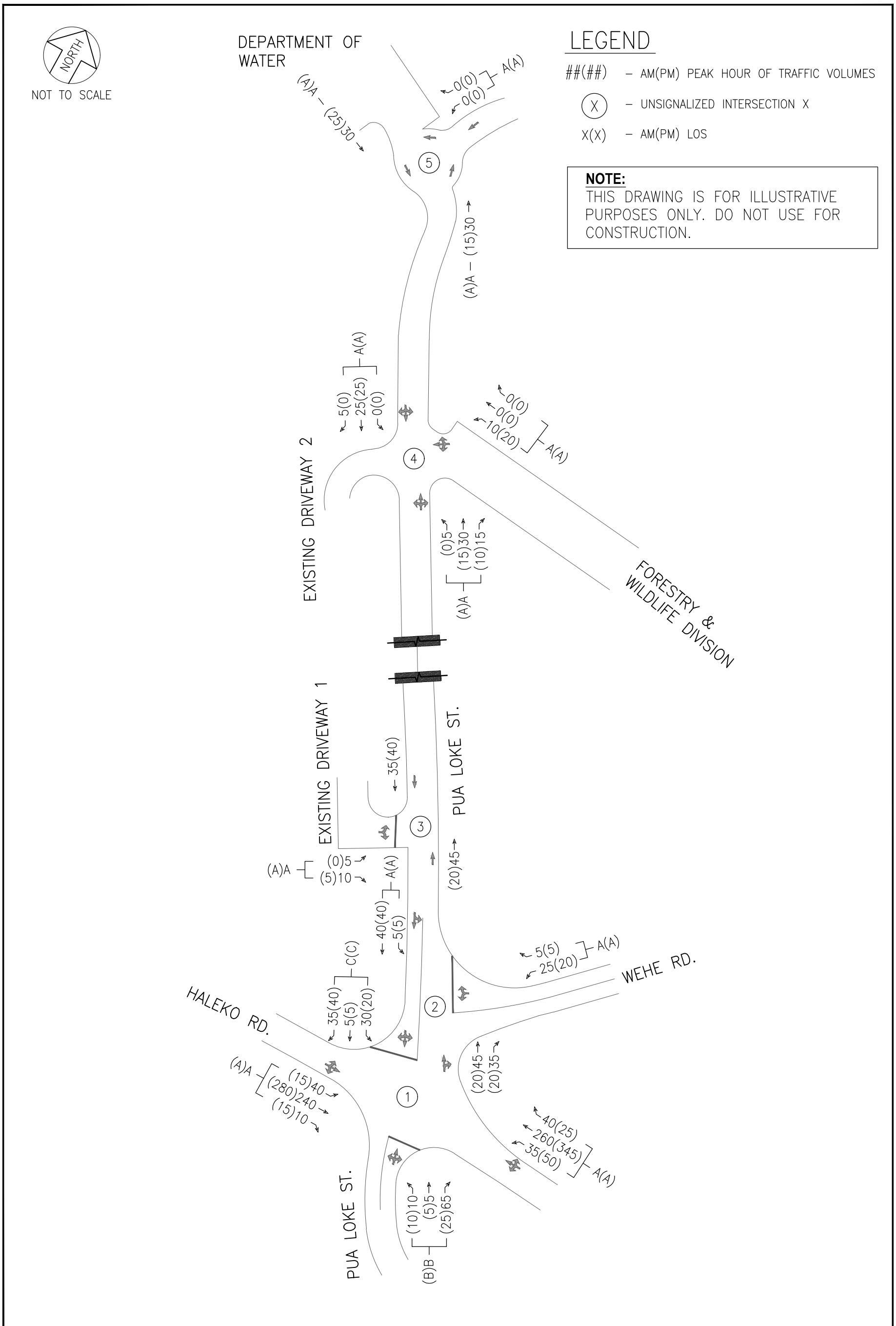
BACKGROUND DEVELOPMENTS

FIGURE
4.1



PUA LOKE AFFORDABLE HOUSING TIAR	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS,SURVEYORS • HONOLULU,HAWAII	FIGURE
	BASE YEAR 2020 LANE CONFIGURATION, VOLUMES AND MOVEMENT LOS	4.2

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CIVIL ENGINEERS • SURVEYORS

TABLE 4.2 LOS SUMMARY TABLE
EXISTING AND BASE YEAR 2020 CONDITIONS

Intersection	Existing 2017 Conditions						Base Year 2020 Conditions					
	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: Pua Loke St & Haleko Rd												
NB LT/TH/RT	11.3	0.12	B	13.0	0.07	B	12.1	0.15	B	14.5	0.10	B
EB LT/TH/RT	8.0	0.03	A	8.1	0.01	A	8.0	0.04	A	8.2	0.01	A
WB LT/TH/RT	7.8	0.03	A	8.0	0.04	A	7.9	0.03	A	8.0	0.04	A
SB LT/TH/RT	14.6	0.15	B	14.3	0.14	B	16.2	0.19	C	15.7	0.17	C
OVERALL	3.2	-	-	2.2	-	-	3.5	-	-	2.6	-	-
2: Pua Loke St & Wehe Rd												
WB LT/RT	9.1	0.03	A	9.0	0.02	A	9.2	0.04	A	9.0	0.03	A
SB LT/TH	7.4	0.00	A	7.3	0.00	A	7.4	0.00	A	7.3	0.00	A
OVERALL	1.7	-	-	1.9	-	-	2.0	-	-	2.4	-	-
3: Pua Loke St & Existing Dwy 1												
EB LT/RT	8.6	0.01	A	8.5	0.00	A	8.7	0.02	A	8.5	0.01	A
OVERALL	0.7	-	-	0.1	-	-	1.4	-	-	0.7	-	-
4: Pua Loke St & Existing Dwy 2/Forestry & Wildlife Div												
NB LT/TH/RT	7.3	0.00	A	0.0	0.00	A	7.3	0.00	A	0.0	0.00	A
WB LT/TH/RT	8.9	0.01	A	8.8	0.02	A	9.0	0.01	A	8.8	0.02	A
SB LT/TH/RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
OVERALL	1.3	-	-	2.3	-	-	1.4	-	-	2.5	-	-
5: Pua Loke St/Dept of Water												
NB TH	2.8	0.02	A	2.7	0.01	A	2.9	0.03	A	2.8	0.01	A
WB LT/RT	2.7	0.00	A	2.6	0.00	A	2.7	0.00	A	2.7	0.00	A
SB TH	2.8	0.02	A	2.8	0.02	A	2.9	0.03	A	2.8	0.02	A
OVERALL	2.8	-	A	2.8	-	A	2.9	-	A	2.8	-	A

5. FUTURE YEAR 2020 TRAFFIC CONDITIONS

The Project is located on TMKs: (4) 3-8-005:028 & 029 with total land acreage of approximately 1.5 acres. The site is located along the western side of Pua Loke Street between Haleko Road and Kaumualii Highway. The Project proposes to develop between 30-60 multi-family (MF) units. Parking for the Project will be provided at two (2) separate lots located at both the north and south ends of the site. Access to the southern lot will be provided along Pua Loke Street, and access to the northern lot will be provided at the traffic circle connecting Pua Loke Street and the Kauai County Department of Water access. The Project is anticipated to be completed by 2020.

5.1 Travel Demand Estimations

The State of Hawaii Department of Transportation (HDOT) and Kauai County provide various Transportation Demand Management (TDM) programs that promote the use of transit, walking, biking and alternative modes of transportation to reduce the use of single-occupant vehicles on roadways. These TDM measures have only been identified and conservatively assumed to yield NO vehicular reductions for Project generated traffic. TDM measures include providing bicycle and pedestrian-friendly facilities and providing public transportation services and infrastructure. Implementation of these measures in the Project area is described further below.

Kauai County currently provides a bus system that offers several routes that connect the major areas in Kauai. In the immediate vicinity of the Project, the Lihue-Hanalei Mainline route provides service along Haleko Road. Currently, no stops are provided along the roadway. However, a bus stop is proposed with the Project near the Haleko Road/Pua Loke Street intersection.

HDOT currently provides the Bike Plan Hawaii Master Plan, which identifies existing and proposed bicycle routes that could potentially be implemented in the future. Currently, a signed shared roadway is provided along Kaumualii Highway in the vicinity of the Project. Additionally, the following bicycle facilities are proposed in the Project area:

- Haleko Road (Nawiliwili Road to Rice Street) – Priority Level III Bike Lane
- Rice Street (Kuhio Highway to Kapule Highway) – Priority Level II Bike Lane
- Nawiliwili Road (Kaumualii Highway to Lala Road) – Priority Level I Signed Shared Road
- Lihue Community Pathway (Along Nawiliwili Stream) – Priority Level II Bike Path

5.1.1 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, 9th 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 attached homes to Gross Floor Area (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. The rates selected were based on the land use description.

See Tables 5.1 and 5.2 for Trip Generation formulae and projections for the Project.

5.1.2 Trip Distribution and Assignment

Trips generated by the Project were assigned throughout the study area generally based upon existing travel patterns. The traffic generated by the Project was added to the forecast Base Year 2020 traffic volumes within the vicinity of the Project to constitute the traffic volumes for Future Year 2020 traffic conditions. Because 30-60 multi-family units are planned for the Project, trips were generated based on the higher 60 unit assumption to conservatively estimate Project impacts to traffic. Figure 5.1 illustrates the Project-generated trip distribution for Future Year 2020.

Table 5.1: Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter
Residential Condo/Townhouse (230)	Dwelling Units (DU)	[a]	17%	[b]	67%

[a] LN(T) = 0.8*LN(X)+0.26
[b] LN(T)= 0.82*LN(X)+0.32

Table 5.2: Project-Generated Trips

Land Use (ITE Code)	Independent Variable	AM Peak Hour			PM Peak Hour		
		Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
Residential Condo/Townhouse (230)	60 DU	6	29	35	27	13	40

5.2 Future Year 2020 Analysis

By Year 2020, the Project is projected to generate a total of 35(40) trips during the AM(PM) peak hours of traffic. Trips generated by the Project are expected to result in minimal growth along major roadways in the study area.

Improvements incorporating transit-oriented development (TOD) principles may be constructed to support multi-modal transit in the Project area. These improvements may include a roundabout at the Haleko Road/Pua Loke Street intersection and a new bus stop just west of the intersection. If constructed, the improvements are expected to be completed by Year 2020. Although these improvements may not necessarily be built with the Project, scenarios with and without the potential roundabout and bus stop were evaluated for Future Year 2020 to represent the ultimate scenarios.

5.2.1 Future Year 2020 Without Roundabout Intersection Analysis

By Future Year 2020 with the Project, traffic along the studied roadways is expected to operate similar to Base Year 2020 conditions with minimal increases in delay. All movements are anticipated to continue operating at LOS C or better. Due to the low volumes along Pua Loke Street, exclusive turning lanes into the new Project accesses are not expected to be required.

Figure 5.2 illustrates the Future Year 2020 forecast traffic volumes and LOS for the study intersection movements. Table 5.3 summarizes the Future Year 2020 LOS at the study intersections compared to Base Year 2020 conditions. LOS worksheets are provided in Appendix C.

5.2.2 Future Year 2020 With Roundabout Intersection Analysis

By Future Year 2020 with the Project, traffic along the studied roadways is expected to operate similar to Base Year 2020 conditions with the exception of the Haleko Road/Pua Loke Street intersection which is anticipated to improve with the construction of the potential roundabout. Due to the low volumes along Pua Loke Street, exclusive turning lanes into the new Project accesses are not expected to be required. Operations and impacts of the roundabout and bus stop are discussed further in Section 5.2.2.1 and Section 5.2.2.2 below.

Figure 5.3 illustrates the Future Year 2020 forecast traffic volumes and LOS for the study intersection movements with the construction of a roundabout at Haleko Road/Pua Loke Street. Table 5.3 summarizes the Future Year 2020 LOS at the study intersections compared to Base Year 2020 conditions. LOS worksheets are provided in Appendix C.

5.2.2.1 Roundabout Operations

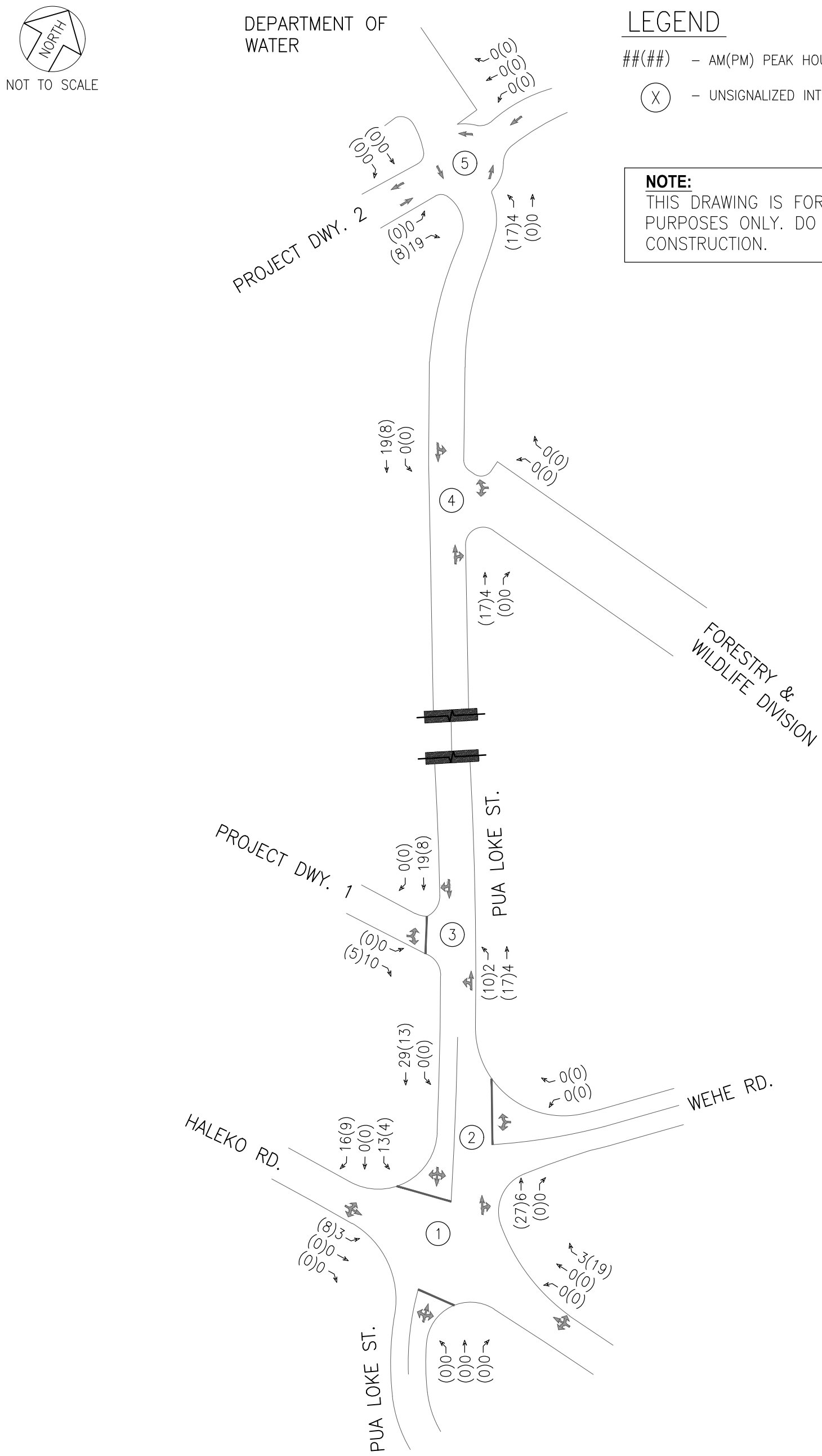
The construction of a roundabout at Haleko Road/Pua Loke Street is anticipated to improve intersection operations by reducing delay to the minor street approaches. Because no turning lanes are currently provided along Haleko Road at this intersection, the roundabout is also expected to reduce delay to the major street approaches by reducing turning movement delay. Additionally, with the roundabout, lower speeds are expected along Haleko Road.

Although pedestrian volumes in the Project area are currently light, volumes are likely to increase with the addition of the Project and the proposed bus stop. Pedestrian treatments such as sidewalks and crosswalks should be considered at the roundabout as necessary to allow pedestrian access to facilities. Note that bike lanes are also planned along Haleko Road, and the roundabout should accommodate bicyclists once the lanes are constructed. Bicyclists are generally accommodated at roundabouts by allowing the bike lane to merge into vehicle traffic. However, for bicyclists who prefer not to enter vehicle traffic, a widened sidewalk may be provided to accommodate both bicyclists and pedestrians.

5.2.2.2 Bus Stop Operations

The bus stop is proposed just west of the Haleko Road/Pua Loke Street intersection. Due to the proximity of the bus stop to the roundabout, a bus bay should be provided to prevent traffic from queuing into the roundabout and halting operations at the intersection.

With the new bus stop, pedestrian volumes in the area are likely to increase. Crosswalks and sidewalks along nearby roadways should be considered where necessary to allow pedestrian access to and from the bus stop.



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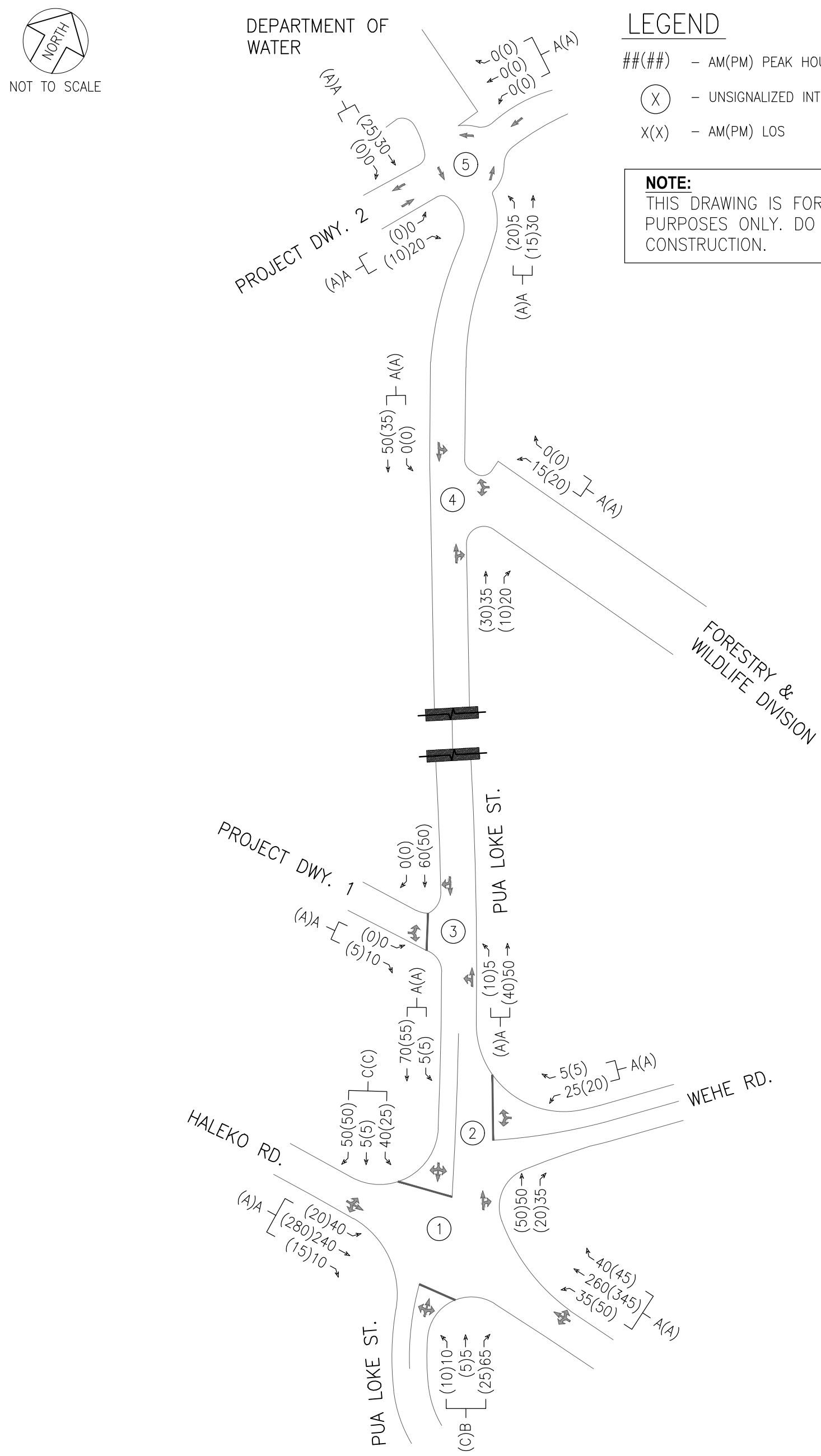
PROJECT-GENERATED TRAFFIC

FIGURE 5.1

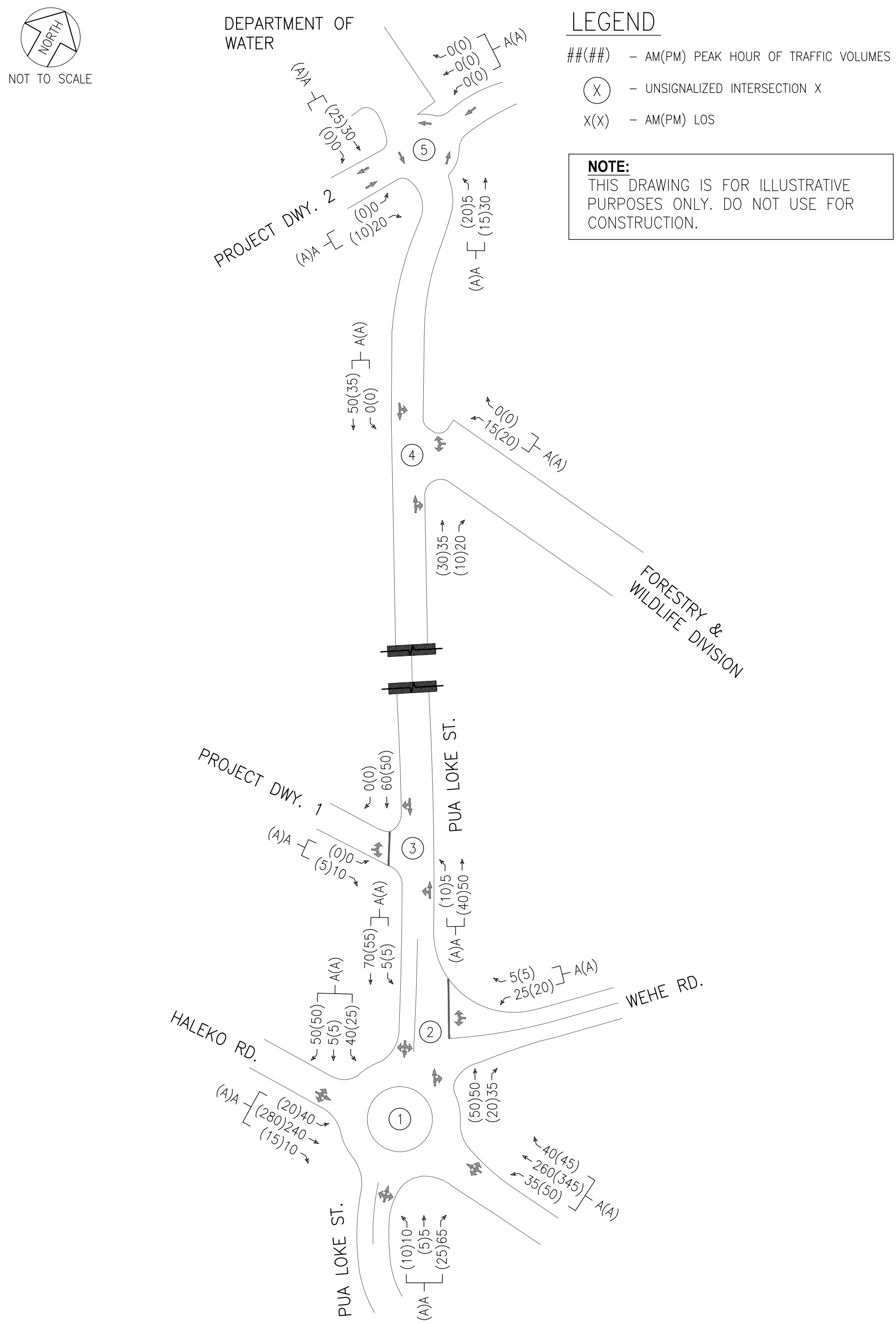


LEGEND

##(##)	– AM(PM) PEAK HOUR OF TRAFFIC VOLUMES
(X)	– UNSIGNALIZED INTERSECTION X
X(X)	– AM(PM) LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

PUA LOKE AFFORDABLE HOUSING TIAR	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	FUTURE YEAR 2020 LANE CONFIGURATION, VOLUMES AND MOVEMENT LOS	5.2



PUA LOKE AFFORDABLE HOUSING TIAR	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS,SURVEYORS • HONOLULU,HAWAII	FIGURE
	FUTURE YEAR 2020 WITH ROUNDABOUT LANE CONFIGURATION, VOLUMES AND MOVEMENT LOS	5.3

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS

TABLE 5.3 LOS SUMMARY TABLE
BASE YEAR 2020 AND FUTURE YEAR 2020 CONDITIONS

Intersection	Base Year 2020 Conditions						Future Year 2020 Conditions						Future Year 2020 Conditions Roundabout at Haleko Rd/Pua Loke St					
	AM			PM			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	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Pua Loke St & Haleko Rd																		
NB LT/TH/RT	12.1	0.15	B	14.5	0.10	B	12.2	0.15	B	15.0	0.11	C	4.6	0.09	A	4.3	0.05	A
EB LT/TH/RT	8.0	0.04	A	8.2	0.01	A	8.0	0.04	A	8.2	0.02	A	5.2	0.26	A	5.4	0.28	A
WB LT/TH/RT	7.9	0.03	A	8.0	0.04	A	7.9	0.03	A	8.0	0.04	A	5.4	0.29	A	6.2	0.37	A
SB LT/TH/RT	16.2	0.19	C	15.7	0.17	C	16.9	0.25	C	16.6	0.22	C	4.7	0.11	A	5.2	0.10	A
OVERALL	3.5	-	-	2.6	-	-	4.0	-	-	2.8	-	-	5.2	-	A	5.7	-	A
2: Pua Loke St & Wehe Rd																		
WB LT/RT	9.2	0.04	A	9.0	0.03	A	9.4	0.04	A	9.2	0.03	A	9.4	0.04	A	9.2	0.03	A
SB LT/TH	7.4	0.00	A	7.3	0.00	A	7.4	0.00	A	7.4	0.00	A	7.4	0.00	A	7.4	0.00	A
OVERALL	2.0	-	-	2.4	-	-	1.7	-	-	1.7	-	-	1.7	-	-	1.7	-	-
3: Pua Loke St & Project Dwy 1																		
NB LT/TH	-	-	-	-	-	-	7.4	0.00	A	7.3	0.01	A	7.4	0.00	A	7.3	0.01	A
EB LT/RT	8.7	0.02	A	8.5	0.01	A	8.6	0.01	A	8.6	0.01	A	8.6	0.01	A	8.6	0.01	A
OVERALL	1.4	-	-	0.7	-	-	1.0	-	-	1.1	-	-	1.0	-	-	1.1	-	-
4: Pua Loke St & Forestry & Wildlife Div																		
NB LT/TH/RT	7.3	0.00	A	0.0	0.00	A	-	-	-	-	-	-	-	-	-	-	-	-
WB LT/TH/RT	9.0	0.01	A	8.8	0.02	A	-	-	-	-	-	-	-	-	-	-	-	-
WB LT/RT	-	-	-	-	-	-	9.1	0.02	A	9.0	0.02	A	9.1	0.02	A	9.0	0.02	A
SB LT/TH	-	-	-	-	-	-	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT	0.0	0.00	A	0.0	0.00	A	-	-	-	-	-	-	-	-	-	-	-	-
OVERALL	1.4	-	-	2.5	-	-	1.1	-	-	1.9	-	-	1.1	-	-	1.9	-	-
5: Pua Loke St/Dept of Water & Project Dwy 2																		
NB TH	2.9	0.03	A	2.8	0.01	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	2.9	0.03	A	2.8	0.03	A	2.9	0.03	A	2.8	0.03	A
EB LT/RT	-	-	-	-	-	-	2.8	0.02	A	2.7	0.01	A	2.8	0.02	A	2.7	0.01	A
WB LT/TH/RT	-	-	-	-	-	-	2.7	0.00	A	2.7	0.00	A	2.7	0.00	A	2.7	0.00	A
WB LT/RT	2.7	0.00	A	2.7	0.00	A	-	-	-	-	-	-	-	-	-	-	-	-
SB TH	2.9	0.03	A	2.8	0.02	A	-	-	-	-	-	-	-	-	-	-	-	-
SB TH/RT	-	-	-	-	-	-	2.9	0.03	A	2.9	0.02	A	2.9	0.03	A	2.9	0.02	A
OVERALL	2.9	-	A	2.8	-	A	2.9	-	A	2.8	-	A	2.9	-	A	2.8	-	A

6. CONCLUSIONS

The Project is located on TMKs: (4) 3-8-005:028 & 029 with total land acreage of approximately 1.5 acres. The site is located along the western side of Pua Loke Street between Haleko Road and Kaumualii Highway. The Project proposes to develop between 30-60 multi-family (MF) units. Parking for the Project will be provided at two (2) separate lots located at both the north and south ends of the site. Access to the southern lot will be provided along Pua Loke Street, and access to the northern lot will be provided at the traffic circle connecting Pua Loke Street and the Kauai County Department of Water access. The Project is anticipated to be completed by 2020.

6.1 Existing Conditions

Traffic volumes in the Project area were generally light with no more than 700 vehicles traveling along Haleko Road and no more than 100 vehicles traveling along Pua Loke Street during either peak hour of traffic. Due to the low volumes, queues were not observed to form at any of the study intersections, and all movements operated at LOS B or better.

6.2 Base Year 2020

It is anticipated that by Year 2020, traffic will have increased over existing conditions due to the proposed Grove Farm Museum Sugar Plantation Locomotive Interactive Learning Park and a 1% ambient growth rate, adjusted and applied from HDOT's KRTDM.

With the anticipated growth in traffic, all study intersections are forecast to operate similar to existing conditions with increases in delay of no more than 1-3 seconds per intersection movement.

6.3 Future Year 2020

By Year 2020, the Project is projected to generate a total of 35(40) trips during the AM(PM) peak hours of traffic. Trips generated by the Project are expected to result in minimal growth along major roadways in the study area.

A roundabout may be constructed at the Haleko Road/Pua Loke Street intersection by Year 2020. If the roundabout is constructed, operations at Haleko Road/Pua Loke Street are anticipated improve by reducing delay to the minor street approaches and major street left-turn movements. Additionally, with the roundabout, lower speeds are expected along Haleko Road.

In addition to the roundabout, a new bus stop may be constructed just west of the Haleko Road/Pua Loke Street intersection. Due to the proximity of the proposed bus stop and roundabout, a bus bay should be provided to prevent traffic from queuing into the roundabout and halting operations at the intersection.

With the addition of the Project and proposed bus stop, pedestrian volumes in the area are likely to increase. Crosswalks and sidewalks along nearby roadways should be considered where necessary to allow pedestrian access between the bus stop and the Project or other nearby land uses.

7. RECOMMENDATIONS

7.1 Future Year 2020

The following mitigation is proposed if the roundabout and bus stop are constructed at Haleko Road/Pua Loke Street by Year 2020.

[1] Haleko Road/Pua Loke Street

- Provide a bus bay for the proposed bus stop.
- Provide pedestrian and bicycle treatments as necessary to increase connectivity in the Project vicinity.

8. REFERENCES

1. CH2M HILL, Kauai Regional Travel Demand Model, 2013.
2. Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012.
3. Transportation Research Board, Highway Capacity Manual, 6th Edition, 2016.
4. Transportation Research Board, Roundabouts: An Informational Guide, 2nd Edition, 2010.

A P P E N D I C E S

APPENDIX A

TRAFFIC COUNT DATA

Austin Tsutsumi & Associates

501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
Phone: 533-3646 Fax: 526-1267

File Name : AM_Pua Loke St - Haleko Rd
Site Code : 17-076 Pua Loke Housing
Start Date : 8/30/2017
Page No : 1

Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	PUA LOKE ST SOUTHBOUND				HALEKO RD WESTBOUND				PUA LOKE ST NORTHBOUND				HALEKO RD EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:45	1	1	13	0	3	26	4	0	4	0	11	1	8	13	1	0	86
Total	1	1	13	0	3	26	4	0	4	0	11	1	8	13	1	0	86
07:00	3	0	6	1	6	26	8	0	1	1	5	0	9	29	2	0	97
07:15	7	0	5	0	4	47	12	0	1	1	22	0	8	57	0	0	164
07:30	7	0	9	0	9	60	11	0	4	0	15	0	16	82	4	0	217
07:45	5	1	7	1	12	96	8	0	3	0	10	0	7	57	2	1	210
Total	22	1	27	2	31	229	39	0	9	2	52	0	40	225	8	1	688
08:00	7	0	13	0	10	46	5	0	1	0	16	0	5	31	2	0	136
08:15	6	0	6	0	7	52	4	0	0	0	8	0	5	35	2	0	125
08:30	7	1	6	0	5	57	7	0	6	1	7	0	6	34	4	0	141
Grand Total	43	3	65	2	56	410	59	0	20	3	94	1	64	338	17	1	1176
Apprch %	38.1	2.7	57.5	1.8	10.7	78.1	11.2	0	16.9	2.5	79.7	0.8	15.2	80.5	4	0.2	
Total %	3.7	0.3	5.5	0.2	4.8	34.9	5	0	1.7	0.3	8	0.1	5.4	28.7	1.4	0.1	
Motorcycles	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
% Motorcycles	0	0	0	0	0	0.2	0	0	0	0	0	0	1.6	0	0	0	0.2
Cars	24	0	27	0	30	292	43	0	12	1	61	0	33	238	13	0	774
% Cars	55.8	0	41.5	0	53.6	71.2	72.9	0	60	33.3	64.9	0	51.6	70.4	76.5	0	65.8
Light Goods Vehicles	19	1	29	0	26	116	15	0	8	1	33	0	25	95	4	0	372
% Light Goods Vehicles	44.2	33.3	44.6	0	46.4	28.3	25.4	0	40	33.3	35.1	0	39.1	28.1	23.5	0	31.6
Buses	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
% Buses	0	33.3	0	0	0	0	0	0	0	0	0	0	1.6	0	0	0	0.2
Single-Unit Trucks	0	0	9	0	0	1	1	0	0	0	0	0	4	4	0	0	19
% Single-Unit Trucks	0	0	13.8	0	0	0.2	1.7	0	0	0	0	0	6.2	1.2	0	0	1.6
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	1	0	0	0	1	0	0	3
% Bicycles on Road	0	33.3	0	0	0	0	0	0	0	33.3	0	0	0	0.3	0	0	0.3
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.1
Pedestrians	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	3
% Pedestrians	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0.3

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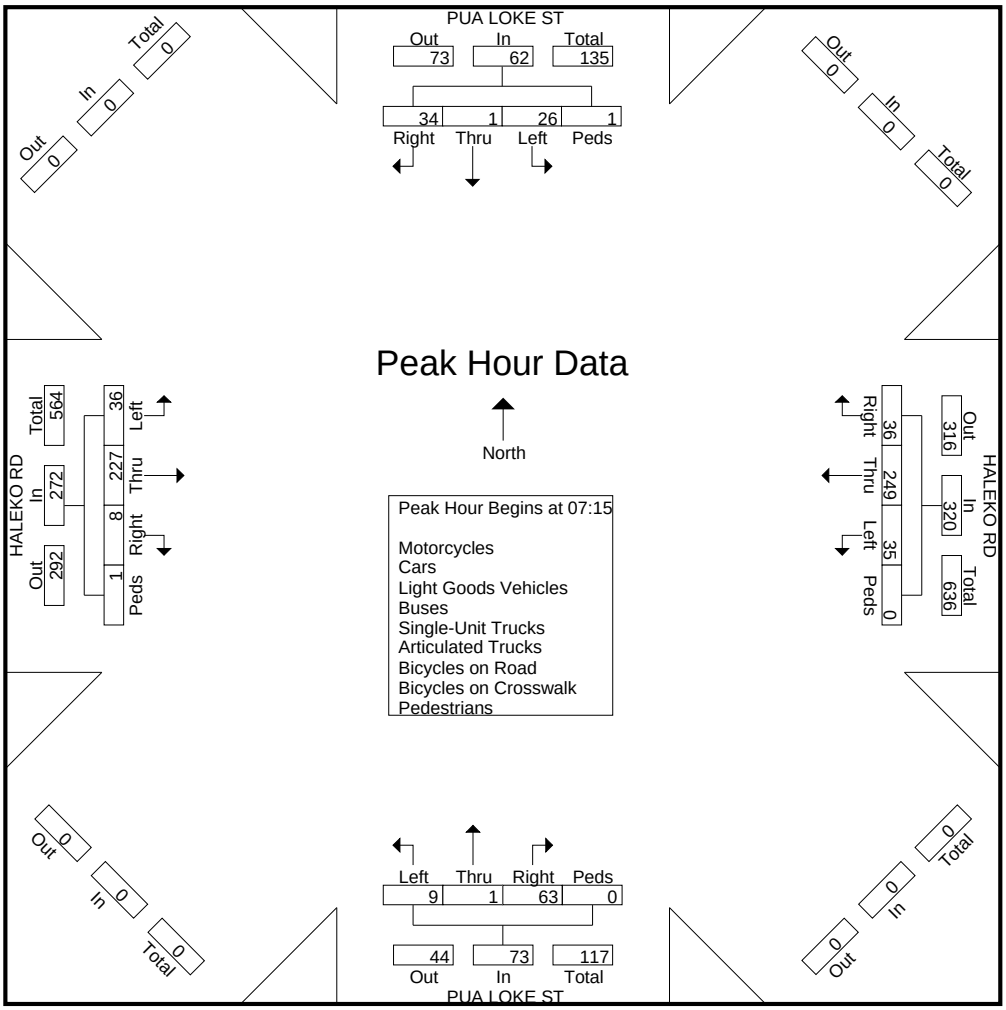
File Name : AM_Pua Loke St - Haleko Rd
Site Code : 17-076 Pua Loke Housing
Start Date : 8/30/2017
Page No : 2

	PUA LOKE ST SOUTHBOUND					HALEKO RD WESTBOUND					PUA LOKE ST NORTHBOUND					HALEKO RD EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 to 08:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	**7**	0	5	0	12	4	47	**12**	0	63	1	**1**	**22**	0	**24**	8	57	0	0	65	164
07:30	7	0	9	0	16	9	60	11	0	80	**4**	0	15	0	19	**16**	**82**	**4**	0	**102**	**217**
07:45	5	**1**	7	**1**	14	**12**	**96**	8	0	**116**	3	0	10	0	13	7	57	2	**1**	67	210
08:00	7	0	**13**	0	**20**	10	46	5	0	61	1	0	16	0	17	5	31	2	0	38	136
Total Volume	26	1	34	1	62	35	249	36	0	320	9	1	63	0	73	36	227	8	1	272	727
% App. Total	41.9	1.6	54.8	1.6		10.9	77.8	11.2	0		12.3	1.4	86.3	0		13.2	83.5	2.9	0.4		
PHF	.929	.250	.654	.250	.775	.729	.648	.750	.000	.690	.563	.250	.716	.000	.760	.563	.692	.500	.250	.667	.838



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File Name : AM_Pua Loke St - Wehe Rd
Site Code : 17-076 Pua Loke Housing
Start Date : 8/30/2017
Page No : 1

Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	PUA LOKE ST SOUTHBOUND				WEHE RD WESTBOUND				PUA LOKE ST NORTHBOUND				EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:45	1	8	0	0	7	0	0	0	0	8	2	0	0	0	0	0	26
Total	1	8	0	0	7	0	0	0	0	8	2	0	0	0	0	0	26
07:00	0	3	0	1	5	0	0	0	0	14	3	0	0	0	0	0	26
07:15	0	9	0	0	5	0	1	0	0	12	9	0	0	0	0	0	36
07:30	0	6	0	0	9	0	0	0	0	15	12	0	0	0	0	0	42
07:45	0	10	0	0	2	0	3	0	0	10	6	1	0	0	0	0	32
Total	0	28	0	1	21	0	4	0	0	51	30	1	0	0	0	0	136
08:00	2	14	0	0	6	0	0	0	0	3	6	0	0	0	0	0	31
08:15	1	3	0	0	9	0	0	0	0	4	5	0	0	0	0	0	22
08:30	1	6	0	0	8	0	0	0	0	5	9	0	0	0	0	0	29
Grand Total	5	59	0	1	51	0	4	0	0	71	52	1	0	0	0	0	244
Apprch %	7.7	90.8	0	1.5	92.7	0	7.3	0	0	57.3	41.9	0.8	0	0	0	0	
Total %	2	24.2	0	0.4	20.9	0	1.6	0	0	29.1	21.3	0.4	0	0	0	0	
Motorcycles	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
% Motorcycles	0	0	0	0	0	0	0	0	0	0	1.9	0	0	0	0	0	0.4
Cars	1	19	0	0	34	0	1	0	0	40	30	0	0	0	0	0	125
% Cars	20	32.2	0	0	66.7	0	25	0	0	56.3	57.7	0	0	0	0	0	51.2
Light Goods Vehicles	3	28	0	0	15	0	2	0	0	25	19	0	0	0	0	0	92
% Light Goods Vehicles	60	47.5	0	0	29.4	0	50	0	0	35.2	36.5	0	0	0	0	0	37.7
Buses	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
% Buses	0	1.7	0	0	0	0	0	0	0	1.4	0	0	0	0	0	0	0.8
Single-Unit Trucks	1	9	0	0	2	0	1	0	0	3	2	0	0	0	0	0	18
% Single-Unit Trucks	20	15.3	0	0	3.9	0	25	0	0	4.2	3.8	0	0	0	0	0	7.4
Articulated Trucks	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4
Bicycles on Road	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
% Bicycles on Road	0	1.7	0	0	0	0	0	0	0	2.8	0	0	0	0	0	0	1.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0.4
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Pedestrians	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0.4

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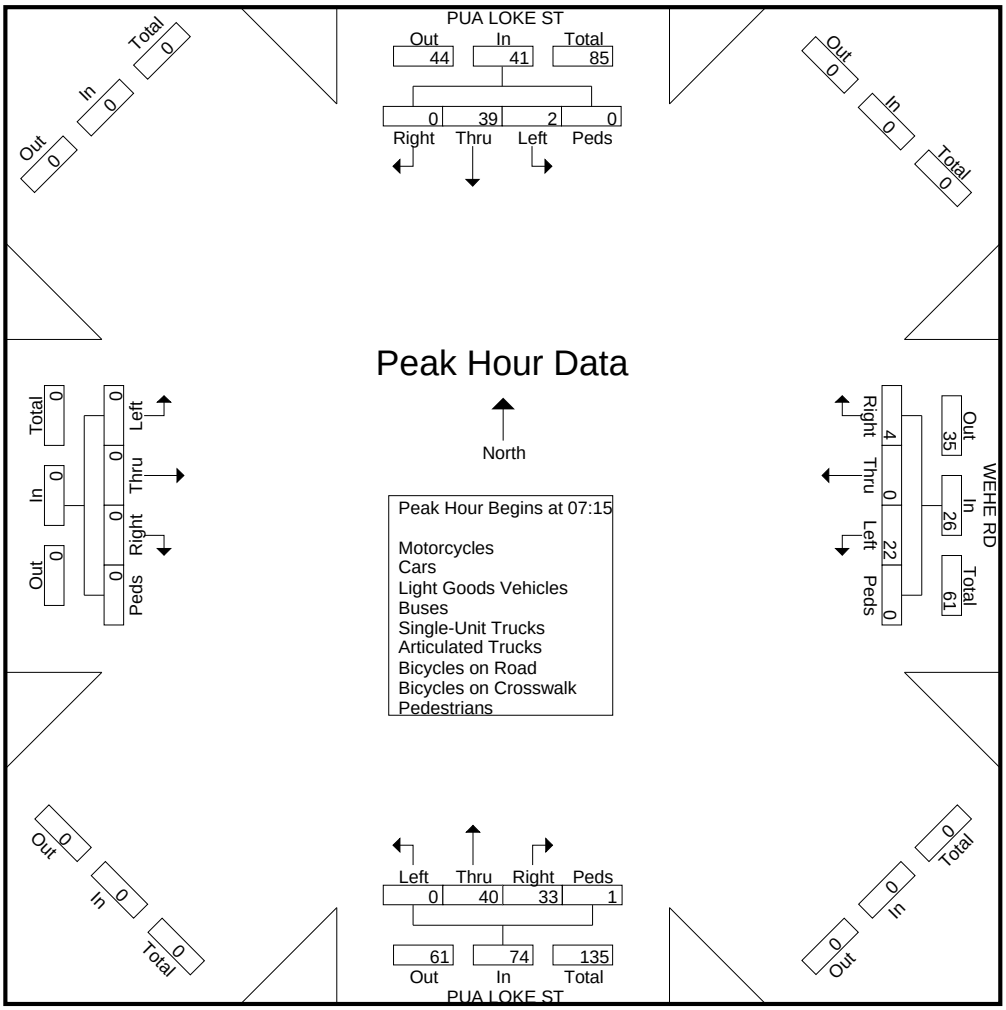
File Name : AM_Pua Loke St - Wehe Rd
Site Code : 17-076 Pua Loke Housing
Start Date : 8/30/2017
Page No : 2

	PUA LOKE ST SOUTHBOUND					WEHE RD WESTBOUND					PUA LOKE ST NORTHBOUND					EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 to 08:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	9	0	0	9	5	0	1	0	6	0	12	9	0	21	0	0	0	0	0	36
07:30	0	6	0	0	6	**9**	0	0	0	**9**	0	**15**	**12**	0	**27**	0	0	0	0	0	**42**
07:45	0	10	0	0	10	2	0	**3**	0	5	0	10	6	**1**	17	0	0	0	0	0	32
08:00	**2**	**14**	0	0	**16**	6	0	0	0	6	0	3	6	0	9	0	0	0	0	0	31
Total Volume	2	39	0	0	41	22	0	4	0	26	0	40	33	1	74	0	0	0	0	0	141
% App. Total	4.9	95.1	0	0		84.6	0	15.4	0		0	54.1	44.6	1.4		0	0	0	0		
PHF	.250	.696	.000	.000	.641	.611	.000	.333	.000	.722	.000	.667	.688	.250	.685	.000	.000	.000	.000	.000	.839



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File Name : AM_Pua Loke St - Project Dwy South
Site Code : 00000000
Start Date : 8/30/2017
Page No : 1

Groups Printed- Class 1

	PUA LOKE ST SOUTHBOUND				WESTBOUND				PUA LOKE ST NORTHBOUND				PROJECT DWY SOUTH EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:45	0	10	0	0	0	0	0	0	0	9	0	0	1	0	0	0	20
Total	0	10	0	0	0	0	0	0	0	9	0	0	1	0	0	0	20
07:00	0	2	0	0	0	0	0	0	0	13	0	0	0	0	1	0	16
07:15	0	6	0	0	0	0	0	0	0	13	0	0	0	0	3	0	22
07:30	0	5	0	0	0	0	0	0	0	14	0	0	0	0	0	0	19
07:45	0	11	0	0	0	0	0	0	0	12	0	0	0	0	0	0	23
Total	0	24	0	0	0	0	0	0	0	52	0	0	0	0	4	0	80
08:00	0	13	0	0	0	0	0	0	0	4	0	0	1	0	3	0	21
08:15	0	3	0	0	0	0	0	0	0	4	0	0	0	0	1	0	8
08:30	0	7	0	0	0	0	0	0	0	5	0	0	0	0	1	0	13
Grand Total	0	57	0	0	0	0	0	0	0	74	0	0	2	0	9	0	142
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	18.2	0	81.8	0	
Total %	0	40.1	0	0	0	0	0	0	0	52.1	0	0	1.4	0	6.3	0	

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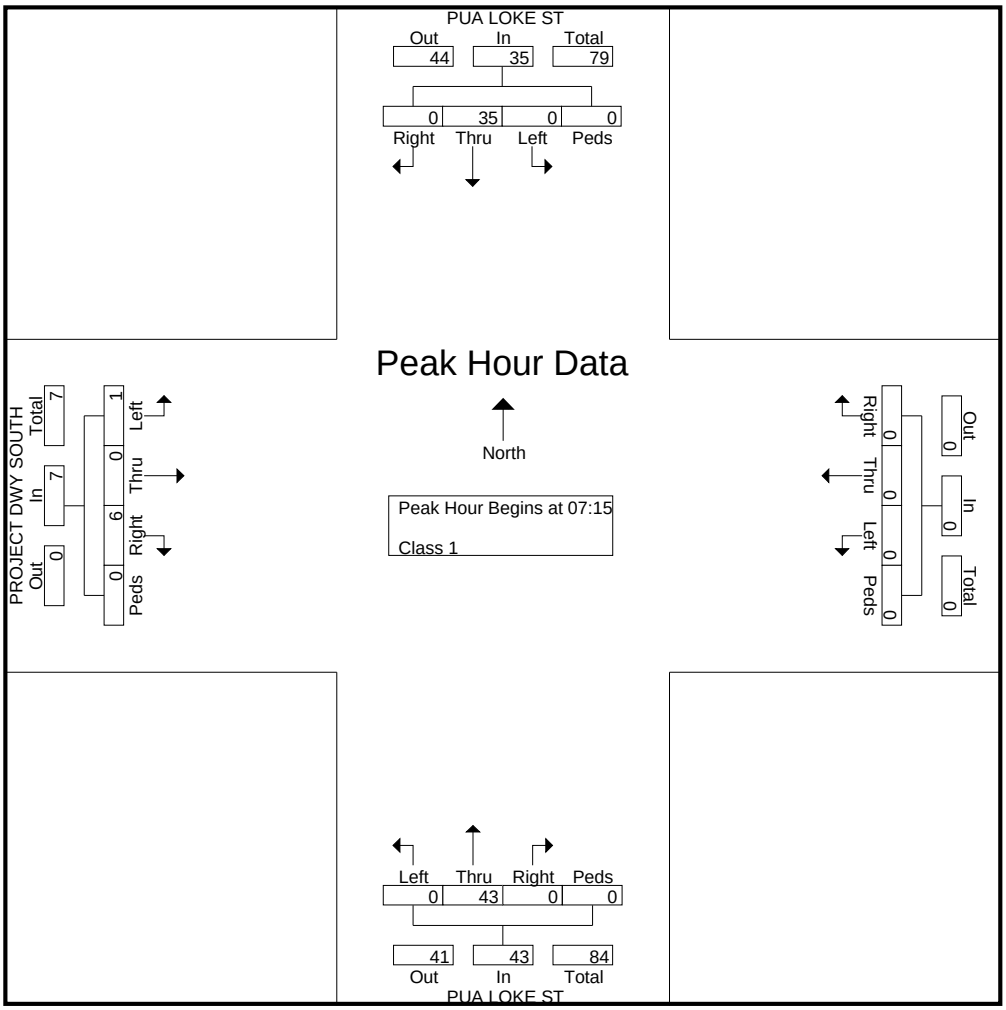
File Name : AM_Pua Loke St - Project Dwy South
Site Code : 00000000
Start Date : 8/30/2017
Page No : 2

	PUA LOKE ST SOUTHBOUND					WESTBOUND					PUA LOKE ST NORTHBOUND					PROJECT DWY SOUTH EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 to 08:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	6	0	0	6	0	0	0	0	0	0	13	0	0	13	0	0	**3**	0	3	22
07:30	0	5	0	0	5	0	0	0	0	0	0	**14**	0	0	**14**	0	0	0	0	0	19
07:45	0	11	0	0	11	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	**23**
08:00	0	**13**	0	0	**13**	0	0	0	0	0	0	4	0	0	4	**1**	0	3	0	**4**	21
Total Volume	0	35	0	0	35	0	0	0	0	0	0	43	0	0	43	1	0	6	0	7	85
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		14.3	0	85.7	0		
PHF	.000	.673	.000	.000	.673	.000	.000	.000	.000	.000	.000	.768	.000	.000	.768	.250	.000	.500	.000	.438	.924



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File Name : AM_Pua Loke St - Project Dwy North
Site Code : 00000000
Start Date : 8/30/2017
Page No : 1

Groups Printed- Class 1

	PUA LOKE ST SOUTHBOUND				DIVISION OF FORESTRY AND WILDLIFE DWY WESTBOUND				PUA LOKE ST NORTHBOUND				PROJECT DWY NORTH EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:45	1	6	0	0	4	0	0	0	2	6	3	0	0	0	0	0	22
Total	1	6	0	0	4	0	0	0	2	6	3	0	0	0	0	0	22
07:00	0	1	0	0	4	0	0	0	0	7	7	0	0	0	0	0	19
07:15	0	1	2	0	4	0	0	0	1	5	6	0	0	0	0	0	19
07:30	0	5	0	0	0	0	0	0	0	12	5	0	0	0	0	0	22
07:45	0	11	1	0	1	0	0	0	2	7	1	0	0	0	0	0	23
Total	0	18	3	0	9	0	0	0	3	31	19	0	0	0	0	0	83
08:00	0	8	0	0	3	0	0	0	1	3	1	0	0	0	0	0	16
08:15	0	1	0	0	2	0	0	0	0	4	1	0	0	0	0	0	8
08:30	1	4	0	0	3	0	1	0	2	3	1	0	0	0	0	0	15
Grand Total	2	37	3	0	21	0	1	0	8	47	25	0	0	0	0	0	144
Apprch %	4.8	88.1	7.1	0	95.5	0	4.5	0	10	58.8	31.2	0	0	0	0	0	
Total %	1.4	25.7	2.1	0	14.6	0	0.7	0	5.6	32.6	17.4	0	0	0	0	0	

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File Name : AM_Pua Loke St - Project Dwy North
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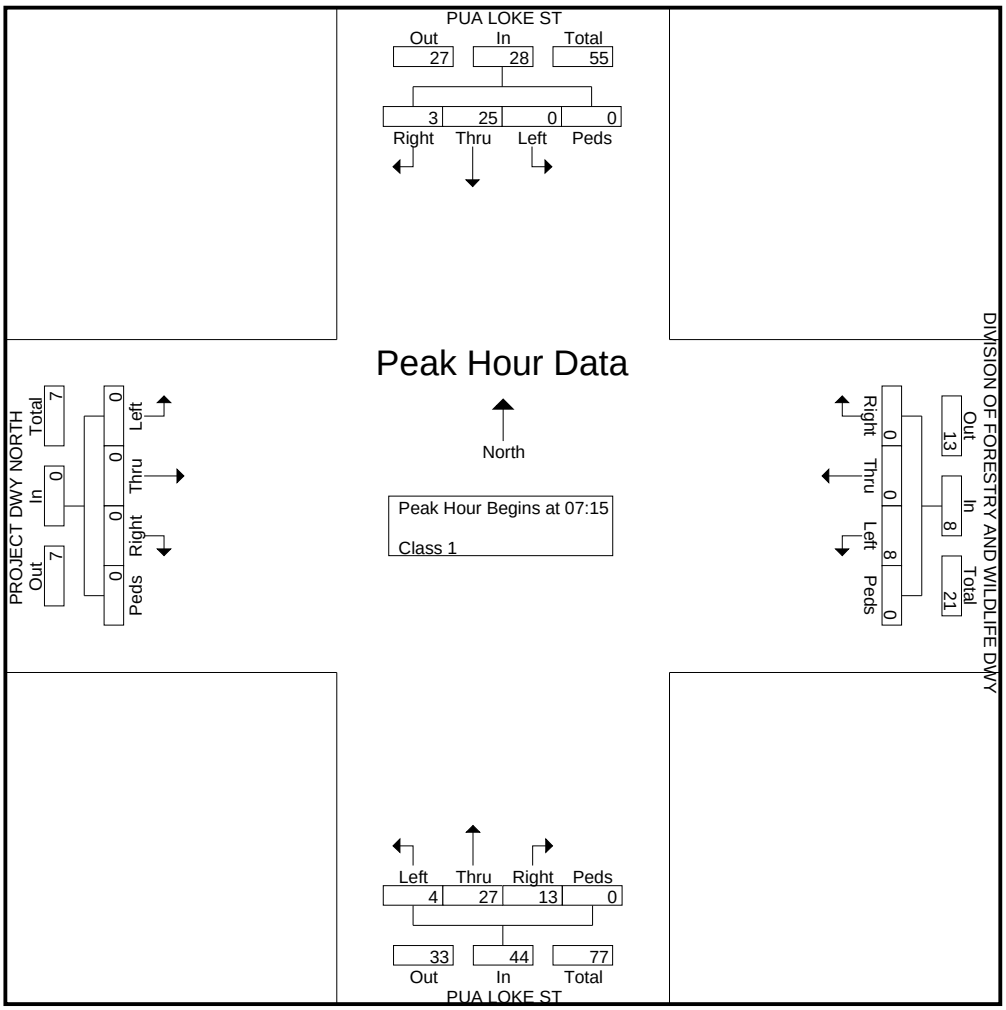
Start Date : 8/30/2017
Page No : 2

	PUA LOKE ST SOUTHBOUND					DIVISION OF FORESTRY AND WILDLIFE DWY WESTBOUND					PUA LOKE ST NORTHBOUND					PROJECT DWY NORTH EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 to 08:00 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	1	**2**	0	3	**4**	0	0	0	**4**	1	5	**6**	0	12	0	0	0	0	0	19
07:30	0	5	0	0	5	0	0	0	0	0	0	**12**	5	0	**17**	0	0	0	0	0	22
07:45	0	**11**	1	0	**12**	1	0	0	0	1	**2**	7	1	0	10	0	0	0	0	0	**23**
08:00	0	8	0	0	8	3	0	0	0	3	1	3	1	0	5	0	0	0	0	0	16
Total Volume	0	25	3	0	28	8	0	0	0	8	4	27	13	0	44	0	0	0	0	0	80
% App. Total	0	89.3	10.7	0		100	0	0	0		9.1	61.4	29.5	0		0	0	0	0		
PHF	.000	.568	.375	.000	.583	.500	.000	.000	.000	.500	.500	.563	.542	.000	.647	.000	.000	.000	.000	.000	.870



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File Name : PM_Pua Loke St - Haleko Rd
Site Code : 17-076 Pua Loke Housing
Start Date : 8/29/2017
Page No : 1

Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	PUA LOKE ST SOUTHBOUND				HALEKO RD WESTBOUND				PUA LOKE ST NORTHBOUND				HALEKO RD EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
15:30	2	0	10	0	13	86	9	0	5	0	4	0	3	68	4	0	204
15:45	4	0	11	0	13	65	5	0	1	1	5	0	2	73	3	0	183
Total	6	0	21	0	26	151	14	0	6	1	9	0	5	141	7	0	387
16:00	5	1	6	1	9	90	3	0	1	0	5	0	5	71	4	0	201
16:15	6	1	11	2	15	90	8	0	0	1	8	0	1	59	4	0	206
16:30	6	4	13	0	18	97	4	0	0	0	5	0	6	61	4	0	218
16:45	4	1	8	0	17	81	0	0	2	0	7	0	3	52	0	0	175
Total	21	7	38	3	59	358	15	0	3	1	25	0	15	243	12	0	800
17:00	4	0	2	0	13	70	3	0	0	0	5	1	3	75	2	0	178
17:15	5	0	8	0	10	68	1	0	3	0	4	0	7	53	3	0	162
Grand Total	36	7	69	3	108	647	33	0	12	2	43	1	30	512	24	0	1527
Apprch %	31.3	6.1	60	2.6	13.7	82.1	4.2	0	20.7	3.4	74.1	1.7	5.3	90.5	4.2	0	
Total %	2.4	0.5	4.5	0.2	7.1	42.4	2.2	0	0.8	0.1	2.8	0.1	2	33.5	1.6	0	
Motorcycles	0	1	0	0	0	1	0	0	1	0	0	0	1	1	0	0	5
% Motorcycles	0	14.3	0	0	0	0.2	0	0	8.3	0	0	0	3.3	0.2	0	0	0.3
Cars	23	3	47	0	67	457	22	0	5	2	32	0	23	371	13	0	1065
% Cars	63.9	42.9	68.1	0	62	70.6	66.7	0	41.7	100	74.4	0	76.7	72.5	54.2	0	69.7
Light Goods Vehicles	13	3	21	0	41	184	11	0	5	0	10	0	6	136	10	0	440
% Light Goods Vehicles	36.1	42.9	30.4	0	38	28.4	33.3	0	41.7	0	23.3	0	20	26.6	41.7	0	28.8
Buses	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	4
% Buses	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0.2	0	0	0.3
Single-Unit Trucks	0	0	1	0	0	1	0	0	0	0	0	0	0	2	1	0	5
% Single-Unit Trucks	0	0	1.4	0	0	0.2	0	0	0	0	0	0	0	0.4	4.2	0	0.3
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	1	0	0	1	0	1	0	0	1	0	0	4
% Bicycles on Road	0	0	0	0	0	0.2	0	0	8.3	0	2.3	0	0	0.2	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	3	0	0	0	0	0	0	0	1	0	0	0	0	4
% Pedestrians	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0.3

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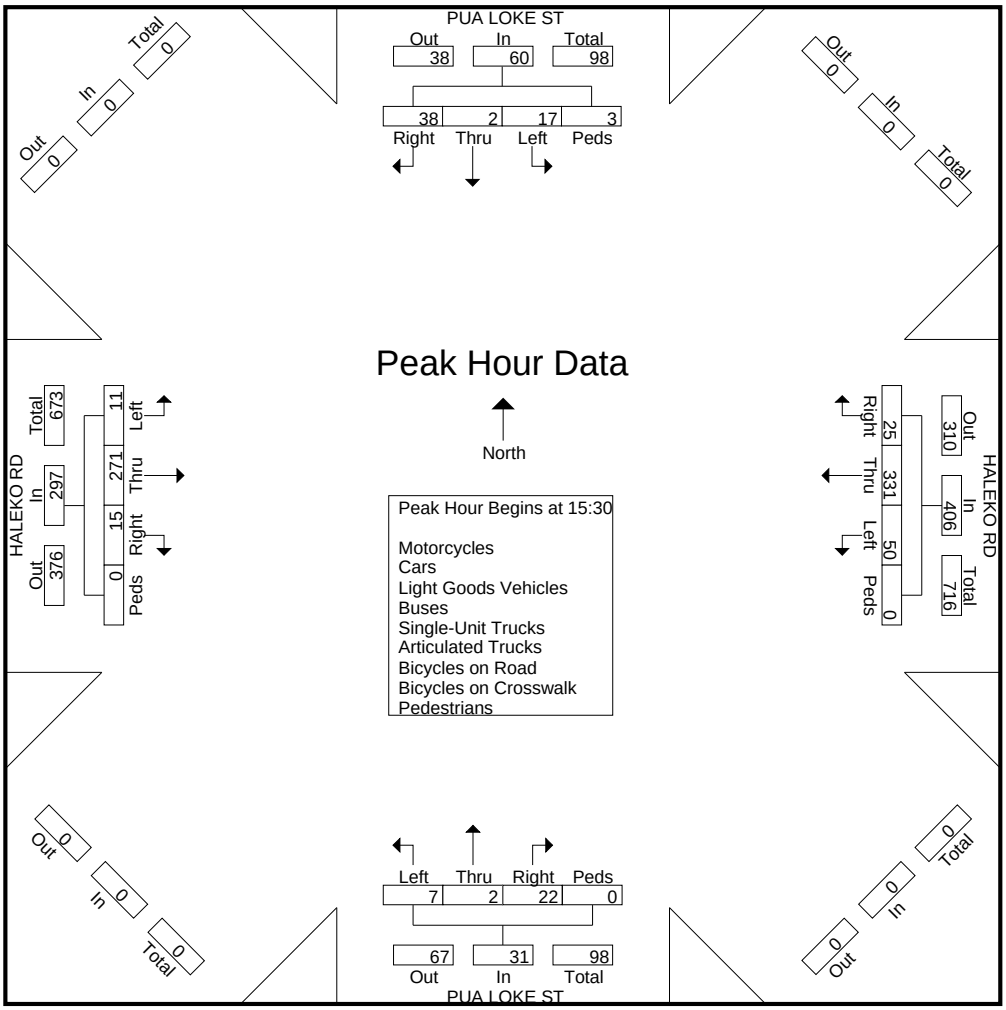
File Name : PM_Pua Loke St - Haleko Rd
Site Code : 17-076 Pua Loke Housing
Start Date : 8/29/2017
Page No : 2

	PUA LOKE ST SOUTHBOUND					HALEKO RD WESTBOUND					PUA LOKE ST NORTHBOUND					HALEKO RD EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 16:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:30																					
15:30	2	0	10	0	12	13	86	**9**	0	108	**5**	0	4	0	**9**	3	68	**4**	0	75	204
15:45	4	0	**11**	0	15	13	65	5	0	83	1	**1**	5	0	7	2	**73**	3	0	78	183
16:00	5	**1**	6	1	13	9	**90**	3	0	102	1	0	5	0	6	**5**	71	4	0	**80**	201
16:15	**6**	1	11	**2**	**20**	**15**	90	8	0	**113**	0	1	**8**	0	9	1	59	4	0	64	**206**
Total Volume	17	2	38	3	60	50	331	25	0	406	7	2	22	0	31	11	271	15	0	297	794
% App. Total	28.3	3.3	63.3	5		12.3	81.5	6.2	0		22.6	6.5	71	0		3.7	91.2	5.1	0		
PHF	.708	.500	.864	.375	.750	.833	.919	.694	.000	.898	.350	.500	.688	.000	.861	.550	.928	.938	.000	.928	.964



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File Name : PM_Pua Loke St - Wehe Rd
Site Code : 17-076 Pua Loke Housing
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Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	PUA LOKE ST SOUTHBOUND				WEHE RD WESTBOUND				PUA LOKE ST NORTHBOUND				EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
15:30	0	10	0	0	2	0	0	0	0	9	5	0	0	0	0	0	26
15:45	0	8	0	0	7	0	0	0	0	3	5	0	0	0	0	0	23
Total	0	18	0	0	9	0	0	0	0	12	10	0	0	0	0	0	49
16:00	1	7	0	0	6	0	0	0	0	3	3	0	0	0	0	0	20
16:15	0	15	0	0	4	0	0	0	0	4	6	2	0	0	0	0	31
16:30	0	15	0	0	6	0	0	0	0	4	6	0	0	0	0	0	31
16:45	0	6	0	0	7	0	0	0	0	0	3	0	0	0	0	0	16
Total	1	43	0	0	23	0	0	0	0	11	18	2	0	0	0	0	98
17:00	0	1	0	1	6	0	0	0	0	0	6	0	0	0	0	0	14
17:15	0	5	0	0	7	0	0	0	0	4	4	0	0	0	0	0	20
Grand Total	1	67	0	1	45	0	0	0	0	27	38	2	0	0	0	0	181
Apprch %	1.4	97.1	0	1.4	100	0	0	0	0	40.3	56.7	3	0	0	0	0	
Total %	0.6	37	0	0.6	24.9	0	0	0	0	14.9	21	1.1	0	0	0	0	
Motorcycles	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
% Motorcycles	0	1.5	0	0	0	0	0	0	0	3.7	0	0	0	0	0	0	1.1
Cars	0	43	0	0	29	0	0	0	0	20	27	0	0	0	0	0	119
% Cars	0	64.2	0	0	64.4	0	0	0	0	74.1	71.1	0	0	0	0	0	65.7
Light Goods Vehicles	0	23	0	0	15	0	0	0	0	6	11	0	0	0	0	0	55
% Light Goods Vehicles	0	34.3	0	0	33.3	0	0	0	0	22.2	28.9	0	0	0	0	0	30.4
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	2.2	0	0	0	0	0	0	0	0	0	0	0	0.6
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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bicycles on Road	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6
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	1	0	0	0	0	0	0	0	2	0	0	0	0	3
% Pedestrians	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0	1.7

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Site Code : 17-076 Pua Loke Housing
Start Date : 8/29/2017
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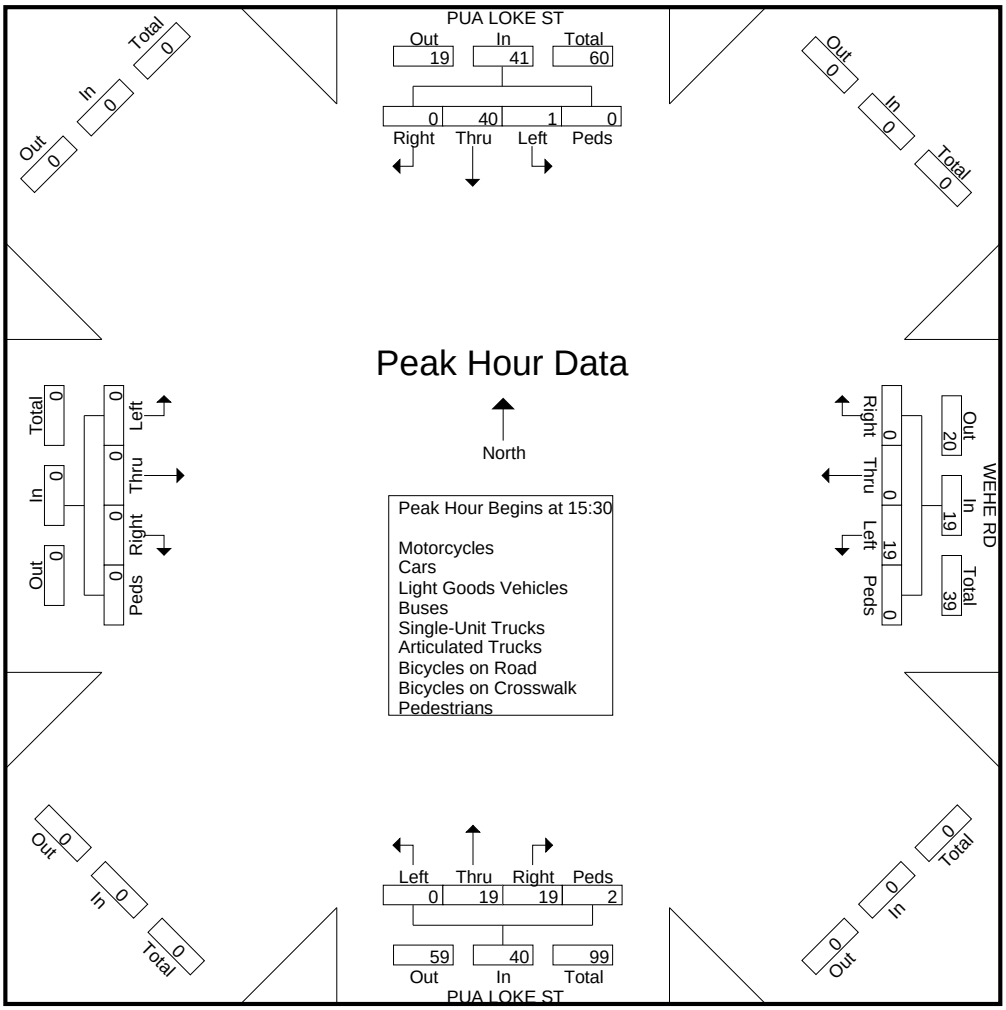
	PUA LOKE ST SOUTHBOUND					WEHE RD WESTBOUND					PUA LOKE ST NORTHBOUND					EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 16:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:30																					
15:30	0	10	0	0	10	2	0	0	0	2	0	**9**	5	0	**14**	0	0	0	0	0	26
15:45	0	8	0	0	8	**7**	0	0	0	**7**	0	3	5	0	8	0	0	0	0	0	23
16:00	**1**	7	0	0	8	6	0	0	0	6	0	3	3	0	6	0	0	0	0	0	20
16:15	0	**15**	0	0	**15**	4	0	0	0	4	0	4	**6**	**2**	12	0	0	0	0	0	**31**
Total Volume	1	40	0	0	41	19	0	0	0	19	0	19	19	2	40	0	0	0	0	0	100
% App. Total	2.4	97.6	0	0		100	0	0	0		0	47.5	47.5	5		0	0	0	0		
PHF	.250	.667	.000	.000	.683	.679	.000	.000	.000	.679	.000	.528	.792	.250	.714	.000	.000	.000	.000	.000	.806



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File Name : PM_Pua Loke St - Project Dwy South
Site Code : 00000000
Start Date : 8/29/2017
Page No : 1

Groups Printed- Class 1

	PUA LOKE ST SOUTHBOUND				WESTBOUND				PUA LOKE ST NORTHBOUND				PROJECT DWY SOUTH EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
15:30	0	10	0	0	0	0	0	0	0	10	0	0	0	0	0	0	20
15:45	0	7	0	0	0	0	0	0	0	4	0	0	0	0	1	0	12
Total	0	17	0	0	0	0	0	0	0	14	0	0	0	0	1	0	32
16:00	0	7	0	0	0	0	0	0	0	3	0	0	0	0	0	0	10
16:15	0	15	0	0	0	0	0	0	0	3	0	0	0	0	0	0	18
16:30	0	14	0	0	0	0	0	0	0	5	0	0	0	0	1	0	20
16:45	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total	0	42	0	0	0	0	0	0	0	11	0	0	0	0	1	0	54
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0	9
Grand Total	0	64	0	0	0	0	0	0	0	29	0	0	0	0	2	0	95
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	100	0	
Total %	0	67.4	0	0	0	0	0	0	0	30.5	0	0	0	0	2.1	0	

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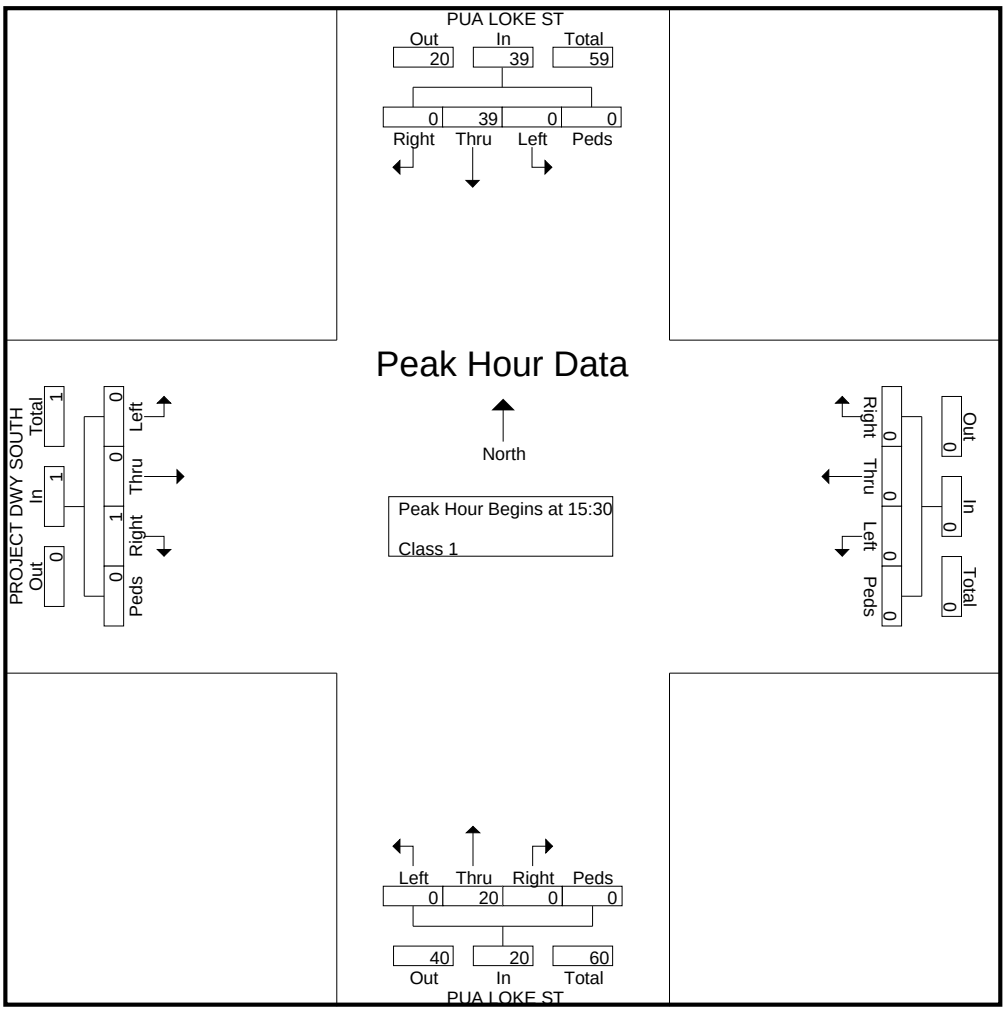
	PUA LOKE ST SOUTHBOUND					WESTBOUND					PUA LOKE ST NORTHBOUND					PROJECT DWY SOUTH EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 17:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:30																					
15:30	0	10	0	0	10	0	0	0	0	0	0	**10**	0	0	**10**	0	0	0	0	0	**20**
15:45	0	7	0	0	7	0	0	0	0	0	0	4	0	0	4	0	0	**1**	0	**1**	12
16:00	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	10
16:15	0	**15**	0	0	**15**	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	18
Total Volume	0	39	0	0	39	0	0	0	0	0	0	20	0	0	20	0	0	1	0	1	60
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.650	.000	.000		.000	.000	.000	.000		.000	.500	.000	.000		.000	.000	.250	.000		



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File Name : PM_Pua Loke St - Project Dwy North
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Groups Printed- Class 1

	PUA LOKE ST SOUTHBOUND				DIVISION OF FORESTRY AND WILDLIFE DWY WESTBOUND				PUA LOKE ST NORTHBOUND				PROJECT DWY NORTH EASTBOUND				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
15:30	0	7	0	0	4	0	0	0	0	5	5	0	0	0	0	0	21
15:45	0	5	0	0	1	0	0	0	1	2	1	0	0	0	0	0	10
Total	0	12	0	0	5	0	0	0	1	7	6	0	0	0	0	0	31
16:00	0	3	0	0	3	0	0	0	0	2	0	0	0	0	0	0	8
16:15	0	9	0	0	8	0	0	0	0	3	2	0	0	0	0	0	22
16:30	0	10	0	0	4	0	0	0	1	2	0	0	0	0	0	0	17
16:45	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	25	0	0	16	0	0	0	1	7	2	0	0	0	0	0	51
17:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:15	0	4	0	0	0	0	0	0	0	3	1	0	0	0	0	0	8
Grand Total	0	44	0	0	21	0	0	0	2	17	9	0	0	0	0	0	93
Apprch %	0	100	0	0	100	0	0	0	7.1	60.7	32.1	0	0	0	0	0	
Total %	0	47.3	0	0	22.6	0	0	0	2.2	18.3	9.7	0	0	0	0	0	

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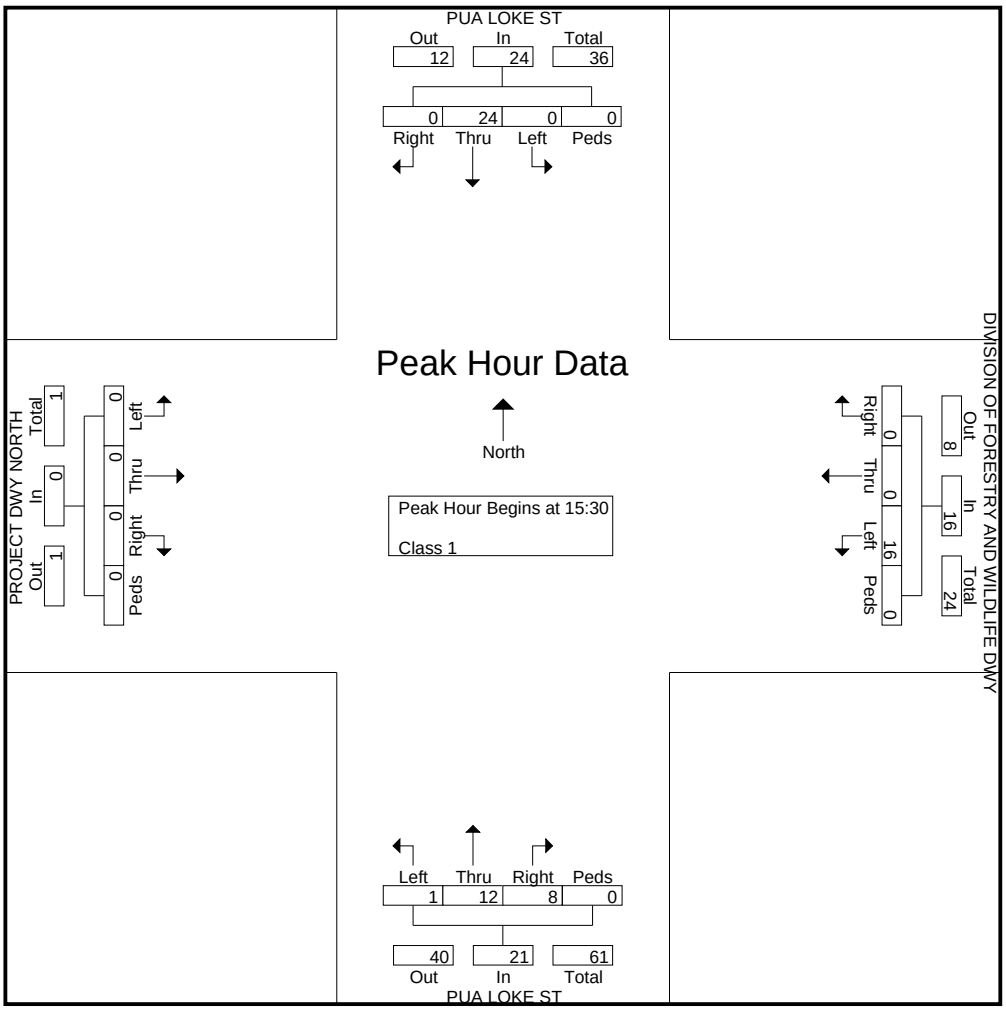
	PUA LOKE ST SOUTHBOUND					DIVISION OF FORESTRY AND WILDLIFE DWY WESTBOUND					PUA LOKE ST NORTHBOUND					PROJECT DWY NORTH EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 17:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:30																					
15:30	0	7	0	0	7	4	0	0	0	4	0	**5**	**5**	0	**10**	0	0	0	0	0	21
15:45	0	5	0	0	5	1	0	0	0	1	**1**	2	1	0	4	0	0	0	0	0	10
16:00	0	3	0	0	3	3	0	0	0	3	0	2	0	0	2	0	0	0	0	0	8
16:15	0	**9**	0	0	**9**	**8**	0	0	0	**8**	0	3	2	0	5	0	0	0	0	0	**22**
Total Volume	0	24	0	0	24	16	0	0	0	16	1	12	8	0	21	0	0	0	0	0	61
% App. Total	0	100	0	0		100	0	0	0		4.8	57.1	38.1	0		0	0	0	0		
PHF	.000	.667	.000	.000	.667	.500	.000	.000	.000	.500	.250	.600	.400	.000	.525	.000	.000	.000	.000	.000	.693



APPENDIX B

LEVEL OF SERVICE CRITERIA

APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 2010)

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 2010)

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

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	227	8	35	249	36	9	1	63	26	1	34
Future Vol, veh/h	36	227	8	35	249	36	9	1	63	26	1	34
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
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	39	247	9	38	271	39	10	1	68	28	1	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	311	0	0	256	0	0	717	717	252	732	702	293
Stage 1	-	-	-	-	-	-	330	330	-	368	368	-
Stage 2	-	-	-	-	-	-	387	387	-	364	334	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1249	-	-	1309	-	-	345	355	787	337	362	746
Stage 1	-	-	-	-	-	-	683	646	-	652	621	-
Stage 2	-	-	-	-	-	-	637	610	-	655	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1248	-	-	1309	-	-	309	330	787	290	336	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	309	330	-	290	336	-
Stage 1	-	-	-	-	-	-	658	623	-	628	599	-
Stage 2	-	-	-	-	-	-	583	588	-	575	620	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.9	11.3	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	651	1248	-	-	1309	-	-	441
HCM Lane V/C Ratio	0.122	0.031	-	-	0.029	-	-	0.15
HCM Control Delay (s)	11.3	8	0	-	7.8	0	-	14.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	3	41	33	2	39
Future Vol, veh/h	22	3	41	33	2	39
Conflicting Peds, #/hr	1	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	24	3	45	36	2	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	110	63	0	0	81	0
Stage 1	63	-	-	-	-	-
Stage 2	47	-	-	-	-	-
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	887	1002	-	-	1517	-
Stage 1	960	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	885	1002	-	-	1517	-
Mov Cap-2 Maneuver	885	-	-	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	898	1517	-
HCM Lane V/C Ratio	-	-	0.03	0.001	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	6	0	43	35	0
Future Vol, veh/h	1	6	0	43	35	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	1	7	0	47	38	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	85	38	-	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	47	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	916	1034	0	-	-	0
Stage 1	984	-	0	-	-	0
Stage 2	975	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	916	1034	-	-	-	-
Mov Cap-2 Maneuver	916	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	1015	-
HCM Lane V/C Ratio	-	0.007	-
HCM Control Delay (s)	-	8.6	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	8	0	0	4	27	13	0	25	3
Future Vol, veh/h	0	0	0	8	0	0	4	27	13	0	25	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	0	0	0	9	0	0	4	29	14	0	27	3

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	73	74	36	30	0	0	43	0	0
Stage 1	44	44	-	-	-	-	-	-	-
Stage 2	29	30	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	931	816	1037	1583	-	-	1566	-	-
Stage 1	978	858	-	-	-	-	-	-	-
Stage 2	994	870	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	928	0	1037	1583	-	-	1566	-	-
Mov Cap-2 Maneuver	928	0	-	-	-	-	-	-	-
Stage 1	975	0	-	-	-	-	-	-	-
Stage 2	994	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1583	-	-	928	1566	-	-
HCM Lane V/C Ratio	0.003	-	-	0.009	-	-	-
HCM Control Delay (s)	7.3	0	-	8.9	0	-	-
HCM Lane LOS	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	-	-

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	0	29	30
Demand Flow Rate, veh/h	0	30	31
Vehicles Circulating, veh/h	30	0	0
Vehicles Exiting, veh/h	0	31	30
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	2.8	2.8
Approach LOS	-	A	A

Lane	Left	Left	Left
Designated Moves	LR	T	T
Assumed Moves	LR	T	T
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	0	30	31
Cap Entry Lane, veh/h	1338	1380	1380
Entry HV Adj Factor	1.000	0.980	0.980
Flow Entry, veh/h	0	29	30
Cap Entry, veh/h	1338	1353	1353
V/C Ratio	0.000	0.022	0.022
Control Delay, s/veh	2.7	2.8	2.8
LOS	A	A	A
95th %tile Queue, veh	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing PM

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	271	15	50	331	25	7	2	22	17	2	38
Future Vol, veh/h	11	271	15	50	331	25	7	2	22	17	2	38
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
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	12	295	16	54	360	27	8	2	24	18	2	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	388	0	0	311	0	0	831	823	303	823	818	376
Stage 1	-	-	-	-	-	-	327	327	-	483	483	-
Stage 2	-	-	-	-	-	-	504	496	-	340	335	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1170	-	-	1249	-	-	289	309	737	292	311	670
Stage 1	-	-	-	-	-	-	686	648	-	565	553	-
Stage 2	-	-	-	-	-	-	550	545	-	675	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1169	-	-	1249	-	-	256	288	737	266	290	669
Mov Cap-2 Maneuver	-	-	-	-	-	-	256	288	-	266	290	-
Stage 1	-	-	-	-	-	-	678	640	-	558	522	-
Stage 2	-	-	-	-	-	-	485	514	-	643	635	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	13	14.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	483	1169	-	-	1249	-	-	447
HCM Lane V/C Ratio	0.07	0.01	-	-	0.044	-	-	0.139
HCM Control Delay (s)	13	8.1	0	-	8	0	-	14.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	1	19	20	1	40
Future Vol, veh/h	19	1	19	20	1	40
Conflicting Peds, #/hr	1	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	21	1	21	22	1	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	78	32	0	0	43	0
Stage 1	32	-	-	-	-	-
Stage 2	46	-	-	-	-	-
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	925	1042	-	-	1566	-
Stage 1	991	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	923	1042	-	-	1566	-
Mov Cap-2 Maneuver	923	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	1566	-
HCM Lane V/C Ratio	-	-	0.023	0.001	-
HCM Control Delay (s)	-	-	9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	20	39	0
Future Vol, veh/h	0	1	0	20	39	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	1	0	22	42	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	64	42	-	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	942	1029	0	-	-	0
Stage 1	980	-	0	-	-	0
Stage 2	1001	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	942	1029	-	-	-	-
Mov Cap-2 Maneuver	942	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	1001	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	1029	-
HCM Lane V/C Ratio	-	0.001	-
HCM Control Delay (s)	-	8.5	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	0	0	0	12	8	0	24	0
Future Vol, veh/h	0	0	0	16	0	0	0	12	8	0	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	0	0	0	17	0	0	0	13	9	0	26	0

Major/Minor	Minor1		Major1			Major2			
Conflicting Flow All	44	44	18	26	0	0	22	0	0
Stage 1	18	18	-	-	-	-	-	-	-
Stage 2	26	26	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	967	848	1061	1588	-	-	1593	-	-
Stage 1	1005	880	-	-	-	-	-	-	-
Stage 2	997	874	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	967	0	1061	1588	-	-	1593	-	-
Mov Cap-2 Maneuver	967	0	-	-	-	-	-	-	-
Stage 1	1005	0	-	-	-	-	-	-	-
Stage 2	997	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1588	-	-	967	1593	-	-
HCM Lane V/C Ratio	-	-	-	0.018	-	-	-
HCM Control Delay (s)	0	-	-	8.8	0	-	-
HCM Lane LOS	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	0	13	26
Demand Flow Rate, veh/h	0	13	27
Vehicles Circulating, veh/h	13	0	0
Vehicles Exiting, veh/h	0	27	13
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	2.7	2.8
Approach LOS	-	A	A

Lane	Left	Left	Left
Designated Moves	LR	T	T
Assumed Moves	LR	T	T
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	0	13	27
Cap Entry Lane, veh/h	1362	1380	1380
Entry HV Adj Factor	1.000	0.980	0.980
Flow Entry, veh/h	0	13	26
Cap Entry, veh/h	1362	1353	1353
V/C Ratio	0.000	0.009	0.020
Control Delay, s/veh	2.6	2.7	2.8
LOS	A	A	A
95th %tile Queue, veh	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2020 AM

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	240	10	35	260	40	10	5	65	30	5	35
Future Vol, veh/h	40	240	10	35	260	40	10	5	65	30	5	35
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
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	43	261	11	38	283	43	11	5	71	33	5	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	327	0	0	272	0	0	756	756	267	773	740	307
Stage 1	-	-	-	-	-	-	353	353	-	382	382	-
Stage 2	-	-	-	-	-	-	403	403	-	391	358	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1233	-	-	1291	-	-	325	337	772	316	345	733
Stage 1	-	-	-	-	-	-	664	631	-	640	613	-
Stage 2	-	-	-	-	-	-	624	600	-	633	628	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	1291	-	-	286	311	772	267	319	732
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	311	-	267	319	-
Stage 1	-	-	-	-	-	-	637	605	-	613	590	-
Stage 2	-	-	-	-	-	-	564	578	-	547	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.8	12.1	16.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	592	1232	-	-	1291	-	-	398
HCM Lane V/C Ratio	0.147	0.035	-	-	0.029	-	-	0.191
HCM Control Delay (s)	12.1	8	0	-	7.9	0	-	16.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-	-	0.7

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	5	45	35	5	40
Future Vol, veh/h	25	5	45	35	5	40
Conflicting Peds, #/hr	1	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	27	5	49	38	5	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	122	68	0	0	87	0
Stage 1	68	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	873	995	-	-	1509	-
Stage 1	955	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	870	995	-	-	1509	-
Mov Cap-2 Maneuver	870	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	889	1509	-
HCM Lane V/C Ratio	-	-	0.037	0.004	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	0	45	35	0
Future Vol, veh/h	5	10	0	45	35	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	5	11	0	49	38	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	87	38	-	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	914	1034	0	-	-	0
Stage 1	984	-	0	-	-	0
Stage 2	973	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	914	1034	-	-	-	-
Mov Cap-2 Maneuver	914	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	973	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	991	-
HCM Lane V/C Ratio	-	0.016	-
HCM Control Delay (s)	-	8.7	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	10	0	0	5	30	15	0	25	5
Future Vol, veh/h	0	0	0	10	0	0	5	30	15	0	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	0	0	0	11	0	0	5	33	16	0	27	5

Major/Minor	Minor1		Major1			Major2			
Conflicting Flow All	81	83	41	32	0	0	49	0	0
Stage 1	51	51	-	-	-	-	-	-	-
Stage 2	30	32	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	921	807	1030	1580	-	-	1558	-	-
Stage 1	971	852	-	-	-	-	-	-	-
Stage 2	993	868	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	918	0	1030	1580	-	-	1558	-	-
Mov Cap-2 Maneuver	918	0	-	-	-	-	-	-	-
Stage 1	968	0	-	-	-	-	-	-	-
Stage 2	993	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	918	1558	-	-
HCM Lane V/C Ratio	0.003	-	-	0.012	-	-	-
HCM Control Delay (s)	7.3	0	-	9	0	-	-
HCM Lane LOS	A	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	-	-

Intersection	
Intersection Delay, s/veh	2.9
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	0	33	33
Demand Flow Rate, veh/h	0	34	34
Vehicles Circulating, veh/h	34	0	0
Vehicles Exiting, veh/h	0	34	34
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	2.9	2.9
Approach LOS	-	A	A

Lane	Left	Left	Left
Designated Moves	LR	T	T
Assumed Moves	LR	T	T
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	0	34	34
Cap Entry Lane, veh/h	1333	1380	1380
Entry HV Adj Factor	1.000	0.980	0.980
Flow Entry, veh/h	0	33	33
Cap Entry, veh/h	1333	1353	1353
V/C Ratio	0.000	0.025	0.025
Control Delay, s/veh	2.7	2.9	2.9
LOS	A	A	A
95th %tile Queue, veh	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2020 PM

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	280	15	50	345	25	10	5	25	20	5	40
Future Vol, veh/h	15	280	15	50	345	25	10	5	25	20	5	40
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
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	16	304	16	54	375	27	11	5	27	22	5	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	403	0	0	320	0	0	866	855	312	858	850	391
Stage 1	-	-	-	-	-	-	344	344	-	498	498	-
Stage 2	-	-	-	-	-	-	522	511	-	360	352	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1156	-	-	1240	-	-	274	296	728	277	298	658
Stage 1	-	-	-	-	-	-	671	637	-	554	544	-
Stage 2	-	-	-	-	-	-	538	537	-	658	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1155	-	-	1240	-	-	238	274	728	248	276	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	274	-	248	276	-
Stage 1	-	-	-	-	-	-	660	626	-	544	513	-
Stage 2	-	-	-	-	-	-	469	506	-	617	621	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1	14.5	15.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	423	1155	-	-	1240	-	-	407
HCM Lane V/C Ratio	0.103	0.014	-	-	0.044	-	-	0.174
HCM Control Delay (s)	14.5	8.2	0	-	8	0	-	15.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	5	20	20	5	40
Future Vol, veh/h	20	5	20	20	5	40
Conflicting Peds, #/hr	1	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	22	5	22	22	5	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	87	33	0	0	44	0
Stage 1	33	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	914	1041	-	-	1564	-
Stage 1	989	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	910	1041	-	-	1564	-
Mov Cap-2 Maneuver	910	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	933	1564	-
HCM Lane V/C Ratio	-	-	0.029	0.003	-
HCM Control Delay (s)	-	-	9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	20	40	0
Future Vol, veh/h	0	5	0	20	40	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	5	0	22	43	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	65	43	-	0	-	0
Stage 1	43	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	941	1027	0	-	-	0
Stage 1	979	-	0	-	-	0
Stage 2	1001	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	941	1027	-	-	-	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	1001	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	1027	-
HCM Lane V/C Ratio	-	0.005	-
HCM Control Delay (s)	-	8.5	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	20	0	0	0	15	10	0	25	0
Future Vol, veh/h	0	0	0	20	0	0	0	15	10	0	25	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	0	0	0	22	0	0	0	16	11	0	27	0

Major/Minor	Minor1		Major1			Major2			
Conflicting Flow All	49	49	22	27	0	0	27	0	0
Stage 1	22	22	-	-	-	-	-	-	-
Stage 2	27	27	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	960	843	1055	1587	-	-	1587	-	-
Stage 1	1001	877	-	-	-	-	-	-	-
Stage 2	996	873	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	960	0	1055	1587	-	-	1587	-	-
Mov Cap-2 Maneuver	960	0	-	-	-	-	-	-	-
Stage 1	1001	0	-	-	-	-	-	-	-
Stage 2	996	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	960	1587	-	-
HCM Lane V/C Ratio	-	-	-	0.023	-	-	-
HCM Control Delay (s)	0	-	-	8.8	0	-	-
HCM Lane LOS	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	0	16	27
Demand Flow Rate, veh/h	0	16	28
Vehicles Circulating, veh/h	16	0	0
Vehicles Exiting, veh/h	0	28	16
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	2.8	2.8
Approach LOS	-	A	A

Lane	Left	Left	Left
Designated Moves	LR	T	T
Assumed Moves	LR	T	T
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	0	16	28
Cap Entry Lane, veh/h	1358	1380	1380
Entry HV Adj Factor	1.000	0.980	0.980
Flow Entry, veh/h	0	16	27
Cap Entry, veh/h	1358	1353	1353
V/C Ratio	0.000	0.012	0.020
Control Delay, s/veh	2.7	2.8	2.8
LOS	A	A	A
95th %tile Queue, veh	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2020 AM

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	240	10	35	260	40	10	5	65	40	5	50
Future Vol, veh/h	40	240	10	35	260	40	10	5	65	40	5	50
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
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	43	261	11	38	283	43	11	5	71	43	5	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	327	0	0	272	0	0	764	756	267	773	740	307
Stage 1	-	-	-	-	-	-	353	353	-	382	382	-
Stage 2	-	-	-	-	-	-	411	403	-	391	358	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1233	-	-	1291	-	-	321	337	772	316	345	733
Stage 1	-	-	-	-	-	-	664	631	-	640	613	-
Stage 2	-	-	-	-	-	-	618	600	-	633	628	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	1291	-	-	276	311	772	267	319	732
Mov Cap-2 Maneuver	-	-	-	-	-	-	276	311	-	267	319	-
Stage 1	-	-	-	-	-	-	637	605	-	613	590	-
Stage 2	-	-	-	-	-	-	546	578	-	547	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.8	12.2	16.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	586	1232	-	-	1291	-	-	406
HCM Lane V/C Ratio	0.148	0.035	-	-	0.029	-	-	0.254
HCM Control Delay (s)	12.2	8	0	-	7.9	0	-	16.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-	-	1

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	5	50	35	5	70
Future Vol, veh/h	25	5	50	35	5	70
Conflicting Peds, #/hr	1	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	27	5	54	38	5	76

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	160	73	0	0	92	0
Stage 1	73	-	-	-	-	-
Stage 2	87	-	-	-	-	-
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	831	989	-	-	1503	-
Stage 1	950	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	828	989	-	-	1503	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	851	1503	-
HCM Lane V/C Ratio	-	-	0.038	0.004	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	5	50	60	0
Future Vol, veh/h	0	10	5	50	60	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	54	65	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	129	65	65	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	64	-	-	-	-	-
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	865	999	1537	-	-	0
Stage 1	958	-	-	-	-	0
Stage 2	959	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	862	999	1537	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	1537	-	999	-
HCM Lane V/C Ratio	0.004	-	0.011	-
HCM Control Delay (s)	7.4	-	8.6	-
HCM Lane LOS	A	-	A	-
HCM 95th %tile Q(veh)	0	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	0	35	20	0	50
Future Vol, veh/h	15	0	35	20	0	50
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	16	0	38	22	0	54

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	103	49	0	0	60	0
Stage 1	49	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	895	1020	-	-	1544	-
Stage 1	973	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	895	1020	-	-	1544	-
Mov Cap-2 Maneuver	895	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	969	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	895	1544	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	2.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	22	0	38	33
Demand Flow Rate, veh/h	22	0	39	34
Vehicles Circulating, veh/h	34	39	0	5
Vehicles Exiting, veh/h	5	0	56	34
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	2.8	0.0	2.9	2.9
Approach LOS	A	-	A	A

Lane	Left	Left	Left	Left
Designated Moves	R	LTR	LT	TR
Assumed Moves	R	LTR	LT	TR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	22	0	39	34
Cap Entry Lane, veh/h	1333	1326	1380	1373
Entry HV Adj Factor	1.000	1.000	0.983	0.980
Flow Entry, veh/h	22	0	38	33
Cap Entry, veh/h	1333	1326	1356	1346
V/C Ratio	0.017	0.000	0.028	0.025
Control Delay, s/veh	2.8	2.7	2.9	2.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2020 PM

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	280	15	50	345	45	10	5	25	25	5	50
Future Vol, veh/h	20	280	15	50	345	45	10	5	25	25	5	50
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
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	22	304	16	54	375	49	11	5	27	27	5	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	425	0	0	320	0	0	894	889	312	881	873	402
Stage 1	-	-	-	-	-	-	356	356	-	509	509	-
Stage 2	-	-	-	-	-	-	538	533	-	372	364	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1134	-	-	1240	-	-	262	282	728	267	289	648
Stage 1	-	-	-	-	-	-	661	629	-	547	538	-
Stage 2	-	-	-	-	-	-	527	525	-	648	624	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1133	-	-	1240	-	-	222	259	728	237	266	647
Mov Cap-2 Maneuver	-	-	-	-	-	-	222	259	-	237	266	-
Stage 1	-	-	-	-	-	-	645	614	-	533	507	-
Stage 2	-	-	-	-	-	-	450	495	-	603	609	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.9	15	16.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	405	1133	-	-	1240	-	-	397
HCM Lane V/C Ratio	0.107	0.019	-	-	0.044	-	-	0.219
HCM Control Delay (s)	15	8.2	0	-	8	0	-	16.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.8

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	5	50	20	5	55
Future Vol, veh/h	20	5	50	20	5	55
Conflicting Peds, #/hr	1	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	22	5	54	22	5	60

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	136	65	0	0	76	0
Stage 1	65	-	-	-	-	-
Stage 2	71	-	-	-	-	-
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	857	999	-	-	1523	-
Stage 1	958	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	854	999	-	-	1523	-
Mov Cap-2 Maneuver	854	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	880	1523	-
HCM Lane V/C Ratio	-	-	0.031	0.004	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	10	40	50	0
Future Vol, veh/h	0	5	10	40	50	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	5	11	43	54	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	119	54	54	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	65	-	-	-	-	-
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	877	1013	1551	-	-	0
Stage 1	969	-	-	-	-	0
Stage 2	958	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	871	1013	1551	-	-	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	958	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	1551	-	1013	-
HCM Lane V/C Ratio	0.007	-	0.005	-
HCM Control Delay (s)	7.3	-	8.6	-
HCM Lane LOS	A	-	A	-
HCM 95th %tile Q(veh)	0	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	0	30	10	0	35
Future Vol, veh/h	20	0	30	10	0	35
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	22	0	33	11	0	38

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	77	39	0	0	44	0
Stage 1	39	-	-	-	-	-
Stage 2	38	-	-	-	-	-
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	926	1033	-	-	1564	-
Stage 1	983	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	926	1033	-	-	1564	-
Mov Cap-2 Maneuver	926	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	926	1564	-
HCM Lane V/C Ratio	-	-	0.023	-	-
HCM Control Delay (s)	-	-	9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	11	0	38	27
Demand Flow Rate, veh/h	11	0	38	28
Vehicles Circulating, veh/h	28	38	0	22
Vehicles Exiting, veh/h	22	0	39	16
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	2.7	0.0	2.8	2.9
Approach LOS	A	-	A	A

Lane	Left	Left	Left	Left
Designated Moves	R	LTR	LT	TR
Assumed Moves	R	LTR	LT	TR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	11	0	38	28
Cap Entry Lane, veh/h	1341	1327	1380	1349
Entry HV Adj Factor	1.000	1.000	0.992	0.980
Flow Entry, veh/h	11	0	38	27
Cap Entry, veh/h	1341	1327	1368	1323
V/C Ratio	0.008	0.000	0.028	0.021
Control Delay, s/veh	2.7	2.7	2.8	2.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2020 with Roundabout AM

Intersection	
Intersection Delay, s/veh	5.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	315	364	87	102
Demand Flow Rate, veh/h	321	372	88	104
Vehicles Circulating, veh/h	88	60	354	339
Vehicles Exiting, veh/h	355	382	55	93
Ped Vol Crossing Leg, #/h	1	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.2	5.4	4.6	4.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	321	372	88	104
Cap Entry Lane, veh/h	1261	1298	962	977
Entry HV Adj Factor	0.981	0.979	0.988	0.980
Flow Entry, veh/h	315	364	87	102
Cap Entry, veh/h	1237	1271	950	957
V/C Ratio	0.255	0.287	0.092	0.107
Control Delay, s/veh	5.2	5.4	4.6	4.7
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	0

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	5	50	35	5	70
Future Vol, veh/h	25	5	50	35	5	70
Conflicting Peds, #/hr	1	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	27	5	54	38	5	76

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	160	73	0	0	92	0
Stage 1	73	-	-	-	-	-
Stage 2	87	-	-	-	-	-
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	831	989	-	-	1503	-
Stage 1	950	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	828	989	-	-	1503	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	851	1503	-
HCM Lane V/C Ratio	-	-	0.038	0.004	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	5	50	60	0
Future Vol, veh/h	0	10	5	50	60	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	54	65	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	129	65	65	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	64	-	-	-	-	-
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	865	999	1537	-	-	0
Stage 1	958	-	-	-	-	0
Stage 2	959	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	862	999	1537	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	1537	-	999	-
HCM Lane V/C Ratio	0.004	-	0.011	-
HCM Control Delay (s)	7.4	-	8.6	-
HCM Lane LOS	A	-	A	-
HCM 95th %tile Q(veh)	0	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	0	35	20	0	50
Future Vol, veh/h	15	0	35	20	0	50
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	16	0	38	22	0	54

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	103	49	0	0	60	0
Stage 1	49	-	-	-	-	-
Stage 2	54	-	-	-	-	-
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	895	1020	-	-	1544	-
Stage 1	973	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	895	1020	-	-	1544	-
Mov Cap-2 Maneuver	895	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	969	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	895	1544	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	2.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	22	0	38	33
Demand Flow Rate, veh/h	22	0	39	34
Vehicles Circulating, veh/h	34	39	0	5
Vehicles Exiting, veh/h	5	0	56	34
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	2.8	0.0	2.9	2.9
Approach LOS	A	-	A	A

Lane	Left	Left	Left	Left
Designated Moves	R	LTR	LT	TR
Assumed Moves	R	LTR	LT	TR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	22	0	39	34
Cap Entry Lane, veh/h	1333	1326	1380	1373
Entry HV Adj Factor	1.000	1.000	0.983	0.980
Flow Entry, veh/h	22	0	38	33
Cap Entry, veh/h	1333	1326	1356	1346
V/C Ratio	0.017	0.000	0.028	0.025
Control Delay, s/veh	2.8	2.7	2.9	2.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2020 with Roundabout PM

Intersection	
Intersection Delay, s/veh	5.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	342	478	43	86
Demand Flow Rate, veh/h	348	487	44	88
Vehicles Circulating, veh/h	88	38	360	448
Vehicles Exiting, veh/h	448	366	76	77
Ped Vol Crossing Leg, #/h	1	0	0	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	6.2	4.3	5.2
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	348	487	44	88
Cap Entry Lane, veh/h	1261	1327	956	874
Entry HV Adj Factor	0.983	0.981	0.975	0.976
Flow Entry, veh/h	342	478	43	86
Cap Entry, veh/h	1239	1302	932	853
V/C Ratio	0.276	0.367	0.046	0.101
Control Delay, s/veh	5.4	6.2	4.3	5.2
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	0

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	5	50	20	5	55
Future Vol, veh/h	20	5	50	20	5	55
Conflicting Peds, #/hr	1	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	22	5	54	22	5	60

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	136	65	0	0	76	0
Stage 1	65	-	-	-	-	-
Stage 2	71	-	-	-	-	-
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	857	999	-	-	1523	-
Stage 1	958	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	854	999	-	-	1523	-
Mov Cap-2 Maneuver	854	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	880	1523	-
HCM Lane V/C Ratio	-	-	0.031	0.004	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	10	40	50	0
Future Vol, veh/h	0	5	10	40	50	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	5	11	43	54	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	119	54	54	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	65	-	-	-	-	-
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	877	1013	1551	-	-	0
Stage 1	969	-	-	-	-	0
Stage 2	958	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	871	1013	1551	-	-	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	958	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	1551	-	1013	-
HCM Lane V/C Ratio	0.007	-	0.005	-
HCM Control Delay (s)	7.3	-	8.6	-
HCM Lane LOS	A	-	A	-
HCM 95th %tile Q(veh)	0	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	0	30	10	0	35
Future Vol, veh/h	20	0	30	10	0	35
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	22	0	33	11	0	38

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	77	39	0	0	44	0
Stage 1	39	-	-	-	-	-
Stage 2	38	-	-	-	-	-
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	926	1033	-	-	1564	-
Stage 1	983	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	926	1033	-	-	1564	-
Mov Cap-2 Maneuver	926	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	926	1564	-
HCM Lane V/C Ratio	-	-	0.023	-	-
HCM Control Delay (s)	-	-	9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	2.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	11	0	38	27
Demand Flow Rate, veh/h	11	0	38	28
Vehicles Circulating, veh/h	28	38	0	22
Vehicles Exiting, veh/h	22	0	39	16
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	2.7	0.0	2.8	2.9
Approach LOS	A	-	A	A

Lane	Left	Left	Left	Left
Designated Moves	R	LTR	LT	TR
Assumed Moves	R	LTR	LT	TR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	11	0	38	28
Cap Entry Lane, veh/h	1341	1327	1380	1349
Entry HV Adj Factor	1.000	1.000	0.992	0.980
Flow Entry, veh/h	11	0	38	27
Cap Entry, veh/h	1341	1327	1368	1323
V/C Ratio	0.008	0.000	0.028	0.021
Control Delay, s/veh	2.7	2.7	2.8	2.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

APPENDIX E: ARCHAEOLOGICAL ASSESSMENT

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SCS Project Number 2122 AA-1

ARCHAEOLOGICAL ASSESSMENT FOR THE PUA LOKE MULTI-FAMILY AFFORDABLE HOUSING DEVELOPMENT, LĪHUʻE, NĀWILIWILI AHUPUAʻA, LĪHUʻE (PUNA) DISTRICT KAUAʻI ISLAND, HAWAIʻI [TMK: (4) 3-8-005: 028 AND 029]

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January 2018
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ABSTRACT

At the request of the Kaua‘i County Housing Agency (KCHA), project proponent and landowner, Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey (AIS), inclusive of full pedestrian survey and subsurface testing. The AIS was conducted in advance of the proposed construction of a multi-family affordable housing development, a maximum density of 60 dwelling units and associated parking areas on 1.46 acres of land situated along Pua Loke Street in Līhu‘e, Nāwiliwili Ahupua‘a, Līhu‘e (Puna) District, Kaua‘i Island, Hawai‘i [TMK: (4) 3-8-005: 028 and 029]. As no historic properties were identified, this report is being written as an Archaeological Assessment (AA).

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INTRODUCTION

At the request of the Kaua‘i County Housing Agency (KCHA), project proponent and landowner, Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey (AIS), inclusive of full pedestrian survey and subsurface testing. The AIS was conducted in advance of the proposed construction of a multi-family affordable housing development, a maximum density of 60 dwelling units and associated parking areas on 1.46 acres of land situated along Pua Loke Street in Līhu‘e, Nāwiliwili Ahupua‘a, Līhu‘e (Puna) District, Kaua‘i Island, Hawai‘i [TMK: (4) 3-8-005: 028 and 029] (Figures 1 through 3).

Due to the lack of previous archaeological studies in the project area there was insufficient information to make a determination that no historic properties would be affected by the current project. For that reason, KCHA requested that prior to initiation of the project, an AIS involving subsurface testing be completed for project area.

The following report is presented as an Archaeological Assessment as no historic properties were identified during the current project. There are no federal funds involved in the design or implementation of this project.

ENVIRONMENTAL SETTING

The project area lies 2.7 kilometers from the present high tide line at an elevation of approximately 67 meters above sea level (amsl) on the leeward coast of eastern Kaua‘i (see Figures 1through 3). The property is bounded on the northwest by the Kauai County Department of Water parking lot, on the northeast by Pua Loke Street, on the southeast by Haleko Road, and on the southwest by a series of commercial and professional buildings surrounded by parking lots. All flanks of the overall project area are developed. The project area is situated within a built environment which includes buildings, paved parking lots, landscaping, and infrastructure.

PROJECT AREA SOILS

According to Foote *et al*. (1972: Sheet 31) (Figure 4), the project area is comprised of soils of the Lihue Series, specifically Lihue silty clay, 0 to 8 percent slopes (LhB). The well-drained volcanic soils of the Lihue Series are situated between sea level and 800 feet above mean sea level (amsl) on Kaua‘i Island (Foote *et al*. 1972: 82). The Lihue soils are often found in association with soils of the Ioleau and Puhi Series. The Lihue silty clay (LhB) soils occur on

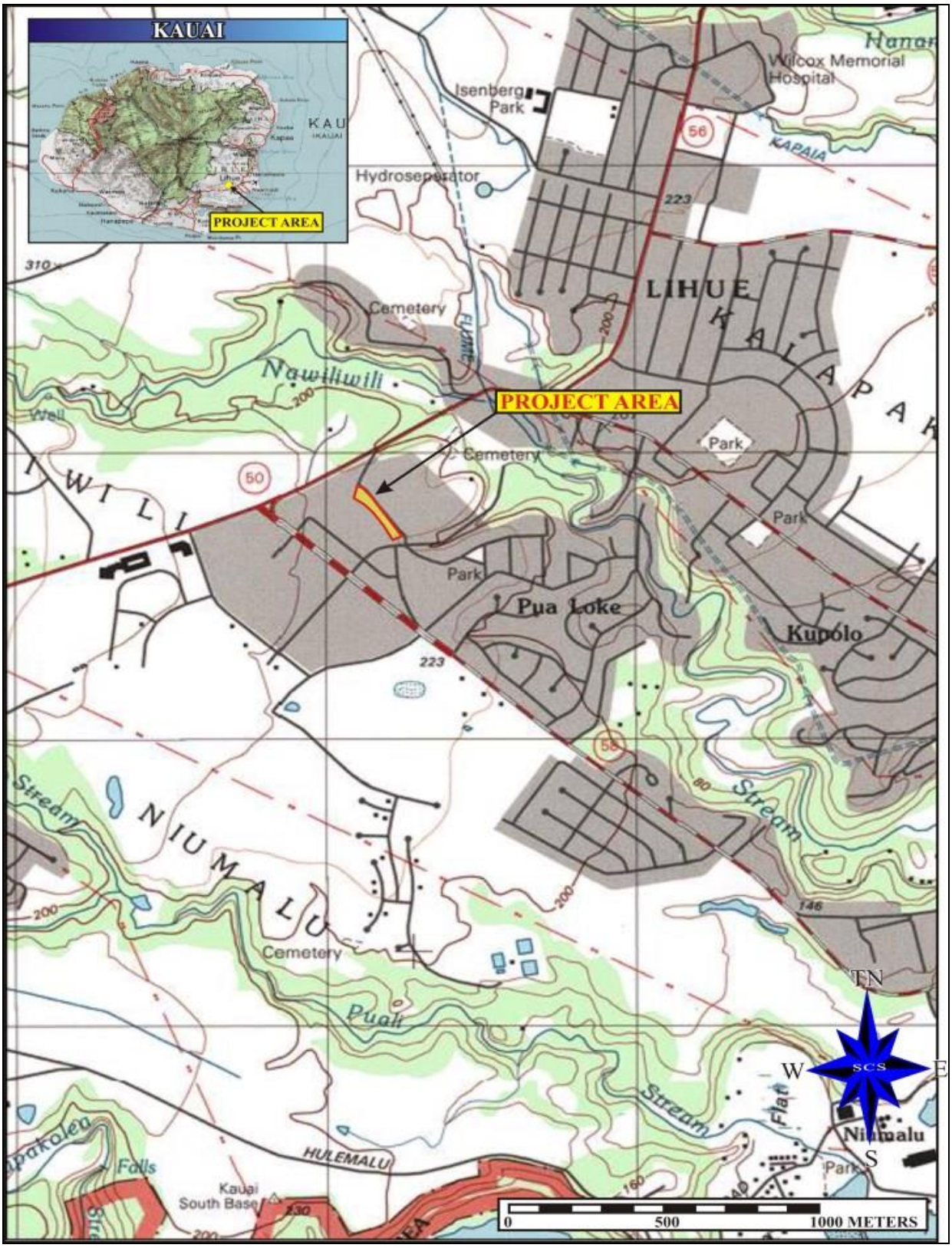

Figure 1: Portion of USGS (Lihue 1998; 24,000) Quadrangle Map Showing the Project Location.

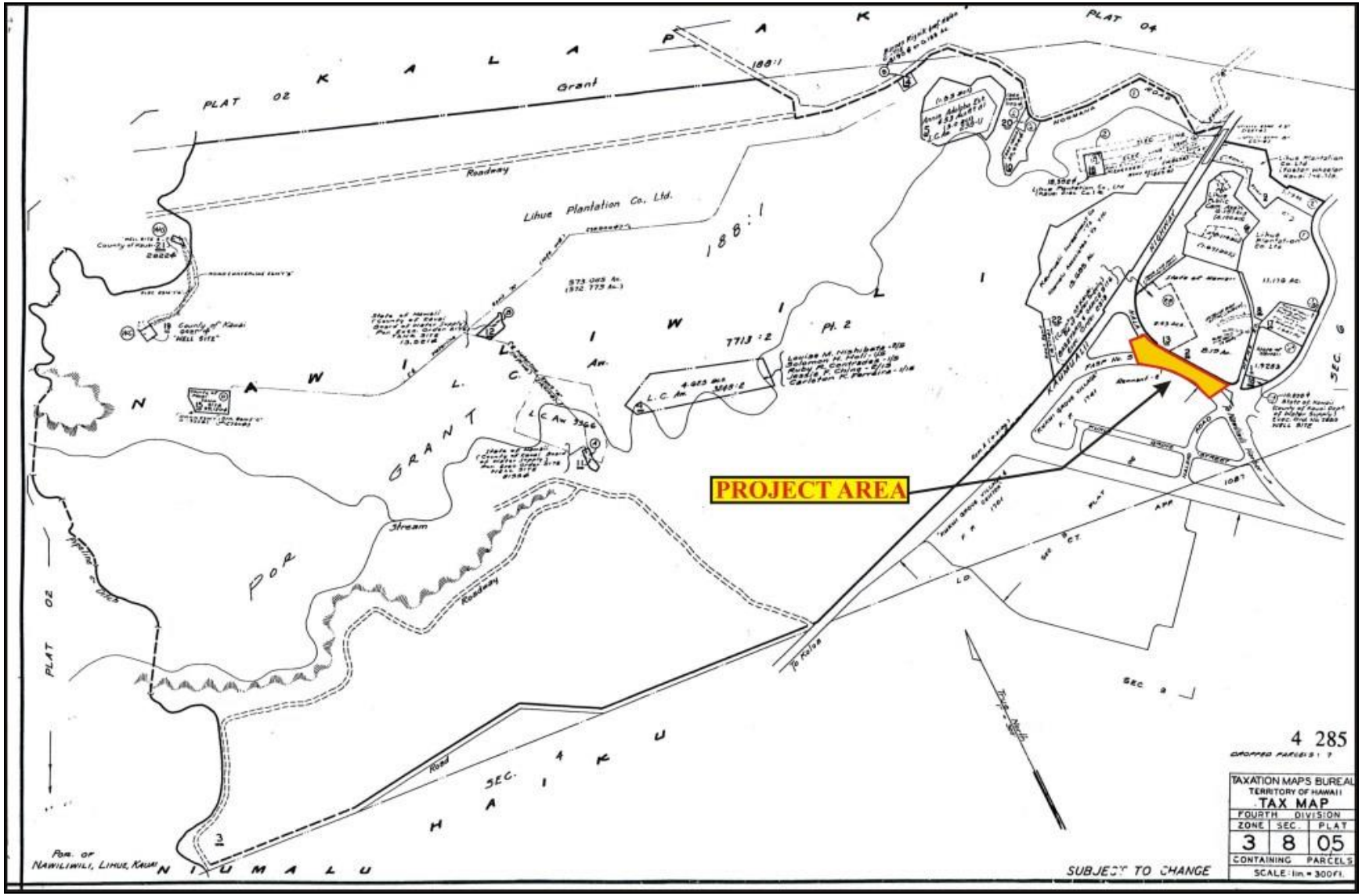

Figure 2: Tax Map Key Showing Project Area [TMK: (4) 3-8-005].

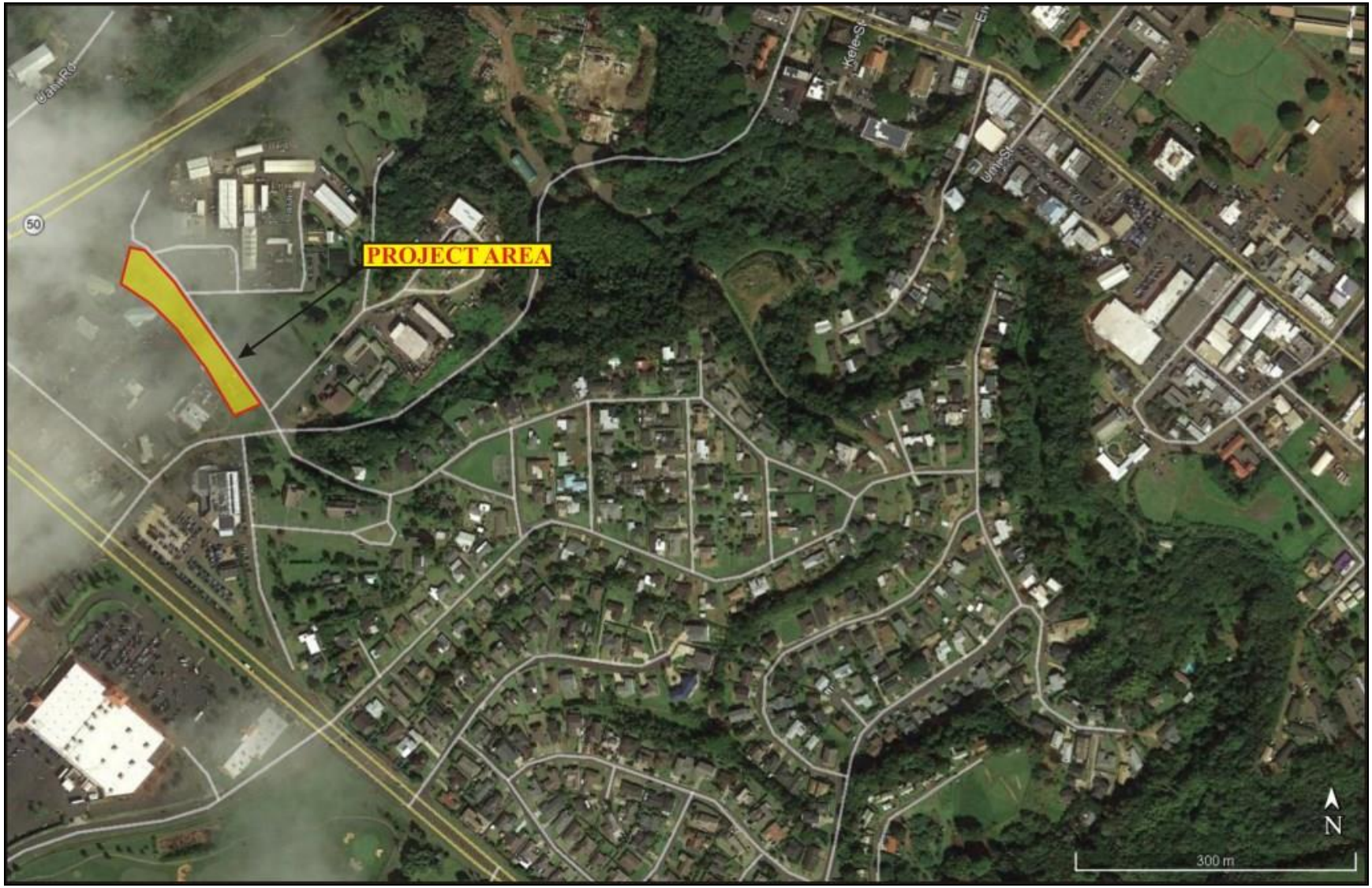

Figure 3: Aerial Photograph (Source: Google Earth) Showing the Project Area.

Figure 4: USDA Soil Survey Map (Foote *et al*. 1972: Sheet 31) Showing Soils Types in Project Area.

PROJECT AREA VEGETATION

The project area lies in a built environment and most of the vegetation consists of recently planted flora. Non-concreted/asphalted areas contained open lawn grass, *Kukui* (*Aleurites moluccanus*) trees, and a clump of California Grass (*Brachiaria mutica)* at the southern end of the project area.

CLIMATE

The subject property lies in a comparatively arid region on the eastern coast of Kaua‘i. Annual rainfall in the Līhu‘e area is c. 40 inches, somewhat average between the wetter mountainous terrain to the west and the drier terrain to the south/southeast (Armstrong 1983:56). Larger rainfall accumulations occur mostly during the months of December and January, with an equal spike occurring in May at c. 25 inches. June and the other summer months into September yield the lowest rainfall totals (c. 5 inches per month). Unlike the lower, coastal elevations, higher elevations of the *ahupua‘a* are prone to receive more precipitation due to higher rainfall averages, fog drip, and lower temperature climates.

TRADITIONAL AND HISTORIC SETTING

Previous archaeological and historical research within and near the project area has led to a thorough summarization of past traditional and historic land use patterns and events occurring in the general project area. The traditional setting is more so a culmination of data gleaned through archaeological and historical survey and is mostly presented further below (see Previous Archaeology section). This information is briefly presented below.

Līhu‘e, the current central seat of the County's government and commercial center, is translated as "cold chill" (Pukui *et al.* 1974). The settlement was established in 1824 by High Chief Kaikioewa, who was appointed governor of Kaua‘i by King Kamehameha III (Kauikeaouli) (Kikuchi 2004). The governor named the place "Lihue" after his previous home in Wahiawa, O‘ahu. As Kikuchi (2004) notes, the date 1824 is important as it marked the death of Kaumuali‘i, Ruling Chief of Kaua‘i, who bestowed the island to Kamehameha, thus unifying all the islands under one ruling chief. Hammatt (2005:7) also notes that the proper name "Lihue" appears in the "Legend of Uweuwelekehau" where the protagonist and his wife, Luukia, are punished and stripped of clothing and sent to Mana, on the western side of the island. When they reach the Lihue plains, Luukia complains of having no clothes and Uweuwelekehau tells her that they can procure kapa from a small hill nearby (Fornander 1918-1919 Vol 2:96-97).

Prior to Western Contact, Nāwiliwili Ahupuaʻa was heavily cultivated with a full range of traditional Hawaiian crops. Remnants of past cultivation litter the valley from mountain to sea. In his historic observation of Nāwiliwili Valley, Handy (1940) describes inland Nāwiliwili as "formerly all in terraces" while nearer to the sea, "three Hawaiian taro planters cultivate wet taro in a few small terraces" (Handy 1940:67). Handy and Handy (1972) further describe the valleys as hosting stands of breadfruit trees and bananas, remnants of past arboriculture, while the upper portion of flat lands was once densely terraced. Arboriculture must have played a large role in the society Nāwiliwili long ago.

HISTORIC LAND USE

In her short manuscript, *The Kauaʻi Papers* (1991), Mary Girven Rice enumerates the early history of Līhuʻe. In summary of Rice's description, Līhuʻe was a sleepy town in the early 1850s. While there were dense villages of natives, including the village of Pualoki, relatively few westerners had settled the region by this time. The landscape was quite untouched by invasive species, being vegetated densely in native species of *koa* (*Acacia koa*), sandalwood (*Santalum* spp.), and *hau* (*Hibiscus* spp.). Native subsistence practices, particularly fishing and cultivation of taro (*Colocasia esculenta*), drove the economy (Kauaʻi Historical Society 1991).

During the early years of Līhuʻe, several European settlers attempted to start farm industries in the area. A meager coffee farm was attempted by Mr. Godfrey Rhodes in 1830. Following the failure of this endeavor, Hoffchlaeger & Company began cattle ranching and supplying dairy products, beef, and hide to whalers in the area. While this endeavor was marginally successful, with as many as 700 head at one time, ranching did not become a major industry in this area (Kauaʻi Historical Society 1991).

THE MĀHELE

During the late Historic Period, extreme modification to traditional land tenure occurred throughout all of the Hawaiian Islands. Kameʻeleihiwa (1992: 209), states that the Makawao District was the first area in Hawaiʻi to experiment with land sales. In January 1846, land was made available for eventual ownership to *makaʻāinana* (commoners). According to Chinen (1961), land was sold for $1.00 per acre; this would mark the beginning of land grants. Experimental lots purchased by Hawaiians ranged from five to ten acres and if applicants met all of the requirements (and were notified of the procedures), they eventually received the title to their land.

The transition from traditional Hawaiian communal land use to private ownership and division was commonly referred to as the Māhele (division). The Māhele of 1848 set the stage for vast changes to land holdings within the islands as it introduced the foreign (western) concept of land ownership to the Islands. Although it remains a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall Vol. I, 1938:145 footnote 47, 152, 165–166, 170; Daws 1968:111; Kelly 1983:45; Kameʻeleihiwa 1992:169–170, 176).

For natives that had been cultivating and living on the lands, lengthy and costly procedures enabled them to (possibly) claim some of the plots. The first Land Commission was formed in 1845, during which time all individuals holding land were required to submit their claims or forfeit their lands. Once lands were made available and private ownership was instituted the *makaʻāinana* were able to claim the plots on which they had been cultivating and living, if they had been made aware of the foreign procedures (*kuleana* lands, Land Commission Awards, LCA). These claims could not include any previously cultivated or presently fallow land, ʻ*okipū* (on Oʻahu), stream fisheries or many other resources necessary for traditional survival (Kelly 1983; Kameʻeleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed Land Commission Award (LCA), issued a Royal Patent number (RP), and could then take possession of the property (Chinen 1961:16).

The land that *makaʻāinana* received was less than one percent of total lands, all of which needed to be surveyed. A total of 88,000 people submitted 14,195 requests for land and of these only 8,421 were awarded (Kameʻeleihiwa 1992:295). In 1850, it became legal for foreigners to purchase land and they received large portions for diminutive prices. At this time, many Native Hawaiians lost access to their lands due to mortgage default.

Land Commission Awards (LCAs)

The Māhele statute paved the way for the private ownership of land [awarded claims were called Land Commission Awards]. A search of the Waihona Aina Database According to the Waihona Aina Database (2018) thirty-three land claims were made in Nāwiliwili Ahupuaʻa. However, the Office of Hawaiian Affairs (OHA) Kipuka Database (2018) states that Victoria Kamamalu claimed Nāwiliwili Ahupuaʻa, with the exception of the kuleana lands.

Land Grants

A search of the OHA kipuka Database (2018) and the Waihona Aina Database (2018) indicate the current project area is located within Land Grant 188. Land Grant 188 consisted of 1872 acres and was purchased by William L. Lee.

PLANTATION ERA

In 1849, the first sugar plantation in Līhuʻe was formed as a partnership between Charles Reed Bishop, Judge William L. Lee, and Henry A. Pierce of Boston (Hawaiian Sugar Planter's Association, Plantation Archives 2013). General J.F.B Marshall was the first plantation manager of record and started on 2,000 acres of land from the estate of Governor Kekuanaoa. Over the coming four decades, this small business grew to over 30,000 acres. Corresponding with the growth of this plantation, reservoirs, ditches and tunnels were engineered to feed water to the growing fields, and plantation workers were imported from China, Japan, the Philippines, and Portugal (Note: from 1853-1859+, the laborers in the fields were exclusively Hawaiians while Chinese workers operated the mill; *ibid*.). After 1900, c. 1,600 workers were employed by the plantation, including Japanese, Portuguese, Hawaiian, Korean, and Puerto Rican workers. The economy produced by the Lihue Plantation at last propelled Lihue Town into a major population center in Kauaʻi (Kauaʻi Historical Society 1991), all on the richly arable soils of Lihue and Nāwiliwili.

Grove Farm Plantation, named after an old stand of kukui trees, was established in 1850 by Warren Goodale. In 1864, George Wilcox leased Grove Farm Plantation from subsequent owner Judge Widemann, and rapidly expanded development of the Plantation's irrigation ditch infrastructure. By 1881, lease and land purchases by George Wilcox in the Haiku Ahupuaʻa increased the acreage of Grove Farm Plantation nearly ten-fold. Grove Farm Plantation ended its sugar business in 1974, setting aside lands for development and also for the continuation of sugar cultivation by leasing its Līhuʻe lands to Līhuʻe Plantation Company, Ltd., and its Kōloa lands to McBryde Sugar Company, Limited.

Based on a series of historic maps (Figure 5 through Figure 12), the current project area parcel appears to be split between Grove Farm plantation fields and the former highway route (at times the road through the project area would have been part of the former Government Road, the Belt Road, or later, Nawiliwili Road). In all of these maps a very distinct sweeping curve is visible where the Government Road bends south toward Nawiliwili Harbor with a side road (Haleko Road) branching to the east which curves past the Lihue Mill and up into Lihue Town.

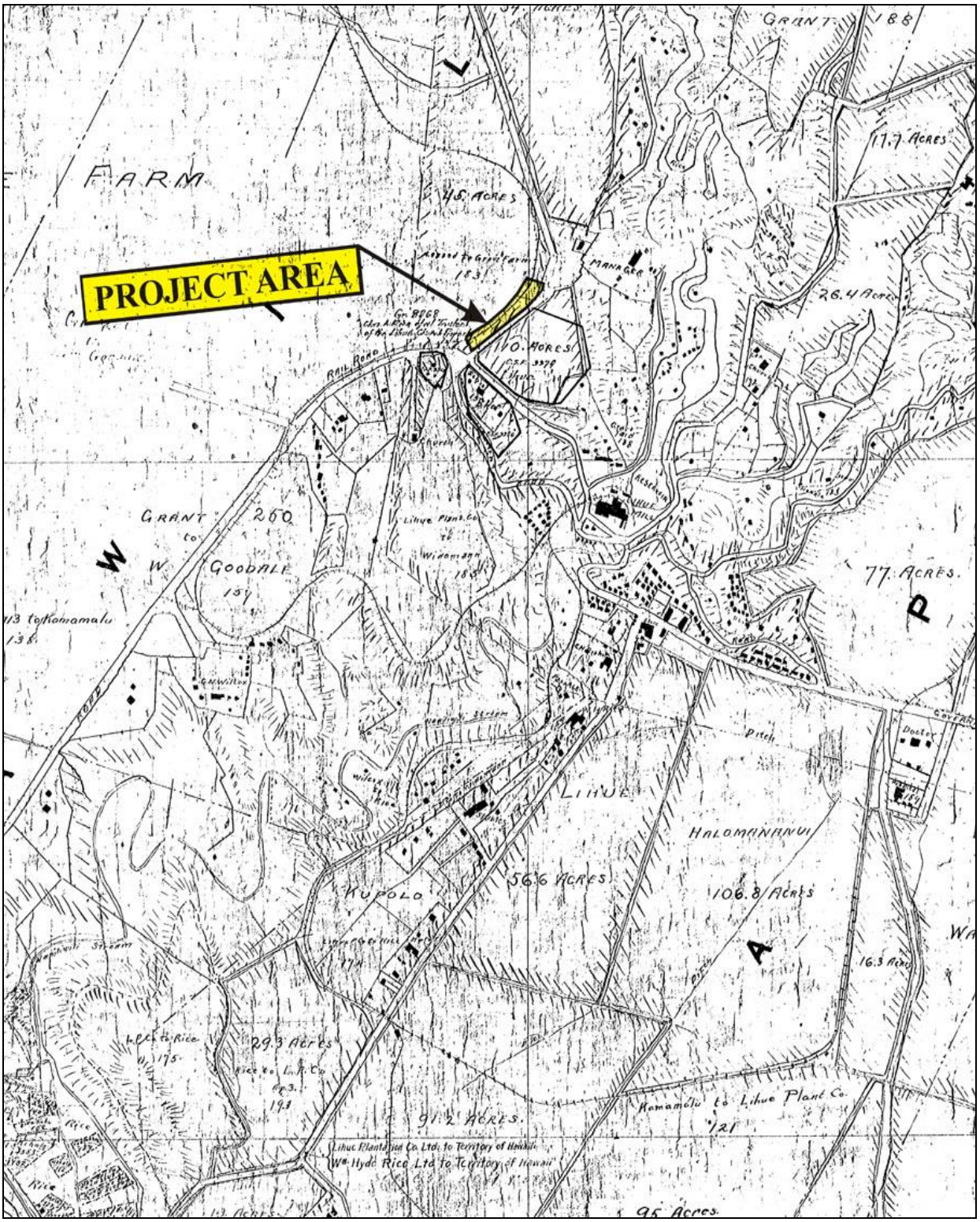

Figure 5: Portion of 1900 M.D. Monsarrat Map of Lihue Plantation showing the project area and its vicinity.

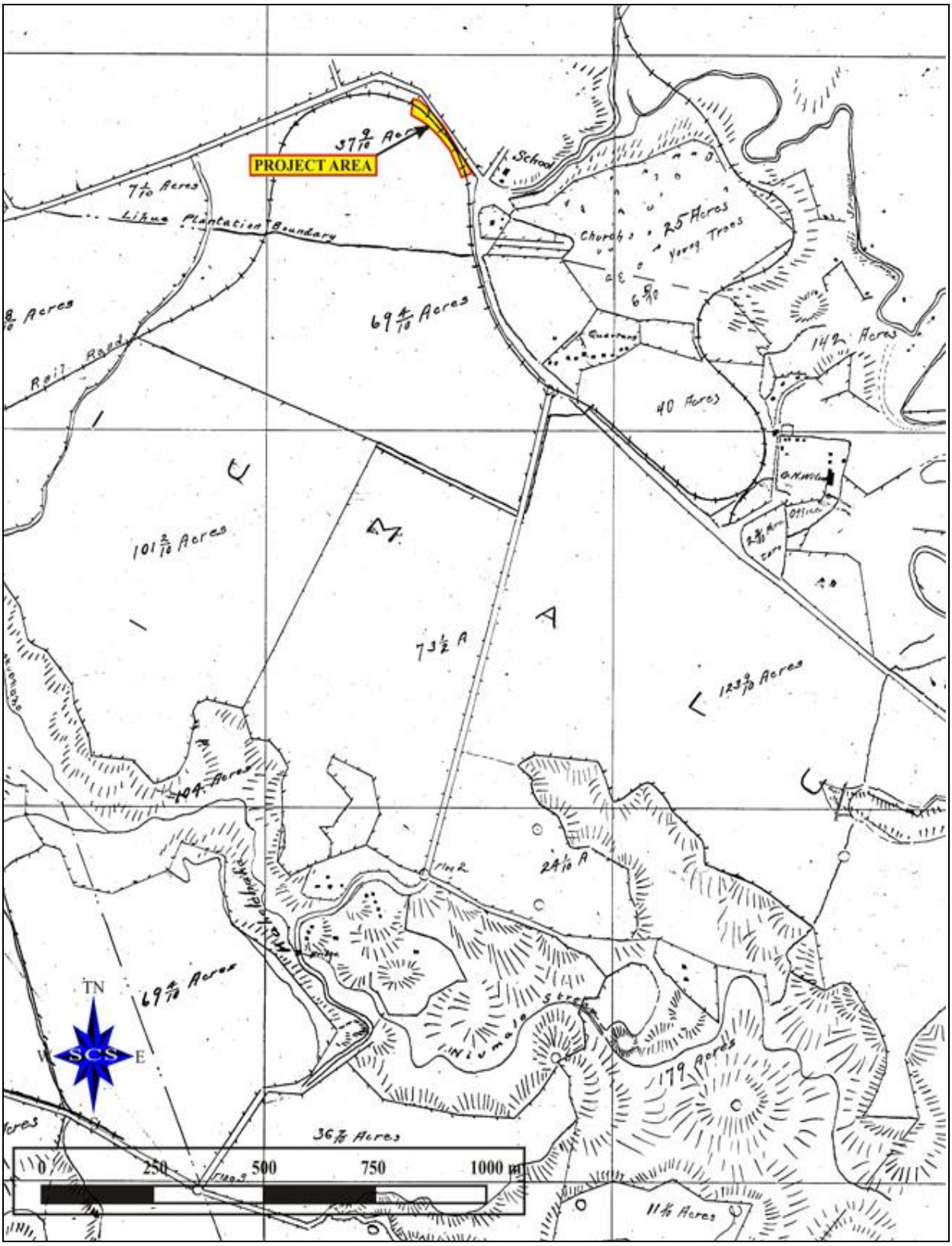

Figure 6: Portion of 1901 W.A. Wall Map of Grove Farm Plantation showing the project area and its vicinity.

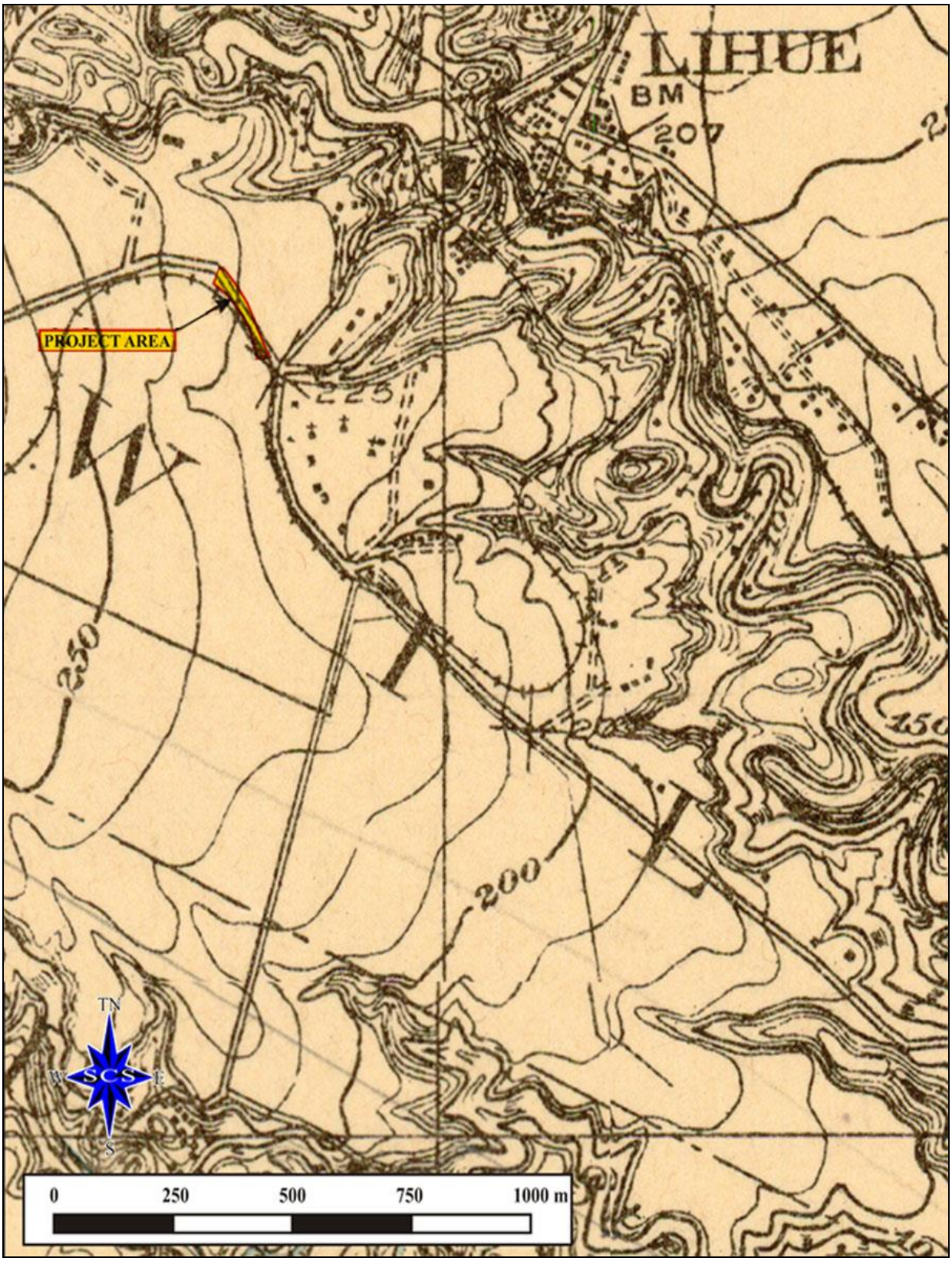

Figure 7: Portion of 1910 USGS Lihue Quadrangle Map showing the project area and its vicinity.

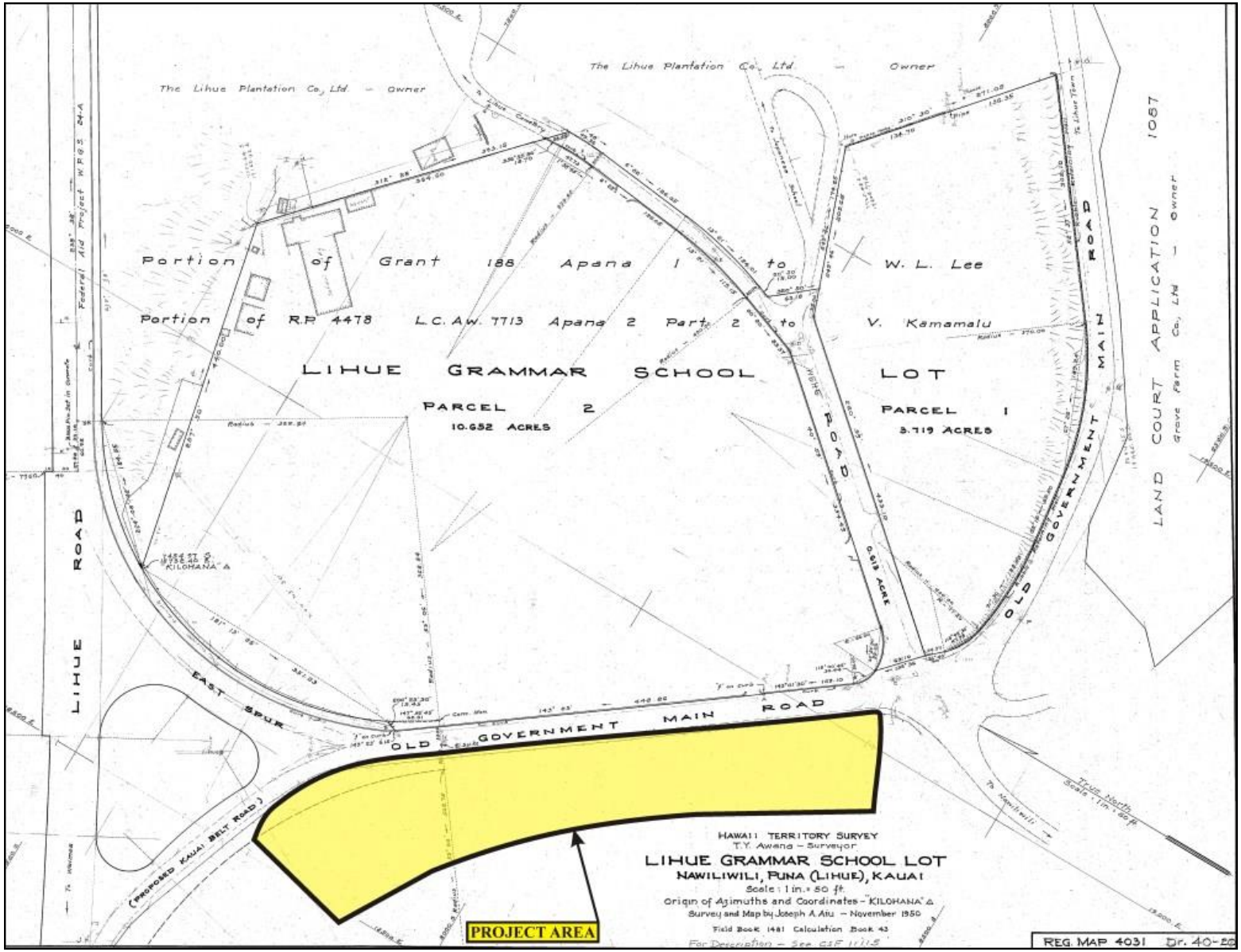

Figure 8: Portion of 1950 Map of Lihue Grammar School showing the project area and its vicinity.

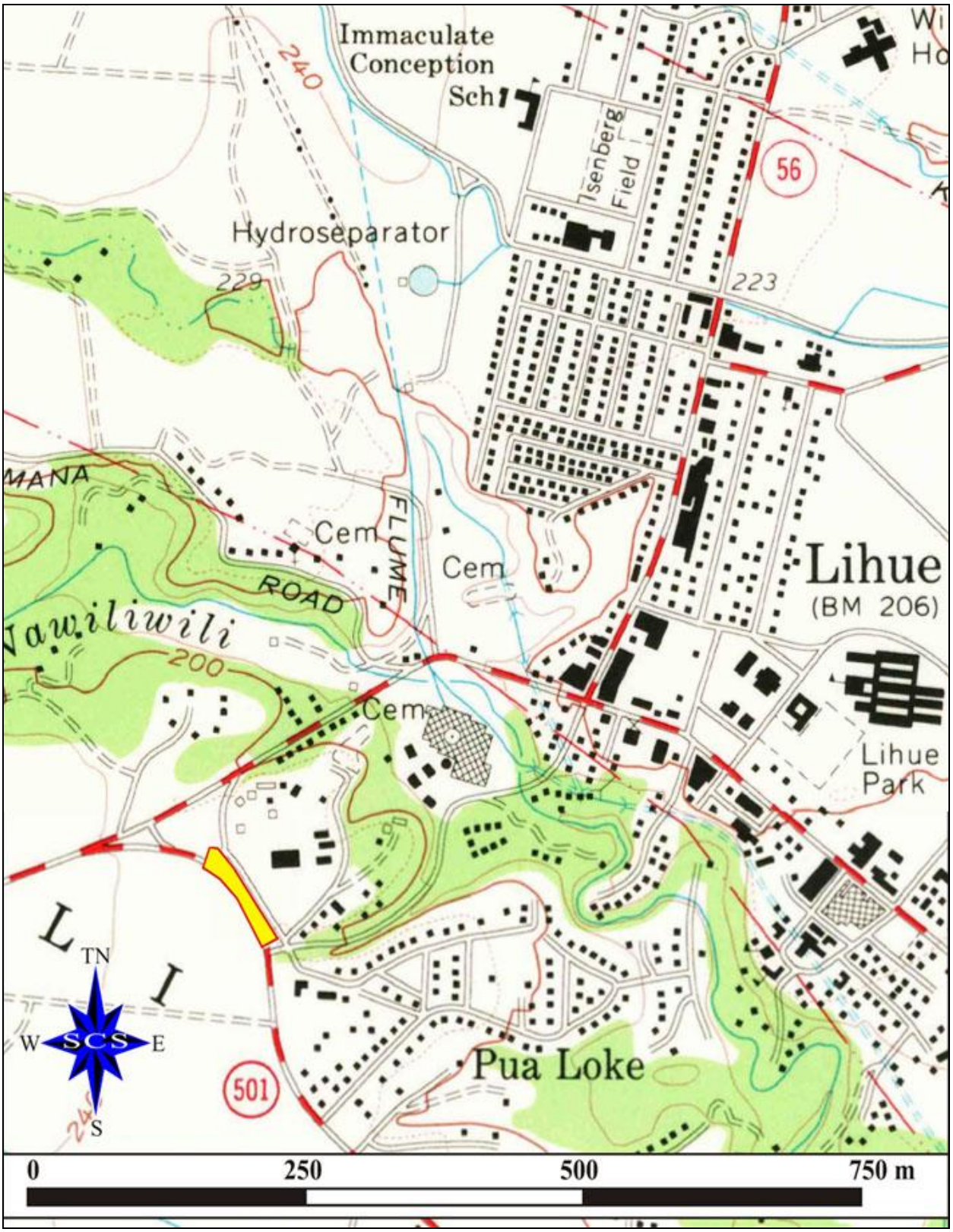

Figure 9: Portion of 1963 USGS Lihue Quadrangle Map showing the project area and its vicinity.

Figure 10: Portion of 1978 USGS Lihue Quadrangle Map showing the project area and its vicinity.

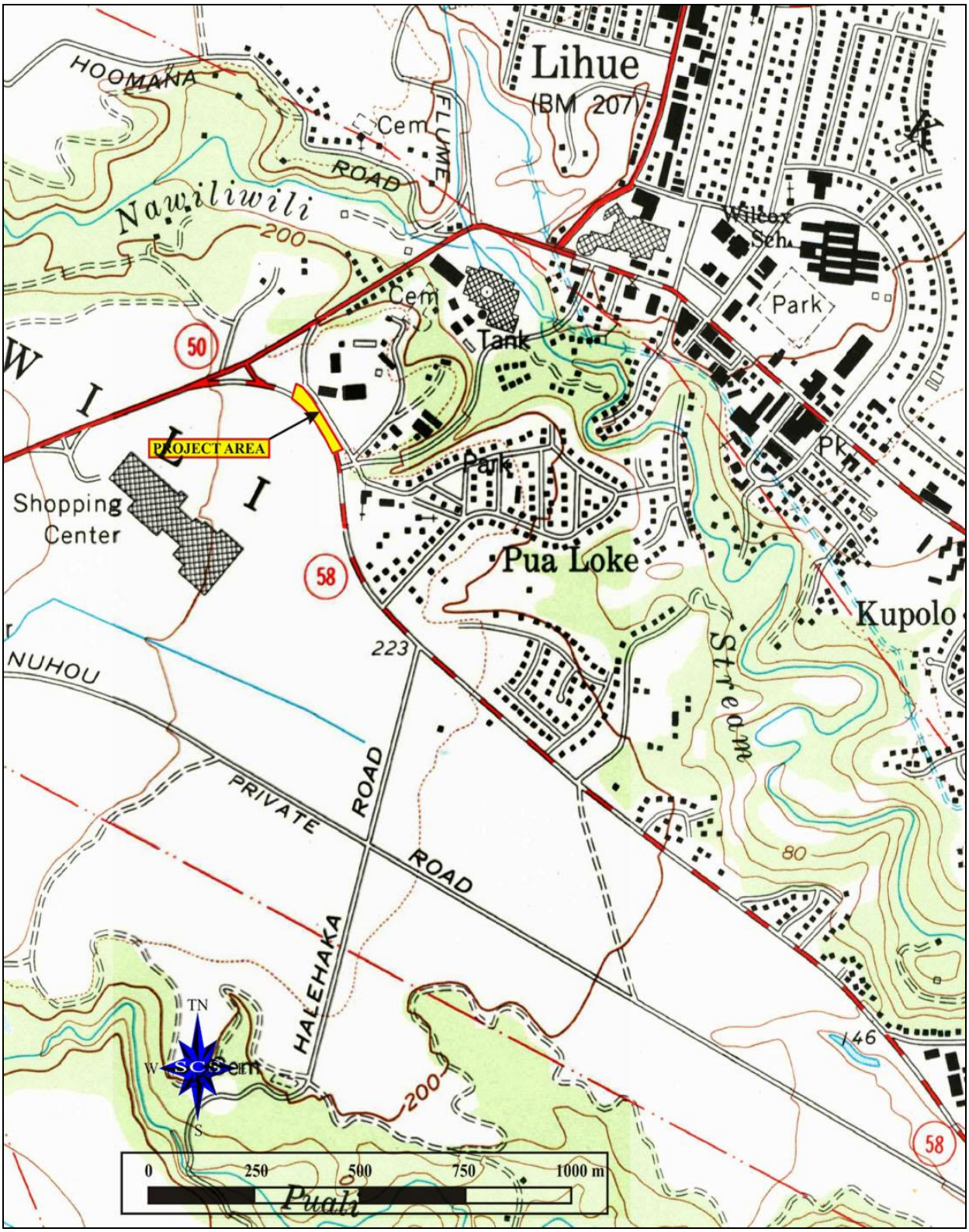

Figure 11: Portion of 1983 USGS Lihue Quadrangle Map showing the project area and its vicinity.

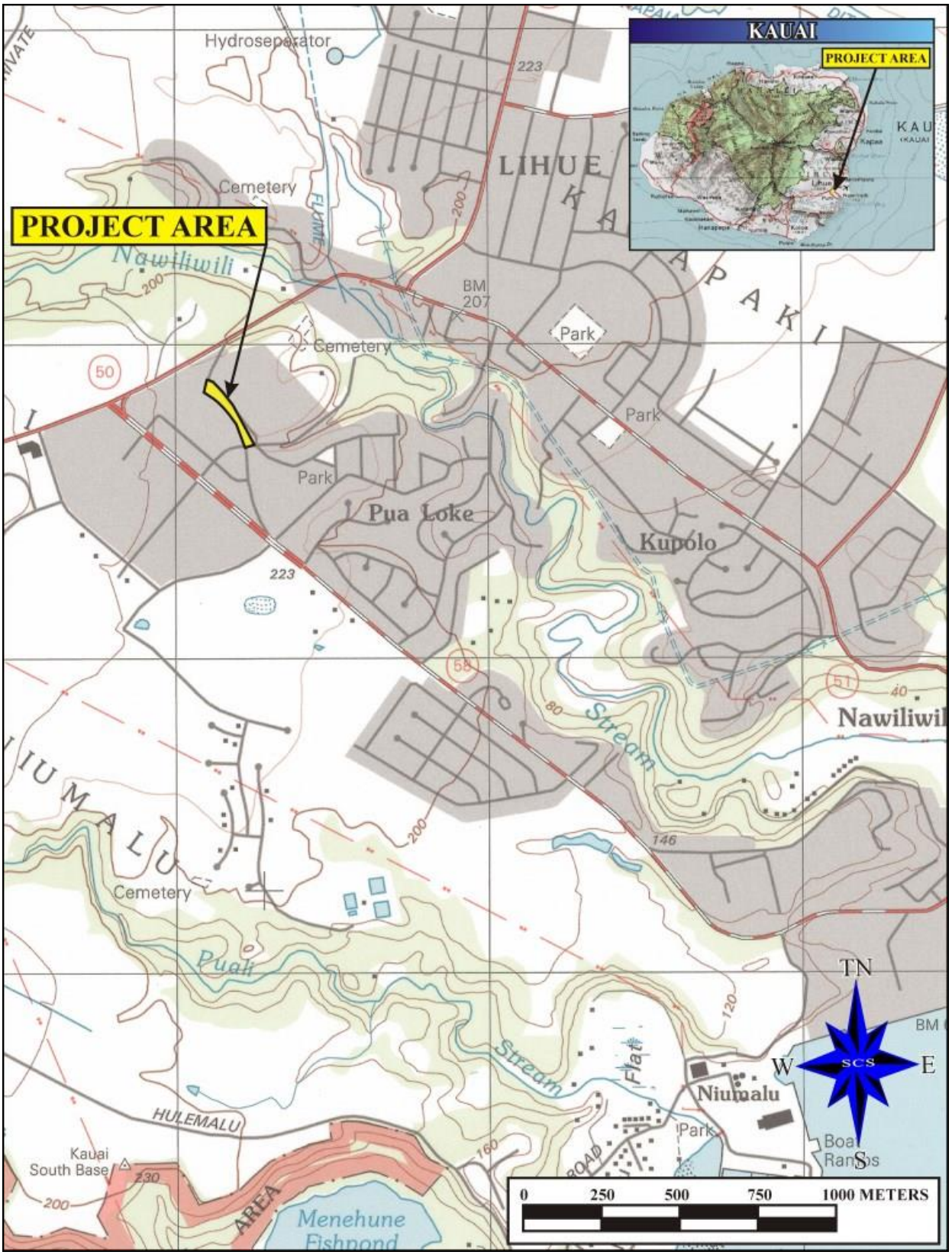

Figure 12: Portion of 1996 USGS Lihue Quadrangle Map showing the project area and its vicinity.

The early (1900, 1901, and 1910) maps show a rail line curving around the edge of Grove Farm's field and south along the road toward Nawiliwili Harbor; this rail line lies just west of the road corridor. The current project area lies where the road and rail lines turn south by Haleko Road.

While portions of Lihue Town date to the early-mid-19th Century, these maps show that the project area lay on the very western fringe of urban development until the 1980s, when former Grove Farm fields west of the project area were developed to create the Kukui Grove Shopping Center. The 1983 USGS Quadrangle map shows the Kukui Grove Shopping Center accessible only from Kaumualii Highway, on the north side of the center; Highway 58 (today's Nawiliwili Road) branches south from Kaumualii Highway to Nawiliwili Harbor following the old road alignment that passes through the current project area. The 1996 USGS Quadrangle map shows Nawiliwili Road had been redirected to the west of the old alignment and widened into the corridor it follows today along the eastern edge of Kukui Grove.

PREVIOUS ARCHAEOLOGY

Based on archival research, no previous archaeological studies have been conducted within the current project area, and very few studies have been conducted near the current project area. Figure 13 depicts the location of archaeological studies and sites near the project area.

The earliest island-wide archaeological survey of Kaua'i Island was conducted in the early 1930s by Wendel Clark Bennett (1931), under the auspices of the Bernice Pauahi Bishop Musum. Bennett (1931:124) placed the location of Kuhiau Heiau (Bennett Site 99) as near the "site of the courthouse" in Nāwiliwili. Thrum (cited in Bennett 1931:124) described Kuhiau Heiau as:

> A large paved heiau, whose enclosure covered the area of about four acres; long since destroyed. The rock Paukini, nolw separate from but formerly connected with the shore, was where the kahuna lived. This is said to have been the largest and most famoudon Kauai in its day.

In 1978 Archaeological Research Center, Hawai'i (ARCH) conducted a reconnaissance survey of an 18-acre parcel approximately 650 m north-northeast of the current project area (Soong 1978). The authors noted that there had been extensive modifications to the area from sugar cane planting; no archaeological sites were found.

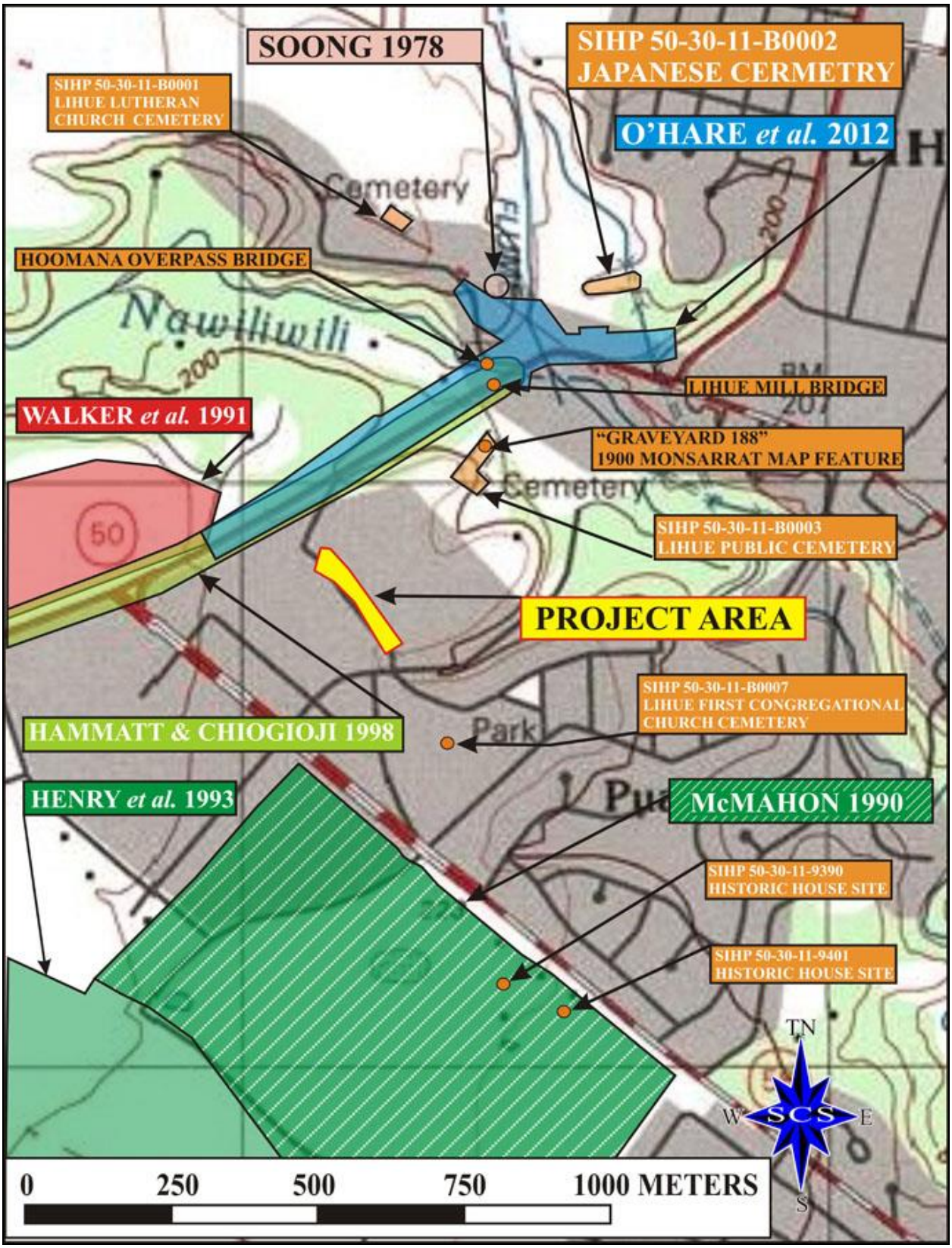

Figure 13: Portion of 1996 USGS Lihue Quadrangle Map Showing the Location of Previous Archaeological Studies in the Vicinity of the Project Area.

In 1989 Spencer Mason Architects completed a survey of historic Kaua‘i bridges for the County of Kaua‘i (only bridges built before 1941 were considered historic during this survey). The study listed three bridges in the Līhu‘e Town area: the Ho‘omana Overpass Bridge; the Līhu‘e Mill Bridge, and the Līhu‘e Mill Flume Bridge, a steel bridge that was not described further since it was built in 1956, well after the 1941 cut-off date (Spencer Mason Architects 1989:21). Both Ho‘omana Overpass Bridge and Līhu‘e Mill Bridge were considered Category I bridges, those with the most claims for historic significance. Both were in their original condition, and were considered an “unusual resource” since they were the only two historic bridges on Kaua‘i that were originally built to cross railroad lines.

In 1990, the State Historic Preservation Division) conducted archaeological field checks for three possible locations for a New Kaua‘i Judiciary Building in Nāwiliwili (McMahon 1990). McMahon’s Location 1 was located approximately 300m southwest of the current study area. She identified two sites in this parcel, SIHP 50-30-11-9390, the Grove Farm manager’s house, and SIHP 50-30-11-9401, another plantation era residence.

In 1991 Paul H. Rosendahl, Inc. (PHRI) conducted an archaeological inventory survey for eight parcels totaling 1,55, acres (Walker et al. 1991). A small portion of the eastern end of Section 1 (mauka Kalapakī) lies approximately 100m north of the current study area. Walker’s report stated that “areas in sugar cane were only sampled … [and] were not generally surveyed . . .because areas altered by sugar cane cultivation are unlikely to contain archaeological features, and because sugar cane cultivation within the present project area does not occur in low swale or alluvial flat areas that may contain buried cultural deposits (Walker et al. 1991:7).” Ten sites with 14 component features were identified in this survey; no sites were identified in Section 1.

In 1992 Kikuchi and Remoaldo (1992:120-133) completed Volume I of a survey of the cemeteries of Kaua‘i. Four cemeteries were listed near Līhu‘e Town; the Līhu‘e Lutheran Church Cemetery (SIHP 50-30-11-B0001), a Japanese cemetery plotted on the 1963 U.S.Geological Survey map that Kikuchi and Remoaldo were unable to relocate (SIHP 50-30-11-B0002), the Līhu‘e Public Cemetery (SIHP 50-30-11-B0003), and the Līhu‘e First Congregational Church Cemetery (SIHP 50-30-11-B0007).

In 1993, PHRI conducted an archaeological inventory survey of a 590-acre portion of the former Grove Farm sugar plantation (Henry et al. 1993). Their study area lies approximately 1.0 km southwest of the current study area. Two sites were identified during the survey; SIHP 50-80-11-503 was an historic cemetery for the Japanese and Hawaiian workers at Grove Farm, located

approximately 1.4 km south of the current study area and SIHP 50-80-11-9390, an historic residence located approximately 2.0 km south of the current study area, once the residence of Charles Henry Wilcox, a manager at Grove Farm.

In 1998 Cultural Surveys Hawaiʻi (CSH) conducted an archaeological assessment of an approximately 11.5 kilometer-long portion of the Kaumualiʻi Highway corridor, a portion of which extends to the north of the current study area (Chiogioji and Hammatt 1998). In this portion of their study area, the archaeologists noted the presence of the Līhuʻe Mill and Hoʻomana Overpass bridges documented by Spencer Mason Architects, a wooden shed that might be part of the old Kilipaki Camp to the west of Līhuʻe Mill Bridge, and the Līhuʻe Public Cemetery documented by Kikuchi and Remoaldo.

In 2004 a State Historic Preservation Division (SHPD) Review (Log No.2004.3053, Doc No.0410NM10) was issued by SHPD as a National Historic Preservation Act-Section 106 Review in response to an Environmental Assessment for the Kauai Economic Opportunity Emergency Shelter and Transitional Housing Program on Wehe Road (Young 2004). This Emergency Shelter project was located on a parcel on the east side of Pua Loke road just to the east of the southern end of the current project area. SHPD determined that no historic properties were present because residential development/urbanization had altered the land, and that no historic properties would be affected by the Emergency Shelter undertaking. This letter is included as Appendix A of the report.

In 2012 CSH conducted an archaeological inventory survey of approximately 4.54 acres at the junction of Kaumualii Highway and Hoʻomana Road for the Hoʻomana Road Realignment of the Phase 1 Kaumualiʻi Highway Project. Five historic properties were identified; SIHP 50-30-11-2174 [a flume (Feature A), terrace (Feature B), and culvert (Feature C) associated with water control dating from the Plantation era], SIHP 50-30-11-2175 [a rock and mortar drainage ditch dating from the 1930s], SIHP 50-30-11-2176 [a rock wall dating from the Plantation era], SIHP 50-30-11-2177 [a remnant train bridge dating from the Plantation era], and SIHP 50-30-11-2178 [a sugar cane road and parallel railroad right-of-way (Feature A) and a section of train tracks (Feature B) dating from the Plantation Era]. These sites are located approximately 700m northeast of the current study area.

FIELDWORK EXPECTATIONS

Based on archival research, no previous archaeological studies have been conducted within the current project area, and very few studies have been conducted in the vicinity of the current project area. Historic maps indicate that the project area was divided between sugar cane fields or road corridor until the development of the kukui Grove Shopping Center in the 1980s, the only construction in the project area other than the road corridor is an asphalt parking lot in the southern half of the project area. The expectation for finding historic properties in this case is that most or all findings would represent plantation infrastructure from the Grove Farm Plantation and/or infrastructure related to the highway.

METHODS

The southern portion of the project area is largely covered by a parking lot served from Pua Loke Street, used for both worker and heavy truck (garbage trucks and dump trucks) parking. The northern section of the project area, in contrast, rises higher than the southern and appears to have been filled or otherwise shaped to form a sweeping cambered slope (sloping down towards the southwest along the inside of the curve). This sweeping curve appears to match the historic road alignment that existed prior to the realignment of Nawiliwili road in the 1980s. Test trenches were arrayed to test inside the sweeping curve, across the curve, and outside the sloped area.

FIELDWORK METHODS

Fieldwork was conducted intermittently between November 27, 2017 through December 15, 2017 by SCS archaeologists James Powell, B.A., Alex Hazlett, Ph.D., and Milton Ching, A.A., under the direction of Michael Dega, Ph.D., Principal Investigator. The AIS was performed in order to identify and document historic properties, to gather sufficient information on these properties in order to evaluate their significance, to determine the project effect on these properties, and to make mitigation recommendations to address possible adverse impacts to all identified historic properties, pursuant to Hawaii Administrative Rules (HAR) §13-275 and HAR §13-276. The AIS involved a 100 percent systematic surface survey of all open areas, excluding impediments (*e.g.*, existing structures).

Eleven backhoe trenches were mechanically excavated to document subsurface stratigraphy and to potentially identify and document the presence, distribution, and nature of buried non-burial and/or burial historic properties within the project area.

During excavation activities, all *in situ* matrices and backfill contents were visually inspected. The archaeologist made verbal announcements in order to ensure that excavation personnel were aware that the Archaeological Monitor had the authority to halt excavation activities in the immediate area of an archaeological find in order to adequately document the find and to provide appropriate treatment. Archaeological Monitoring during construction activities allowed for the compilation of stratigraphic profiles, the determination of whether cultural deposits were present within various excavations, the depth of the deposits, and the determination whether sites were pre- and/or early post-Contact Hawaiian or Historic in origin.

The endpoints of each trench were recorded with a Garmin GPSMap 60Csx unit. The datum and coordinate system used for the GPS unit is NAD83 and UTM (Universal Transverse Mercator). Standard excavation and recording procedures were used. The mechanically excavated spoils and the trench sidewalls were visually inspected during and at the end of excavation; if cultural material or layers had been identified all material associated with these would have been screened through 1/4" and 1/8" inch wire mesh as well. Equipment for hand excavation included shovels, trowels, whisk brooms, and metric tape measures. Soil descriptions were recorded using Munsell soil color charts and United States Department of Agriculture (USDA) soil description standards. Stratigraphic profiles were completed for for the complete length of each trench. All stratigraphic profiles were drafted for inclusion in the AIS report. All measurements were recorded utilizing the metric system.

LABORATORY METHODS

Digital photographs were taken, and sectional stratigraphic profile drawings were utilized to note stratigraphic and geographic provenience. If any artifacts had been identified or any samples had been collected during the project, they would have cleaned, sorted, and analyzed at the SCS laboratory. They would have been photographed, classified (qualitative analysis), and measured (quantitative analysis) using the metric system to record measurements including weight, length, thickness, height, and diameter. This data would have been presented in tabular form within this AIS report.

CURATION

No artifacts were identified during the surface inspection or during the project excavations and no samples were collected. If any artifacts had been identified or any samples had been collected during the project, SCS would curate all collected materials until the AIS work has

been completed, reviewed, and accepted by the SHPD. Final disposition in a selected archive would have been determined in consultation with individual landowners and the SHPD. The final disposition of the collection would have been made in consultation with SHPD.

ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

Eleven test trenches (TR-1 and TR-3 through TR-12) were excavated in the project area. All trenches were excavated until it was clear that excavation had reached sterile sediment. Although thin layers of imported fill were encountered in Trenches TR-1 and TR-8 through TR-12, no historic sites or features were identified during the project excavations.

Test Trench 1 (TR-1)

Test Trench-1 (TR-1) measured 10 m long by 0.6 m wide and 1 m deep, aligned 13-193 degrees magnetic. TR-1 contained three stratigraphic layers (Figures 14 and 15):

Layer I

Layer I (0-22 cmbs) consisted of dull reddish brown (5YR 3/3, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin, with many fine grass roots. The lower boundary was smooth and abrupt. Layer I was interpreted as landscaping soil to support the grass.

Layer II

Layer II (22-25 cmbs) consisted of light grey (10YR 8/1, dry) crushed coral, coarse crumb structure, hard dry consistency with weak cementation, non-plastic, marine in origin, with a smooth and abrupt lower boundary. Layer II was otherwise culturally sterile. Layer II was interpreted as imported fill material.

Layer III

Layer III (25-100 cmbs) consisted of dark brown (10YR 3/4, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. A dead utility line (laid by Spectrum Cable) crossed the northern end of the trench at a depth of approximately 90 cmbs but no trench or sign of this cable's installation was visible in the trench sidewalls. Layer III was otherwise culturally sterile. Layer III was interpreted as a natural stratum.

Test Trench 2 (TR-2)

Test Trench-2 (TR-2) was not excavated because it would have intersected (for most or all its proposed course) an existing utility line extending along the southwest edge of the project area.

Figure 14: Photograph of South Face of TR-1, viewed to South.

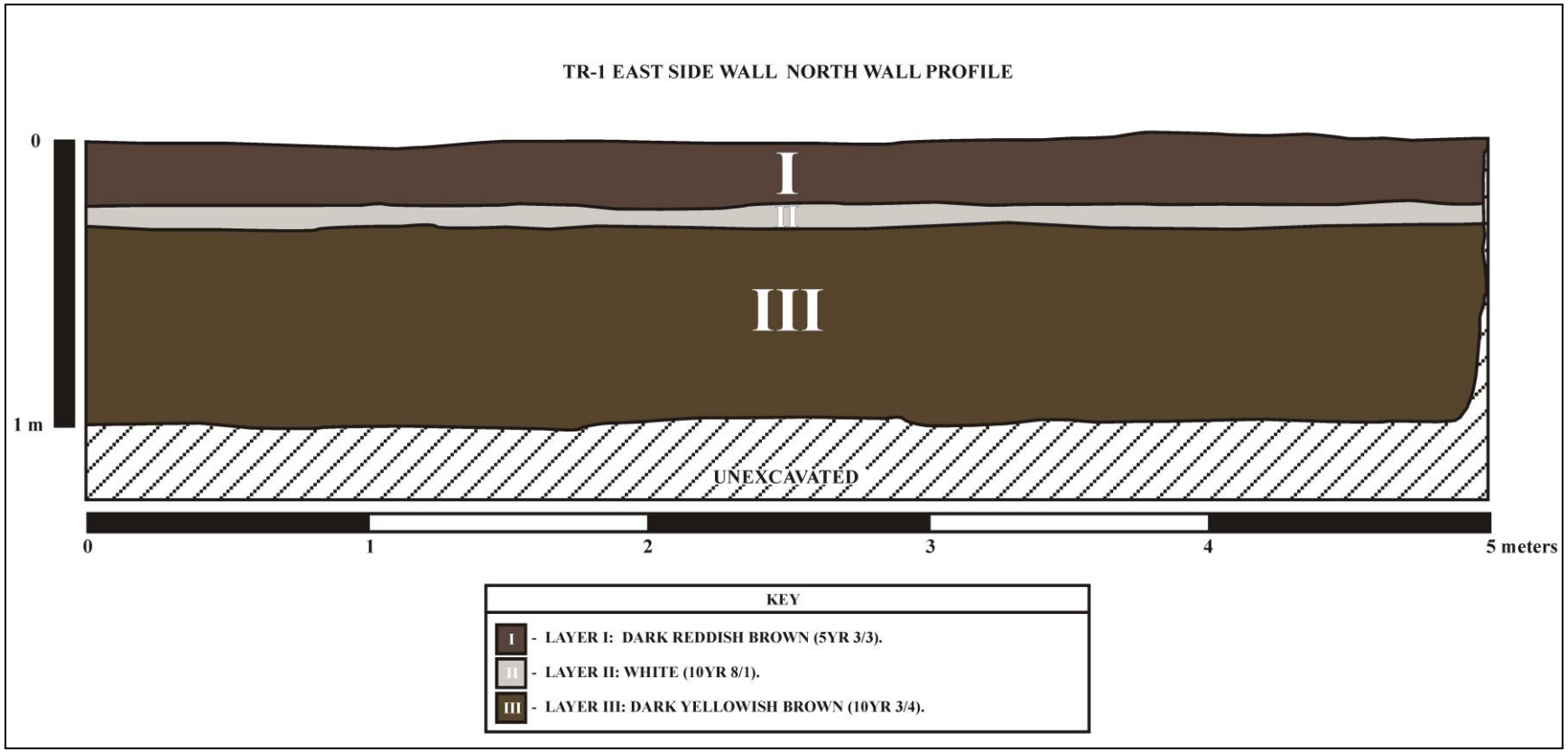

Figure 15: Stratigraphic Profile of East Sidewall of TR-1.

Test Trench 3 (TR-3)

Test Trench-3 (TR-3) measured 15 m long by 0.6 m wide and 1 m deep, aligned 311-131 degrees magnetic. TR-3 contained only one stratigraphic layer (Figures 16 and 17):

Layer I

Layer I (0-100 cmbs) consisted of brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. Layer I was culturally sterile. Layer I was interpreted as a natural stratum.

Test Trench 4 (TR-4)

Test Trench-4 (TR-3) measured 15 m long by 0.6 m wide and 1 m deep, aligned 311-131 degrees magnetic. TR-4 contained only one stratigraphic layer (Figures 18 and 19).

Layer I

Layer I (0-100 cmbs) consisted of brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. A dead 2-inch pvc water line (laid by the County of Kauai Department of Water) extended from the northern end of this trench down the trench before entering the southwest sidewall but no but no trench or sign of this cable's installation was visible in TR-4's sidewalls. Layer I was culturally sterile. Layer I was interpreted as a natural stratum.

Test Trench 5 (TR-5)

Test Trench-5 (TR-5) measured 7.6 m long by 0.6 m wide and 1.4 m deep, aligned 311-131 degrees magnetic. TR-5 contained only one stratigraphic layer (figures 20 and 21). Excavation of TR-5 was halted at 7.6 m to keep from intercepting and potentially breaking the same 2-inch waterline encountered in TR-4 (TR-5 was excavated before a representative of the Department of Water confirmed that the buried waterline was dead).

Layer I

Layer I (0-140 cmbs) consisted of brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. Layer I was culturally sterile. Layer I was interpreted as a natural stratum.

Figure 16: Photograph of TR-3, viewed to Southeast. There were no layers in TR-3, all sediment consisted of brownish black (10YR 3/2, moist) clay loam.

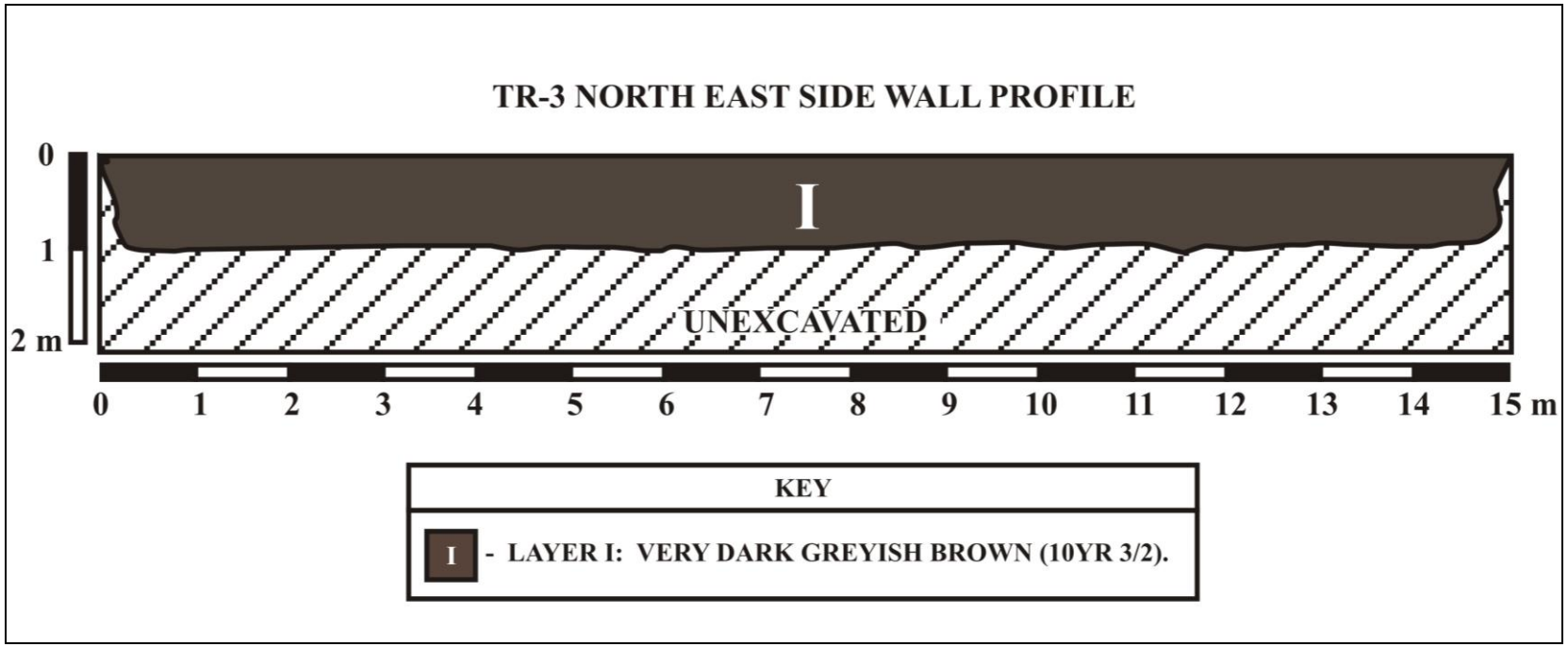

Figure 17: Stratigraphic Profile of Northeast Sidewall of TR-3.

Figure 18: Photograph of the TR-4, viewed to Southeast.

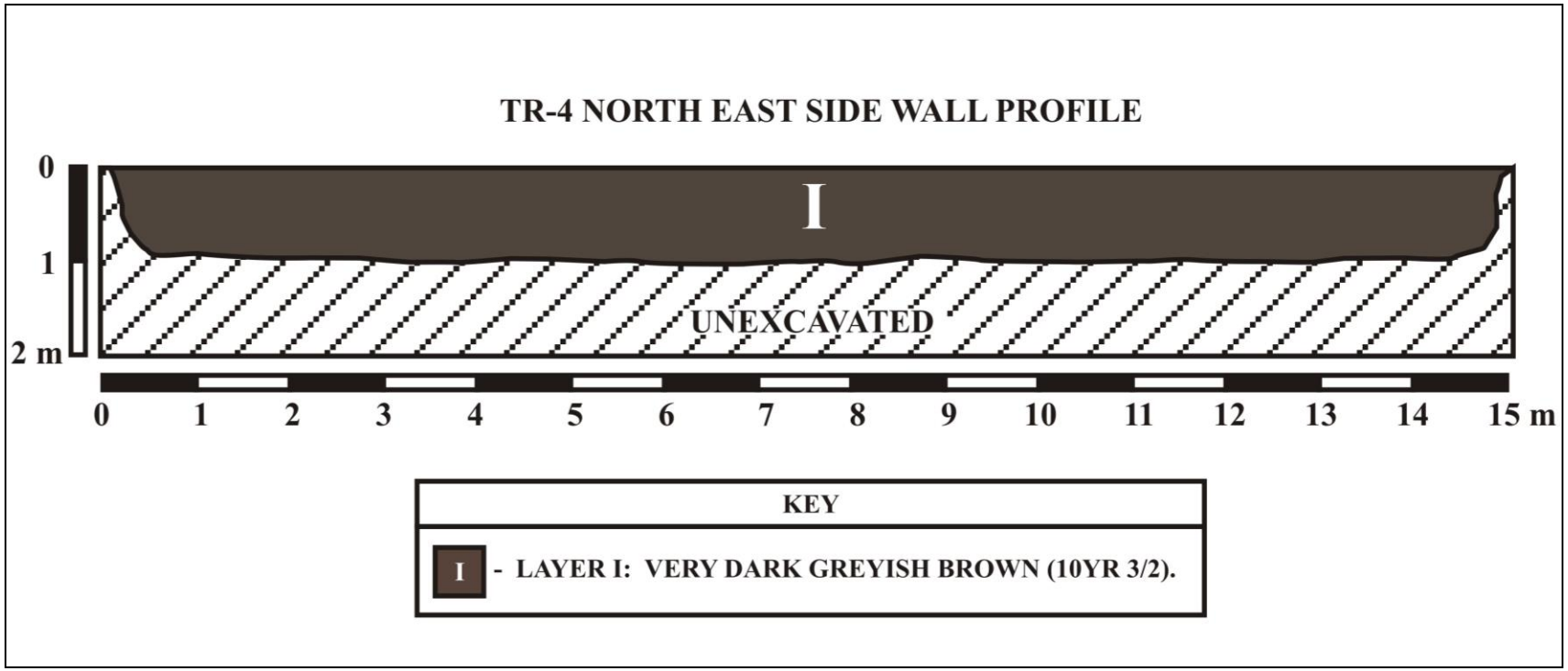

Figure 19: Stratigraphic Profile of Northeast Sidewall of TR-4.

Figure 20: Photograph of the North Face of TR-5, viewed to North.

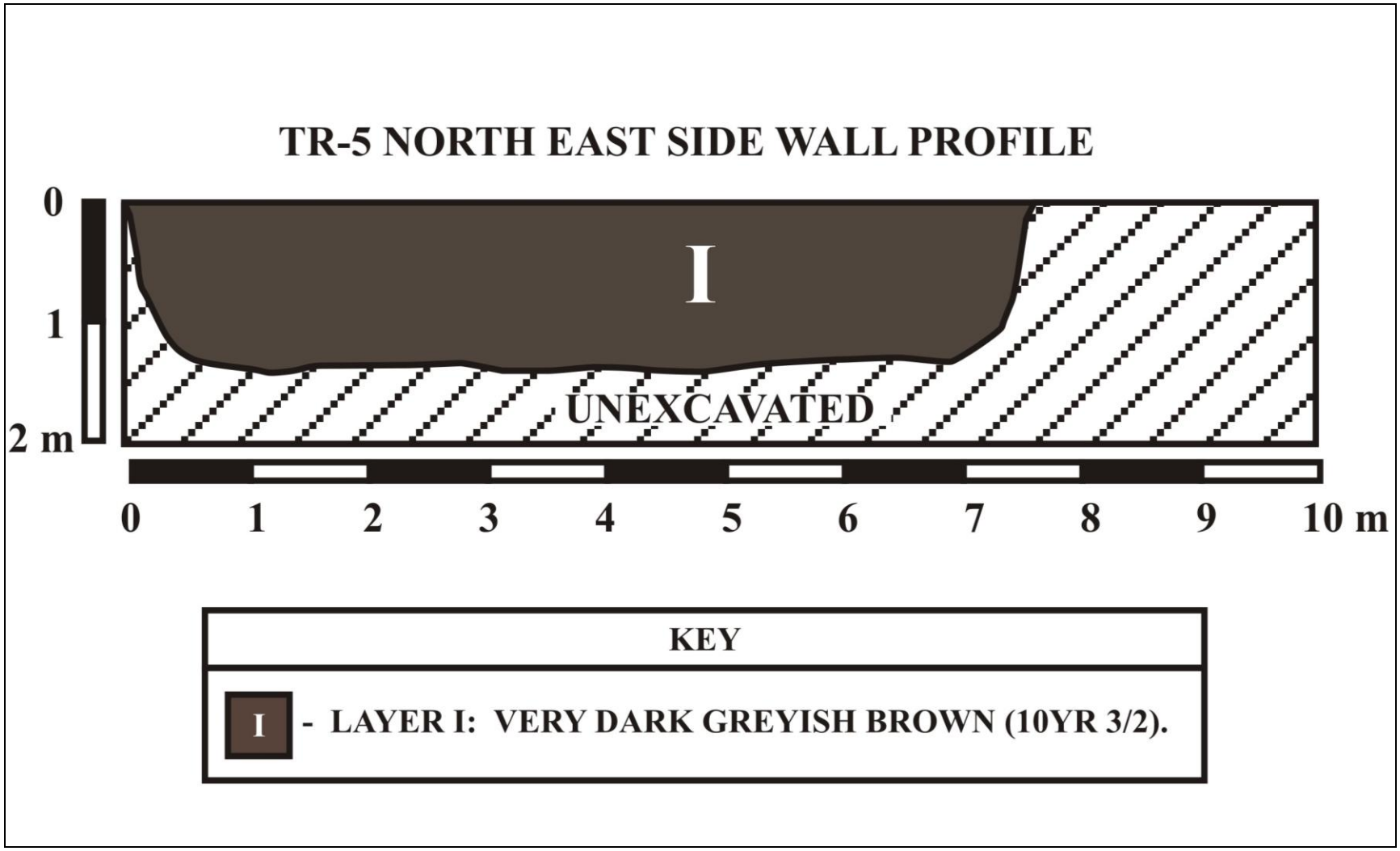

Figure 21: Stratigraphic Profile of Northeast Sidewall of TR-5.

Test Trench 6 (TR-6)

Test Trench-6 (TR-6) measured 13.3 m long by 0.6 m wide and 1 m deep, aligned 311-131 degrees magnetic. TR-6 contained only one stratigraphic layer (Figures 22 and 23)).

Layer I

Layer I (0-100 cmbs) consisted of brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. Layer I was culturally sterile. Layer I was interpreted as a natural stratum.

Test Trench 7 (TR-7)

Test Trench-7 (TR-7) measured 15 m long by 0.6 m wide and 1 m deep, aligned 311-131 degrees magnetic. TR-7 contained only one stratigraphic layer (Figures 24 and 25).

Layer I

Layer I (0-100 cmbs) consisted of brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. Layer I was culturally sterile. Layer I was interpreted as a natural stratum.

Test Trench 8 (TR-8)

Test Trench-8 (TR-8) measured 9.1 m long by 0.6 m wide and 1 m deep, aligned 48-228 degrees magnetic. TR-8 contained two stratigraphic layers: a 5-cm thick layer of crushed coral (Layer II) was observed in the eastern 2 m of the trench at a depth of 25-30 cmbs, it was surrounded above and below by the same Layer I sediment (Figures 26 and 27).

Layer I

Layer I (0-[22 to 100cmbs]) brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin, with many fine grass roots. The lower boundary was smooth and abrupt where Layer II was present. Layer I was otherwise culturally sterile. Layer I was interpreted as a disturbed natural stratum.

Layer II

Layer II (22-25 cmbs) consisted of light grey (10YR 8/1, dry) crushed coral, coarse crumb structure, hard dry consistency with weak cementation, non-plastic, marine in origin, with a smooth and abrupt lower boundary. Layer II was otherwise culturally sterile. Layer II was interpreted as imported fill material.

Figure 22: Photograph of the North Face of TR-6, viewed to North.

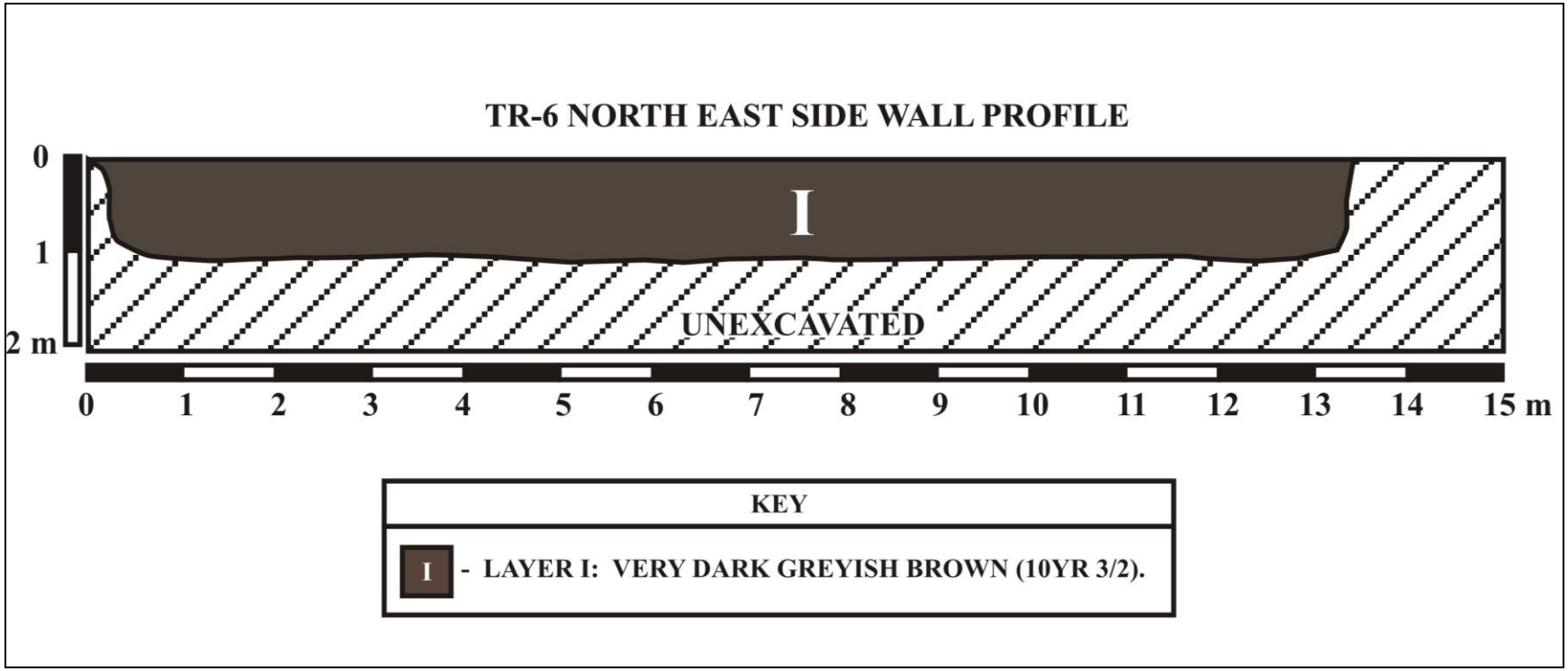

Figure 23: Stratigraphic Profile of Northeast Sidewall of TR-6.

Figure 24: Photograph of TR-7, viewed to Southeast.

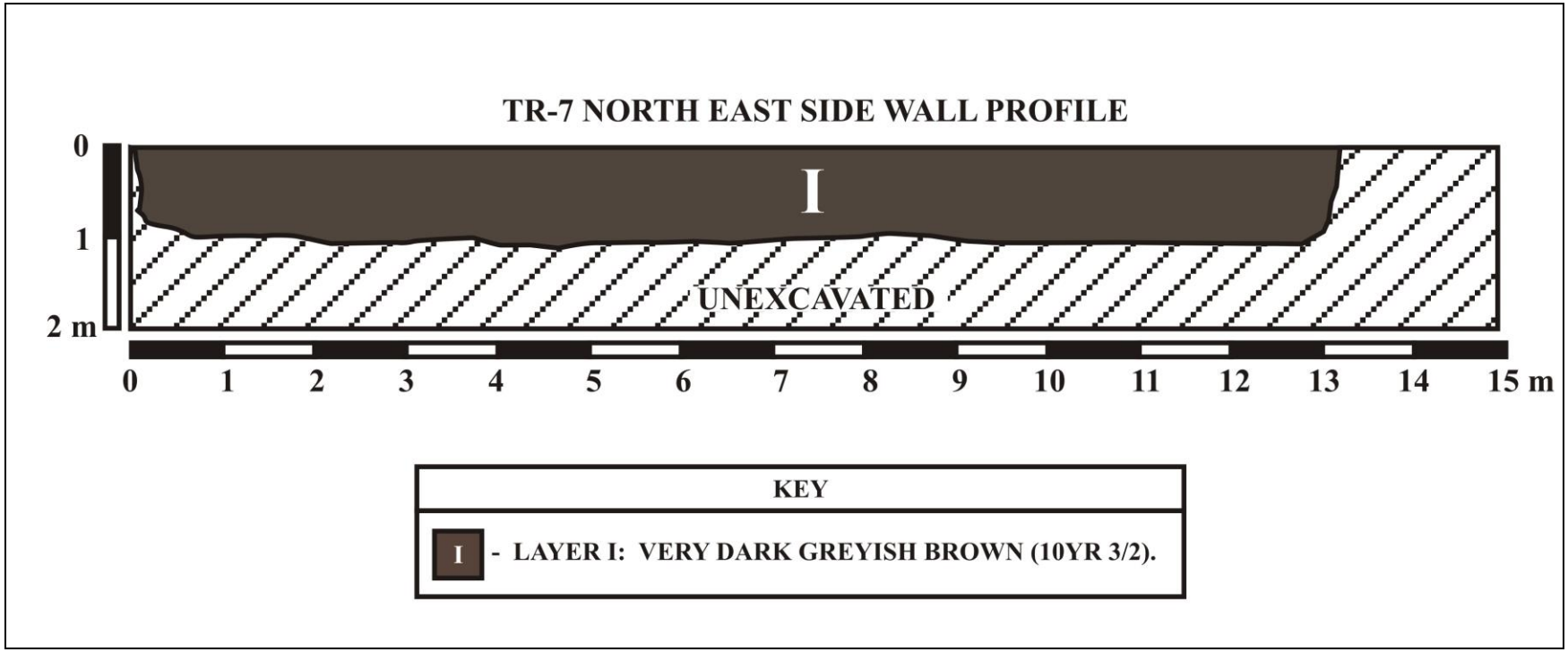

Figure 25: Stratigraphic Profile of Northeast Sidewall of TR-7.

Figure 26: Photograph of the North Face of TR-8, viewed to North.

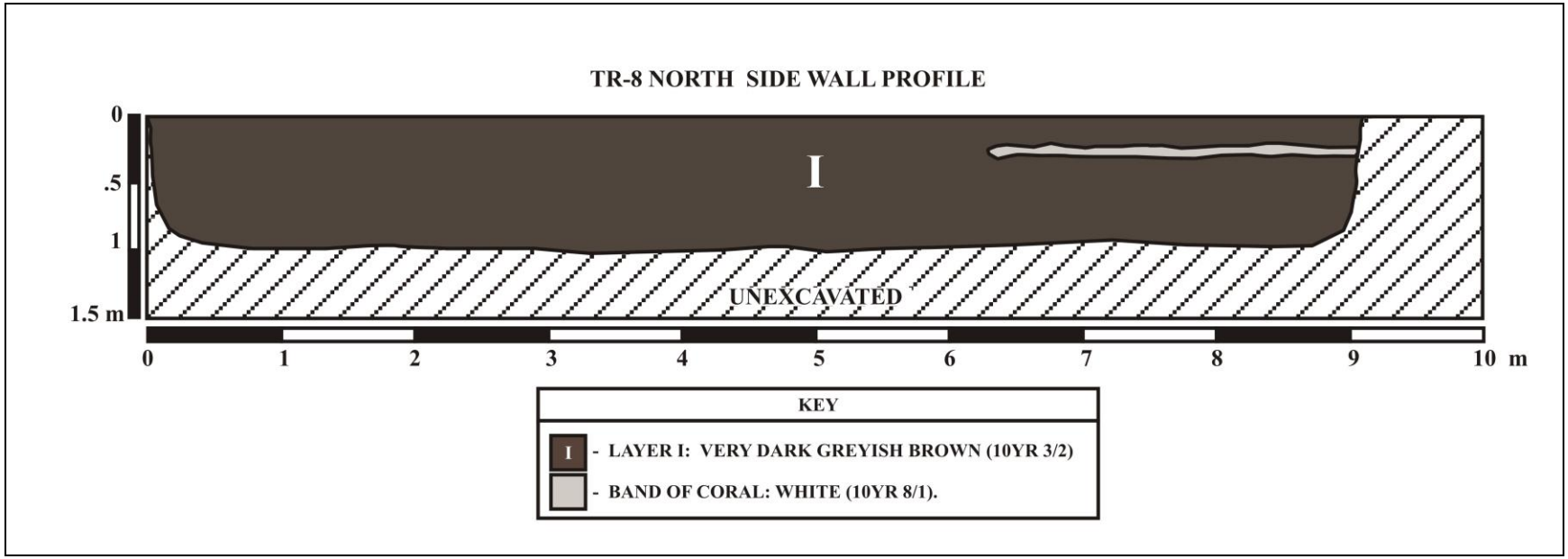

Figure 27: Stratigraphic Profile of North Sidewall of TR-8.

Test Trench 9 (TR-9)

Test Trench-9 (TR-9) measured 11.1 m long by 0.6 m wide and 1 m deep, aligned 47-227 degrees magnetic. TR-9 contained three stratigraphic layers including two buried fill layers; a 5 cm thick layer of crushed coral (Layer II) was observed in the eastern 3.55 m of the trench atop a 10 cm thick layer of finely crushed basalt pebbles (Layer III). The two fill layers were surrounded above and below by the same Layer I sediment (Figure 29).

Layer I

Layer I (0-[25 to 100 cmbs]) brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin, with many fine grass roots. The lower boundary was smooth and abrupt where Layer II was present. Layer I was otherwise culturally sterile. Layer I was interpreted as a disturbed natural stratum.

Layer II

Layer II (25-30 cmbs) consisted of light grey (10YR 8/1, dry) crushed coral, coarse crumb structure, hard dry consistency with weak cementation, non-plastic, marine in origin, with a smooth and abrupt lower boundary. Layer II was otherwise culturally sterile. Layer II was interpreted as imported fill material.

Layer III

Layer II (30-40 cmbs) consisted of dark brown (7.5YR 3/3, dry) crushed basalt pebbles, coarse crumb structure, hard dry consistency with strong cementation (this layer appeared to have been tamped to a very hard consistency), non-plastic, terrestrial in origin, with a smooth and abrupt lower boundary. Layer III was otherwise culturally sterile. Layer III was interpreted as imported fill material.

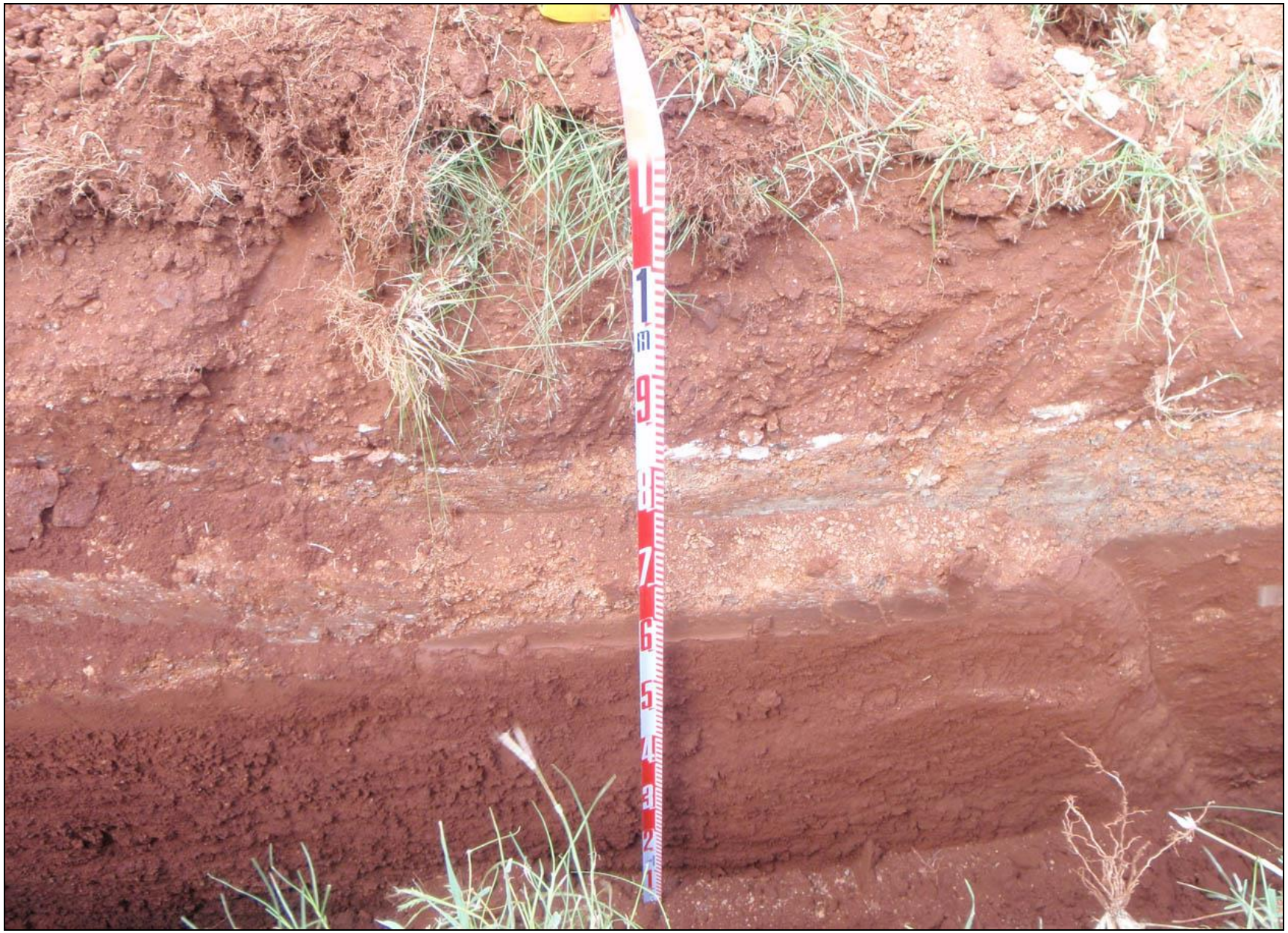

Figure 28: Photograph of the North Face of TR-9, viewed to Northwest.

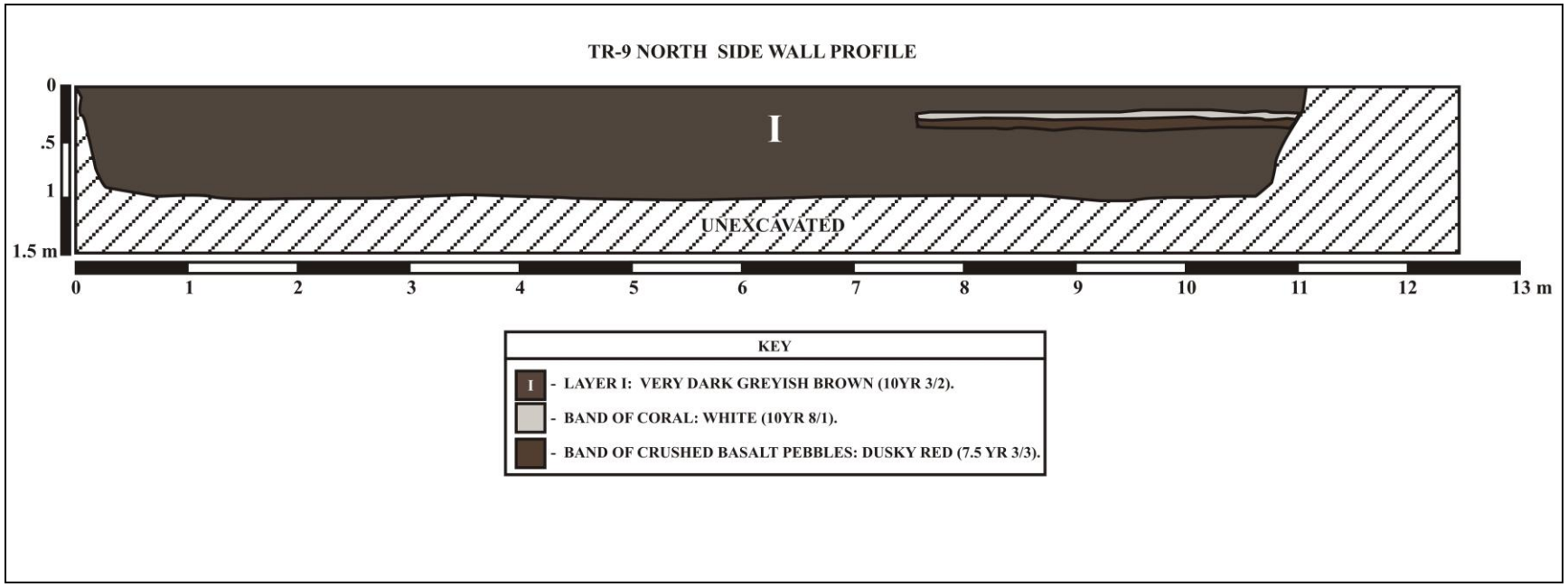

Figure 29: Stratigraphic Profile of North Sidewall of TR-9.

Test Trench 10 (TR-10)

Test Trench-10 (TR-10) measured 11.4 m long by 0.6 m wide and 1 m deep, aligned 44-224 degrees magnetic. TR-10 contained three stratigraphic layers including two buried fill layers; a 5 cm thick layer of crushed coral (Layer II) was observed in the eastern 3.85 m of the trench atop a 10 cm thick layer of finely crushed basalt pebbles (Layer III). The two fill layers were surrounded above and below by the same Layer I sediment (Figure 31).

Layer I

Layer I (0-[25 to 100 cmbs]) brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin, with many fine grass roots. The lower boundary was smooth and abrupt where Layer II was present. Layer I was otherwise culturally sterile. Layer I was interpreted as a disturbed natural stratum.

Layer II

Layer II (25-30 cmbs) consisted of light grey (10YR 8/1, dry) crushed coral, coarse crumb structure, hard dry consistency with weak cementation, non-plastic, marine in origin, with a smooth and abrupt lower boundary. Layer II was otherwise culturally sterile. Layer II was interpreted as imported fill material.

Layer III

Layer II (30-40 cmbs) consisted of dark brown (7.5YR 3/3, dry) crushed basalt pebbles, coarse crumb structure, hard dry consistency with strong cementation (this layer appeared to have been tamped to a very hard consistency), non-plastic, terrestrial in origin, with a smooth and abrupt lower boundary. Layer III was otherwise culturally sterile. Layer III was interpreted as imported fill material.

Figure 30: Photograph of the North Face of TR-10, viewed to North.

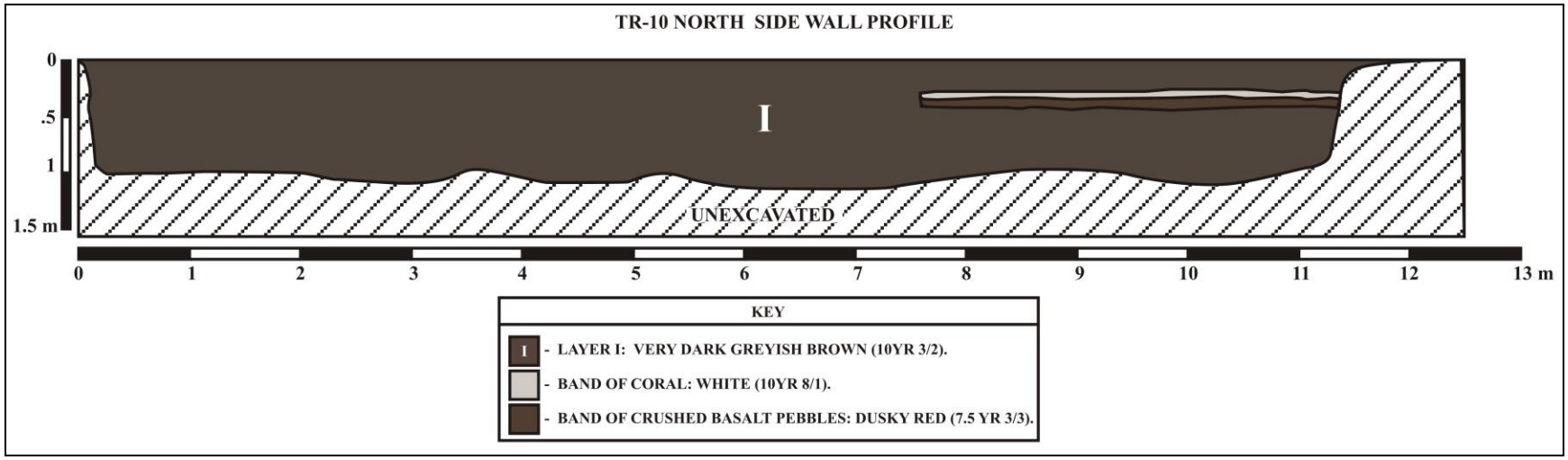

Figure 31: Stratigraphic Profile of North Sidewall of TR-10.

Test Trench 11 (TR-11)

Test Trench-11 (TR-11) measured 6.42 m long by 0.6 m wide and 1 m deep, aligned 45-225 degrees magnetic. TR-11 contained three stratigraphic layers including two buried fill layers; a 5 cm thick layer of crushed coral (Layer II) was observed in the eastern 1.3 m of the trench atop a 10 cm thick layer of finely crushed basalt pebbles (Layer III). The two fill layers were surrounded above and below by the same Layer I sediment (Figure 33).

Layer I

Layer I (0-[25 to 100 cmbs]) brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin, with many fine grass roots. The lower boundary was smooth and abrupt where Layer II was present. Layer I was otherwise culturally sterile. Layer I was interpreted as a disturbed natural stratum.

Layer II

Layer II (25-30 cmbs) consisted of light grey (10YR 8/1, dry) crushed coral, coarse crumb structure, hard dry consistency with weak cementation, non-plastic, marine in origin, with a smooth and abrupt lower boundary. Layer II was otherwise culturally sterile. Layer II was interpreted as imported fill material.

Layer III

Layer II (30-40 cmbs) consisted of dark brown (7.5YR 3/3, dry) crushed basalt pebbles, coarse crumb structure, hard dry consistency with strong cementation (this layer appeared to have been tamped to a very hard consistency), non-plastic, terrestrial in origin, with a smooth and abrupt lower boundary. Layer III was otherwise culturally sterile. Layer III was interpreted as imported fill material.

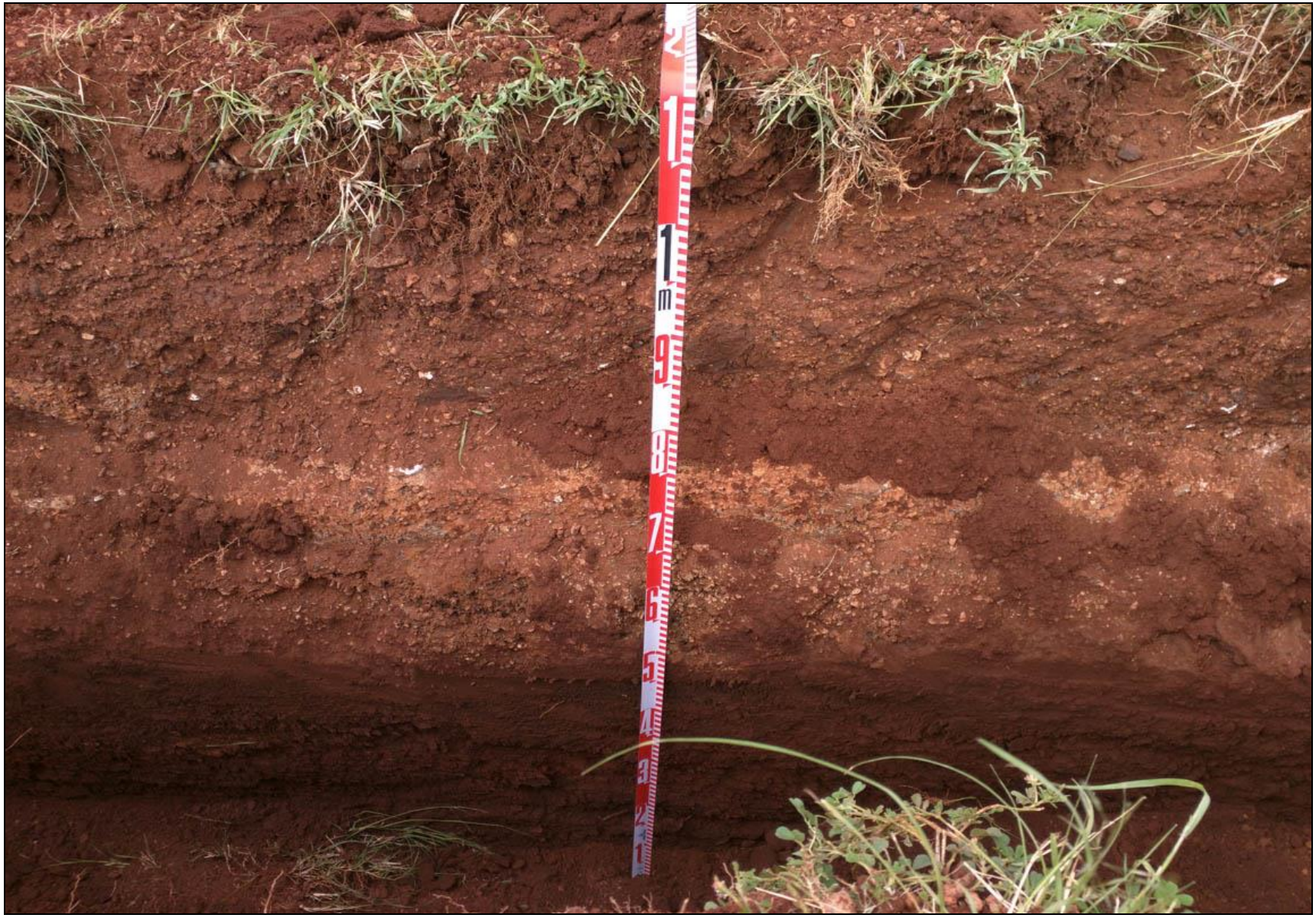

Figure 32: Photograph of the North Face of TR-11, viewed to North.

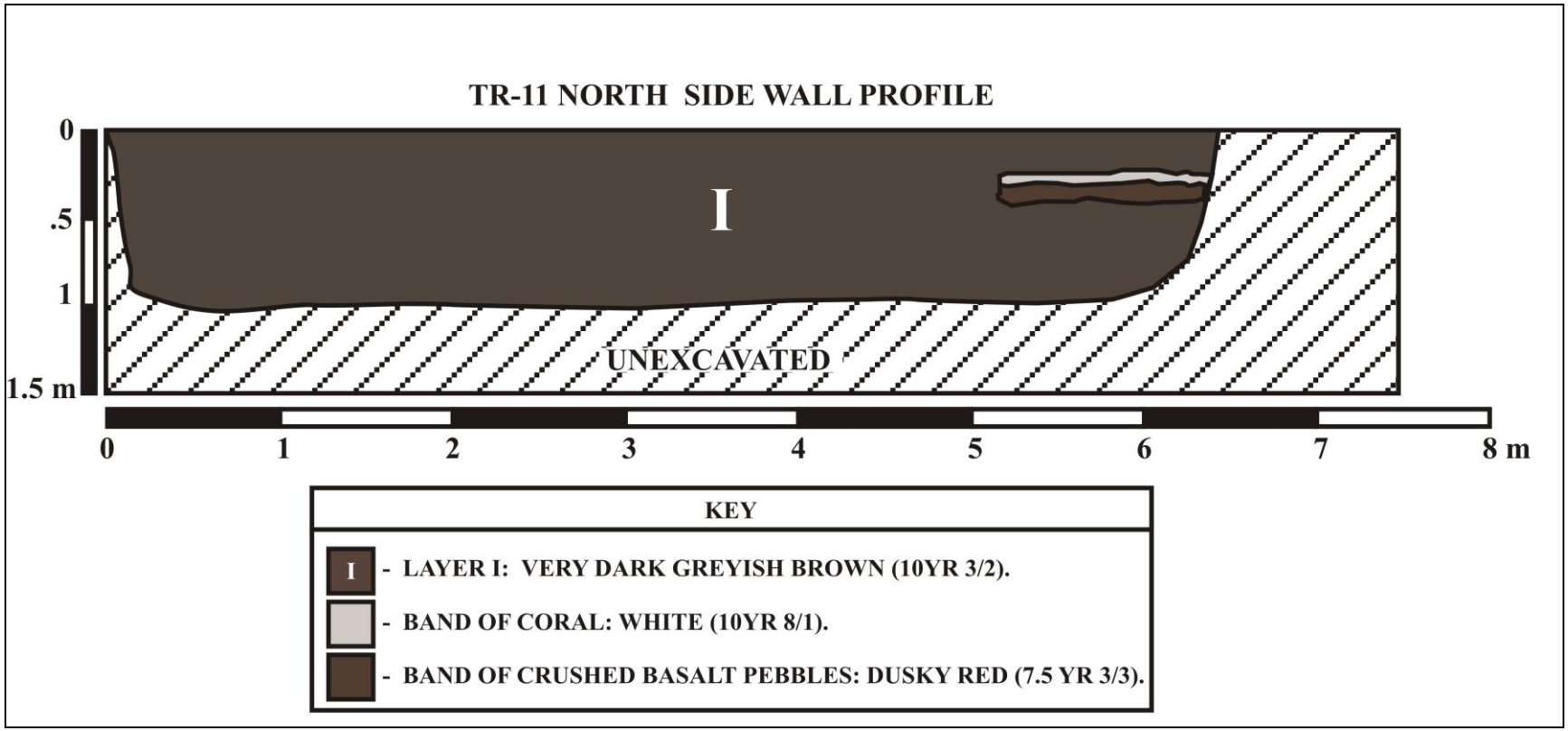

Figure 33: Stratigraphic Profile of North Sidewall of TR-11.

Test Trench 12 (TR-12)

Test Trench-12 (TR-12) measured 11.1 m long by 0.6 m wide and 1 m deep, aligned 47-227 degrees magnetic. TR-12 contained four stratigraphic layers (Figures 34 and 35).

Layer I

Layer I (0-25 cmbs) brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin, with many fine grass roots. The lower boundary was smooth and abrupt where Layer II was present. Layer I was otherwise culturally sterile. Layer I was interpreted as a disturbed natural stratum.

Layer II

Layer II (25-30 cmbs) consisted of light grey (10YR 8/1, dry) crushed coral, coarse crumb structure, hard dry consistency with weak cementation, non-plastic, marine in origin, with a smooth and abrupt lower boundary. Layer II was otherwise culturally sterile. Layer II was interpreted as imported fill material.

Layer III

Layer II (30-40 cmbs) consisted of dark brown (7.5YR 3/3, dry) crushed basalt pebbles, coarse crumb structure, hard dry consistency with strong cementation (this layer appeared to have been tamped to a very hard consistency), non-plastic, terrestrial in origin, with a smooth and abrupt lower boundary. Layer III was otherwise culturally sterile. Layer III was interpreted as imported fill material.

Layer IV

Layer IV (40-100 cmbs) consisted of brownish black (10YR 3/2, moist) clay loam, fine weak granular structure, loose moist consistency with weak cementation, plastic, terrigenous in origin. Layer IV was culturally sterile. Layer IV was interpreted as a natural stratum.

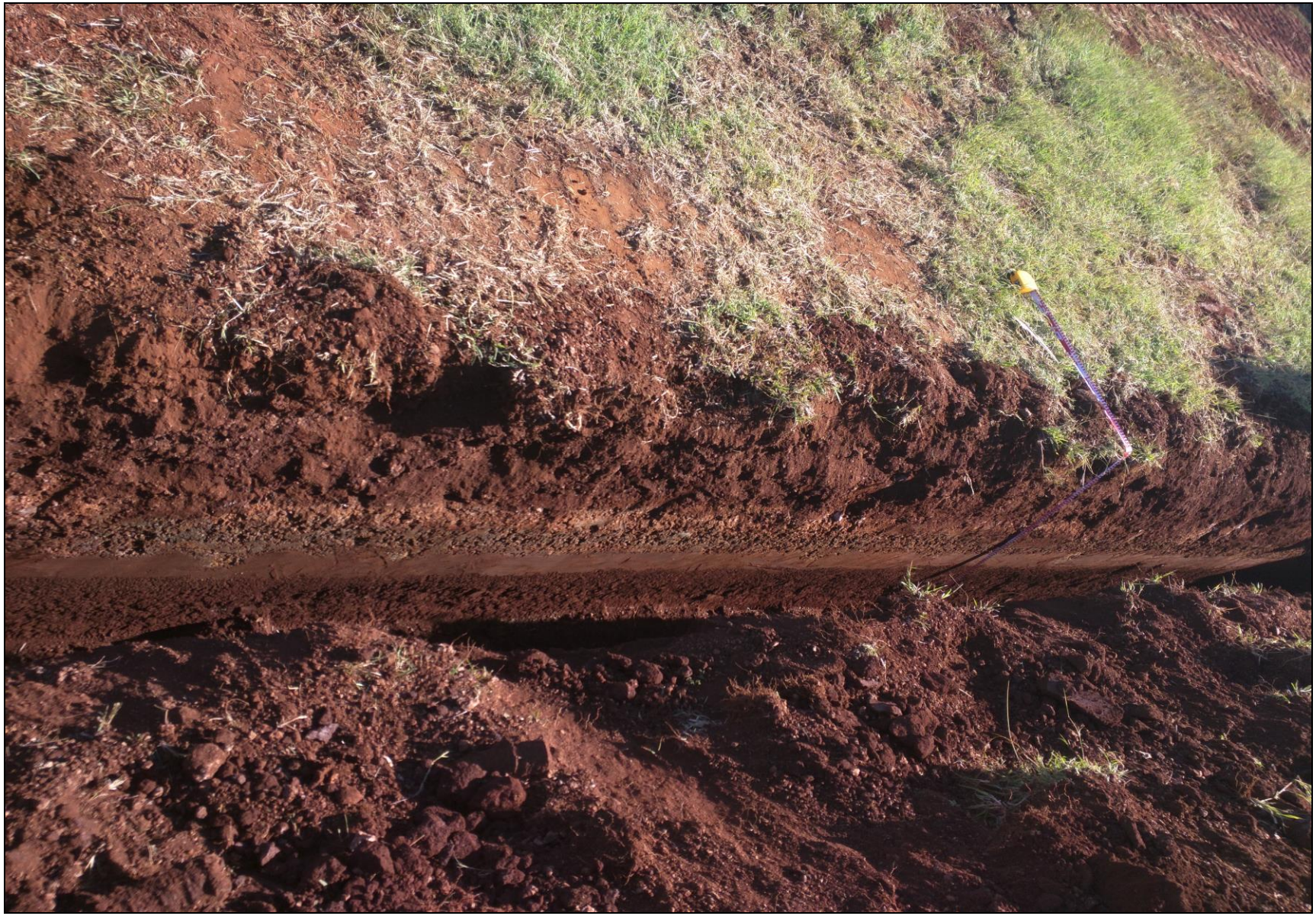

Figure 34: Photograph of the Northeast Face of TR-12, viewed to East.

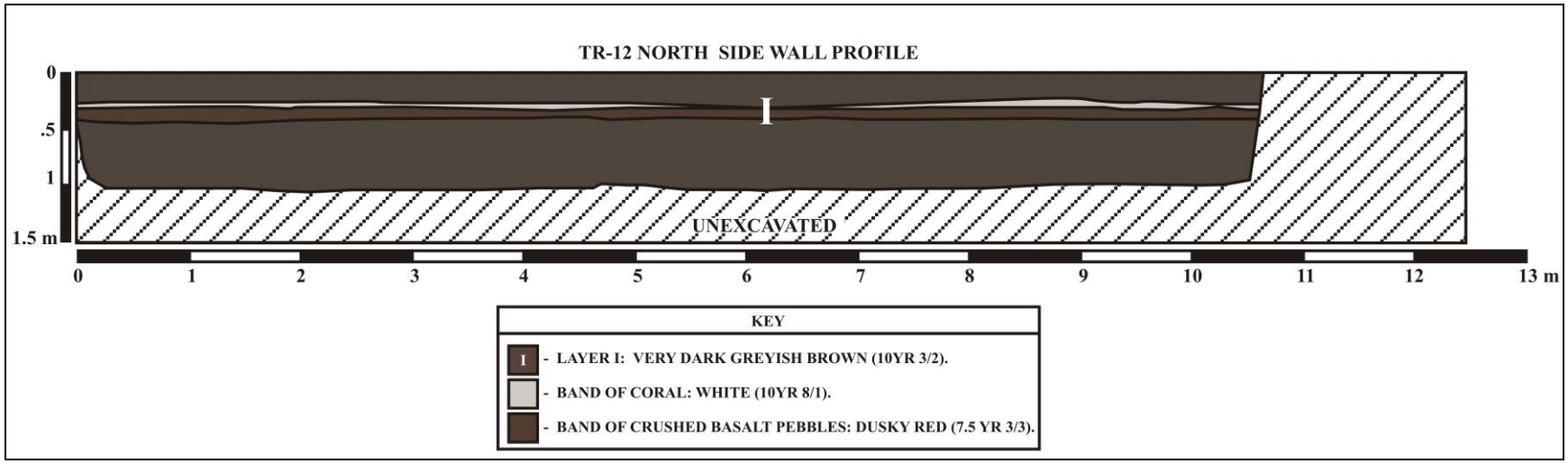

Figure 35: Stratigraphic Profile of North Face of TR-12.

SUMMARY AND DISCUSSION

Scientific Consultant Services, Inc. conducted an AIS in the form of surface survey and subsurface testing in advance of the advance of the development of the parcel for an affordable housing community on 1.469 acres of land on the southwest side of Pua Loke Street. Surface survey and subsurface testing did not lead to the identification of any historical properties within the project area.

The AIS included a 100% surface survey and backhoe excavation of eleven stratigraphic trenches (TR-1 and TR-3 through TR-12). A thin (3cm) layer of crushed coral was identified at a depth of 22 cmbs in TR-1, in the southeast corner of the project area, and a similar (5 cm) layer of crushed coral atop a 10cm layer of crushed basalt pebbles was identified at the same depth in the western portions of TR-8, TR-9, TR-10, and TR-11, and in all of TR-12. These layers may be remnants of previous roadbed or plantation railbed but no datable materials were found in association with these layers. Except for dead communications cables and a dead water line irrigation line, the stratigraphic trenches yielded no subsurface evidence of cultural deposits (*i.e.*, pit features, fire pits, post molds, or human burials). No artifacts were identified in the trench excavations.

CONCLUSIONS

Although buried layers of crushed coral and crushed basalt were identified during project excavations, based on the results of excavations as well as historic maps of the project area from 1900 to the 1980s, it seems unlikely that there might be burials or cultural materials in the project area.

SIGNIFICANCE

The limited amount of information that could be determined from the crushed coral and crushed basalt layers make it difficult to determine whether these layers are historically significant under any of the criteria established for the Hawai‘i State Register of Historic Places.

RECOMMENDATIONS

Because the current test excavations were confined to the open area at the north of the project parcel, a program of archaeological monitoring is recommended for all future ground disturbance in the project area.

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APPENDIX A: NATIONAL HISTORIC PRESERVATION ACT – SECTION 106 REVIEW – KAUAI ECONOMIC OPPORTUNITY EMERGENCY SHELTER AND TRANSITIONAL HOUSING PROGRAM ON WEHE ROAD, LIHUE, KAUAI

LINDA LINGLE
GOVERNOR OF HAWAII

COUNTY OF KAUAI
HOUSING AGENCY

'04 OCT 18 P12:05

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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

HAWAI'I HISTORIC PRESERVATION DIVISION REVIEW

Log #: 2004.3053
Doc #: 0410NM10.doc

Applicant/Agency: Kenneth Rainforth, Executive on Housing/KEO

Address: Office of Community Assistance, Kauai County Housing Agency
4444 Rice St., Suite 330, Lihue, HI 96766

SUBJECT: National Historic Preservation Act – Section 106 Review – Kauai Economic Opportunity Emergency Shelter and Transitional Housing Program on Wehe Road, Lihue, Kauai

Ahupua`a: Lihue
District, Island: Lihue, Kauai
TMK: (4) 3-8-5: 1

1. We believe there are no historic properties present, because:
___a) intensive cultivation has altered the land
✓ b) residential development/urbanization has altered the land
___ c) previous grubbing/grading has altered the land
___d) an acceptable archaeological assessment or inventory survey found no historic properties
___e) other

2. This project has already gone through the historic preservation review process, and mitigation has been completed ___.

✓ Thus, we believe that "no historic properties will be affected" by this undertaking

for Holly Mcelderry

Staff: Peter Young Date: 10/12/04

Title: State Historic Preservation Officer

EXHIBIT 3

APPENDIX F: CULTURAL IMPACT ASSESSMENT

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SCS Project Number 2123 CIA-1

CULTURAL IMPACT ASSESSMENT FOR THE PUA LOKE MULTI-FAMILY AFFORDABLE HOUSING DEVELOPMENT LĪHU‘E, NĀWILIWILI AHUPUA‘A, LĪHU‘E (PUNA) DISTRICT KAUA‘I ISLAND, HAWAI‘I [TMK: (4) 3-8-005: 028 AND 029]

Prepared for:
Environet, Inc.
1286 Queen Emma Street
Honolulu, Hawai‘i 96813

Prepared by:
Lisa Gollin, Ph.D.,
and
Kepa Lyman, M.A.
January 2018

Scientific Consultant Services, Inc. Hawaii (SCS)
1347 Kapiolani Blvd., Suite 408,
Honolulu, Hawai‘i 96814
&
LX Gollin Research Hawai‘i, LLC.

SCIENTIFIC CONSULTANT SERVICES, Inc.

HAWAII

1347 Kapiolani Blvd., Suite 408 Honolulu Hawai`i 96814

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Executive Summary

At the request of the Kauaʻi County Housing Agency and Environet, Inc., Scientific Consultant Services, Inc. (SCS) and LX Gollin Research Hawaiʻi, LLC. (LXGR) conducted a Cultural Impact Assessment (CIA) in advance of the proposed construction of a *Multi-Family Affordable Housing Development.* The County of Kauaʻi owns the subject parcels. The housing development would include a maximum density of 60 dwelling units and associated parking areas on 1.46 acres of land situated along Pua Loke Street in Līhuʻe, Nāwiliwili Ahupuaʻa, Līhuʻe (Puna) District, Kauaʻi Island, Hawaiʻi [TMK: (4) 3-8-005: 028 and 029].

The project requires compliance with the State of Hawaiʻi environmental review process (Hawaiʻi Revised Statutes [HRS] Chapter 343), which requires consideration of a proposed project's effect on cultural practices and resources. Through document research and ongoing cultural consultation efforts, this report provides information pertinent to the assessment of the proposed project's impacts to cultural practices and resources (per the *Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts*).

For the community consultation effort, 24 individuals and/or agency representatives and other knowledgeable parties were invited to participate in the CIA study via email, telephone calls, or in-person contact. Additionally, attempts were made to locate and contact former sugar plantation workers. A number of these referrals are deceased, infirmed, and/or could not be reached. Of the 24 individuals or groups contacted, 19 responded (79%). Five people did not respond or could not be reached for the CIA consultation effort. Of the 19 respondents, three were interviewed in-person or over the telephone (15%); four provided an oral or written statement (12%); eight shared referrals and/or references (42%), and four stated that they had no comments regarding the proposed project (n = 4, 12%).

Five primary concerns were elicited from the consultation process: 1) there is a remote though real possibility of subsurface human and/or cultural remains; 2) there is a likelihood that ground disturbance will turn up plantation heritage railway train and/or track artifacts; 3) public safety and sanitation may be (further) compromised by a potential rise in the number of homeless and affordable housing occupants using the adjacent Pua Loke Arboretum and Park and Kauaʻi Museum facilities; 4) linked to the prior concern, a state Division of Forestry and Wildlife (DOFAW) plan to create an educational institute of rare Hawaiian plants will bring more school groups and visitors to the arboretum stressing the importance of safety, sanitation and maintenance of green spaces; 5) currently, the parcel is a parking lot used for overflow parking for important community events by the United Lihue Church and the Grove Farm heritage railway museum and possibly other community interests.

Participants offered mitigation measures: 1) in the event of inadvertent human and/or cultural finds, one participant – a burial council consultant – advises that remains be left in place; 2) should possible heritage train and/or track artifacts be encountered, one participant – a train engineer, mechanic and historian – advises project proponents to confer with the Grove Farm railway museum for their expertise/identification, and donate relics to the museum; 3) state and county agencies collaborate to address issues potentially intensified by the housing development of public safety and sanitation, protection and maintenance of green space for public recreation and education (4), and parking for important community events (5) at and near the Pua Loke Arboretum/Park, Kauaʻi Museum, Grove Farm railway museum and the Lihue United Church.

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Introduction

1.1 Note on Hawaiian Words and Scientific Names of Plants and Animals

Following the current standard practice in Hawaiʻi and throughout the Pacific, this Cultural Impact Assessment (CIA) italicizes foreign words but not Hawaiian words unless citing from a previous document with italicized Hawaiian words. Latin names for flora and fauna referenced in the report are provided where possible based on the authors' knowledge and the scientific literature. The authors of this report parenthetically translate or define in the text Hawaiian words, including plants and animals, when first mentioned in the report. Acronyms for agencies and organizations with long names found throughout the report are also provided at first mention in the report and used in the balance of the report.

1.2 Project Background

At the request of the Kauaʻi County Housing Agency and Environet, Inc., Scientific Consultant Services, Inc. (SCS) and LX Gollin Research Hawaiʻi, LLC. (LXGR) conducted a Cultural Impact Assessment (CIA) in advance of the proposed construction of *A Multi-Family Affordable Housing Development.* The County of Kauaʻi owns the subject parcels. The housing development would include a maximum density of 60 dwelling units and associated parking areas on 1.46 acres of land situated along Pua Loke Street in Līhuʻe, Nāwiliwili Ahupuaʻa, Līhuʻe (Puna) District, Kauaʻi Island, Hawaiʻi [TMK: (4) 3-8-005: 028 and 029]. Figures (Figures 1 through 3).

1.3 Document Purpose

The project requires compliance with the State of Hawaiʻi environmental review process (Hawaiʻi Revised Statutes [HRS] Chapter 343) and in accordance with Act 50, enacted by the Legislature of the State of Hawaiʻi (2000) with House Bill (HB) 2895, which requires consideration of a proposed project's effect on cultural practices. SCS and LXGR is conducting this CIA at the request of Environet Inc. Through document research and ongoing cultural consultation efforts this report provides information pertinent to the assessment of the proposed project's impacts to cultural practices and resources (per the *Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts*), which may include Traditional Cultural Properties (TCP) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places, in accordance with Hawaiʻi State Historic Preservation Statute

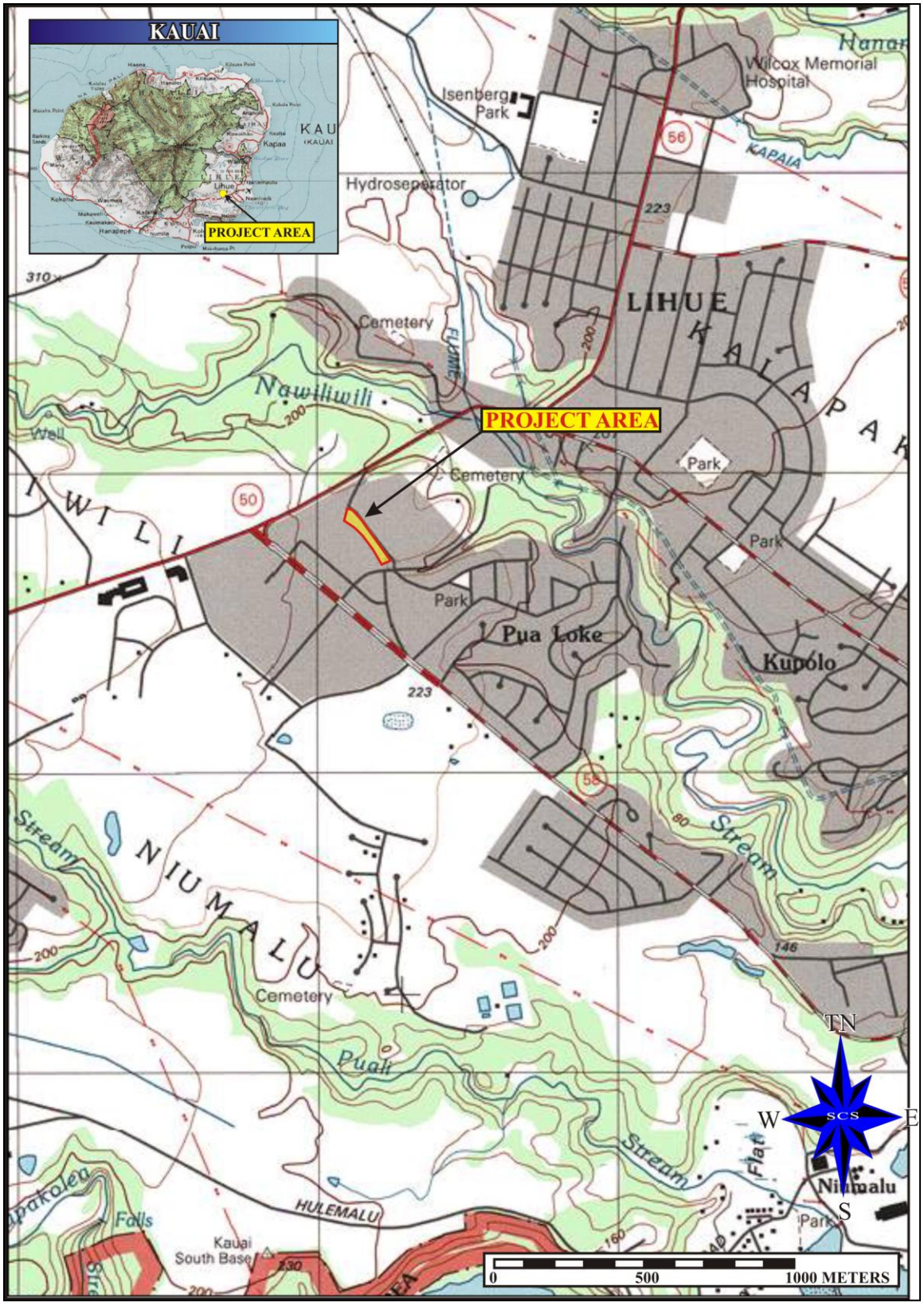

Figure 1: USGS Quadrangle (Lihue, HI 1996: 1:24,000 ft.) Showing Project Area Location.

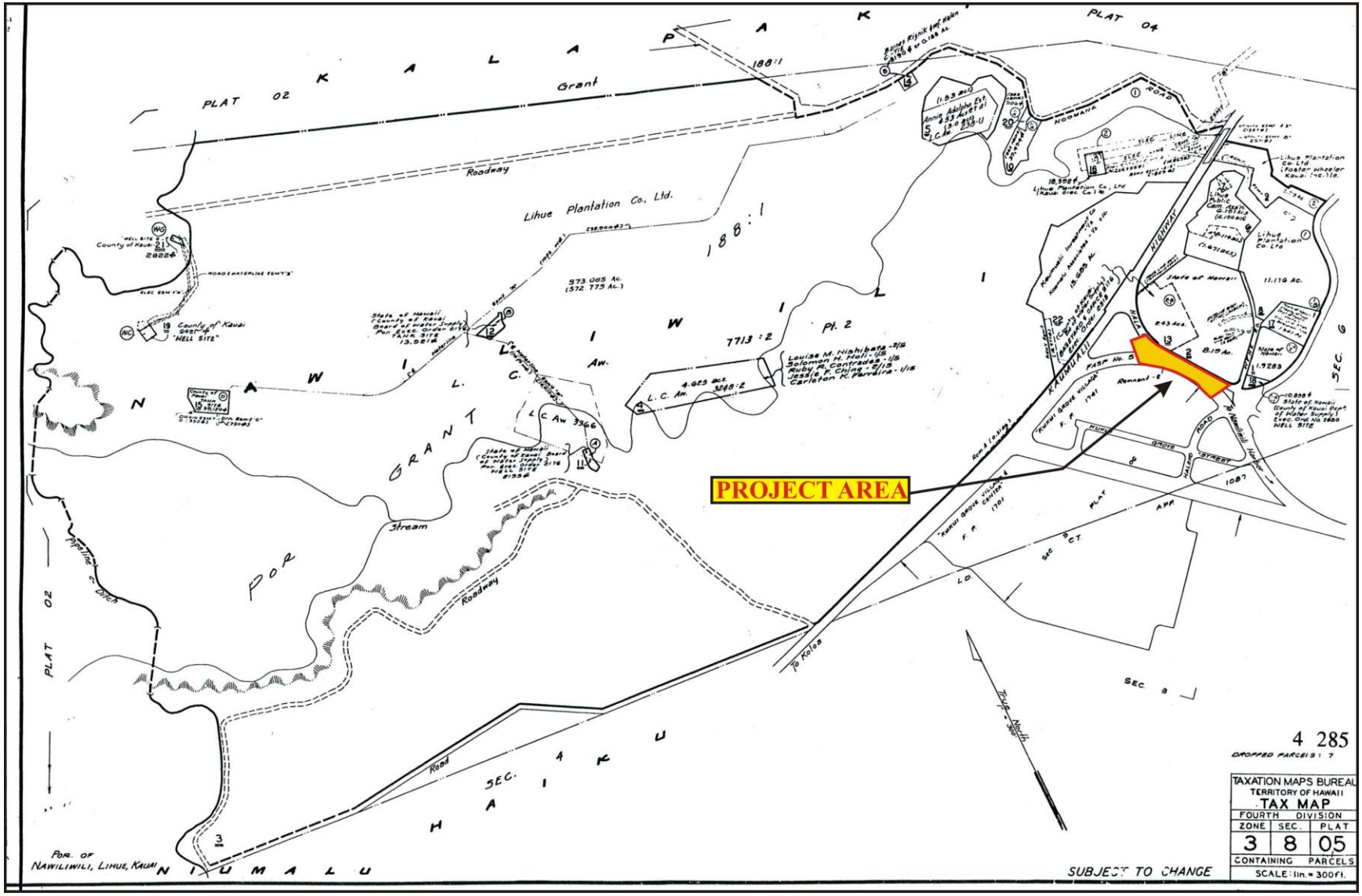

Figure 2: Tax Map Key [TMK: (4) 3-8-005] Showing Project Area Location.

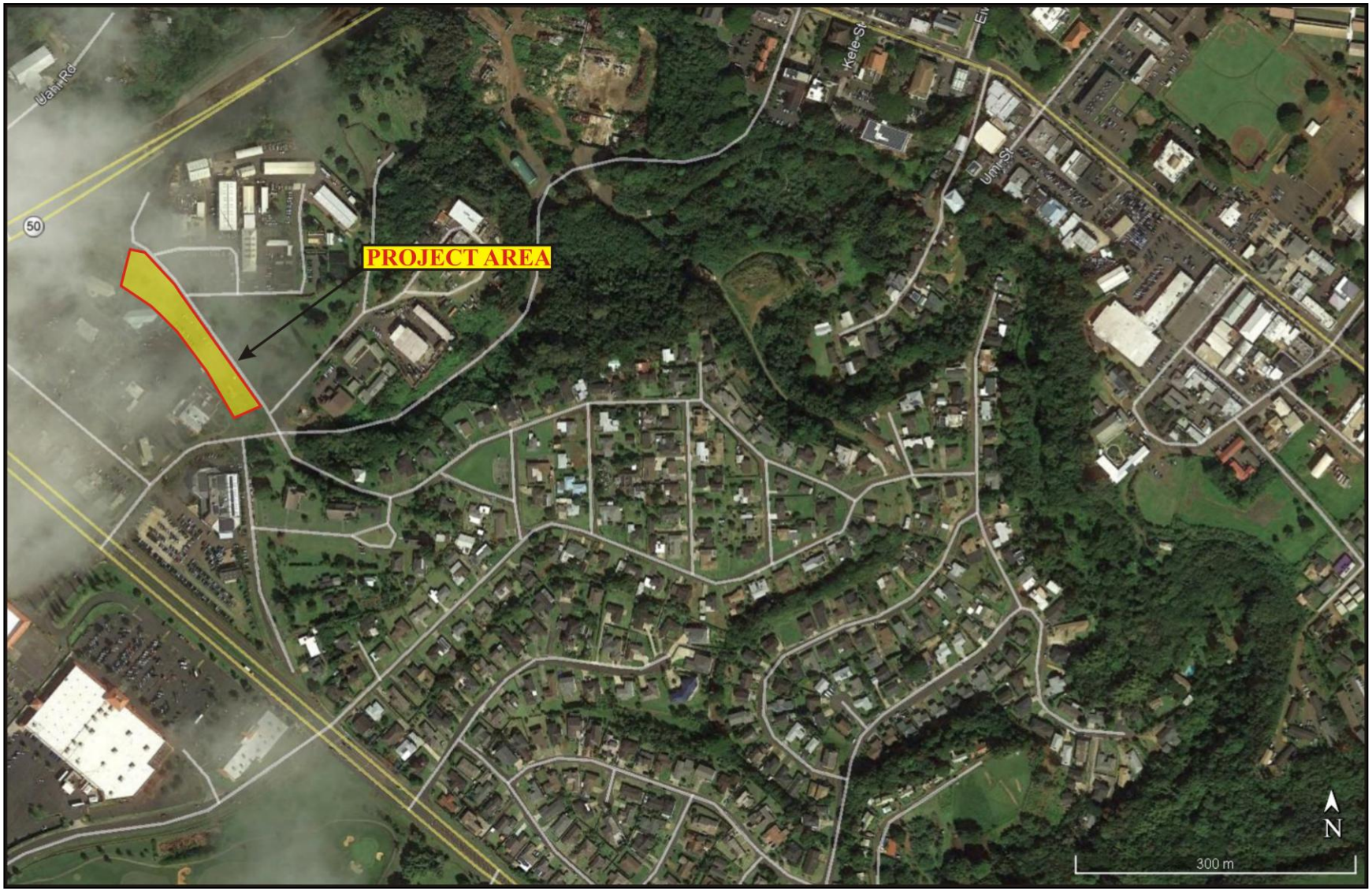

Figure 3: Satellite Image (Google Earth Image; Imagery Date 12/13/2013) Showing Project Area Location.

(Chapter 6E) guidelines for significance criteria (HAR §13–284–6) under Criterion E which states to be significant an historic property shall:

> Have an important value to the Native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

For the CIA, and in accordance with the OEQC Guidelines, the "project area" considers the footprint of the proposed *Multi-Family Affordable Housing Development* within the broader context of the Nāwiliwili Ahupuaʻa. Apposite to this CIA, special attention is paid to the cultural and historic significance of highly developed urban environments – in this case, currently a parking lot – as per the (2012) *Guidelines for Assessing Cultural Impacts*, published by the Office of Environmental Quality Control which states that:

> If the subject area is in a developed urban setting, cultural impacts must still be assessed. Many incorrectly assume that the presence of urban infrastructure effectively precludes consideration of current cultural factors. For example, persons are known to gather kaunaʻoa, ʻilima, ʻuhaloa, noni or ki on the grassy slopes and ramps of the H-1 freeway and some state highways on the neighbor islands. Certain landmarks and physical features are used by Hawaiian navigators for sailing, and the lines of sight from landmarks to the coast by fisherman to locate certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact. (State of Hawaii 2012:12)

1.4 Scope of Work

A. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
B. Review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
C. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices at or near the parcel; present and past uses of the parcel; and/or other practices, uses, or traditions associated with the parcel and environs.
D. Preparation of a report that summarizes the results of these research activities and provides recommendations based on findings and an assessment the impacts the

proposed project may have on the cultural practices and cultural features that may be affected by actions subject to Chapter 343, HRS.

Research Methods

1.5 Archival Research

Archival research completed for this report included oral history accounts of native and early-Contact foreign writers; early historical journals and narratives; historic maps; land records, such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts; and previous archaeological reports. Historical documents, maps and existing archaeological information pertaining to the project area vicinity were researched at the SCS library and other archives including the University of Hawai‘i at Mānoa’s Hamilton Library, the State Historic Preservation Division (SHPD) library, the Hawai‘i State Archives, the State Land Survey Division, and the archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and photographs and primary and secondary historical sources. Information on Land Commission Awards (LCAs) was accessed through Waihona ‘Aina Corporation’s Māhele Data Base (www.waihona.com) as well as a selection of SCS library references.

Research for the cultural context section centered on Hawaiian activities including: religious and ceremonial knowledge and practices; traditional subsistence land use and settlement patterns; gathering practices and agricultural pursuits; as well as Hawaiian place names and mo‘olelo, mele (songs), oli (chants), ‘ōlelo no‘eau (proverbs) and more. Hawaiian place names were researched using Pukui et al.’s (1974) *Place Names of Hawai‘i*, but additional place-name translations and interpretations were also gleaned from Soehren’s “Hawaiian Place Names” database on the internet (http//www.ulukau.org) in addition to historical maps, Land Commission documents available at the archival sources listed above such as the Hawai‘i State Archives, and on the internet.

1.6 Community Consultation and Ethnographic Research

Community outreach inviting participation in this CIA began in October 2017 and was conducted by SCS and LXGR. Interviews and brief consultations for the report were performed by the first author from October thru December 2017. For details on the community outreach process see section 1.15 Community Outreach and Consultation and Table 1.

1.6.1 Sampling and Recruitment

Initially a list of potential participants was generated based on the researchers’ experience conducting CIA studies in the project area and vicinity. Kūpuna and kama‘āina with generational ties to, and extensive knowledge of, the project area and the surrounding ahupua‘a – cultural and lineal descendants, sugar plantation workers and historians, cultural practitioners, community representatives, organizations and agencies – were identified for the community outreach effort.

A combination of qualitative methods, including purposive, snowball and respondent-driven sampling (RDS), were used to identify and invite potential participants to the study. These chain referral methods entail asking a few key individuals (including agency and organization representatives) to provide their comments and referrals to other locally recognized experts or stakeholders who would be likely candidates for the study – or in the case of RDS – requesting key consultants to in turn contact and/or invite participants (Bernard 2011:147-149). For this study, in a few instances convenience sampling was also employed to learn more about the project area and initiate consultations (Bernard 2011:191-192).

1.6.2 Informed Consent Protocol

An informed consent process was conducted as follows: 1) before beginning the interview the lead researcher (Gollin) explained to the participant how the consent process works, the project purpose, the intent of the study and how his/her information will be used; 2) the researcher gave him/her a copy of the Information Authorization and Release Form to read and sign (Appendix A); 3) if the person agreed to participate by way of signing the consent form or by providing oral consent, the researcher started the interview; 4) the interviewee received a copy of the Information Authorization and Release Form for his/her records, while the original is currently stored with LXGR and will be provided to SCS at the close of the study for permanent record; 5) after the interview was summarized, the study participant was afforded an opportunity to review the interview summary and to make any corrections, deletions or additions to the substance of his/her interview; this was accomplished primarily via phone, post or email follow-up and secondarily by in-person visits especially with kūpuna (elders); 6) participants received the final approved interview and photographs for their keeping. If an interviewee agreed to participate on the condition that his/her name be withheld, procedures were taken to protect his/her confidentiality. For this CIA, no participants requested confidentiality. At completion of the project, interview participants will be sent ‘mahalo’ cards and – in the case of more in-depth interviews – a gift of appreciation, or makana (gift or present) as well as information on how to view the report on the OEQC website once the report is a public document.

1.6.3 Interview Techniques

Participants were interviewed individually at a place of their choosing. Most interviews were conducted in the home, or occasionally at the participant’s office or other location. The interview typically lasted 30 minutes to one hour. The interviews were recorded with a Smartphone digital-recorder app and in handwritten notes. The audio-recordings were transcribed, and the transcriptions used as a reference to create the interview summaries. The recordings are kept in a safe place with the lead researcher (LXGR) and will be deleted at the completion of the project.

As much as possible, the order of the interview questions followed the natural course of conversation to fit the interests and expertise of the participant. To assist in the discussion, the

interviewer brought large-scale photographs and maps of the project area (see Figures 1 through 3) for the participant’s reference and to aid the participant and interviewer in pinpointing specific areas of interest or concern. In addition to the questions outlined below, the interviewee was asked to provide biographical information (e.g., connection to the study area, genealogy, professional and volunteer affiliations, etc.).

Semi-structured, structured and open-ended questions (following Bernard 2011) were asked about the participant’s: 1) connection to the project area and environs, including individual and family/genealogical ties to the area; 2) current and past activities in the project area; 3) childhood memories or family stories of the area; 4) knowledge of past and present land use, cultural sites and past or present cultural resources and practices in the project area; 5) concerns and mitigation recommendations regarding the proposed project in relation to potential impacts to cultural practices and resources as well as other important uses (e.g., educational, recreational, community) linked to cultural-natural resources and practices and the historic significance of the sugar plantation era; and, 6) referrals to other knowledgeable parties.

Environment, Land Use, Cultural History and Archaeology

1.7 Environmental Setting

The following sections provide brief contextual information on the study area starting with the natural and anthropogenic environment.

1.7.1 Location: Natural and Built Environment

The project area is located on the southern portion of the windward (east) side of the island of Kaua‘i. The project area is situated approximately 2.0 miles inland at an elevation of approximately 200 feet amsl. This area is currently used as a paved asphalt parking lot for the County of Kaua‘i worker vehicles and heavy equipment storage. The project area also includes landscaped grass areas with drainage swales. The project area occupies approximately 1.46 acres of land along Pua Loke Street in Līhu’e.

1.7.2 Climate

Temperatures in the project area range from the high 40 to the high 80 degrees Fahrenheit in the winter months. Summer months see temperatures ranging from 60 to the high 90 degrees Fahrenheit. According to the Giambelluca Rainfall Atlas (2013), the project area receives a men annual of 48.68 inches (1236.4 mm) of rainfall annually.

1.7.3 Soils

According to Foote et al. (1972: Sheet Number 31; Figure 4) the project area is comprised of soils of the Lihue Series, specifically Lihue silty clay, 0 to 8 percent slopes (LhB). In general, the well-drained, volcanic soils of the Lihue Soil Series occur in the higher elevations on Kaua‘i Island. Lihue Soils can be found between sea level and 800 feet above mean sea level (amsl) in areas receiving 40 to 60 inches of annual rainfall (Foote et al. 1972:82). The LhB soils exhibit a moderately rapid permeability, slow runoff, and a very slight erosion hazard. These soils are commonly used for the cultivation of sugarcane, pineapple, vegetable and fruit farms, ranchlands, wildlife habitats, and as residential areas (Foote et al. 1972:83).

Figure 4: USDA Soil Survey Map (Foot et al. 1972: Sheet Number 31) Showing Soil Types Within Project Area.

1.8 Oral Histories (Moʻolelo) and Storied Places (Wahi Pana) of Nāwiliwili Ahupuaʻa

Wahi Pana can be defined as celebrated or noted places or locations (Pukui and Elbert 1986:313, 376), and refers to legendary places or landmarks of historical significance. These places of note have distinctive features (i.e., mountain peaks, streams, wind, rain, etc.) that are given specific names through which the history of an area is passed down from generation to generation through chants, legends, and songs.

The project area is located in Nāwiliwili Ahupuaʻa, which literally means "the wiliwili trees" (Pukui et al. 1974:164). According to Wichman (1998: 58), the ahupuaʻa was famous for its grove or wiliwili trees. Wichman (1998:59) states that the full name of the ahupaʻa was Nā-wiliwili-paka-ʻāwili-lauʻili-lau, which means "wiliwili trees upon which raindrops fall, twisting the leaves so the rain touches both sides."

The wiliwili tree (*Erythrina sandwicensis)* is classified as a species of the flowering pea (legume) family. The tree has pea-like flowers that range in color from red to orange and from yellow to white. The bright red seed pods were, and still are, used to make ornaments of personal adornment in the form of necklaces (Wichman 1998:58).

In his discussion on surfing, Buck (1964:384) cites Ellis (1839:369-371), who states that he (Ellis) described surfboards on the Island of Hawaiʻi as:

> generally five or six feet long, and rather more than a foot wide, sometimes flat, but more frequently convex on both sides ….usually made of the wood of the Erythrina (wiliwili) stained quite black, and preserved with great care.

Buck (1964: 384) also cites one of the most influential American surfers, Tom Blake. Blake (1935), notes in his book on the Hawaiian surfboard that the consensus among the surfing illuminati was that traditionally long boards (olo) were made from wood from the koa (Acacia koa) tree and short boards (alaia), which ranged from 6 to 9 feet, were made from the wood of the wiliwili tree. The reason behind this being that the wood from the wiliwili tree was very light.

Kuhiau ("I gesture") Heiau (described in the Previous Archaeology discussion), is said to be one of the oldest heiau on the Island of Kauaʻi (Wichman 1996:59). Wichman (1996:59) places the location of the heiau as the site of the current Līhuʻe High School. Traditionally, heiau were not in continuous use, but were reconstructed for specific ceremonies. That was not the case with Kuhiau Heiau. During the pre-Contact Period (pre-1778), this heiau was in continual use. Wichman (1996:59) states that even today, the sound of the pahu (drum) can still be heard at night and the akua lele (flying gods), in the form of flashing lights, can still be seen. A nearby rock, called Pua-kini, was where the kahuna nui (high priest) for the heiau lived. While no longer visible, Puakini can still be seen in old photographs.

According to Handy and Handy (1972: 260), there were a number of famous fishponds in Nāwiliwili. E.S.C. Handy (cited in Handy and Handy 1972: 23) relates a "charming story" that Mary Kawena Pukui liked to tell a about a Hawaiian friend of hers that lived near Nāwiliwili on Kauaʻi. This friend of Mrs. Pukui was:

> a gardener for whom everything will grow, even plants from the upland which no one else can make grow in the lowlands. His home is just below the Menehune Fishpond, and he calls his garden the "Menehune Garden." Actually the name of the locality is Papalinahoa, which was the name of a reptile goddess (moʻo-wahine) who in ancient times lived in a pool there. As he works in his garden he talks to his plants. Perhaps it is a peculiar variety of hau, from the upland, or a native hibiscus from the forest, or an upland Hawaiian sugar cane he is planting. He will say in Hawaiian, "Now grow for papa. I make you a good bed, nice and soft: so you grow for papa. I make it good and soft for you, baby. Now grow for papa." And they grow!

Niumalu Fishpond (Bennett Site 98) is one of the most famous fishponds located in Nāwiliwili Ahupuaʻa. The fishpond was formed by damming a bend in the Hulēʻia River, which flows into Nāwiliwili Ahupuaʻa just before it enters Nāwiliwili Bay (Bennett 1931:124, Handy and Handy 1972: 426). It is believed that Bennett (1931) erroneously named the *heiau* Niumalu as it is located in close proximity to Niumalu Ahupuaʻa. Bennett (1931:124) describes the fishpond as principally consisting of :

> a stone-faced, dirt wall that runs for over nine hundred yards and cuts off a large bend in the river for use as a fish pond. It is to-day used both for fish and ducks. Cement walls and iron gates have obscured any old method of controlling the water or the fish. Between the west end of the wall and the shore there is 50 yards of shallow and reedy swamp land. The dirt wall runs, unfaced with stones, for 145 yards, whereupon the stone facing starts on the outside. The dirt wall is 5 feet above the water level, 4 feet wide on top, and the dirt slants up on the sides. The facing wall starts with a single row of stones but soon becomes of double thickness as it gets farther out into the river and the current starts to be effective. The stones also become larger until the double layer is 2 feet thick. The stone facing only on the outside, is 5 feet high in most places, and quite perpendicular. The stones are not uniform in size but are fitted together quite well. The stone facing runs only for 588 yards though the dirt wall continues beyond.

According to Rice (1923: 36-37 cited in Handy and Handy 1972:426), the correct name of the pond is Alakoko. Handy and Handy (1972:426) further state:

> It is said to that Menehune built it, but left a gap at the seaward end unfinished because dawn came before they had completed their work, When the wall was completed many generations later, the stonework which closed the gap was very inferior to that of "the little folk." This difference can be seen today,

Thrum's version of the Hainakolo romance is cited in Beckwith (1970: 506, 509). Thrum's version is presented below:

> Thrum version. Keanini-ula-o-ka-Iani is born at Kuaihelani of Haumea the wife and Ku-wa(ha) -ilo the husband, and brought up by hi adopted parent Makaliʻi until he comes to marriageable age. His maternal grandparents Keaumiki and Keauka sail in a coconut-tree canoe to the Hawaiian group, visit each island in turn to view the recognized beauty of each, and finally arrive at Waipio on Hawaii during a tapu season. They are seized and bound, but Olopana recognizes them and they find in his sister Hainakolo a suitable bride for their ward. Keanini comes to Waipio after his bride. The couple return to Kuaihelani, where a son, Lei-makani, is born. Keanini goes to live with a former sweetheart, daughter of Makaliʻi, and Hainakolo and her son return to Hawaii. The canoe capsizes in midocean.
>
> Mother and son swim the ocean, reaching first Niʻihau, then Nawiliwili on Kauai, where they take canoe and eventually arrive at Waipio. The story proceeds as in the two other versions. Luʻukia is represented as a chiefess of Hamakua.

Nāwiliwili is also mentioned in the Legend of Kapunohu (Fornander 1918-1919 Vol. 5: 214-225):

> After the death of Olopana, Kapunohu left Oahu and journeyed to Kauai. Boarding his canoe he set sail and first landed at Poki, in Waimea; from this place he continued on to Wahiawa and then on to Lawai in Koloa where he settled down. There lived at this place a great warrior, by the name of Kemamo, who was noted for his great strength and skill in the use of the sling; he was without equal in its practice; his left hand was considered better than his right, and he could throw a stone for a distance of six miles and in the seventh mile its force ceased. No person in Kauai was found who could face him, not from amongst the chiefs or soldiers. Because of this man people were afraid to travel between Koloa and Nawiliwili; those on the Koolau side could not pass over to Nawiliwili and those from the Kona side were afraid to travel toward the Koloa side, for the reason that Kemamo and his wife Waialeale lived between Koloa and Nawiliwili.

The Legend of Kapunohu is presented in its entirety in Appendix B.

1.9 Past Political Boundaries

In general, several terms, such as moku, ahupuaʻa, ʻili or ʻiliʻāina were used to delineate various land sections. A district (moku) contained smaller land divisions (ahupuaʻa), which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the ahupuaʻa were therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each ahupuaʻa to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The ʻili ʻāina or ʻili were smaller land divisions next to importance to the ahupuaʻa and were administered by the chief who controlled

the ahupuaʻa in which it was located (Lyons 1875: 33; Lucas 1995:40). The moʻoʻāina were narrow strips of land within an ʻili. The land holding of a tenant or hoa ʻāina residing in an ahupuaʻa was called a kuleana (Lucas 1995:61).

1.10 Subsistence and Settlement Patterns

Archaeological settlement pattern data indicates that initial colonization and occupation of the Hawaiian Islands first occurred on the windward shoreline areas of the main islands between the A.D. 4th and 11th centuries, with populations eventually settling in drier leeward areas during later periods (Kirch 1985). Although coastal settlement was dominant native Hawaiians began cultivating and living in the upland kula zones. Greater population expansion to inland areas began between A.D. 11th and 12th centuries and continued through the 16th century. Large scale or intensive agriculture was implemented in association with habitation, religious, and ceremonial activities.

Previous archaeological and historical research within and near the project area provides a summary of past traditional and historic land use patterns and events occurring in the general project area. The traditional setting is more so a culmination of data gleaned through archaeological and historical survey and is mostly presented further below (see Previous Archaeology section). This information is briefly presented below.

Līhuʻe, the current central seat of the County's government and commercial center, is translated as “cold chill” (Pukui et al. 1974). The settlement was established in 1824 by High Chief Kaikioewa, who was appointed governor of Kauaʻi by King Kamehameha III (Kauikeaouli) (Kikuchi 2004). The governor named the place “Lihue” after his previous home in Wahiawa, Oʻahu. As Kikuchi (2004) notes, the date 1824 is important as it marked the death of Kaumualiʻi, Ruling Chief of Kauaʻi, who bestowed the island to Kamehameha, thus unifying all the islands under one ruling chief. Hammatt (2005:7) also notes that the proper name “Lihue” appears in the “Legend of Uweuwelekehau” where the protagonist and his wife, Luukia, are punished and stripped of clothing and sent to Mana, on the western side of the island. When they reach the Lihue plains, Luukia complains of having no clothes and Uweuwelekehau tells her that they can procure kapa from a small hill nearby (Fornander 1918-1919 Vol. 2:96-97).

Prior to Western Contact, Nāwiliwili Ahupuaʻa was heavily cultivated with a full range of traditional Hawaiian crops. Remnants of past cultivation litter the valley from mountain to sea. In his historic observation of Nāwiliwili Valley, Handy (1940) describes inland Nāwiliwili as “formerly all in terraces” while nearer to the sea, “three Hawaiian taro planters cultivate wet taro in a few small terraces” (Handy 1940:67). Handy and Handy (1972) further describe the valleys as hosting stands of breadfruit trees and bananas, remnants of past arboriculture, while the upper portion of flat lands was once densely terraced. Arboriculture must have played a large role in the society at Nāwiliwili long ago.

1.11 Early Historic Period

In her short manuscript, The Kaua‘i Papers (1991), Mary Girven Rice enumerates the early history of Līhu‘e. In summary of Rice’s description, Līhu‘e was a sleepy town in the early 1850s. While there were dense villages of natives, including the village of Pualoki, relatively few westerners had settled the region by this time. The landscape was quite untouched by invasive species, being vegetated densely in native species of koa (*Acacia koa*), sandalwood (*Santalum* spp.), and hau (*Hibiscus* spp.). Native subsistence practices, particularly fishing and cultivation of taro (*Colocasia esculenta*), drove the economy (Kaua‘i Historical Society 1991).

During the early years of Līhu‘e, several European settlers attempted to start farm industries in the area. A meager coffee farm was attempted by Mr. Godfrey Rhodes in 1830. Following the failure of this endeavor, Hoffchlaeger & Company began cattle ranching and supplying dairy products, beef, and hide to whalers in the area. While this endeavor was marginally successful, with as many as 700 head at one time, ranching did not become a major industry in this area (Kaua‘i Historical Society 1991).

1.11.1 The Māhele

The transition from traditional Hawaiian communal land use to private ownership and division was commonly referred to as the Māhele (division). The Māhele of 1848 set the stage for vast changes to land holdings within the islands as it introduced the foreign (western) concept of land ownership to the Islands. Although it remains a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall Vol. I, 1938:145 footnote 47, 152, 165–166, 170; Daws 1968:111; Kelly 1983:45; Kame‘eleihiwa 1992:169–170, 176).

For natives that had been cultivating and living on the lands, lengthy and costly procedures enabled them to (possibly) claim some of the plots. The first Land Commission was formed in 1845, during which time all individuals holding land were required to submit their claims or forfeit their lands. Once lands were made available and private ownership was instituted the maka‘āinana were able to claim the plots on which they had been cultivating and living, if they had been made aware of the foreign procedures (kuleana lands, Land Commission Awards, LCA). These claims could not include any previously cultivated or presently fallow land, ‘okipū (on O‘ahu), stream fisheries or many other resources necessary for traditional survival (Kelly 1983; Kame‘eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed Land Commission Award (LCA), issued a Royal Patent number (RP), and could then take possession of the property (Chinen 1961:16).

The land that maka‘āinana received was less than one percent of total lands, all of which needed to be surveyed. A total of 88,000 people submitted 14,195 requests for land and of these

only 8,421 were awarded (Kameʻeleihiwa 1992:295). In 1850, it became legal for foreigners to purchase land and they received large portions for diminutive prices. At this time, many Native Hawaiians lost access to their lands due to mortgage default.

1.11.2 Land Commission Awards (LCAs)

The Māhele statute paved the way for the private ownership of land [awarded claims were called Land Commission Awards]. A search of the Waihona Aina Database According to the Waihona Aina Database (2018) thirty-three land claims were made in Nāwiliwili Ahupuaʻa. The Office of Hawaiian Affairs (OHA) Kipuka Database (2018) states that Victoria Kamamalu claimed, and was awarded, Nāwiliwili Ahupuaʻa, with the exception of the kuleana lands, under LCA 7713/Royal Patent4478, in 1861 (Appendix C).

Land Grant

Land Grant 188, comprised of 1,872 acres, was purchased by William L. Lee in 1849 (Kipuka Database 2018, Waihona Aina Database 2018). The southern portion this grant was located in the ʻili of Hulēʻia, within Nāwiliwili Ahupuaʻa, which includes the current project area (Kipuka Database 2018). The northern portion of the grant is located in the immediately adjacent ahupuaʻa of Kalapakī. There are conflicting accounts of the location of Hulēʻia ʻIli. According to John Clark's Hawaiʻi Place Names, Hulēʻia is within Nāwiliwili Ahupuaʻa. However, Lloyd Soehren's Hawaiian Place Names assigns Hulēʻia to Haʻikū Ahupuaʻa (Helen Wong Smith, State Historic Preservation Division Librarian, personal communication).

1.12 Plantation Era

In 1849, the first sugar plantation in Līhuʻe was formed as a partnership between Charles Reed Bishop, Judge William L. Lee, and Henry A. Pierce of Boston (Hawaiian Sugar Planter's Association, Plantation Archives 2013). General J.F.B Marshall was the first plantation manager of record and started on 2,000 acres of land from the estate of Governor Kekuanaoa. Over the coming four decades, this small business grew to over 30,000 acres. Corresponding with the growth of this plantation, reservoirs, ditches and tunnels were engineered to feed water to the growing fields, and plantation workers were imported from China, Japan, the Philippines, and Portugal (Note: from 1853-1859, the laborers in the fields were exclusively Hawaiians while Chinese workers operated the mill [Hawaiian Sugar Planter's Association, Plantation Archives 2013]). After 1900, c. 1,600 workers were employed by the plantation, including Japanese, Portuguese, Hawaiian, Korean, and Puerto Rican workers. The economy produced by the Lihue Plantation at last propelled Līhuʻe Town into a major population center in Kauaʻi (Kauaʻi Historical Society 1991), all on the richly arable soils of Līhuʻe and Nāwiliwili.

Grove Farm Plantation, named after an old stand of kukui trees, was established in 1850 by Warren Goodale. In 1864, George Wilcox leased Grove Farm Plantation from subsequent owner Judge Widemann, and rapidly expanded development of the Plantation’s irrigation ditch infrastructure. By 1881, lease and land purchases by George Wilcox in the Haiku Ahupua‘a increased the acreage of Grove Farm Plantation nearly ten-fold. Grove Farm Plantation ended its sugar business in 1974, setting aside lands for development and also for the continuation of sugar cultivation by leasing its Līhu‘e lands to Lihue Plantation Company, Ltd., and its Kōloa lands to McBryde Sugar Company, Limited.

Based on a series of historic maps (figures 5 through 12), the current project area parcel appears to be split between Grove Farm plantation fields and the former highway route (at times the road through the project area would have been part of the former Government Road, the Belt Road, or later, Nawiliwili Road). In all of these maps a very distinct sweeping curve is visible where the Government Road bends south toward Nawiliwili Harbor with a side road (Haleko Road) branching to the east which curves past the Lihue mill and up into Lihue Town. The early (1900, 1901, and 1910) maps show a rail line curving around the edge of Grove Farm’s field and south along the road toward Nawiliwili Harbor; this rail line lies just west of the road corridor. The current project area lies where the road and rail lines turn south by Haleko Road.

While portions of Lihue Town date to the early-mid-19th Century, these maps show that, the project area lay on the very western fringe of urban development until the 1980s, when former Grove Farm fields west of the project area were developed to create the Kukui Grove Shopping Center. The 1983 USGS Quadrangle map shows the Kukui Grove Shopping Center accessible only from Kaumualii Highway, on the north side of the center; Highway 58 (today’s Nawiliwili Road) branches south from Kaumualii Highway to Nawiliwili Harbor following the old road alignment that passes through the current project area. The 1996 USGS Quadrangle map shows Nawiliwili Road had been redirected to the west of the old alignment and widened into the corridor it follows today along the eastern edge of Kukui Grove.

1.13 Previous Archaeological Research in the Area

Based on archival research, no previous archaeological studies have been conducted within the current project area, and very few studies have been conducted near the current project area. Figure 13 depicts the location of archaeological studies and sites near the project area.

The earliest island-wide archaeological survey of Kaua‘i Island was conducted in the early 1930s by Wendel Clark Bennett (1931), under the auspices of the Bernice Pauahi Bishop Museum. Bennett (1931:124) placed the location of Kuhiau Heiau (Bennett Site 99) as near the “site of the courthouse” in Nāwiliwili. Thrum (cited in Bennett 1931:124) described Kuhiau Heiau as:

> A large paved heiau, whose enclosure covered the area of about four acres; long since destroyed. The rock Paukini, now separate from but formerly connected

> with the shore, was where the kahuna lived. This is said to have been the largest and most famous on Kauai in its day.

In 1978 Archaeological Research Center, Hawai‘i (ARCH) conducted a reconnaissance survey of an 18-acre parcel approximately 650 m north-northeast of the current project area (Soong 1978). The authors noted that there had been extensive modifications to the area from sugar cane planting; no archaeological sites were found.

In 1989 Spencer Mason Architects completed a survey of historic Kaua‘i bridges for the County of Kaua‘i (only bridges built before 1941 were considered historic during this survey). The study listed three bridges in the Līhu‘e Town area: the Hoomana Overpass Bridge; the Lihue Mill Bridge, and the Lihue Mill Flume Bridge, a steel bridge that was not described further since it was built in 1956, well after the 1941 cut-off date (Spencer Mason Architects 1989:21). Both Hoomana Overpass Bridge and Līhu‘e Mill Bridge were considered Category I bridges, those with the most claims for historic significance. Both were in their original condition, and were considered an “unusual resource” since they were the only two historic bridges on Kaua‘i that were originally built to cross railroad lines.

In 1990, the State Historic Preservation Division) conducted archaeological field checks for three possible locations for a New Kauai Judiciary Building in Nāwiliwili (McMahon 1990). McMahon’s Location 1 was located approximately 300m southwest of the current study area. She identified two sites in this parcel, State Site 50-30-11-9390, the Grove Farm manager’s house, and State Site 50-30-11-9401, another plantation era residence.

In 1991, Paul H. Rosendahl, Inc. (PHRI) conducted an archaeological inventory survey for eight parcels totaling 1,550 acres (Walker et al. 1991). A small portion of the eastern end of Section 1 (mauka Kalapakī) lies approximately 100m north of the current study area. Walker’s report stated that “areas in sugar cane were only sampled … [and] were not generally surveyed... because areas altered by sugar cane cultivation are unlikely to contain archaeological features, and because sugar cane cultivation within the present project area does not occur in low swale or alluvial flat areas that may contain buried cultural deposits (Walker et al. 1991:7).” Ten sites with 14 component features were identified in this survey; no sites were identified in Section 1.

In 1992, Kikuchi and Remoaldo (1992:120-133) completed Volume I of a survey of the cemeteries of Kaua‘i. Four cemeteries were listed near Lihue Town; the Lihue Lutheran Church Cemetery (SIHP50-30-11-B0001), a Japanese cemetery plotted on the 1963 U.S. Geological Survey map that Kikuchi and Remoaldo were unable to relocate (SIHP 50-30-11-B0002), the Līhu‘e Public Cemetery (SIHP 50-30-11-B0003), and the Līhu‘e First Congregational Church Cemetery (SIHP 50-30-11-B0007). In 1993, PHRI conducted an archaeological inventory survey of a 590-acre portion of the former Grove Farm sugar plantation (Henry et al. 1993). Their study area lies approximately 1.0 km southwest of the current study area. Two sites were identified during the survey; SIHP 50-80-11-503 was an historic cemetery for the Japanese and Hawaiian workers at Grove Farm, located approximately 1.4 km south of the current study area and SIHP

50-80-11-9390, an historic residence located approximately 2.0 km south of the current study area, once the residence of Charles Henry Wilcox, a manager at Grove Farm.

In 1998, Cultural Surveys Hawai‘i (CSH) conducted an archaeological assessment of an approximately 11.5 kilometer-long portion of the Kaumuali‘i Highway corridor, a portion of which extends to the north of the current study area (Chiogioji and Hammatt 1998). In this portion of their study area, the archaeologists noted the presence of the Līhu‘e Mill and Hoomana Overpass bridges documented by Spencer Mason Architects, a wooden shed that might be part of the old Kalipaki Camp to the west of Līhu‘e Mill Bridge, and the Līhu‘e Public Cemetery documented by Kikuchi and Remoaldo.

In 2004, a State Historic Preservation Division (SHPD) Review (Log No.2004.3053, Doc No.0410NM10) was issued by SHPD as a National Historic Preservation Act-Section 106 Review in response to an Environmental Assessment for the Kauai Economic Opportunity Emergency Shelter and Transitional Housing Program on Wehe Road (Young 2004). This Emergency Shelter project was located on a parcel on the east side of Pua Loke road just to the east of the southern end of the current project area. SHPD determined that no historic properties were present because residential development/urbanization had altered the land, and that no historic properties would be affected by the Emergency Shelter undertaking. This letter is included as Appendix D of the report.

In 2012, CSH (O’Hare et al.) conducted an archaeological inventory survey of approximately 4.54 acres at the junction of Kaumualii Highway and Ho‘omana Road for the Ho‘omana Road Realignment of the Phase 1 Kaumuali‘i Highway Project. Five historic properties were identified; SIHP 50-30-11-2174 [a flume (Feature A), terrace (Feature B), and culvert (Feature C) associated with water control dating from the Plantation era], SIHP 50-30-11-2175 [a rock and mortar drainage ditch dating from the 1930s], SIHP 50-30-11-2176 [a rock wall dating from the Plantation era], SIHP 50-30-11-2177 [a remnant train bridge dating from the Plantation era], and SIHP 50-30-11-2178 [a sugar cane road and parallel railroad right-of-way (Feature A) and a section of train tracks (Feature B) dating from the Plantation era]. These sites are located approximately 700m northeast of the current study area.

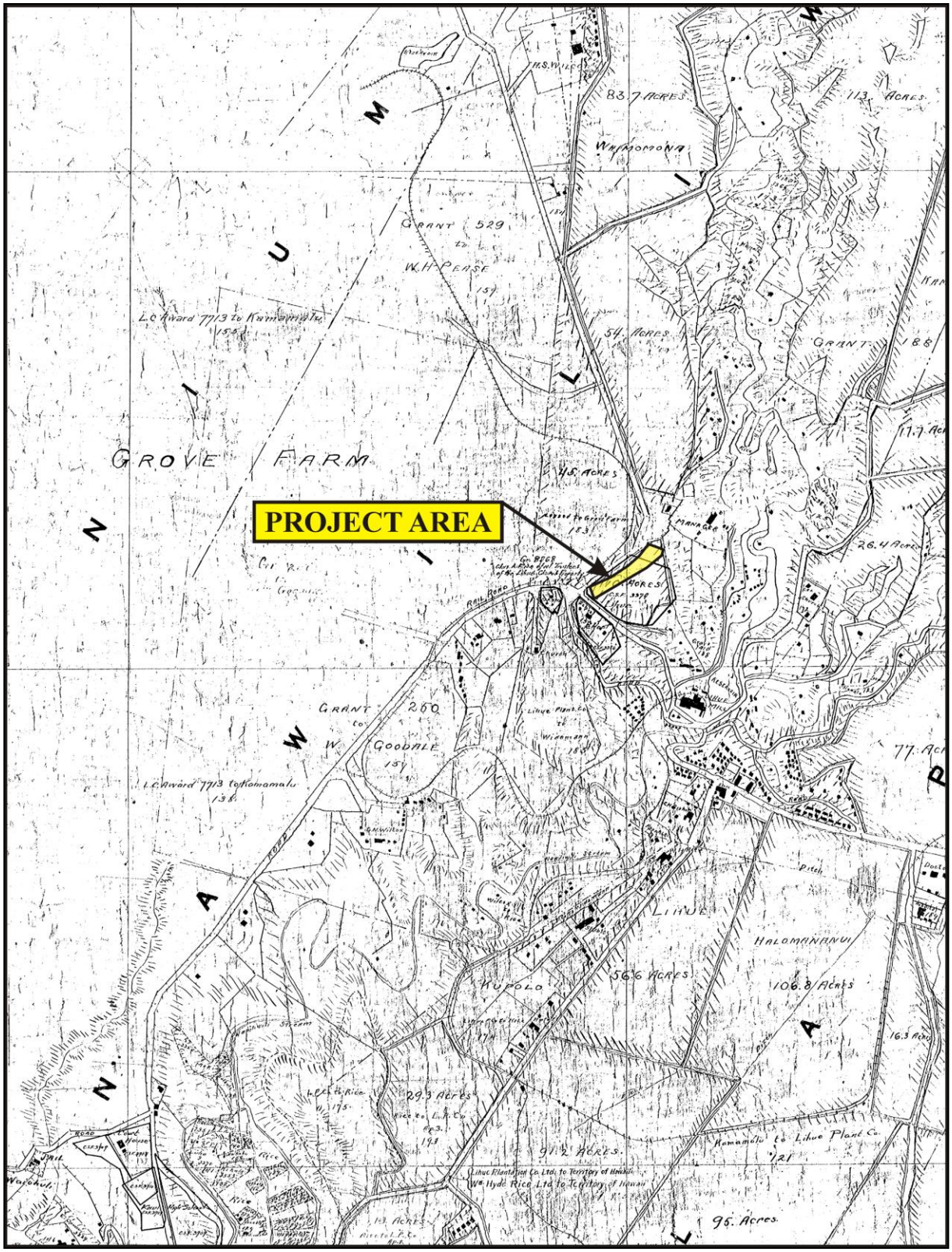

Figure 5 Portion of 1900 M.D. Monsarrat Map of Lihue Plantation showing the project area and its vicinity.

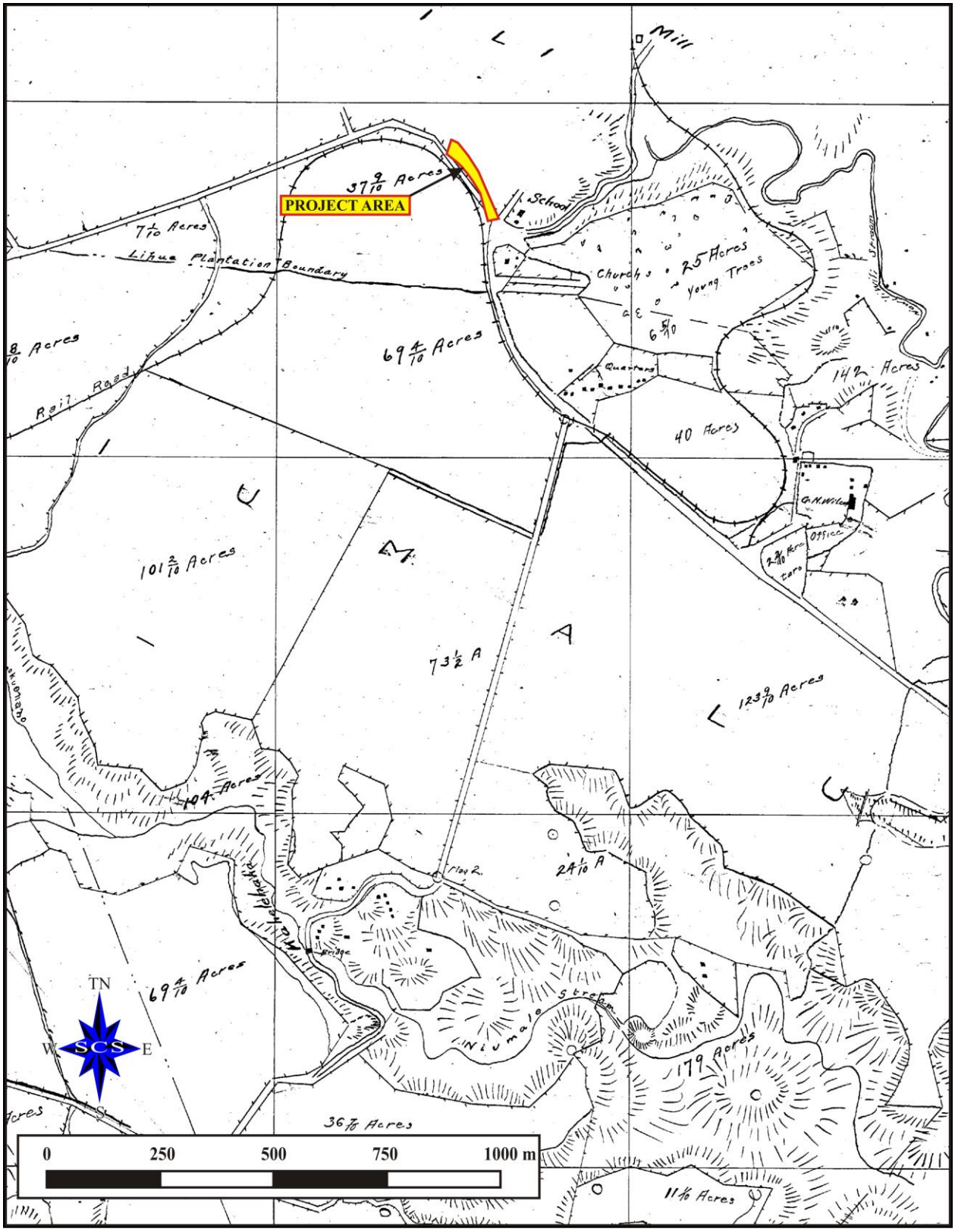

Figure 6: Portion of 1901 W.A. Wall Map of Grove Farm Plantation showing the project area and its vicinity.

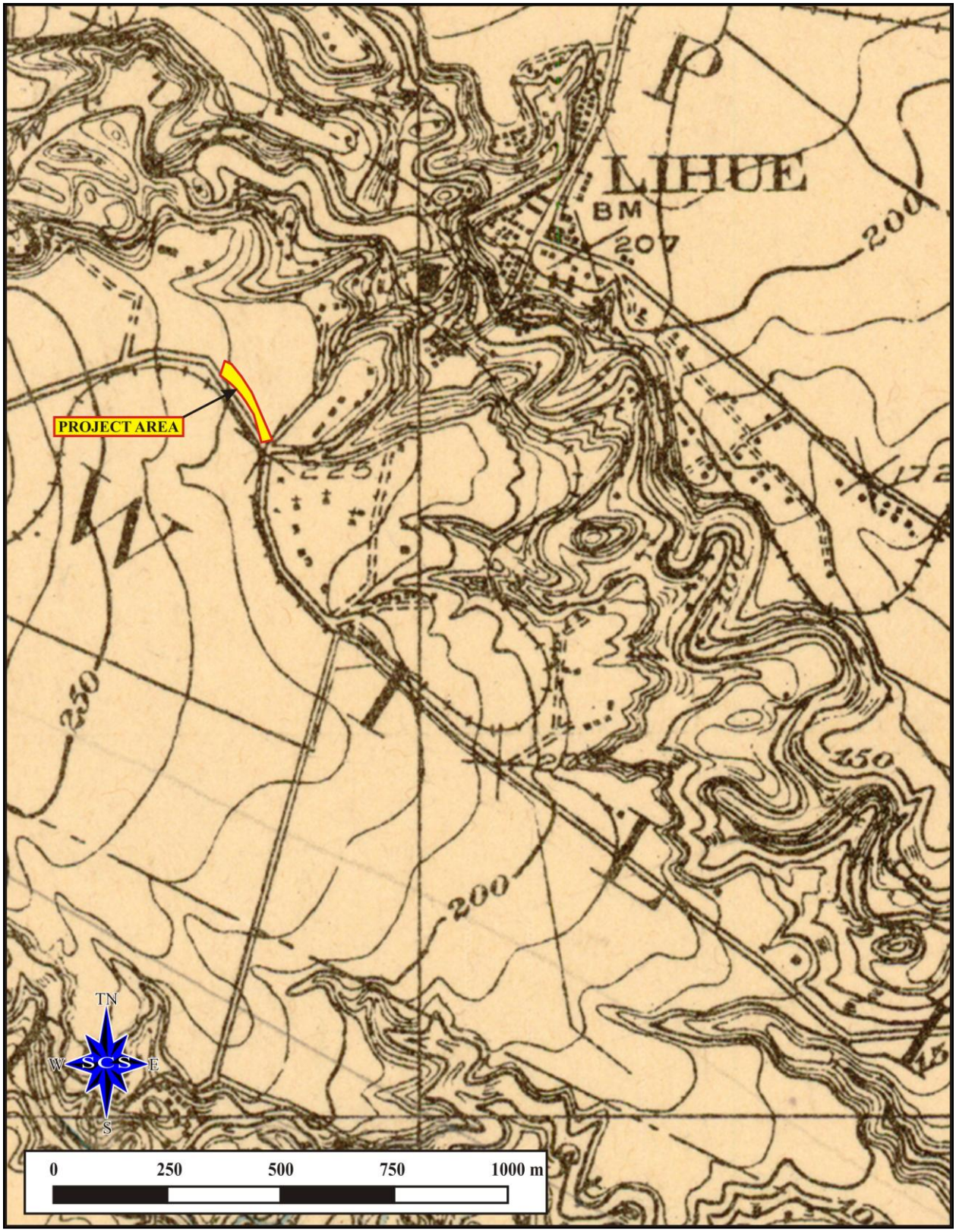

Figure 7: Portion of 1910 USGS Lihue Quadrangle Map showing the project area and its vicinity.

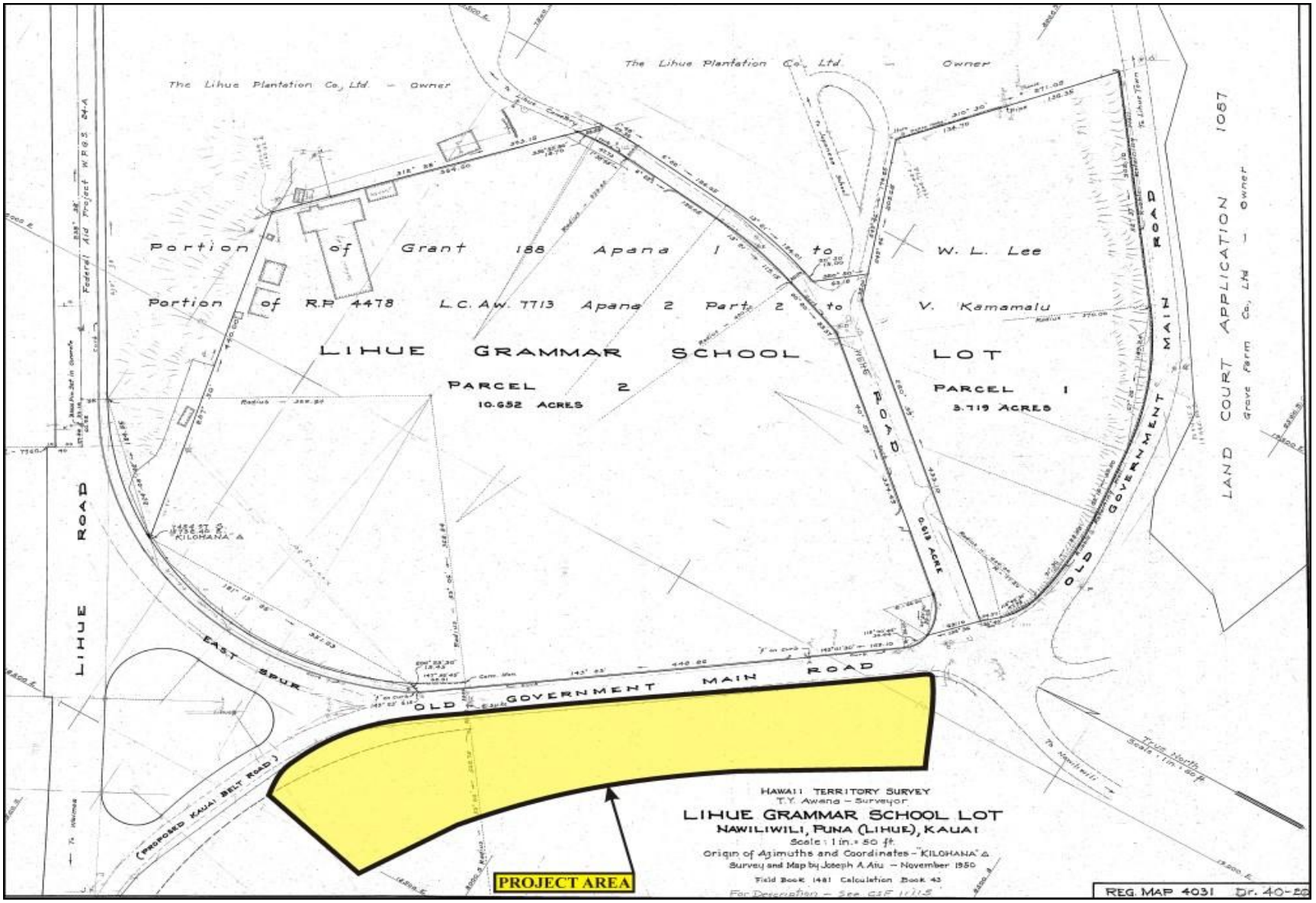

Figure 8: Portion of 1950 Map of Lihue Grammar School showing the project area and its vicinity.

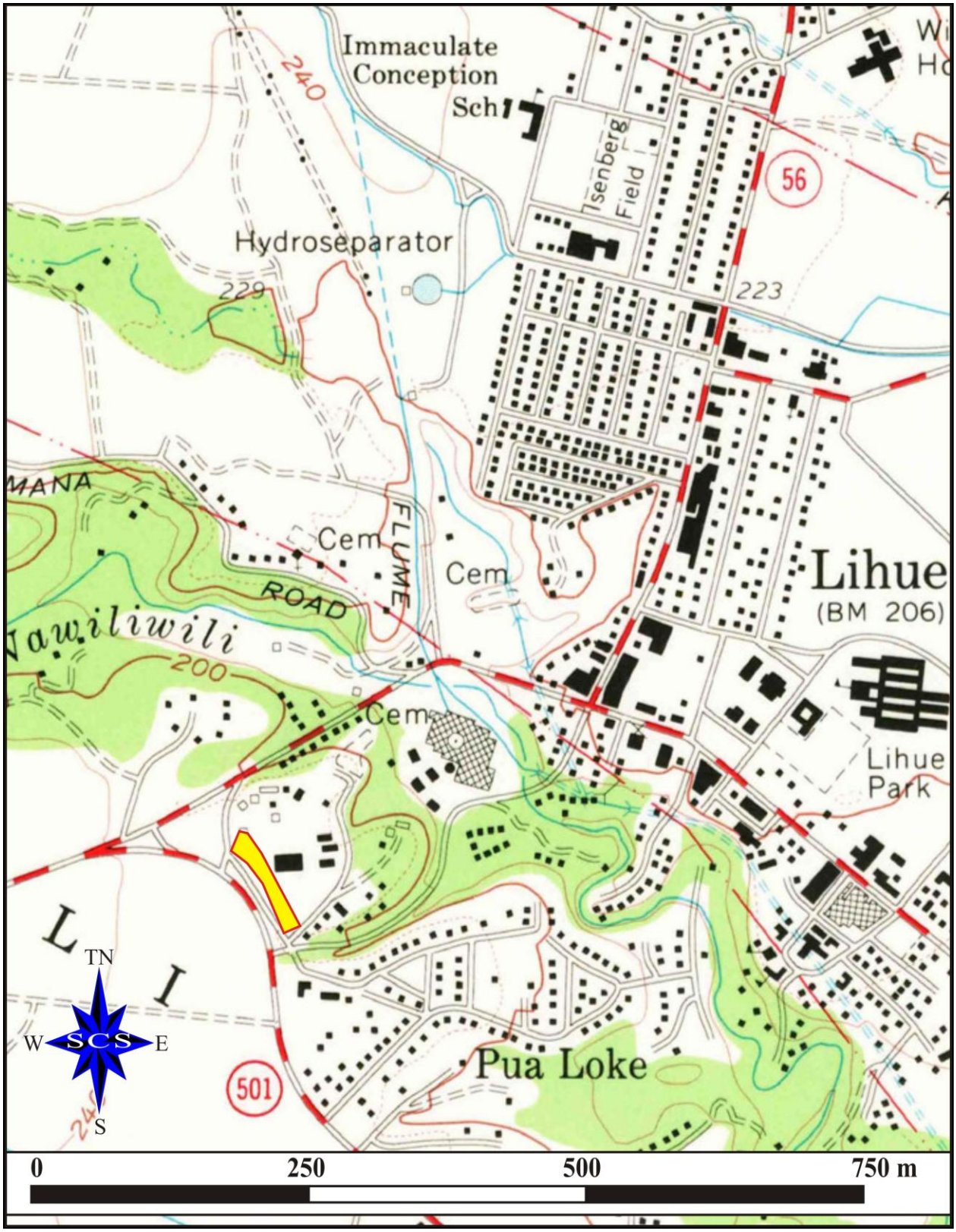

Figure 9: Portion of 1963 USGS Lihue Quadrangle Map showing the project area and its vicinity.

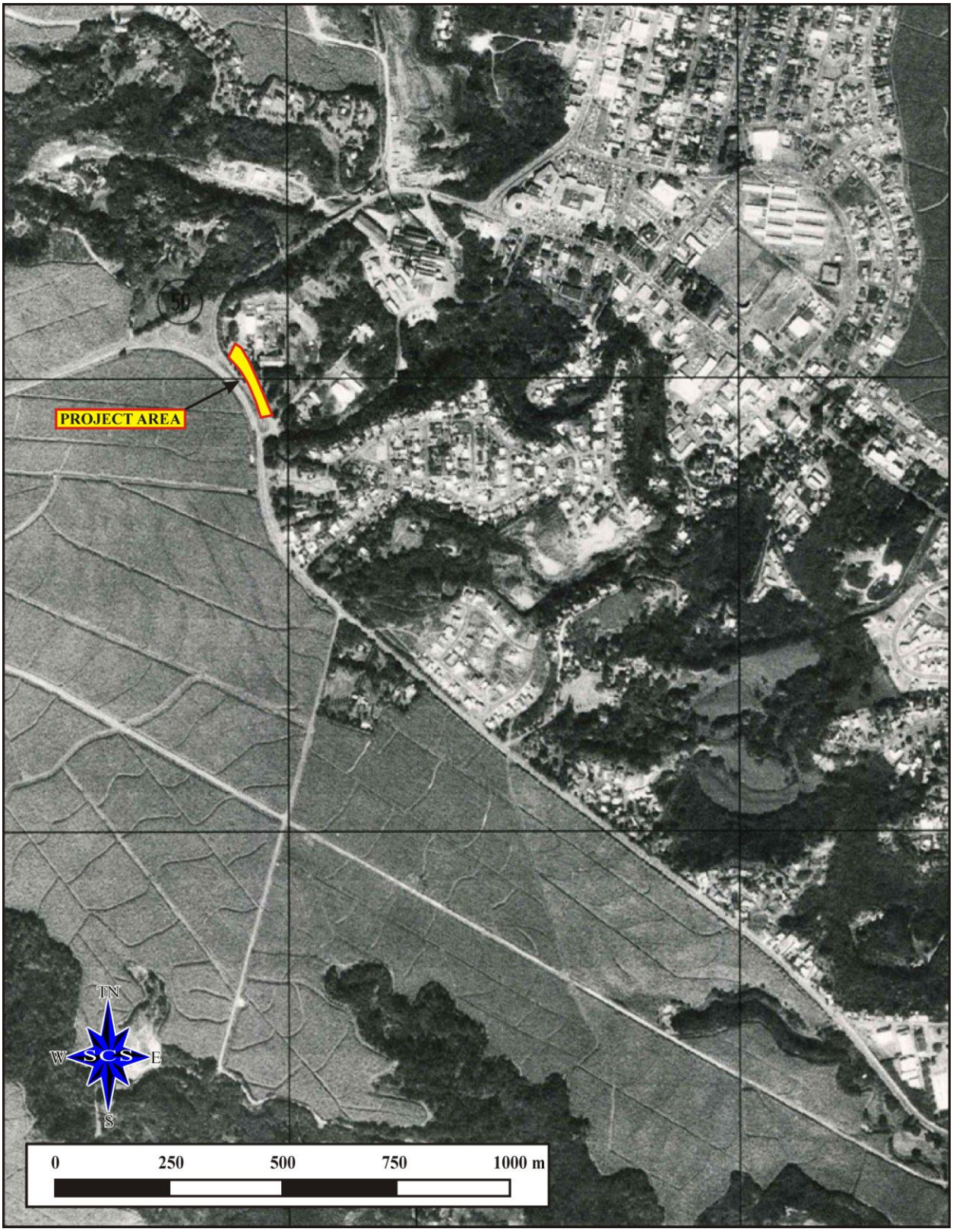

Figure 10: Aerial Map showing the project area and its vicinity.

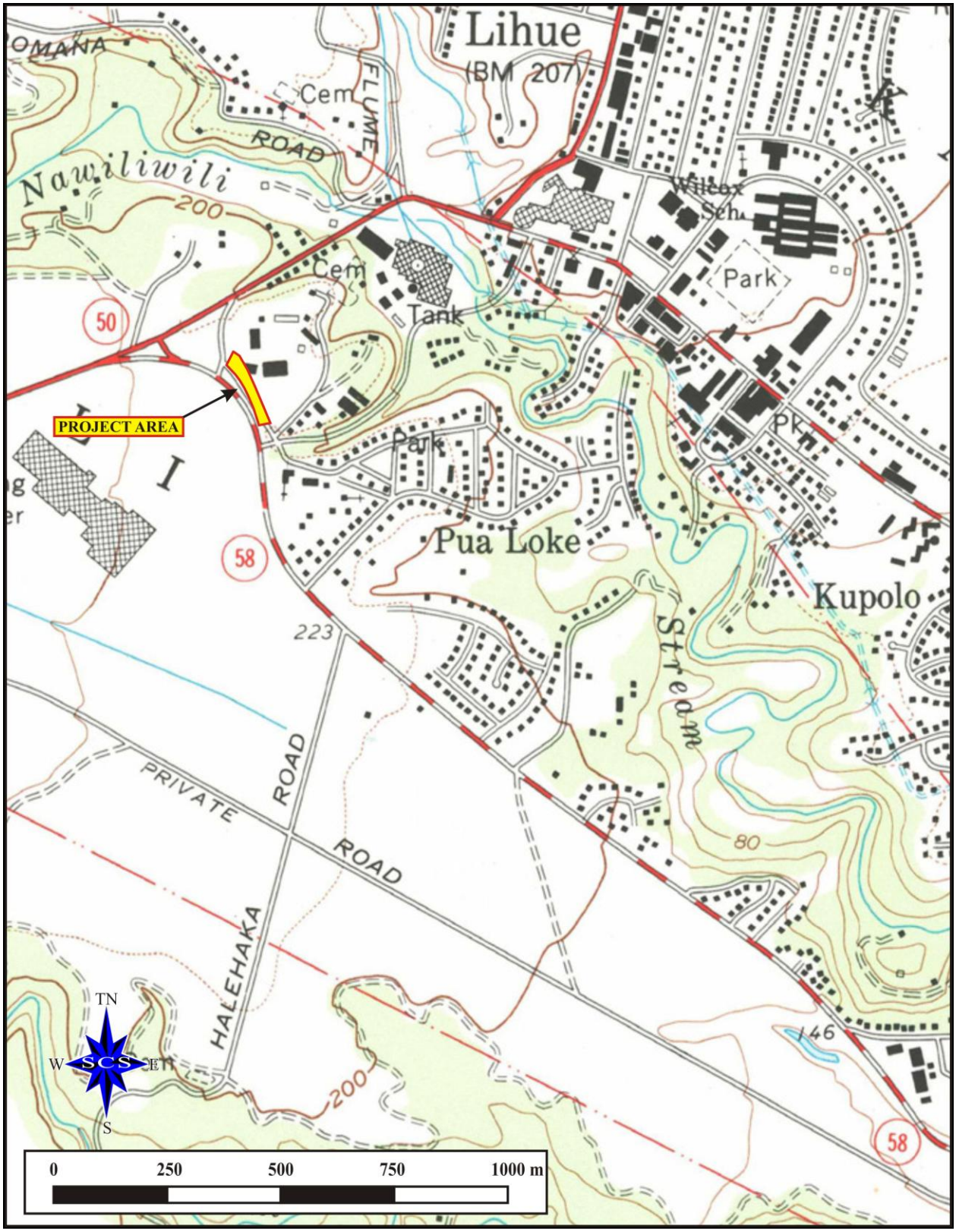

Figure 11: Portion of 1983 USGS Lihue Quadrangle Map showing the project area and its vicinity.

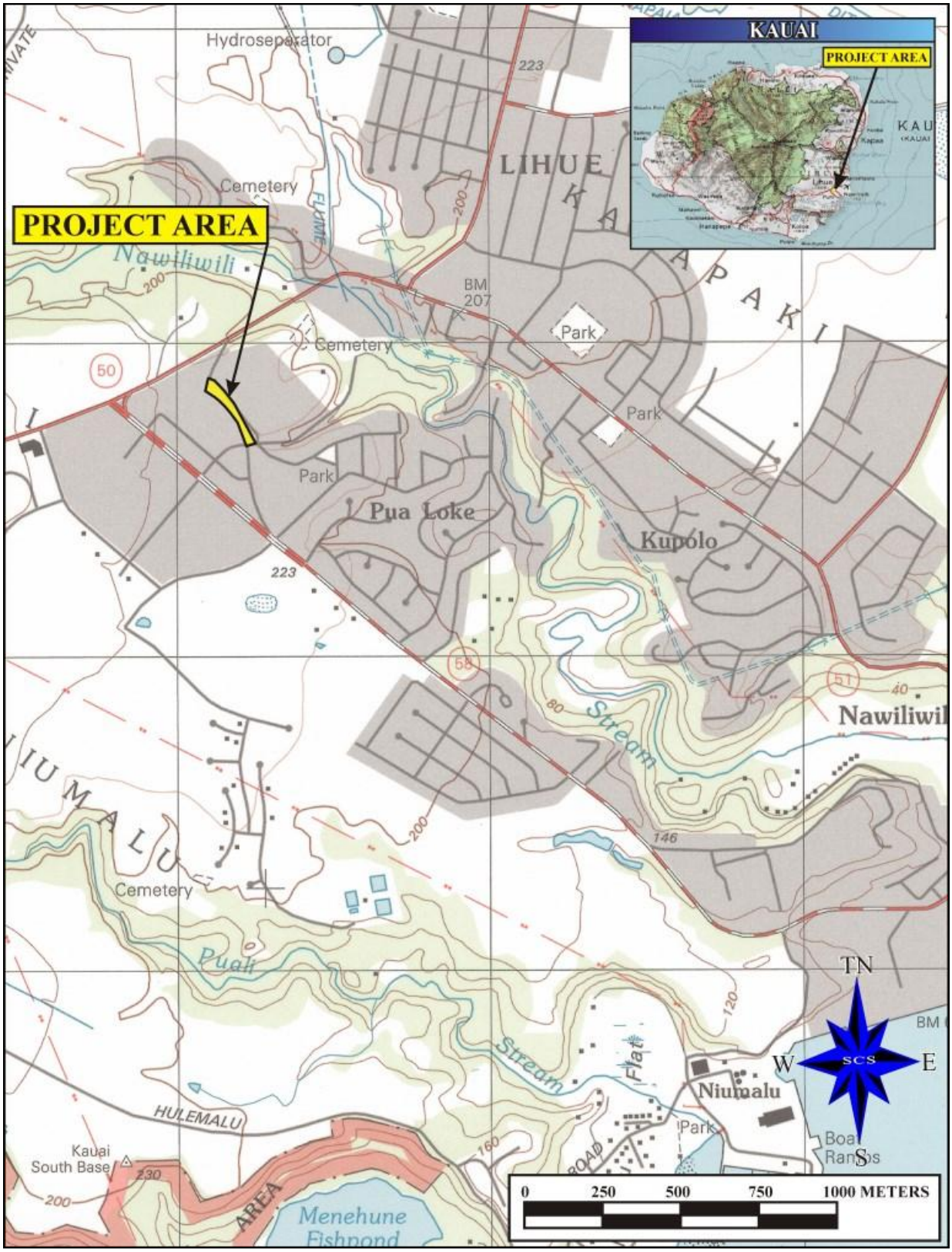

Figure 12: Portion of 1996 USGS Lihue Quadrangle Map showing the project area and its vicinity.

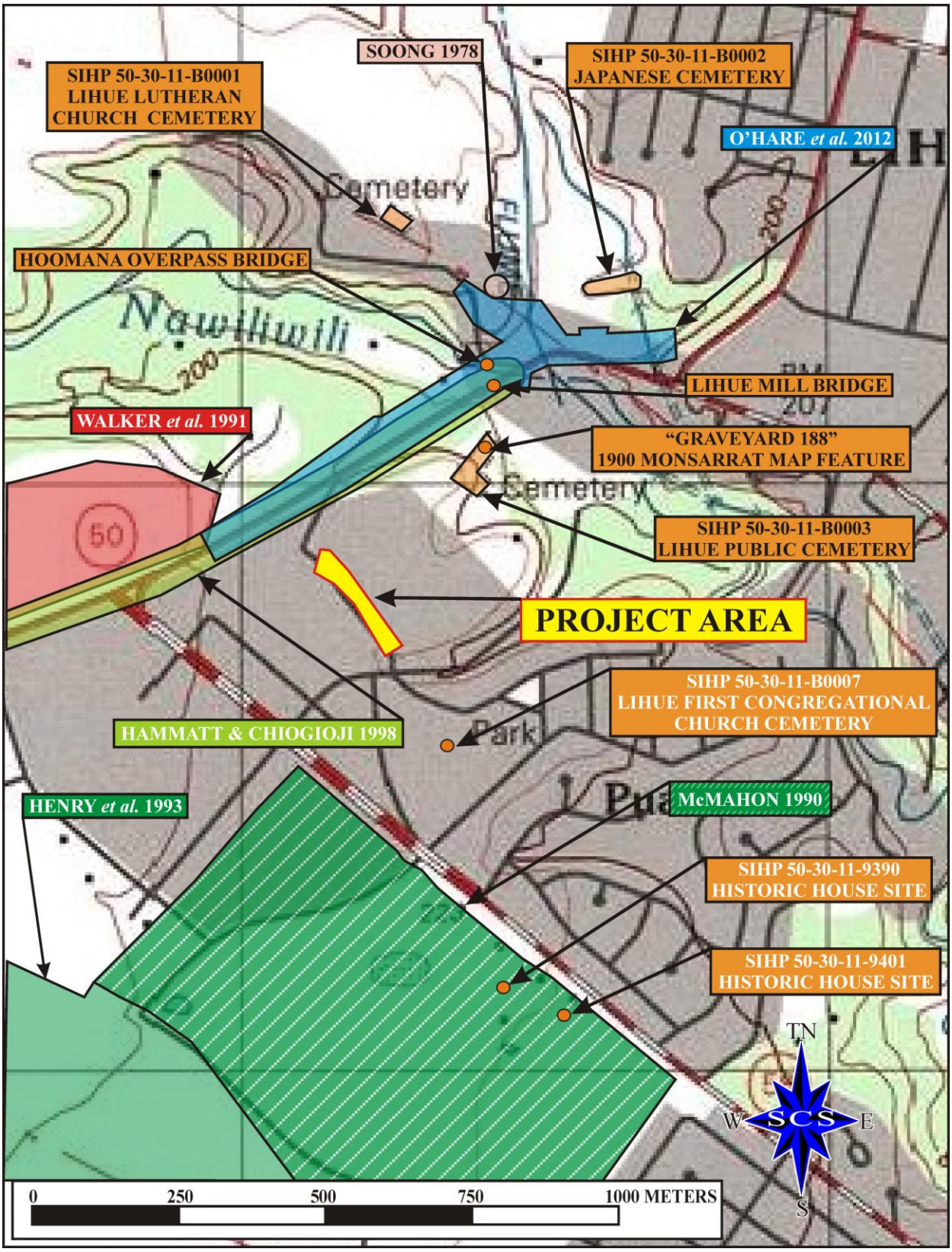

Figure 13: USGS Quadrangle (Lihue, HI 1996: 1:24,000 ft.) Showing Previous Archaeology in the Vicinity of the Current project Area.

Results of Community Consultation and Interview Summaries

1.14 Acknowledgements

The authors of this report express our appreciation and mahalo piha to everyone accessed for this CIA and especially to those who provided referrals, brief consultations and participated in interviews. This project is small relative to most CIA studies. Initially, the response rate was minimal. After all, the proposed project is planned for what is currently a overflow parking lot. And, the need for affordable housing is acknowledged by everyone who responded to our inquiries. Nevertheless, those people accessed for this report gave generously and kindly of their time and provided suggestions for the project proponents. As one person commented, “no project is too small for community not to care.” The authors, in turn, donated additional time and funding to supporting the sugar plantation history by contributing to historical and community organizations as well as moving this effort research forward to address the call for affordable housing on Kaua‘i.

1.15 Community Outreach and Consultation

This section presents the results of the community consultation and interview summaries. Twenty-four individuals and/or agency representatives and other knowledgeable parties were invited to participate in the CIA study via email, telephone calls, or in-person contact. Additionally, attempts were made to locate and contact former sugar plantation workers. A number of these referrals are deceased, infirmed, and/or could not be reached (see Table 1, list of names under Mark Hubbard). Of the 24 individuals or groups contacted, 19 responded (79%). Five people did not respond or could not be reached for the CIA consultation effort. Of the 19 respondents, three were interviewed in-person or over the telephone (15%); four provided an oral or written statement (12%); eight shared referrals and/or references (42%), and four stated that they had no comments regarding the proposed project (n = 4, 12%).

An example of the letters of inquiry and figures is presented in Appendix E. An example of the follow-up invitation letter is presented in Appendix F. Signed consent forms are in Appendix A. The Office of Hawaiian Affairs (OHA) response letter is in Appendix D. The results of the consultation outreach are provided in Table 1, followed by written statements, brief consultations and interview summaries.

Table 1. Summary Of Community Outreach And Consultation

Names	Affiliations	Actions
Akaji, Delia	Kaua‘i Historical Society, Administrative Assistant	Outreach letter sent via post on October 3, 2017. Follow-up emails sent on 10/25/17. Follow-up emails sent on 10/5/17. (see Helen Wong Smith). In an email sent on 10/5/17 Delia attached documents on KHS research services and patron registration and membership applications and referred SCS to Helen Wong Smith. In a visit to KHS on 11/9/17, Delia recommended referrals for interviews and references.
Ako, Valentine	Kupuna: advisor to island burial councils, fisherman, maritime skipper, construction	Interviewed on November 10, 2017. See Interview Summaries section below table.
Chock, Chucky Boy	Kaua‘i Museum, Executive Director	Outreach letter sent via post on October 3, 2017. See Written statements and Brief Consultations section below table..
Crabbe, Kamana‘opono M., PhD	Office of Hawaiian Affairs (OHA), Chief Executive Officer	See Written statements and Brief Consultations section below table.. and Appendix D.
DaMate, Leimana	‘Aha Moku Advisory Committee (AMAC), Executive Director State of Hawai‘i, Dept. of Land and Natural Resources	Outreach letter sent via email on October 3, 2017. Follow-up email sent on 10/25/17.
Griffin, Pat	Līhu‘e historian and author; Lihue Business Association, Board President	Referred by Rayne Regush, Helen Wong Smith Victoria Wichman, and more. Outreach email sent on October 17, 2017. Follow-up emails sent in October thru December, 2017. In an email from sent on 10/29 Pat wrote, “Thank you…I have no information immediately but will check my files for any specifics that may be of value for your research.” Responding to a follow-up email sent on 12/6 Pat wrote, “I appreciate your giving me the opportunity to comment, but I have no information to share about that property.”
Hoomanawanui, Kauanoe	State Historic Preservation Division, History and Culture Branch, Līhu‘e, Kaua‘i, Burial Sites Specialist	Outreach letter sent via post on October 3, 2017. Follow-up emails sent on 10/25/17. In an email response sent on 10/25, Kauanoe wrote: “I have received a letter from you folks addressed to KNIBC, we don’t have a meeting this month to properly consult. However if

Names	Affiliations	Actions
		…there is quorum, I can agendize this item for consultation with our NHO KNIBC for November. Our meetings are generally held every third Thursday of the month.I am…a Burial Sites Specialist and Kaahiki will be responding on behalf of SHPD as the Cultural Historian." Follow-up email sent on December 6, 2017. In an email response sent on 12/6, Kauanoe wrote that there was not KNIBC meeting in November.
Hubbard, Mark: Carvalho, Dorothy DeBusca, Fred Farias, William Girald, Robert Miyamoto, Alton Pratt, David Shinno, Allma Smith , Allan Tabata, Lyle	Former Lihue Mill Plantation worker/s	Outreach letter sent via post on October 12, 2017. In an email response sent on 10/12 Mark wrote, "All I know is that the area has been a roadway for the 41 years I have been on Kaua‘i." In a follow-up phone conversation with SCS on 10/13, Mark kindly provided contact information for three former Lihue Plantation workers. He was uncertain if some the contact information was current, and still in-service. Attempts to track down former Lihue Plantation workers were marginally successful: a few are deceased, too infirmed to participate in consultation, or could not be reached. See David Pratt and Lyle Tabata.
Inouye, Linda	Grove Farm Museum, Administrative Assistant	Outreach letter sent via email on September 11, 2017; SCS requested Grove Farm's assistance in reaching out to 10 individuals who formerly worked for Lihue Plantation interviewed for the book, *Lihue Mill* (2011). Linda referred Mark Hubbard and made an email introduction on 9/11/17. See Mark Hubbard.
Johnson, Scott	Grove Farms Museum, Plantation Railway Engineer and Historian	Referred by Delia KHS on November 9, 2017. Scott participated in a telephone interview on 12/1/17. See Interview Summaries section below table.
Kahalekai, Kauilani J.	Kahu, cultural practitioner of Līhu‘e, Kaua‘i	Outreach letter sent via post on October 3, 2017. Follow-up letter sent via post on 10/25/17.
Keaweamahi, Latham W.	Division of Forestry and Wildlife (DOFAW), Acting General Construction and Maintenance Supervisor I	In-person outreach on November 9, 2017 while visiting DOFAW. Outreach letter sent via email on November 13, 2017 followed by email correspondences. See Written statements and Brief Consultations section below table.
Mann, Sheri S.	DOFAW,	In-person outreach on November 9, 2017. Outreach letter sent via

Names	Affiliations	Actions
	Kaua‘i Branch Manager	email on November 13, 2017 followed by email correspondence. In an email response sent on11/14, Sheri offered to participate in a telephone interview if necessary with Latham Keaweamahi when they returned from their respective vacations. She also commented that participation in the CIA research, “feels like an afterthought in the planning process.” In the exchange with Sheri at her office on 11/9, Sheri stressed that she would not have much to share regarding cultural resources and practices, and would have more questions than answers. She suggested Latham as a good resource.
Pratt, David	Grove Farm Co., President and Chief Executive Officer	Outreach letter sent via post and email on October 12, 2017. Follow-up email sent on 10/25/17. In a follow-up telephone call with David on 12/7, David shared that Fred DeBusca has passed away, and that Alma Shinno was the spouse of one of the Lihue Mill employees. He had no comments regarding the proposed project, nor project area.
Queen Deborah Kapule Hawaiian Civic Club	Queen Deborah Kapule Hawaiian Civic Club	Outreach letter sent via post on October 3, 2017. Follow-up email sent on 10/25/17.
Regush, Rayne	Kaua‘i Historical Society, Advocate for Historic Preservation; Kaua‘i Sierra Club Environmentalist of 2011	Outreach letter sent via post on October 17, 2017. In an email response sent on 10/17, Rayne Regush wrote, “You might want to reach out to Līhu‘e historian Pat Griffin...For now, that's the only lead I can think of.”
Santos, Kaliko D.	OHA-Kaua’i Branch, Community Outreach Coordinator	Outreach letter sent via post on October 3, 2017. Follow-up letter sent via post on 10/25/17.
Smith, Allan	Former sugar plantation worker	Outreach letter sent via post on October 2, 2017. Follow-up letter sent via post on 10/25/17.
Smith, Helen Wong	State Historic Preservation Division, Librarian; Kaua‘i Historical Society, Executive Director	Outreach letter sent via post on October 3, 2017. Helen Wong Smith responded in an email sent on October 25, 2017. See Written statements and Brief Consultations section below table..
Solis, S.C. Ka‘āhiki	State Historic Preservation Division, Cultural Historian (O‘ahu, Kaua‘i, and Ni‘ihau)	Outreach letter and figures sent via email on October 27, 2017. In an email response sent on 10/30 and subsequent emails, Ka‘āhiki attached resources for identifying and contacting Native Hawaiian

Names	Affiliations	Actions
		Organizations (state and federal lists) for each of the Hawaiian Islands, and a Directory of Historical Records Repositories in Hawai‘i (Association of Hawai‘i Archivists).
Tabata, Lyle	Kaua‘i Department of Public Works, Acting County Engineer; former Amfac Sugar Kaua‘i, Vice President and Manager	Interviewed on November 9, 2017. See Interview Summaries section below table.
TenBruggencate, Jan	Journalist (formerly, Honolulu Advertiser) and Author (*Lihue Mill*, 2011); Kaua‘i Charter Review Commission, Lihue Business Association	Outreach letter sent via post on October 3, 2017. Follow-up letter sent via post on 10/25/17.
Wichman, Randy and Victoria	Kaua‘i Historical Society, former President, Nā Pali Coast ‘Ohana, President and Spokesperson; historians	Outreach letter sent via post on October 3, 2017. Follow-up letter sent on 10/25/17. Email outreach sent on November 29, 2017, and subsequent email correspondence with Vicky. In a telephone conversation with Vicky on 11/29, she said that she would remind Randy to respond to the invitation letter, and recommended contacting Pat Griffin. Vicky mentioned that Randy is likely to have no comments for this study.

1.16 Written Statements and Brief Consultations

Following are written responses and consultation summaries presented in descending alphabetical order by surname.

1.16.1 Chucky Boy Chock, Kaua‘i Museum Director

Chucky Boy Chock, the director of the Kaua‘i Museum, shared his thoughts on the proposed development in a phone conversation conducted on November 29, 2017. The Kaua‘i Museum is a short walking distance to the northwest of the proposed project area. The mission of the museum, as stated on their website, is to:

> Inspire and promote in the community, an appreciation and respect for the indigenous and immigrant people of Kaua‘i and Ni‘ihau, and their cultural heritage by working in active cooperation with the indigenous and immigrant people to help sustain their perspective cultures in the contemporary world. (http://www.Kaua‘imuseum.org/)

Chuck Boy explained that, “the kuleana of the museum is to Native Hawaiians and to all the immigrant groups, to tell the entire stories of the native and immigrant populations of Kaua‘i.” He talked about the number of homeless people camped in the area, that the majority of people on the streets are Hawaiian, and the toll homelessness takes on the museum and surrounding area to meet the basic needs of people camped out. He views taking care of the land and the people, “malama ‘āina and the people,” as the broader responsibility of the museum and stated his own desire to, “serve on a board to see what we can do, to help out, to share my mana‘o.” Asked about the proposed project, he responded with a laugh, and enthusiasm for a potential remedy:

> I was sitting there [along Pua Loke Street] a few weeks ago thinking this is a perfect place to have for homeless! The homeless come to the museum for water, bathrooms. [When the museum is closed] they break into our bathrooms. Because we have the water faucets it’s open season.
>
> I don’t think we will have NIMBY [Not In My Backyard] response from the area. Everything is right there for them. It’s an ongoing problem that’s never going to stop unless we do so something KEO [Kaua‘i Economic Opportunity, Incorporated a private non-profit community action group to eliminate poverty] is right there. Were tired of cleaning up. A few brothers had to go around and say “hey, got to knock this off.”
>
> We are here to protect it [the museum] and the visitor experience is [compromised] because of the odor of urine [and all the people hanging around]. Give the visitors the best experience.

Chucky Boy, concluded his phone consultation with a story he heard from an aunty who observed a family living in Lydgate Park – the mother combing her daughter's hair, readying her children for the school bus. He again stressed, "we have to care for the people and the ‘āina!" He has no concerns about the proposed project. Asked if he had any referrals, he responded, "Hobey [Holbrook Wichman Goodale]. Wish he was still alive! He had so many stories. He wrote a book [*Hobey*, 2011]."

1.16.2 Kamana‘opono Crabbe, Ph.D. , Ka Pouhana (CEO), Office of Hawaiian Affairs

In a letter dated November 7, 2017 (Appendix D), Dr. Crabbe responded to the request for comment on the proposed project:

> OHA appreciates including the list of Federal, State, County agencies, and community members that were consulted with during this undertaking. OHA has no referrals to individuals or organizations to offer at this time. Mahalo for the opportunity to comment. We look forward to reviewing the FINAL CIA.

1.16.3 Latham W. Keaweamahi, Division of Forestry and Wildlife (DOFAW), Acting General Construction and Maintenance Supervisor

Informal outreach was made with Latham Keaweamahi, DOFAW supervisor, on November 9, 2017. The first author stopped to ask for directions at the DOFAW offices in the government complex adjacent to the project area. After explaining the purpose of the visit to the proposed project parcel and showing Latham the project maps and figures, Latham shared his thoughts regarding the project. He suggested notifying Sheri S. Mann, Kaua‘i Branch Manager for DOFAW of the project. The first author visited Sheri's office that afternoon and gave her hardcopies of the CIA Outreach letter and figures. Additionally, follow-up contact was made with Latham and Sheri via email on November 13, 2017. Following is a summary of Latham's comments, confirmed via email on 12/11/17.

Latham was unaware that the county was planning an affordable housing development immediately across the street from the Pua Loke Arboretum – managed by the Hawai‘i state, Department of Land and Natural Resources (DLNR). While he expressly supports efforts to address homelessness in Līhu‘e, he had two primary concerns. The first is that DOFAW has received funding to extend the arboretum and create an educational institute of rare Hawaiian plants to co-exist with the Spark M. Matsunaga International Children's Garden for Peace. Latham described a situation in which the left hand is not aware of what the right hand is doing as the state was not notified about the county plans.

Figure 14: A view of Pua Loke Arboretum and Park across the street from the project area

The second concern is that the development could draw more homeless, as well as people from the affordable housing apartments, increasing litter and possible safety issues for school groups. He noted that, for the most part, the homeless currently utilizing the park have responded to DLNR-DOFAW workers' urging to clean up after themselves, not leave rubbish on the ground, etc. He remarked that some adjustments should be made to the proposed housing development and arboretum. Park upkeep, cleanliness, and safety are issues that suggest cooperation and collaboration between county and state to move forward.

1.16.4 Helen Wong Smith: State Historic Preservation Division, Librarian and former Executive Director of the Kaua'i Historical Society

In an email sent on October 25, 2017 and subsequent email exchanges, Helen Wong Smith provided information on how to use the archival resources at the Kaua'i Historical Society, sent references for background research for the CIA, and referrals. In her email of October 25, Helen wrote:

> As the author of 50+ CIA (and their precursors) in Hawai'i over the decades I am aware of your needs. Your best approach is to investigate the records of the Kaua'i Historical Society online in both our archival and library collections. This will inform you of our resources to request per the Patron Registration Form previously provided you by Delia Akaji. Because our 15,000 digitized images are only available in the office a visit is warranted or we can conduct a search for you and send you the images electronically. If you visit in person an appointment for a site visit is warranted allowing us to retrieve requested records, historical maps, and A/V material for you, some of which are off-site. You will see the benefits of membership when conducting this research from the fee schedule previously provided by Delia. We have an excellent publication by Pat Griffin Līhuʻe: Root and Branch of a Hawai'i Town you can purchase[s]e online or in person.
>
> I've attached two CIA for Nāwiliwili we have here at SPHD and I recommend the OEQC library where many CIA are included in the EA and EIS.

In an email sent on October 27, Helen also recommended reading, "Uncle Val's [Valentine Ako] comments on fishing practices in Līhuʻe in Kepā Maly's A history of [fishing] practices and marine fisheries of the Hawaiian Islands" and, "Pat Griffin is an ideal person to interview and they will know of others."

1.17 Interview Summaries

The interview summaries that follow are presented in descending alphabetical order by last name.

1.18 Valentine Ako: Kupuna

Figure 15: Valentine Ako.

Valentine Ako was interviewed in his home on November 10, 2017. Originally from Holualoa, Kona, Hawai‘i Island, he has lived on Kaua‘i for 62 years. Over the decades, Uncle Val has contributed his mana‘o on cultural resource management concerns around the archipelago including the discovery and re-interment of iwi kūpuna. He worked with Kepā Maly – cultural and oral historian – among many others, sharing mo‘olelo. Uncle Val’s career trajectory gave him exceptional knowledge of both sea and land, and hands-on experience with, and knowledge of, subsurface cultural remains and resources: He was a commercial fisherman, a merchant marine and a construction worker. He elaborated:

> I fished throughout the state. When I got married, I started working on land. I was a pipe man. That's another problem here in Kaua‘i: the water lines are all cast-iron pipes. In 1954, they got rid of all the metal pipes and put in asbestos pipes. So this whole island is asbestos.

Uncle Val discussed the socio-political history of the plantation era and the labor movement:

> Think about politics now. Prior to 1935, there was only one party, the Republican party. The Democratic party started in 1935, during Roosevelt's time. In Hawai‘i, the wealthy families had Philco radios, and the teacher knew that we had a radio in our home. She wanted my parents to allow my first grade class to listen to President Roosevelt's inauguration. I asked mom, and she allowed the whole class to hear. There were two laws that he enacted nationally, but for Hawai‘i in particular: Social Security and the Wagner Act [The National Labor Relations Act of 1935]. The Wagner Act allowed labor to organize labor. That was initiated in 1935. That's how much I still remember.
>
> Prior to 1935, the plantations controlled all the laborers. They were all immigrants, and there was a lot of discrimination at that time. We had steam cranes and trains. None of those ethnic groups were able to retain those jobs. The only ethnic groups that were allowed to operate those, even in the mills, were the Portuguese and the Germans. And the Hawaiians. The other ethnic groups, the Japanese and the Filipinos, didn't get to do that chance. It wasn't until after the Second World War that they were able to be truck drivers and equipment operators. That's the discrimination that happened.
>
> You know the old saying, "divide and conquer?" That's why they had a Japanese camp, Filipino camp, Portuguese camp, and a German camp. Lihue [Mill], here, was all under the Germans. The Lihue Mill was all German employees. That's where the discrimination came out of. It wasn't until after the Second World War that these other ethnic groups were able to be recognized. What's unique about it was that not every one of these ethnic groups were farmers. A lot of them were educated.
>
> But eventually, those smart ethnic groups joined together with us. That's how we overcame the plantation.… I knew all those old-timers. I was a young kid, but I was able to associate with them. I knew my mom and dad were strong Republicans, and I knew how powerful mom and dad were. I didn't want them. I wanted to be with the ethnic groups. That's why I stuck with them. It was a tough issue. I was 11 years old, and I was called a Communist. I didn't know what Communism was all about…. Because I worked with the laborers, yes.

From a young age, Uncle Val has helped in some form or another with exhuming bodies from burial grounds. In the military, his supply ship transported the exhumed bodies of fallen soldiers from the battlefields of the Pacific theater of World War II to transport them back to the US. Uncle Val detailed his experiences:

> Why am I always in those particular areas to exhume all those bodies? I started exhuming bodies when I was in Kona, when I was 9 years old. For what reason? I don't know why I was involved. You know those graves…you, know Kailua Kona? Jolly Rogers Restaurant? One kuleana over there. That's where we exhumed 10 bodies, when I was 9 years old. When we exhumed them, we didn't dig them up during the daytime, on my time. We dug them all night. Do you remember those lanterns they called "Aladdin lamps?" That's what we had for light.
>
> As a young kid, I was curious, but at the same time, I was wondering, why am I here? I wasn't afraid of all those dead people. Another thing about graves: if you want to have peace, the graveyard is the best place. When I was in North Korea, there were fresh graves. I was a squad leader. There were times I fought so much, I was so tired. I used to go look for fresh graves. Enemy graves or native graves. I used to put my tent and everything right next to the grave, because I knew nobody wanted to die. North Koreans will never go near a grave. With our G.I.s, that was the only way we were able to catch a few winks [laughing].

He discussed his experiences around Hawai‘i, and how he is called on to share his expertise with island burial councils:

> The Queen Kaahumanu Highway [on Hawai‘i Island]…. As straight as it is, they have a lot of accidents. When they did that, the burial council was all young people. They didn't know about the history. That's the reason why…I was always approached to be on the council.
>
> To give you another example, do you know Coco Palms? They made three buildings. On the first one, I wasn't involved. On the second and third, I was the one who exhumed 86 graves…. The state believes there's just heiau, but that whole area is full of graves. You'll never find those graves on the surface. Those 86 bodies I exhumed were all under the ocean. There was an archaeologist. He and I discussed why I had found all those bodies below the ocean.
>
> Evidently, those bodies were 400 years old, and they may have originally been buried on the top. As time went by, the land started to shift. That's why I found all those graves like that…. Eighty-six bodies was what was unique about it. You know, Hawaiians are all buried flexed over, right? Not those people. Everyone was buried with their arms and hands crossed, facing east. Normally, Hawaiians are all buried like a regular burial, but every one of these was buried sitting down, with their bodies facing east…. And I held every one of them in my hands. I didn't lose anything. It took me three months. [An archaeologist] said, "Don't worry, there's no more graves." But you'll never find them near the surface. They all have to be underground, sea level.

Uncle Val has encountered human and cultural remains in former sugarcane field. He cautioned that Kaua‘i's burial practices differ somewhat from the other Hawaiian Islands:

> On Kaua‘i kūpuna [ancestors] never had any metal implements for digging. That’s why they buried their loved ones by the shore line. We don’t have caves here, like the Big Island. All along the shore…. When I found the Coco Palms one, and then I started working on the Lydgate area, we found the same type of people, but with their joints stretched out. Every one of their skulls had puka(s) in the head. So they may have fought. I did a lot of excavations.

During the plantation era, Uncle Val did construction in the subdivisions. From his work, he is familiar with cane field archaeology:

> The plantations had their cane, it would never go down deep, just on the surface. They would plow on the surface. On the bottom, after the graves have settled, that’s where you find graves and imu(s). They won’t go [grub] deep.
>
> I did Coco Palms and Wai‘ohai [Beach]. I did all the pipe work over there in Wai‘ohai. I found the same thing. When we’d dig the trenches, we’d find the graves right there.
>
> I’ve worked on the ground. I have experience. Take the old Hanamaulu subdivision. I did all the grubbing over there, and all the foundations. Do you know what I found? Imu(s). Underground ovens, six feet below the surface. The plantations were used for cane, so they only grubbed the top. So we had to cut that hill, and I found four imu(s) below ground.

Regarding the proposed development, Uncle Val stressed that should human or cultural remains be encountered during ground-disturbance and construction activities for the proposed project, any findings should be left in place:

> My own concern about this, when you ask me, “Should we come across graves..?” Do not relocate those graves to another area. Put them back in the same place. Then you won’t get any trouble.

He elaborated, recalling his advice for a project in Kōloa, southeast Kaua‘i:

> They wanted my recommendation after they found four graves in a cave where the development of Koloa Landing is. They wanted my mana‘o. I told them to just seal it up, don’t relocate those graves. Leave them where they are. Seal it up. Don’t make it obvious, so people don’t turn it into a show. So they listened. They sealed it up.

Uncle Val believes that what applies to human remains should also apply to surface findings such as ritual sites. He shared the following caution and suggestion based on a prior experience:

> My only recommendation was to leave the graves where they were and not relocate them. In many instances, the developers would [not] listen. Take the heiau(s). We’ve got a lot of heiau(s) that people want to restore, but my recommendation is to leave them the way they are. Clean around, but do not touch it.

> Wai‘ohai is a good example. There’s a big heiau in front of the Waiohai Hotel. With the first Waiohai Hotel we built, they made the dining room facing the heiau. I was told by the kūpuna to tell the developers not to touch [it]. Leave it the way it is. Just clean around. The first remark when I told the developers was, “Oh, you belong to the old ways.” “I’m relaying to you what was told to me to tell you guys not to touch the heaiu.” “No, no, we’re going to fix it so that it’ll be attractive for the guests.” I told them, “If you guys touch the heiau, Wai‘ohai isn’t going to last.” They looked at me and they laughed.
>
> When we had the first hurricane, Hurricane ‘Iwa. You know, in the heaiu, they had a big slab. A tidal wave came, picked up the slab and tossed it right into the dining room. So they called me up and said, “Hey, you’ve got to come help me Wai‘ohai.” I refused. I said no. I said, “I tried to tell you guys, but you wouldn’t listen.” [laughing]…. We had the experiences of our kūpuna, and I could only relay…what I’m relaying to you. I can only tell you, but it’s up to you to accept or reject…. That’s my only concern, as I said: if you find anything unusual in that particular area, do not relocate it.

Uncle Val concluded the interview by offering his knowledge and expertise for this and future projects, “For kōkua in the future, as long as I’m living, I want to share with others.”

1.19 Scott Johnson: Grove Farm museum heritage railway locomotive engineer, mechanic, supervisor and historian

Scott Johnson is the steam locomotive engineer, mechanic, supervisor and historian for the Grove Farm museum heritage railway. The Grove Farm Locomotive collection is on the National Register of Historic Places. Among other responsibilities, Scott is in charge of ‘firing up’ one of the vintage locomotives to take visitors on a 45-minute train ride along the original three right of ways (RoW) on the sugar plantation railway. Grove Farm Museum locomotives run on a 2,000 foot stretch on the Lihue Plantation Railroad RoW along Haleko Road. In addition to working to extend the railroad track, in the Grove Farm Interactive Learning Park, Scott is working with a cadre of fellow train historians to put together a book on Kaua‘i railways. Scott wrote in his interview review notes sent via email in December (2017), “Sad for those of us who tried to save the mill. It wasn’t in that bad of shape generally and the scare tactics and misinformation that went out borders on criminal. I toured the mill often as part of security for our storage in the Quonset hut.”

Figure 16: Photograph taken by Scott Johnson of a train day with the Lihue Mill in the background.

Figure 17: The Grove Farm #6 in ‘full train’ Courtesy of Scott Johnson)

In a telephone interview conducted on December 1, 2017, Scott discussed the proposed project in relation to Lihue Mill Plantation sugar train history. He started by saying that the curvature of Pua Loke Road – on the northeast side of the project area – follows the old railroad alignment. The park (known as the Pua Loke Arboretum), across the street, was formerly the site of the Lihue Elementary School. Scott's daughters – he has five – nicknamed it 'Smokey the Bear Park' for the large Smokey the Bear sign that was there when his kids were small. Scott told a story about Elisio Antonio, Hawaii's last steam sugar cane train engineer. Elisio, like Scott, had five little girls. "He was the engineer of Grove Farm no. 6. He blew the whistle when he was passing the school so his daughter's could run over the to the school fence to wave."

Before the sugar cane trains, "up until 1895, Grove Farm~~s~~ used oxen to haul the cane in wooden carts. The Lihue Plantation tracks started in 1891. [They started hauling] sugar in 1892. Then tracks were laid at Grove Farm…first hauled sugar in 1895. The steam engines were underwritten by Mr. Rice. Lihue Plantation Company Limited William Hyde Rice Railway-was the original name. The railway was started to the east of Lihue Mill." Scott explained that railroads are designed to be at a 1% grade to "best get from point A to B." The original tracks followed, "the general path of the oxen cart roads and then were upgraded piecemeal to railroads."

Figure 19: 1957 photograph of Elisio Antonio, Hawaii‘s last steam sugar cane train engineer.

Figure 20: Elisio in #6, Matt in #3, Scott in PAULO (Courtesy of Scott Johnson).

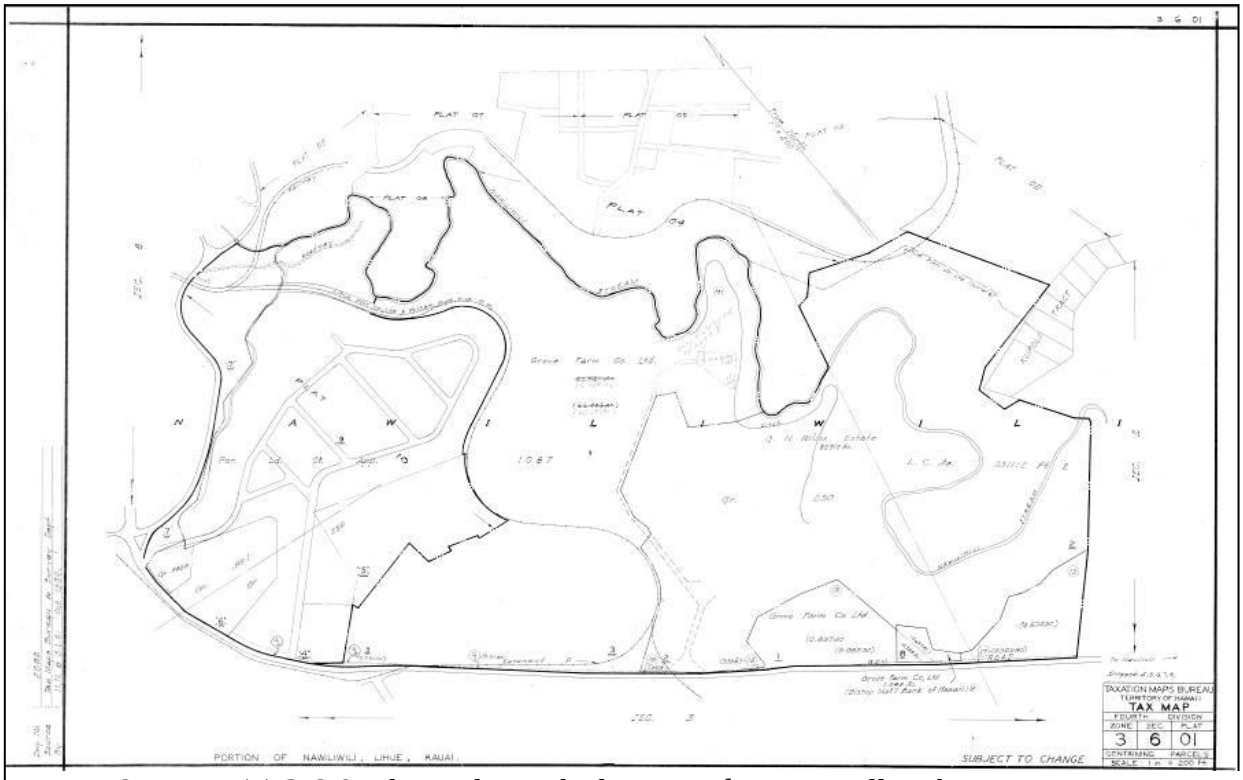

Figure 18: TMK: (4) 3-6-01 shows the track alignment from LP mill to the intersection on Haleko Road and the extension (TMK: (4) 3-8-01) (Courtesy of Scott Johnson).

Regarding the proposed development, Scott had a few minor concerns and suggestions. As someone with “an eye for spotting old railroad parts,” knowing where and how to find and identify railway and train objects, he is a good resource for archaeological excavation work and subsequent construction. Scott is confident that the archaeological survey will turn up:

> Old cane car links and railroad spikes. The metal three link chains [called, “links”] used for coupling cane cars. They could go back to 1895. Early links were forge-welded; later they were gas metal arc welding. Lihue Plantation Company, originally when track was laid it was 30 or 35 pound rail (3 1/8” h/w or 3 5/16” h/w). In the 1950s the LP tracks were upgraded from 30 pound rail to 60 pound rail [60# rail 4 ¼” h/w]. What is critical is that there will be four and a quarter inch spikes and five and a half inch spikes. Depending on size, I can tell how old it is. It is a galvanized steel spike A lot of people used the old spikes for fishing weights. They were free, so losing them on the reef didn’t matter there were plenty more. There are four spikes per wooden tie and ties were two-feet apart. At Grove Farm Puhi round house we have wooden spike kegs of galvanized spikes marked with TH – Territory of Hawaii. Also some short plate spikes may be found.we are now using it. They may have made it at their machine shop. The exact same kind they found at these two locations may mean LP shops made them both, or at least followed the same pattern made at Kealea. The McKee plantation in 1934 became the McKee division of LP Co. We are now using it. They may have made it at their machine shop. The exact same kind they found at these two locations may mean LP shops made them both, or at least followed the same pattern made at Kealea. The McKee plantation in 1934 became the McKee division of LP Co

Figure 21: Train and track artifacts
Figure 22: “Joint bars, pipe, track bolt and short keeper spike for the notch in joint bar” (Photographs courtesy of Scott Johnson).

Figure 23: ‘Bush treasure’ repaired ground throw (Courtesy of Scott Johnson)

An issue Scott would like to bring to the attention of the project proponents is that the Grove museum and others use the proposed project area – now a parking lot – for overflow parking for railroad events.

> Periodically, the museum holds special events for the community. In the last few years we have had several of these events. We run the train up and down the valley for the community. On a Friday night we do a free laser light train ride, lasers, fog machines and par 78 rainbow lights on each car illuminating the valley. Last time 800 people showed up. So parking is at a premium. In the past we have had a shuttle service to the parking lot for big events.
>
> Another major event was in 2012; it was the 125th birthday for Paulo, Hawaii’s oldest operating steam locomotive. Paulo is a rare wood burning train, an 1887 Hohenzollern from Dusseldorf Germany. [Also, there were events on] the Smithsonian Magazines National Museum Day, the “Tren de Amour” Valentine’s Day Train Ride, etc. Although not impacting the mentioned property many schools (pre-K to Kaua‘i Community College) use our educational train rides. Every third grader at Wilcox Elementary for the past six years has utilized our train and staff for DOE [Department Of Education] benchmarks.

Figure 24: Free Friday Nite Lazer Lite Train Ride (Courtesy of Scott Johnson)

Figure 25: School group on educational tour (Courtesy of Scott Johnson)

Scott added that his roommate, Edward Kaahea stated he often used the parking lot on proposed site for events at Lihue United Church, as an MC for events, leader of recovery meetings and general event participant at Lihue United Church on Nāwiliwili Road. He pointed out that the church also utilizes the parking lot for additional space.

Scott also hopes that the state DLNR, Pua Loke Arboretum park will not be negatively impacted by the development. Having lived in Mililani, O‘ahu, he worked in the Mililani Town real-estate office, “where the master development plan concept took all aspects of community life into consideration; placing open space areas next to high density areas to allow families room to grow.” On that job he learned that, “open green spaces are mandated…and a good idea!”

He believes the proposed affordable housing development comes at a critical time:

> When housing is tough to find, let alone afford…we need to make wise choices. On a personal level I have a lot of friends who need a place to stay. It’s a nice

> location – especially if you don’t have a car...Close to the center of Līhu‘e shopping and transportation.

1.20 Lyle Tabata: Acting County Engineer for the Kaua‘i Department of Public Works; last sugar plantation manager on Kaua‘i

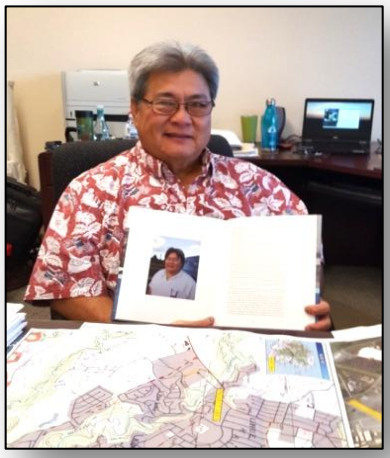

Figure 26: Lyle Tabata shows his picture in the book, Lihue Mill

Lyle Tabata was interviewed in his office on November 9, 2017. Lyle is the acting County Engineer for the Kaua‘i Department of Public Works which includes, “solid waste, waste water, engineering, Roads Division, Building Division, and the auto shop.” He was recommended to participate in this CIA because he was the last plantation manager for Amfac Sugar on Kaua‘i. Lyle played a key role in the development of the proposed affordable housing project,

> My involvement as the Public Works Director was to help the Housing Department find appropriate pieces of county and state property, because I sit on the state’s TOD Council, which is “transit-oriented development.” For our island, they have designated “transit-ready development.” This site will be 300 feet away from our transit bus line, called the Līhu’e Shuttle. There is waste water very close by, and water infrastructure. Those are the three components of the three-legged stool: water, waste water, and transit. They make it a good candidate for affordable housing. When I came back with the strategy of the TOD/TRD Council to look for opportunities, this was one of the parcels that was brought up to Housing. They had already been working and looking at this, and I said it fits right in…. That’s the genesis of my involvement: helping find infrastructure-ready parcels of county and state land on which we can develop affordable housing.

Lyle described the current use of the parcel:

> It’s a parking lot and park-and-ride. Originally, the bus would go through there and pick up people who would park, then ride to wherever they had to go. They’d come into Līhu‘e, then jump on the shuttle to go to their work destinations. Now, our auto shop stores equipment there, and it’s overflow parking for the theater and so forth. People who work at the Department of Water, prior to opening their new office at the end of the street, they were adjacent, next to the arboretum park, which is DLNR land. They used to park in there.

And believes the location is ideal for affordable housing:

> The developer is going to be charged with identifying the density that would fit in that 1.4 acres, and then work with the Planning Department to determine the number of reduced parking requirements are going to be levied on the property. I’m saying “reduced parking requirement” because, like I said, it’s situated near a transit bus system location, which identifies it as not needing as many parking spaces for single-occupant vehicles. The shopping center is really close-by. Food, etc., is available, and they can use the transit to get to where they need to, versus single-occupant vehicles. Being located near the center of town, it’s all walking distance. The strategy for TOD is that you have these parts along the city’s rail that extend a mile out. You get these mile circles, and that’s where they want to concentrate infill, redevelopment, and so forth. Like I said, this is 300 feet from the Līhu‘e bus stop. You can go anywhere, just jump on the bus. At the Civic Center, we have the transit hub, where you can get to anyplace on this island.

Lyle was featured in the book, *Lihue Mill : One Hundred Years of Sugar Processing Along Nawiliwili Stream: Grinding Cane and Building Community*. Over the course of the interview, he pointed out photographs in the book. A number of the contributors to the book are deceased. Lyle has become one of a handful of people who are repositories of sugar mill history in Līhu‘e. He discussed his experiences and the centrality of the mills to the development of towns in Hawai‘i:

> I spent 20 years of my working career as the manager of that sugar mill down in what I call the “hole,” and a final five years as a manager of Amfac Sugar Kaua‘i, which included managing Lihue Plantation and Kekaha Sugar…. The history of the area is pretty much embedded in that book. Lihue Mill was built in 1849, and Līhui‘e town grew up around the sugar mill.
>
> On Kaua‘i, like other islands, the major towns you find as you drive around the island had their geneses around a sugar mill. A sugar mill was there with a plantation, and then a community would form around the mill, and you’d have different camps outside the mill, primarily where the irrigation systems were that would distribute water to the fields. Communities arose around the sugar mills because the mills generated electricity and were able to power the homes around each sugar mill. For instance, on Kaua‘i, Kaua‘i Electric was formed, I believe, in 1959 or 1960. Incorporated, it was the Lihue Plantation, McBryde Sugar, Kilauea

> Sugar, and several others on the island, all of which connected into a power grid across the whole island. The communities grew out of that.

Figure 27: Lyle Tabata displays an historic photograph of the view outside his office window from the book, *Lihue Mill*

Water sources were integral to sugar production:

> Prior to the 1800s, when sugar came to Hawai‘i, pre-Contact, when the native Hawaiians lived in this area, the valley brought the water down to Nāwiliwili/Kalapaki Stream and there were lo‘i and taro farms in that valley. I know that Hawaiians used to cultivate taro and other crops. In the ‘50s, Amfac was always looking to diversify, so we had coffee in this valley, as well as cacao and tobacco. If you walked up and went all the way up this side, you could see all the different types of crops. Here and there, remnants are still left behind. All of the sugar mills were built next to a source of water. They used water to drive a Pelton wheel that, when they originally built these mills, was the power source. They used mechanical means to run the equipment, and it was the water source that allowed them to start using steam energy. They needed water to create the steam and running and cooling the condensers to manufacture electricity. That’s why almost every mill is next to a stream source on this island, and even on Oahu. Some major source of water, be it underground well or surface water.

Lyle talked about the cemetery proximate to the project area and painted a picture of the plantation landscape:

> The cemetery, close by, which is just on top of the hill next to Kawamura Farms, and all of these homes, which were plantation camp homes all around the sugar mill area back on Pua Loke. Along Kaumualii Highway over here, you see all those trees growing, but they used to be camp homes. After the bridge, there were all homes over there, and there were homes going up into the valley, where there’s a church now. It used to be the manager’s house. By the time I came on board, my house was up here, on German Hill. You had all these different camps

around Līhui‘e Town that grew up around the sugar mill. Lihue Cemetery is the community cemetery.

Lihue Public Cemetery Association is, I guess, the owner of the land. This is Lihue Mill property. Kawamura Farm is right over here, above the hill. The Lihue Mill was situated at the bottom of Haleko Road, there were three smokestacks right over here connected the the Lihue Mill Boiler and Power Plant that was built in 1989. It’s all torn down now. This is the access to get under the bridge. The stream is here. Over here, we used to have our scrap yards. When we had trains, this was the turnaround. You’d do the maintenance of the trains back here. The trains would come into Lihui‘e and line up, waiting to drop off sugar cane, which would be fed into the two tandems, the A-mill and the B-mill.

Then, in 1959, The Lihue Plantation Co. Ltd. converted the rail fleet into trucking. In 1957, they built a Cane Receiving Station which has a truck scale and cane unloader situated next to the Cane Washing Station over here and utilized a water flume to transport the cleaned sugar cane to the Lihue Mill, because the trains weren’t coming directly in anymore. They were up here, in Isenberg, where they had a big cane cleaner and a receiving station to store the cane and bring the sugar cane down to the mill. Then, in 1985, I worked with engineers to design and install a rubber-belt conveyor that brought the sugar cane down and got rid of the water flume, because when we had a choke at what we used to call a divider, which is right adjacent to the highway, the water would back up and overflow onto the highway. I would get cars all dirty, and people would get very angry and expect the Plantation to wash their cars. So with assistance of Chris Hemeter who purchased the old Kaua‘i Surf Hotel and built what is now the Marriott, Lihue Plantation installed that rubber-belt conveyor to bring the sugar cane down to the Mill. We did some preparation up there with the cane cleaner, then brought it all the way down.

Sugar cane history is reflected in the street signs:

In Hawaiian, hale kō means “house of cane.” That’s why it’s called Haleko Road, because it goes right by the sugar mill, which is the “house of cane,” where we used to process the sugar cane.

Figure 28: Haleko Road adjacent to the project area

Lyle shared the personal aspects of sugar times and his family's history:

> My dad was a mill engineer here on Kaua‘i. My family's roots are on Maui. My dad is from Lahaina, and my mom is from Kahului. They were the first in their families to go to college. My dad went all the way to the Midwest, to Bradley University, to be a mechanical engineer. My mom was a school teacher who went to the University of Hawai‘i . My dad went on the G.I. Bill, right after serving in World War II. He came back, and his first job was at Pioneer Mill on Maui because that's where he grew up. He was transferred here, to Hawaiian Canneries, which is where Pono Kai is, a big condo now. In early 1961, they shut [Hawaiian Canneries] down, and he came to work for Lihue Plantation. He was the construction manager of this building and this facility right here. He built a couple of things at the sugar mill and the factory, and at Wilcox Hospital, which has ties to the Lihue Plantation, whose land Wilcox is on. It was donated by the Lihue Plantation. Then he was transferred to Kaheka Sugar as the Chief Engineer there. That was in the mid-'60s. In 1972, he was transferred to Oahu Sugar. Every time you move means a promotion, so he was transferred to Oahu as the Factory Manager and finished his career on Oahu as the director of all the factories Amfac had. They had five sugar mills. He had to travel the state every week to make sure the milling operations were performing.

And his own beginnings as a mechanical engineer:

> I told myself in high school that there was no way I was going to do what my dad was doing, and I ended up doing the same bloody thing [laughing]. I went to the same college. He knew that because I was kolohe, I should be sent as far away from my friends as possible, so he sent me to Bradley in Peoria, Illinois, too. I'm a mechanical engineer also.

He misses certain aspects of plantation days, particularly the people and the self-reliance of the time:

> The best part of it was working with the people. I came in at the tail-end of my dad's generation. Many of the people had the smarts and intelligence, but not the resources, to get to college, so they became the skilled tradesmen. If they'd had the money, they would be the engineers like I was and like my dad was. He just so happened to get the G.I. Bill and became an engineer. So we had all of this talent. In a sugar mill, when you break something, you can't just run to Ace Hardware or the plumbing store and pick it off the shelf. You had to manufacture it yourself. We had full-on machine shops, our own electric shop, carpenters, plumbers, electricians, welders, blacksmiths, you name it. We built everything ourselves. Even in my time, when we had a breakdown, you wouldn't go home until you had the mill running again. We had the last steam-engine milling train tandem in the state. We had three steam engines that were installed in the early 1800s, because there was no electricity back then, just steam, and they used those engines to run the milling plant to grind the sugar cane stalks to extract the sugar juice. It ran all the way until we shut it down in 2,000. Just to keep those antiques running [laughing], you needed people who were skilled craftsmen to machine the

> parts. There was nowhere I could go to buy one off the shelf. We had to blueprint and make drawings for everything, and my machinists would fabricate it.

And the sense of community:

> Growing up in a sugar plantation, the plantations took care of everybody. We put our employees and their families in houses, we had a company store, and the company gave land for the hospital. Every community had a dispensary that was supported by the Sugar Company. The sugar company paid, and took care of the employees. All we asked was that the employees come and give a fair day’s work for the wages and accommodations. Every plantation camp, out in the fields, would grow vegetables and have pigs, chickens, ducks, whatever, and they would all share. Everybody would share. That lifestyle is gone, gone forever.

Lyle elaborated on the history of sugar cultivation and the waves of immigrants to the islands:

> It was a melting pot. That’s why they call Hawai‘i the melting pot of races, because we had immigrants from Japan, Korea, China, Philippines, Portugal, Europeans. The Portuguese were the frontline supervisors, the Germans and Scandinavians were the engineers. The missionaries came in, of course, got the land, and saw the opportunity. The Sugar Act on the east coast ties directly into Hawai‘i. Because of the Sugar Act and the taxing of sugar by England, the missionaries had to go look for other means, and another climate, to grow sugar cane. And that was Hawai‘i . They settled in Hawai‘i , they bought the land, and they started growing sugar. Of course, the Hawaiians feel differently, that it wasn’t an opportunity, that the missionaries were stealing the land. They created so much opportunity, and because the Hawaiians chose not to become workers in the sugar industry, the missionaries brought immigrants in from all over the world. They all lived together separately in camps, but as time went on, human beings are human beings. They go look for partners. So it all became mixed. Intermarriage and stuff like that.

He explained the importance of the proposed development for addressing homelessness in Līhu‘e:

> The development is going to be used for interim homeless youth. There is a new program, called “Housing First.” If a person had issues with substance abuse or whatever, they look past that to house the person first and then look into rehab. As diverse as our needs are for housing on this island, or even our state or nation at this point in time, we need more facilities. My own children cannot find jobs on Kaua‘i. One lives out-of-state, and one on O‘ahu. One lives with us…. It’s really hard to make a go. So create affordable housing for our generations to follow. It’s really, really important.

Asked about any cultural concerns he might have, particularly the likelihood of the project area containing subsurface cultural and/or human remains, Lyle responded, “Not under there,

because that used to be cane field. We tore it up thoroughly back in the sugar days, so there's nothing there."

Lyle concluded the interview by stating that the plan for affordable housing continues the positive aspects of the plantation legacy by taking care of families and creating a sense of community. In his words:

> The connection for me to affordable housing and taking care of kūpuna and the young ones is that growing up, especially when my father was moved to Kekaha Sugar, it was a tighter, more closely knit community. Every Christmas, we would all go to the Kekaha theater to watch movies. We would watch cartoons, and every child went home with a "goodie bag" full of fruits and toy from the Christmas party. An afternoon of cartoons, popcorn, and soda. I played in the youth leagues over there. Little League and Pop Warner. We never had to pay for a thing because every Fourth of July, if you played on one of the teams, you had to go do cleanup after the carnival. The carnival would go through the day into the night, and the next day we would clean up. If I remember right, it was a three-day weekend. You would go in and do your thing. They would take roll, and that would cover your fee for Little League baseball and Pop Warner football. The parents didn't have to dish out anything, and it made everything so affordable. Thinking today of how, when I was running the plantation, they supplemented and gave money, it was called Community Chest back then. Today it's called United Way. The plantation took care of the community. They didn't care where you were from or where you worked. If you were part of the community, you were able to take advantage of the assets of the company and receive benefits. For me, it's part of me. I grew up in it. It's all I know. You take care of the people in your community. That's why I'm passionate about this affordable housing and helping them out.

The book *Lihue Mill* serves as a good resource for identifying former plantation employees for further interviews. Lyle is not sure if a number of the people featured in the book are still alive. Others he knows have recently died such as Freddy DeBusca or may be too infirmed to participate in an interview. Lyle realizes that he is one of the last remaining workers with personal knowledge and experience of Kaua‘i's sugar plantation era. Flipping through the book, Lyle added:

> Fred [DeBusca Sr.] just passed away. Mark is here, Mark [Hubbard]. David Pratt. He has lineage to the Wilcoxs and the Rice family. He was at Grove Farm back in the day. Grove Farm and Lihue Plantation were the major land owners, but now, Grove Farm owns Lihue Plantation after Steve Case bought Grove Farm. He's the guy from AOL. He bought Lihue Plantation, so that's another 50,000 acres. Alan Smith is listed here, too. You can talk to Mr. Pratt and Mr. Smith. Mr. Smith was who I worked for at Lihue Plantation. Mr. Pratt worked on the other side for Grove Farm.

Conclusions: Concerns and Recommendations

Figure 29: Parking lot view of the proposed project and surrounding area

1.21 Summary

The section on Environment, Land Use, Cultural History and Archaeology provides the contextual information that informs the community consultation and ethnographic interviews for this CIA report. The current project area parcel is approximately split between the former Grove Farm plantation fields and the former highway route (at times the road through the project area would have been part of the former Government Road, the Belt Road, or later, Nawiliwili Road). The early (1900, 1901, and 1910) maps show a rail line curving around the edge of Grove Farm's field and south along the road toward Nawiliwili Harbor; this rail line lies just west of the road corridor. The current project area lies where the road and rail lines turn south by Haleko Road**.** No previous archaeological studies have been conducted within the current project area, and very few studies have been conducted near the current project area. Figure 13 depicts the location of archaeological studies and sites near the project area.

For the CIA community consultation, of the 19 people who responded to the outreach undertaken for this study, no individual or group explicitly objected to the Kauaʻi County Housing Agency's proposed plan to build a *Multi-Family Affordable Housing Development* situated along Pua Loke Street in Līhuʻe. Rather, there is strong support for affordable housing for homeless and low income residents of Līhuʻe. The parcel slated for this project is viewed by three respondents as an ideal locale for affordable housing because of its proximity to public transportation, social services such as the poverty elimination non-profit group, Kauaʻi Economic Opportunity, and other amenities – many in walking distance. Chucky Boy Chock, director of the nearby Kauaʻi Museum, explained:

> I don't think we will have NIMBY [Not In My Backyard] response from the area. Everything is right there for them. It's an ongoing problem that's never going to stop unless we do so something. KEO is right there.

Lyle Tabata was the last plantation manager for Amfac Sugar on Kauaʻi. In his current position as an engineer with the Kauaʻi Department of Public Works Lyle has played a key role

in identifying county and state infrastructure-ready properties as a member of the TOD Council. He said of the proposed parcel:

> For our island, they have designated "transit-ready development." This site will be 300 feet away from our transit bus line, called the Līhu'e Shuttle. There is waste water very close by, and water infrastructure. Those are the three components of the three-legged stool: water, waste water, and transit. They make it a good candidate for affordable housing.

Lyle believes that the plan for affordable housing continues the best aspects of the plantation legacy by taking care of families and creating a sense of community. In his words:

> The connection for me to affordable housing and taking care of kūpuna and the young ones is that growing up…it was a tighter, more closely knit community. …. The plantation took care of the community. They didn't care where you were from or where you worked. If you were part of the community, you were able to take advantage of the assets of the company and receive benefits. For me, it's part of me. I grew up in it. It's all I know. You take care of the people in your community. That's why I'm passionate about this affordable housing and helping them out.

Similarly, Chucky Boy Chock views assisting other agencies in addressing homelessness in Kaua‘i as the broader responsibility of the Kaua‘i Museum to, "care for the people and the ‘āina!" And Scott Johnson, locomotive engineer, mechanic and historian for the Grove Farm railway museum, stated:

> When housing is tough to find, let alone afford…we need to make wise choices. On a personal level I have a lot of friends who need a place to stay. It's a nice location – especially if you don't have a car...Close to the center of Līhu‘e shopping and transportation.

1.21.1 Study limitations and constraints

Initially, recruitment of knowledgeable parties to participate in interviews, or provide comments regarding the project area and environs yielded few responses – only referrals. It is the assumption of the authors that the project size and scope – the conversion of a parking lot into an affordable housing on l.46 acres of land – is considered inconsequential relative to larger and more pressing issues of cultural and natural resource management concern. Another limiting factor is that several of the former sugar plantation era workers and historians referred for interviews are deceased, too infirmed to participate in the study, or could not be reached. Based on meetings on Kaua‘i and drawing from prior research, the first author expanded the community outreach in order to gather more substantive responses presented in this report. It is worth noting that a key participant served a role in the genesis of the proposed development. This can be viewed as a potential conflict of interest or bias and, at the same time, valuable expertise and insight into the developing infrastructure to house Kaua‘i's growing homeless population. At the same time this participant is one of the last sugar plantation managers able

available to talk about an integral part of Līhue’s past integral to historic and cultural preservation.

1.22 Participant Concerns

A few concerns were raised in the consultation effort apposite to the cultural and historic significance as well as community well-being of the project and surrounding area. The primary issues identified by respondents are presented in this section, followed by mitigation measures in the recommendations section below.

1. Human and/or cultural remains

First, as described by kupuna Val Ako an advisor to island burial councils, there is a remote, though real possibility that the parcel may have subsurface human and/or cultural remains. It is generally held in the archaeology that former sugar cane fields, especially one that was paved over for parking, would hold no remains. Lyle, in response to a question on the likelihood of inadvertent finds remarked, “Not under there, because that used to be cane field. We tore it up thoroughly back in the sugar days, so there’s nothing there.” Uncle Val – drawing on a lifetime of doing subsurface pipe work and excavating, exhuming and (re)interring burials – challenged the assumption that prior cane fields yield no finds. During the plantation era, Uncle Val did construction in the subdivisions. From his work, he is familiar with cane field archaeology. In the past he has found cultural and human remains in former sugarcane fields – graves at Coco Palms (Wai‘ohai Beach), “When we’d dig the trenches, we’d find the graves right there,” and in the old Hanamaulu subdivision, Uncle Val found, “Imu(s). Underground ovens, six feet below the surface.” He explained that plantations would not do deep grubbing to prepare a cane field:

> The plantations had their cane, it would never go down deep, just on the surface. They would plow on the surface. On the bottom, after the graves have settled, that’s where you find graves and imu(s). They won’t go [grub] deep.

2. Sugarcane train and track artifacts

Scott Johnson, locomotive engineer, mechanic, supervisor and historian for the Grove Farm museum heritage railway, reported that there is a high likelihood that archaeological investigation and subsequent ground-breaking for project construction will turn up sugarcane track and train relics. He noted that the curvature of Pua Loke Road – on the northeast side of the project area – follows the old railroad alignment. Scott provided a TMK map showing the original and extended railway alignments (figure 20). Scott is confident that archaeologists and construction personnel are likely to find, “Old cane car links and railroad spikes” and possibly other artifacts.

3. Public safety, health and sanitation

Two respondents discussed potential negative impacts to the safety and sanitation of the public areas adjacent to the proposed affordable housing development. Chucky Boy Chock, responsible for the Kaua‘i Museum, and Latham Keaweamahi, who helps oversee the Pua Loke Arboretum and Park, described current problems maintaining public facilities. The museum currently contends with homeless using the museum for water, bathrooms. That is not a problem for the museum. However, when the museum is closed, “they break into our bathrooms. Because we have the water faucets it’s open season.” He commented that the, “visitor experience is [compromised] because of the odor of urine” and people hanging around the museum bathrooms and parking lot. “Were tired of cleaning up.” Latham is also concerned that the development could draw more homeless, as well as people from the affordable housing apartments, increasing litter and possible safety issues for school groups who visit the Pua Loke Arboretum and Park.

4. Pua Loke Arboretum and Park

Tied to the above concern, are plans to extend the arboretum and create an educational institute of rare Hawaiian plants to co-exist with the Spark M. Matsunaga International Children’s Garden for Peace. Latham and Sheri Mann with DOFAW were unaware that the county was planning an affordable housing development immediately across the street from the state (DLNR) managed arboretum. Latham described a situation in which the left hand is not aware of what the right hand is doing as the state was not notified about the county plans and expressed his concerns about upkeep of the park and safety of school groups visiting the arboretum. Scott Johnson expressed his desire to protect the park. He discussed the importance of community development that takes, “all aspects of community life into consideration; placing open space areas next to high density areas to allow families room to grow” and that, “open green spaces are mandated…and a good idea!”

5. Community events and overflow parking

Scott, and his roommate, Edward Kaahea – by way of Scott – pointed out that at certain times and for important community events, the subject parcel is used for overflow parking and other purposes. He listed a number of special events sponsored by the Grove Farm heritage railroad museum as well as for the Lihue United Church on Nāwiliwili Road, for which the parking lot is utilized. As an example, Scott discussed Friday night free laser light train rides, lasers, “Last time 800 people showed up. So parking is at a premium.”

1.23 Participant Recommendations

Participants shared their mitigation suggestions as follows.

1. Human and/or cultural remains

Although not explicitly stated by respondents for this CIA, as a matter of course, it is assumed that project proponents will follow the standard practices of: 1) conducting cultural monitoring during all phases of development; 2) informing personnel involved in development activities in the project are of the possibility of inadvertent cultural finds, including human remains and that; 3) should cultural or burial sites be identified during ground disturbance, all work should immediately cease, and the appropriate agencies (SHPD, KIBC) and Native Hawaiian organizations and individuals be notified pursuant to applicable law. Uncle Val Ako emphasized that in contradistinction from other areas of the Hawaiian Islands, due to the relatively shallow grubbing practices to prepare fields for sugarcane, it is not uncommon to find human and cultural remains beneath the surface of former cane field. Uncle Val cautioned that should construction encounter burials, “Do not relocate those graves to another area. Put them back in the same place. Then you won’t get any trouble…. Leave them where they are. Seal it up. Don’t make it obvious, so people don’t turn it into a show.” Regarding cultural finds he again stressed:

> We had the experiences of our kūpuna, and I could only relay…what I’m relaying to you. I can only tell you, but it’s up to you to accept or reject…. That’s my only concern, as I said: if you find anything unusual in that particular area, do not relocate it.

2. Sugarcane train and track artifacts

Considering the likelihood of inadvertent railroad finds, Scott Johnson offers his expertise in identifying train artifacts, and project proponents are invited to confer with Scott and the Grove Farm railway museum for their expertise, and to donate relics to the museum for their collections and possible re-use and provided the following example:

> A damaged cane car link found during the Kealea Bridge [east shore, Kaua‘i] project was [given to Grove Farm museum], restored, and is in use today! The railroad alignment was repurposed to a community pathway. They found a couple of links and ground throws. They gave what they found to us, to the Grove Farm museum…. I refurbished the pivot point and we are now using it. They may have made it at their machine shop.

3. Public safety, health and sanitation

Chucky Boy and Latham shared recommendations for addressing potential safety, sanitation and upkeep concerns in the public areas adjacent to the subject parcel. Latham noted that, for the most part, the homeless currently utilizing the park have responded to state workers’ requests to clean up after themselves. He stated that some adjustments should be made to the proposed housing development and arboretum that addresses the rise in Park use. And, he recommends cooperation and collaboration between county and state to address park upkeep, cleanliness, and safety are issues. Chucky Boy views taking care of the land and the people (“mostly Hawaiian homeless”) using museum facilities and the surrounding area as the broader responsibility of the

museum. He stated his own desire to, “serve on a board to see what we can do, to help out, to share my mana‘o.”

4. Pua Loke Arboretum and park

As above, Latham suggested greater cooperation and collaboration between county and state agencies to factor in a rise in school groups and other visitors to the arboretum and park as result of the continued development of an educational institute of rare Hawaiian plants to co-exist with the Spark M. Matsunaga International Children’s Garden for Peace. Scott also hopes that county and state agencies consider all aspects of community life including “open green spaces” in planning for the affordable housing development and environs.

5. Community events and overflow parking

No specific recommendations were made to mitigate potential parking problems for Grove Farm train museum and Lihue United Church, and possible other, special events. This too is a factor for considered planning by the project proponents.

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Appendix A Signed Release Forms

AUTHORIZATION AND RELEASE FORM

Scientific and Consultant Services, Inc. and LX Gollin Research Hawai‘i, LLC appreciate the generosity of the kūpuna and kama‘āina who are sharing their knowledge of cultural and historic properties, and experiences of past and present cultural practices associated with the subject parcels and environs. This Cultural Impact Assessment for a *Multi-Family Affordable Housing Development* on 1.46 acres of land situated along Pua Loke Street in Lihu‘e, Nāwiliwili Ahupua‘a, Lihu‘e District, Kaua‘i Island, Hawai‘i [TMK: (4) 3-8-005: 028 and 029] is being prepared at the request of the Kaua'i County Housing Agency and Environet, Inc.

We understand our responsibility in respecting the wishes and concerns of the participants in our study. Here are the procedures we promise to follow:

1. The interview will not be recorded without your knowledge and explicit permission.
2. The recorded interview will not be transcribed. Rather, it will be used (in addition to handwritten notes) to write a summary of our interview with you. Before it will be included in the report you will have the opportunity to review it and make any additions, deletions or corrections you wish.
3. You will be given a copy of—this release form, the interview draft and final summaries—for your records.
4. You will be given any photographs taken of you during the interview.

For your protection, we need your written confirmation that:

1. You consent to the use of the interview summary and/or interview quotes for reports on cultural, historic and ethnographic documentation, and/or academic purposes.
2. You agree that the interview shall be made available to the public.
3. If a photograph is taken during the interview, you consent to the photograph being included in any report/s or publications generated by this cultural study unless stated otherwise here:
   Yes X you may use photograph/s of me, No ___ you may not use photographs.

I, Valerie Ako, agree to the procedures outlined above and, by my signature, give my consent and release for this interview and/or photograph/a to be used as specified.
(Please print your name here)

Valerie Ako
(Signature)

11/10/17
(Date)

Contact: Lisa Gollin, PhD, (LX Gollin Research Hawai‘i, LLC.) e-mail: lxgollin@hawaii.edu

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1. The interview will not be recorded without your knowledge and explicit permission.
2. The recorded interview will not be transcribed. Rather, it will be used (in addition to handwritten notes) to write a summary of our interview with you. Before it will be included in the report you will have the opportunity to review it and make any additions, deletions or corrections you wish.
3. You will be given a copy of—this release form, the interview draft and final summaries—for your records.
4. You will be given any photographs taken of you during the interview.

For your protection, we need your written confirmation that:

1. You consent to the use of the interview summary and/or interview quotes for reports on cultural, historic and ethnographic documentation, and/or academic purposes.
2. You agree that the interview shall be made available to the public.
3. If a photograph is taken during the interview, you consent to the photograph being included in any report/s or publications generated by this cultural study unless stated otherwise here:
   Yes X you may use photograph/s of me, No ___ you may not use photographs.

I, Lyle Tabata, agree to the procedures outlined above and, by my signature, give my consent and release for this interview and/or photograph/a to be used as specified.
(Please print your name here)

(Signature)

11/9/17
(Date)

Contact: Lisa Gollin, PhD, (LX Gollin Research Hawai‘i, LLC.) e-mail: lxgollin@hawaii.edu

Appendix B Legend of Kapunohu

Legend of Kapakohana.

KAPAKOHANA was the strongest man on Kauai[1] and because of his great strength he, too, was reigning in place of Ola,[2] the great king of that island. When rumors of the great strength of Kalaehina reached him he became very anxious to meet Kalaehina. After making his preparations he set sail from Kauai and first landed on Oahu; from Oahu he set sail for Maui, landing at Honuaula, where he left his canoe and walked to Kipahulu. That night he slept at a house where he was befriended.

The people of the place asked him: "Where are you going and where are you from?" He replied: "I am from Kauai and am on a journey of sight seeing. I am going to Hana and from there I will make a complete circuit of the island of Maui. After that I shall return to Kauai." The people then said: "What a great pity that such a good looking man[3] like you should be killed by our ill-tempered king Kalaehina. You had better return home." Kapakohana said: "Will he then get angry with a person who goes quietly along the highway?" "Yes, he will get angry. He is the most violent tempered man and is also very powerful. He has destroyed most all the chiefs and warriors on the island and he pays homage to no one. Our king, Kamalalawalu, has escaped for fear of him." Kapakohana then questioned them further: "What has he done to show that he is powerful?" "Here, he can pull up large trees by the roots, and he chops his firewood with his head when the stewards act slow. On the king's labor days the people are not allowed[4] to talk for they all fear him. That's it that you may know." Kapakohana then replied: "He is not so very strong then, seeing that his main strength is only in the pulling up of trees. With a few blows from my fists he will run away." The people with whom he was staying said: "You will not have any chance against him for he is very strong." Kapakohana remarked: "I would be pleased to meet him in combat if he will say so."

That night Kapakohana spent with his friends. On the next day he proceeded on his way and arrived at Kaiwiopele in Hana. In this journey the people with whom he had spent the night accompanied him,[5] for they were anxious to see the combat.

When Kapakohana arrived in the presence of Kalaehina, Kalaehina looked up and saw a man standing before him. He then called out in a loud voice: "I will tear you up![6] I will tear you up!" When Kalaehina was making this threat, the people took pity on

[1]Kauai was noted for her celebrities, and the fame of her traditional strong men, her swift runners, her skilled astrologers and prophets, etc., form the theme of many chants and stories.

[2]King Ola was a ruler of Kauai remembered for his beneficent deeds for the good of his people, in roads, ditches, etc., and is said to have built the temple of Hauola in the Waiawa valley to commemorate his recognition as of royal lineage, for, like Umi of Hawaii, he had to prove his claim.

[3]It is noticeable in these writings how the sympathies are drawn on for beauty of face and form.

[4]Kalaehina, in self conceit, evidently rules by might, without thought of winning his subjects by a considerate course.

[5]The visitor naturally has the sympathy and well wishes of the residents, whose cause against an overbearing king he voluntarily espoused.

[6]"Brag is a good dog," but the bluff to frighten his opponent failed.

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Kaao no Kapakohana.

OIA ko Kauai kanaka ikaika loa, a oia ke noho ana ma ko Ola wahi, ko Kauai alii nui. A lohe oia i ko Kalaehina ikaika, makemake iho la oia e holo mai e hakaka me Kalaehina. Holo mai la ia mai Kauai mai a pae ma Oahu, mai Oahu mai a pae ma Honuaula i Maui, kau na waa i laila, hele aku la mauka a hiki i Kipahulu, ahiahi iho la, moe malaila, i kau hale kamaaina.

Ninau mai la kamaaina: "Mahea kau wahi hele? A mai hea mai nei oe." Olelo aku keia: "Mai Kauai mai nei au, e hele ana i ka makaikai a hiki i Hana a puni o Maui nei, alaila, hoi ia Kauai." I mai na kamaaina: "Minamina wale ko kanaka maikai, i ka make i ke 'lii huhu o makou, ia Kalaehina, e aho e hoi oe." I aku o Kapakohana: "He huhu no ka ia i ka mea hele malie ma ke alanui." "Ae, he huhu no, he oi kela o ke kanaka huhu a me ka ikaika, ua noke ia na 'lii a me na koa, aohe puko momona ia ia, a ua mahuka ke 'lii o makou, o Kamalalawalu a holo, no ka makau." Ninau aku o Kapakohana: "Heaha na hoailona ikaika ona a oukou i ike ai?" "Eia, e hiki ia ia e huhuki i na laau nunui e ulu ana, a e hiki ia ia e kaka i kana wahie ma kona poo (me he koi la ka oi), ke lohi ke kaka ana o na aipuupuu. Ina he la koele, aohe pane leo, aohe walaau, nolaila kau ka weli i na kanaka a pau nona, oia la i lohe oe." I aku o Kapakohana: "Aohe hoi ha he ikaika, he ikaika huhuki laau wale iho la no, ehia auanei au puupuu holo ia." I mai na kamaaina: "Aole oe e pakele, he ikaika auanei kela a kana mai." Olelo aku o Kapakohana i na kamaaina: "Ina e aa mai ia ia'u e hakaka maua, lealea loa au."

Moe iho la lakou a ao ia po, hele aku la o Kapakohana a hiki ma Kaiwiopele i Hana, ma keia hele ana o Kapakohana, hahai pu aku la na kamaaina o kona hale i moe ai, e ike i ko laua hakaka ana.

A hiki o Kapakohana i mua o Kalaehina, nana mai la o Kalaehina a ike he kanaka e hoea aku ana i mua ona. Kahea mai la o Kalaehina, me ka leo nui: "E nahae auanei! E nahae auanei!" Ia manawa a Kalaehina i kahea ai, ke aloha nei ka lehulehu

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Kapakohana, for they were sure that he would be killed. Kapakohana, however, fearlessly held his ground. When he saw the people working and not a word could be heard from them, he knew that what he had heard was indeed true. Kalaehina then prepared himself to grapple with Kapakohana. When Kapakohana saw that Kalaehina was about to take hold of him he called out to the people to stop their work.

Kalaehina then grabbed hold of Kapakohana and held him. Kapakohana also reached out and held Kalaehina fast, this being Kapakohana's favorite method [of fighting]. The two then began to wrestle; first one would be on top and then the other would be on top. This was kept up until Kapakohana was almost exhausted. While they were wrestling, Kapakohana was at the same time studying how he could overcome his opponent; at last he hit upon a plan, and that was to push his opponent to the cliff of Kaihalulu, at the sea shore, near to Kapueokahi in Hana.[7] When they were directly on the cliff, Kapakohana made one last effort and they both rolled over the cliff and fell into the sea, both going under. After a while Kapakohana came up with the dead body of Kalaehina. Kapakohana then proceeded to cut out the lower jaw of Kalaehina and showed it to the people who were gathered at the beach. When they saw the jaw[8] of Kalaehina, they knew then that he was indeed dead.

After the death of Kalaehina, Kamalalawalu again became the king of Maui and took upon himself his former powers. The people of Hana urged upon Kapakohana that he remain with them as their chief and that he rule over them in place of Kalaehina; but he refused.[9]

A few days after the death of Kalaehina, Kapakohana returned by way of Honuaula to the place where his canoe was moored, boarded it and he set out for Molokai landing at the Kalaau point, where he spent the night. Early the next day he again set out and landed at Ulukou in Waikiki; from this place he continued on his way and by night of the same day he landed at Pokai, in Waianae. On the next morning he again set out and by dusk he entered the mouth of the Wailua river, in Kauai, where he landed.

That night while he and his people were getting ready for their evening meal the robber[10] cannibal of Hanakapiai arrived; he was on his way to kill and devour the people of Wailua. When Kapakohana saw the hairless cannibal he said: "What do you want coming here? Do you not know that I am the strongest fighting man on Kauai? Why are you not afraid of coming to this place?" The robber answered: "I don't know who you are, nor your strength. I did not come here to hear you talk. I came here on a different errand." Kapakohana then asked him: "What is your errand?" The hairless cannibal answered: "To eat you up first and then chew your bones until they are as fine as dust." Kapakohana then said: "I am ready for you then." Kapakohana then grabbed hold of the robber around the body and held him

[7]Kapakohana's success in this close-matched struggle was in being able to drown his man without himself losing his grip under water. He perhaps had a diver's experience, otherwise he took equal chances in going over the cliff together.

[8]This seems an unusual accepted certificate of death; but resembles Palila's act of taking the jawbones of his three warrior antagonists as his trophies.

[9]Such modesty was deserving of some public recognition by Kamalalawalu, the restored king.

[10]An *olohe* was a robber skilled in the *lua*, able to break one's bones in wrestling. They were said to be hairless, and to oil their bodies to lessen the chances of an opponent's grip upon them. This one had the added faculty of cannibalism to his profession.

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fast, but this was nothing to the cannibal. They then began to wrestle until Kapakohana was held by the cannibal and was so exhausted that he began to grow faint. Kapakohana, realizing that he would get killed if they were to keep on with the fight,[11] asked of the cannibal that they become friends and to come and go to visit each other and partake of cooked taro.[12]

At this request the hairless cannibal of Hanakapiai agreed to be friends and allowed Kapakohana to get up and to cease the combat. Thinking that Kapakohana was honest in his intentions the robber cannibal became careless at nights and grew less watchful. One night while he was fast asleep, Kapakohana and two forties of his men came and surrounded the house of the cannibal with nets and ropes and prepared to catch him.

While the men were engaged in their work, the cannibal rose and sat up, for he was disturbed by the sound of the voices of the men outside of the house. He then looked out and saw the people setting their nets; he then studied a plan as to the best means of getting out. Instead of trying to get out by the doorway he climbed up to the roof and tore open the top of the house and made his escape by taking hold of a branch of the kukui tree which grew close to the house. There he sat and listened to the talk and the orders that were being given by Kapakohana, to make ready and set the house on fire so as to kill the hairless cannibal. When he heard this, he said to himself: "I am going to kill you all and eat you up, from the smallest to the largest of you." He then jumped down from the tree and crawled up to the men and began killing and eating them. He kept this up until he came up to Kapakohana. When Kapakohana saw the cannibal he jumped at him and held him by the throat. The fight was continued from the rest of that night and all the next day until just as the sun was sinking in the sea the cannibal was at last made fast and held to the ground. Kapakohana, then reached out for his war club and struck the cannibal in the temple a couple of times, depriving him of the further enjoyment of the heat of the sun, thus killing him.[13]

Kapakohana then took out the eyes[14] of the cannibal to be used as bait for shark fishing. He next stripped the bones clean[15] and used them for a place to hang up his calabashes. The rest of the body was then carried to the temple and placed on the altar as a sacrifice. Thus was the cannibal killed by Kapakohana.

[11]A case of "discretion" being "the better part of valor."

[12]To "break bread" with one was said to be a seal of friendship with some people; it may have been the impression intended in this case.

[13]Fancy the physical endurance for a fight of eighteen or more hours continuous, and to be dispatched with a war club in the end!

[14]Eyes were sacrificial offerings rather than shark bait, usually, and the departure seems strange in this case, seeing the body was carried to the temple for such purpose.

[15]To turn one's bones into fish-hooks or other purposes was the most dreaded insult.

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mea ole ia i ka olohe. Ma keia hakoko ana, ua paa loa o Kapakohana i ka olohe, a ua pau loa kona aho, a kokoke e nawaliwali o Kapakohana, nolaila, nonoi aku o Kapakohana: "E hoaikane kaua, he mea kipa ka hale, he mea ai na kalo moa."

Ma keia olelo a Kapakohana, ua hookuu ka olohe aikanaka o Hanakapiai ia Kapakohana, manao iho la ka olohe, he olelo oiaio keia a Kapakohana, walewale kona manao, a hemahema kona moe ana i ka po. Ia ia e moe ana, ala mai la o Kapakohana me kona mau kanaka elua kanaha, a hoopuni i ka hale me ka upena, a me na kaula he nui loa a me na kanaka e makaukau ana e hopu i ka olohe, ia lakou e makaukau ana e hoopuni i ka upena.

Ala mai la ka olohe, a noho i luna, me ka noonoo i kona moe ana, lohe aku la ia i ka nehe o na kanaka a me ka halulu, kiei aku la ia a ike, he upena ka mea e hana ia nei mawaho, lele ae la ia a luna o ka hale, wawahi ae la ma kaupoku, a hemo ae la ke poo ma waho. Lele aku la ia a kau luna o ka lala kukui, noho iho la hoolohe i ka leo a me ke kamumu, e olelo ana o Kapakohana. "E makaukau oukou a pupuhi ae ke ahi, i pau ka olohe aikanaka." A lohe ka olohe i keia olelo, i iho la ia: "Make oukou ia'u. E ai aku ana au ia oukou a pau loa, mai ka mea nui a ka mea liilii." Lele iho la ua olohe nei, mai luna iho a lalo, kokolo aku la keia a kokoke, lalau aku la hookahi kanaka, pau ae la i ka ai ia, lalau hou alua kanaka, pau hou no i ka ai ia. Pela no ka ai ana a ka olohe, a loaa o Kapakohana lele aku ana ka olohe ai, e lele mai ana o Kapakohana, paa i ka puu o ka olohe, pela laua i noke ai a kokoke e napoo ka la i lalo o ke kai, paa ka olohe a hina iho la i lalo o ka honua. Lalau aku la o Kapakohana i kana laau palau a hoomoe ma ka hono o ka olohe, elua hana ana peia, haalele ka olohe, i ka la i ka mea mahana, a make iho la ia.

Poalo ae la o Kapakohana i na maka o ka olohe, i mea kupalu mano, lole ae la i na iwi i mea kau paipu, a o ke kino okoa hoi, kaumaha ia aku la na ke 'kua i luna o ka heiau. Pela i pau ai ke kaua ana o Kapakohana me ka olohe.

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Legend of Kapunohu.

KUKUIPAHU in Kohala is the place where Kapunohu was born. Kukuipahu[1] was also the name of his brother-in-law. Kanikaa was the name of his god and Hoomaoe was the name of his fisherman. Hoomaoe was a great fisherman. On coming home one day after he had been out fishing and had caught ten fish, he was met by the god named Kanikaa.[2] Kanikaa asked of Hoomaoe: "You seem tired. You must have plenty of fish to eat. You must have caught a good many." Hoomaoe answered: "Indeed I have some fish." "How many?" asked Kanikaa. "Ten." "Let me have some of them?" Hoomaoe gave him some; but Kanikaa kept on asking until Hoomaoe had given him all the ten fish. After Kanikaa had received the last fish, he knew that Hoomaoe was a very kind hearted man. Kanikaa then said to Hoomaoe: "I came with the intention of eating you up; but because of your great kindness to me, I will therefore save you and I shall henceforth be your god."

Sometime after this Kanikaa set out for the playground, where the game of glancing the spear[3] was being carried on, taking with him his spear called Kanikawi. While he was throwing his spear on the course, Kapunohu came along and upon seeing the spear he picked it up and ran off swiftly with it. When Kanikaa saw Kapunohu run off with his spear he gave chase[4] with the idea of killing Kapunohu if he should catch him. In running away with the spear, Kapunohu ran toward upper Kawaihae with Kanikaa hot after him. Upon coming to an underground tunnel Kapunohu entered it with Kanikaa right along behind. Kapunohu went out at the other end and soon after Kanikaa also went out. The chase was kept up for some time till at last they agreed to make friends.[5] Because of this fact this place is to this day called Kaholeiwai, meaning, that it is the place where the winds from the southwest meet in conflict with the winds from the northeast. This, their battle ground, is known as Kaholeiwai. One wind cannot overcome the other and a distinct line lies at this place,[6] which has always been famous for this fact; and both winds have continued the fight from that day to this and it will always be kept up.

When Kanikaa and Kapunohu became friends, Kapunohu kept Kanikaa's spear, Kanikawi, and Kanikaa became the god of Kapunohu.

After this Kapunohu returned and lived with his sister, the wife of Kukuipahu, the king of Kohala. On the morning after his return, while their morning meal was being prepared, the sister told Kapunohu: "Go and take your morning meal with your

[1]Readers will have noticed in many cases, as in this story, the name of a person and a place to be the same. Kukuipahu figures in story as a king of Kohala and proves so in this case.

[2]Kanikaa, Kapunohu's god in human form.

[3]Game of *pahee*, glancing a javelin kind of spear over a level course or track.

[4]The human passions predominate over his claimed god-like powers.

[5]Making the best of a bad defeat. This seems to be the usual course with not a few legendary contestants.

[6]Weaving nature's phenomena into local tradition.

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He Kaao no Kapunohu.

NO KUKUIPAHU i Kohala o Kapunohu, o Kukuipahu ke kaikoeke, o Kanikaa ke 'kua, o Hoomaoe ka lawaia. He kanaka lawaia o Hoomaoe, ia ia e iho ai i ka lawaia a hoi mai me na ia he umi, halawai laua me ke 'kua, o Kanikaa ka inoa. Ninau aku o Kanikaa ia Hoomaoe: "Kani ka hoe? Ai wale i ka ia, loaa aku la ka ia." I aku o Hoomaoe: "He ia no." "Ehia ia?" Wahi a Kanikaa. "He umi ia." "Na'u kekahi ia." Haawi mai la o Hoomaoe. Pela no ke noi ana a Kanikaa a pau na ia he umi. Ma keia nonoi ana a Kanikaa ia Hoomaoe, ua maopopo ia ia he kanaka lokomaikai o Hoomaoe, nolaila, olelo aku o Kanikaa ia ia: "I kii mai nei au ia oe e ai, a no ko lokomaikai launa ole ia'u, nolaila, ola oe ia'u, a lilo no hoi au i akua nou."

Mahope o laila, hele aku la o Kanikaa i ka pahee me kana ihe o Kanikawi. Ia ia e pahee ana, a holo ka ihe i ke kahua pahee, ia wa o Kapunohu i lalau ai i ka ihe a holo, me ka mama loa. A ike o Kanikaa ua lilo kana ihe ia Kapunohu, alualu aku la ia me ka manao e pepehi a make o Kapunohu, ma keia hahai ana ia Kapunohu, hiki laua i Kawaihae uka, a komo o Kapunohu i loko o ka lua, komo o Kanikaa i loko o ka lua, puka o Kapunohu i waho, pela ko laua hana ana a hoaikane laua. Nolaila, ma keia hana ana pela, ua kapaia ia wahi o Kaholeiwai a hiki i keia la. Eia ke ano; he wahi hakaka o ka makani maoli me ka naulu, e hiki i ka makani hikina ke pa mai a hiki i laila, aole e hiki ke lele ma ke komohana o Kaholeiwai, a pa aku, pela hoi ka naulu, aole e hiki ia ia ke nee ma ka hikina o Kaholeiwai. Nolaila, ua kaulana ia wahi mai kahiko loa mai a hiki i keia la, a ke mau nei no ko laua hakaka ana a hiki i keia la, a mau loa aku no.

Ma keia launa ana o Kanikaa me Kapunohu, ua lilo ia Kapunohu ka ihe a Kanikaa, o Kanikawi, a ua lilo no hoi o Kanikaa he 'kua no Kapunohu.

Hoi aku la o Kapunohu a noho me kona kaikuahine, ka wahine a Kukuipahu, ke 'lii o Kohala, noho iho la, a hiki i ka wa ai o ke kakahiaka, i mai la ke kaikuahine o Kapunohu, o hele mamua e ai me ko kaikoeke, no ka mea he ai kapu. A hiki o Kapu-

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brother-in-law." This was because the women were not allowed to eat with the men. When Kapunohu arrived at the eating house he took up the wash basin and washed his hands.[7] While he was doing this Kukuipahu asked: "After your hands are washed what are you going to eat?" Kapunohu replied: "I was called to come." Kukuipahu then asked of those within the house from one end to the other, if anybody had called Kapunohu to come. The people within the house all denied ever calling him. This was of course meant for an insult and Kapunohu felt it deeply.[8] Kapunohu then went back to his sister and told her of his treatment. Shortly after this Kapunohu went off feeling bitter toward his brother-in-law.

From this place Kapunohu went on up toward the uplands until he came to a row of wiliwili[9] trees. These trees were of large size, resembling the kukui[10] trees, but very light and not as hard as the wood of the kukui. Kapunohu then, with an idea of testing his strength, threw his spear at the first tree and the spear went through them all. It is said there were eight hundred[11] of the trees which stood in a straight row. He made a clean hole in each tree, all in one thrust.

After this display of his strength Kapunohu continued on his way up until he met two old men who were farming along the highway. The land which they were cultivating is known as Nahuluaina. Kapunohu then said to them: "Say, old men, I want you to each take a flag and run with all your might away from each other and where you stop, that shall be the boundary[12] of your lands." The names of the old men were Pioholowai and Kukuikiikii. They each took up a flag and ran with all their might. In their effort to cover as much ground as possible, Pioholowai did not go very far before he became exhausted and so planted his flag; because of this his land was short and the name of that land is Pioholowai to this day, after his name. Kukuikiikii, on the other hand, ran and covered much more ground before he planted his flag, consequently his land was much larger, and the name of the land is Kukuikiikii to this day, after the old man who owned it. Because of the mode of the division of these two lands all the following pieces of lands are cut off short and do not run clear up to the mountains: Hualoa 1, Hualoa 2, Kealahewa 1, Kealahewa 2, Kealahewa 3, Hukiaa 1, Hukiaa 2, Kokoiki 1, Kokoiki 2, Puuepa 1, Puuepa 2, Kapakai, Upola, Honoipu, Puakea 1, Puakea 2, Puakea 3, and Kamilo. Those lands are bounded today as they were made at the time this story relates. They do not run clear to the mountains like the other lands in the district of Kohala.

Kapunohu continued on his way until he arrived at Waioopu in Halaula, where a woman by the name of Halaula was living and with whom he lived for three days. From this place he continued on his way until he came to Puaiole, in Aamakao where a woman by the name of Aamakao was living and he staid here two days. From this last place he continued on his way until he arrived at Niulii, where the chief of that section of Kohala was living, a man by the same name, Niulii. This chief had under him all the

[7]A natural act, especially considering the prevailing custom of all dipping their fingers in the same poi bowl.

[8]Proverbial Hawaiian hospitality seems to have its limitations and observance of etiquette.

[9]*Wiliwili (Erythrina monosperma)*, a tree of very light, soft wood.

[10]*Kukui (Aleurites moluccana)*, the candle-nut tree, hence its name.

[11]Nothing small about the feats of Hawaiian heroes.

[12]This method of defining a land section, *ili aina*, has its counterpart in the story of Umi.

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nohu i mua, lalau aku la ia i ke poi wai holoi a holoi iho la i na lima. Ia Kapunohu e holoi ana i na lima, ninau aku la o Kukuipahu: "Holoi ka lima, heaha koalaala o ka ai ana?" I aku o Kapunohu: "I hea ia ae nei hoi." Ia wa, ninau ae la o Kukuipahu ia loko o ka hale, mai kela aoao a keia aoao: "E! Kela kala, o keia kala, e kahuwai, i kahea ia aku nei anei oinei e hele mai e ai?" Hoole mai la o loko o ka hale: "Aole, hilahila wale." Pa iho la keia olelo ia Kapunohu, hilahila loa, hoi aku la o Kapunohu a ke kaikuahine olelo, a pau ia, hele aku la o Kapunohu me ka huhu a manao ino i ke kaikoeke.

Pii aku la o Kapunohu a hiki i uka o ia aina, e ku ana ka lalani wiliwili, he laau nunui ia me he kukui la kona kino, ke nui ame ke kiekie, he laau oluolu no nae, aole paakiki loa e like me ke kukui. Ia wa, hoao o Kapunohu i kona ikaika i ka hou ihe, holoholo aku la ia me kana ihe a pahu aku la, komo aku la kana ihe i loko o na wiliwili a pau loa, ua olelo ia, elua lau wiliwili e ku ana ma ka lalani ana i pahu ai, a o ia mau wiliwili kai pukapuka ia Kapunohu, i ka pahu kookahi ana i ka ihe.

A pau keia hana a Kapunohu, pii aku la ia a loaa elua mau elemakule e mahiai ana i ke alanui, o Nahuluaina ko laua aina e mahiai ana. Olelo aku o Kapunohu ia laua: "E na elemakule, e holo olua me na lepa elua, me ko olua mama loa, a kahi a olua e kukulu ai, o ka palena ia o ko olua aina." O na inoa o ua mau elemakule nei, o Pioholowai kekahi, a o Kukuikiikii kekahi, hopu iho la laua i na lepa, a holo aku la me ka mama loa. Ma keia holo ana o laua, pau e ko Pioholowai aho, a kukulu koke i kana lepa, nolaila pokole kona wahi, a kapaia ka mokuna o ia aina, o Pioholowai a hiki i keia la, mamuli o kona inoa. O Kukuikiikii, kela loa kona mama i mua, a nui kona aina, kukulu ia iho la kana lepa, a ua kapa ia ia wahi o Kukuikiikii a hiki i keia la, mamuli o ka inoa o ka elemakule ahai lepa. Nolaila, ua waiho mumuku na aina o Hualoa 1, Hualoa 2, Kealahewa 1, Kealahewa 2, Kealahewa 3, Hukiaa 1, Hukiaa 2, Kokoiki 1, Kokoiki 2, Puuepa 1, Puuepa 2, Kapakai, Upolu, Honoipu, Puakea 1, Puakea 2, Puakea 3, Kamilo. Pela ke ano o kela mau aina a hiki i keia la, aole i hiki loa i ke kuahiwi, e like me na aina e ae o Kohala.

Hele aku la o Kapunohu a hiki i Waiaoopu ma Halaula, he wahine ia, noho iho la me ia ekolu la, malaila aku, a hiki i Puaiole ma Aamakao, he wahine ia, elua la me ia, malaila aku a hiki i Niulii, he 'lii ia no ia aoao o Kohala, mai ka pali o Awini a ka

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lands included in between the heights of Awini and the Wainaia gulch; and from the Wainaia gulch to Kahua, Kukuipahu was the ruler. Kukuipahu had the larger part of Kohala, while Niulii had the smaller portion.[13] Because of this fact the two were constantly at war with each other, therefore Kapunohu journeyed and cast his lot with Niulii, so as to have a chance to meet and kill Kukuipahu who had insulted him.

Before Kapunohu arrived at the king's place it grew quite dark. He went down the Opuowao gulch, which is next to Makapala and climbed the next rise, called Kohepalapala, next to Niulii and then down a little hollow called Kaha. When Kapunohu arrived at this place he saw the daughters of Niulii bathing. The first was named Neue and the younger one was called Keawehala. Kapunohu looked at the two girls and they looked at him. Kapunohu was a handsome man and his whole body was without blemish. So the girls, too, were beautiful to look upon.

The two girls then asked: "Where are you from?" "I came along this way." "There is no man like you in these parts. Where are you from?" "I have come from the other end, from the ilima[14] district." "Yes, that is the truth. But when you say you are from these parts, that is not the truth. Where are you going to?" "I am going sight seeing along the way." "Yes, and where are you to spend the night?" "At the place where sleep will overcome me; there I will sleep." The girls then said: "And why not sleep here with our people?" "If you wish me to, I will." "Yes, we wish it." They then proceeded on to the house. When they arrived at the house they found Niulii and his wife Kawaikapu sitting by the doorway. Kawaikapu was also a very beautiful woman and very pleasant to look upon.

At sight of the young man, Niulii inquired: "Who is the third person?" The daughters replied: "A stranger that belongs to us. We were bathing when he came along, and being late we brought him home for the night and he can resume his journey tomorrow." Niulii then said: "You should take him as your husband, you two women," so Kapunohu took the two girls as his wives and made his home with the king, Niulii. A few days after this Niulii prepared for battle, and Kapunohu was made the general of all the forces of Niulii.

The men were then sent to the front and the enemy was met with on their side of the Wainaia gulch at a place called Piauwai. Here the forces of Kukuipahu, commanded by a man named Kaluakanaka were met and the battle commenced. In this battle the forces under Kaluakanaka were beaten back by the forces of Kapunohu. The war was then carried over the Wainaia gulch and into Iole; then into Ainakea directly above Hinakahua at Kapaau, where Kukuipahu with the rest of his army was stationed. At this place the battle became very fierce and the spears went darting back and forth. It was at this place that Kapunohu threw his spear, Kanikawi (whereby the sugar-cane leaves rustled, the blades of grass grated, clouds of dust arose[15]), and by its force killed 3200 men[16] and the slaughter was very great. Kapunohu took all the

[13]Residents of Kohala speak of the divisions of their district as inside, the eastern, and outside, the western portion.

[14]*Ilima* district, probably so called from its drier section favoring the growth of this popular plant of the *Sida* genus, with its orange-yellow blossoms.

[15]This is one way of illustrating the force of air current from a spear's flight.

[16]Rather a large number of scalps for one warrior's belt.

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pali o Wainaia, kona wahi, a mai Wainaia, a Kahua ko Kukuipahu wahi ia, oia ko laila alii. Ua nui kahi o Kohala ia Kukuipahu, a uuku hoi kahi ia Niulii. Nolaila, he kaua iwaena o laua i na la a pau loa, a o ia ke kumu o Kapunohu i hele ai a ma ko Niulii aoao, i make o Kukuipahu ia ia, no ka ukiuki i ka hoohilahila ana ia ia.

A hiki aku la o Kapunohu i ka wa ahiahi koena liula, iho aku la ia ma Opuowao, e pili la me Makapala, a pii aku o Kohepalapala ia kahawai, e pili la me Niulii, he wahi oawa o Kaha, ka inoa. Hiki aku la o Kapunohu i laila, e auau ana na kaikamahine a Niulii i laila. O Neue ka mua, o Keawehala ka muli, nana aku la o Kapunohu ia laua, nana mai la laua ia Kapunohu, he kanaka maikai o Kapunohu ma kona kino a puni, aohe kina, a pela no hoi na wahine.

Nolaila, ninau mai la na wahine: "Mahea mai oe?" "Maanei mai nei no." "Aole o onei kanaka elike me oe, mahea mai oe?" "Mawaho mai nei au ma na ilima mai." "Ae, he oiaio ia, a o ko olelo maanei mai nei, aole. A e hele ana oe o hea?" "E hele ana au e makaikai maanei aku." "Ae, hele oe a hea moe?" "A kahi no e make hiamoe ai na maka, alaila, hiamoe." Wahi a na kaikamahine: "Aole e piapia ko maka ianei e moe ai." "I ke aha hoi, ina ua pono ia i ko olua noonoo ana." "Ua pono no, e hoi kakou." A hiki lakou i ka hale, e noho ana o Niulii me kana wahine o Kawaikapu, he wahine maikai ia ma ka nana aku.

Ninau mai la o Niulii: "Owai ko oukou kolu?" I aku na kaikamahine: "He malihini na maua, e auau ana maua, ku ana keia, a no ka poeleele, hoihoi mai nei maua ia ia i ka hale nei e moe ai a ao hele aku." I mai o Niulii: "O ka olua kane ia, o olua na wahine." Moe iho la lakou a ao ae, hoonoho iho la o Niulii i ke kaua. Lilo ae la o Kapunohu i alihikaua no na koa a pau o Niulii. Hele mai la ke kaua a hiki i Wainaia maluna aku, o Piauwai ia wahi, loaa ko Kukuipahu alihikaua o Kaluakanaka ka inoa, i laila hoouka ke kaua, ma keia hoouka ana, hee ko Kaluakanaka aoao ia Kapunohu. Nee hope mai la ke kaua, a hala ka pali o Wainaia, a Iole, Ainakea, kupono i Hinakahua, ma Kapaau, i laila o Kukuipahu me ka poe o ke kaua. Alaila, o o na ihe, hou aku a hou mai, i laila o Kapunohu i hou ai i ka ihe ana o Kanikawi, nehe ka lau o ke ko, owe ka lau o ka manienie, ku ke ehu o ka lepo i luna, hookahi no pahu ana i ka ihe, ewalu lau kanaka i ku a make, mahope o laila ua nawaliwali ka ihe, ahulau iho la na kanaka i ka make. Lawe ae la o Kapunohu i ka ahuula a me ka mahiole, make iho la o Kukuipahu,

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feather helmets and cloaks and Kukuipahu was killed[17] together with a large number of his men; the rest of his army retreated to Lamakee in Kaauhuhu, where they were overtaken by Kapunohu and the battle was again resumed.

In this battle Paopele, a great warrior, came out to meet Kapunohu; his war club, Keolewa by name, had six rounds on it. It was so long that when it was stood up its point would be wet with the mist in the heaven, and when laid down it would extend over the whole length of an ahupuaa[18] from the sea to the mountain; when held up it would hide the sun and it could also hold back the east wind. It required 4000 men[19] to carry it. When this man came out on the battle field at Lamakee fear entered the breast of Kapunohu, for the body of Paopele was very large and powerful; but his god Kanikaa said: "Don't be afraid of the loud-voiced thunder in the heaven for it has no strength; you thrust him with your spear, Kanikawi, and I will bite him." Soon after this instruction was given by Kanikaa, he bit the back of Paopele. While Paopele was considering the nature of this thing on his back, Kapunohu threw his spear at Paopele, which hit him squarely, passed through him and killed him instantly. Lamakee from that day to this became famous, for it was here that the great warrior Paopele was killed by Kapunohu. The remnant of the army of Kukuipahu was again routed and they retreated to Kaluawilinau, at Puuepa, and from there they retreated to Upolu, then Puakea, then on to Kamilo and up to the place where the old men planted their flags. Because of this fact the ahupuaa of Kukuipahu is one of the largest in the district of Kohala to this day. The whole of Kohala thus came under the charge of Niulii and he was acknowledged the king of the whole district.

After the battle, Kapunohu and his god Kanikaa set out for Oahu, taking his spear Kanikawi along with him, for a visit to his sister, the wife of Olopana. Kapunohu went aboard of a canoe at Kohala and landed at Keanapou, in Kahoolawe, where he spent the night; from this place he again set sail and landed at Kahalepalaoa in Lanai; then from this last place he set out and landed at Kaluakoi in Molokai; then from this place he again set out and landed at Makapuu Point, in Kailua, Koolau, where his sister Konahuanui[20] was living. When she saw Kapunohu they wept together, after which she said: "We have no food ready. You must be hungry. There is food growing out there in the patches. Your brother-in-law, Olopana is out with the men, working." Kapunohu said to the sister: "Let us go out so that you can show me the patches." When they came to the place she pointed out eight patches of large taro and returned home.

Kapunohu then set to work and pulled up all the taro in the eight patches, tied the taro into bundles and carried the whole lot in his two arms to the house, each arm holding the taro of four patches. When Kapunohu arrived at the house with the taro his sister looked on and said: "What an idea! I should think you would pull up but one patch, but here you have pulled up all the patches." Kapunohu replied: "This will give us plenty of food; we will not be required to get it in small quantities." Kapu-

[17]A severe penalty for the breakfast table insult; see application of note 8.

[18]*Ahupuaa*, a division or tract of land within a district which might embrace several *ili*.

[19]It is difficult to understand the writer's viewpoint to reconcile the statement of his hero's ability to handle a club which required 4000 men to carry it.

[20]Name of the highest mountain peak of the Koolau range.

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a me na kanaka he lehulehu, o ke koena, hee aku la a hiki i Lamakee ma Kaauhuhu, loaa aku la ia Kapunohu i laila, hoouka hou.

I laila la oili mai o Paopele, he koa ikaika ia, eono puali o kana laau palau, o Keolewa ka inoa, pulu ka welau o luna i ka ua awa, pau ka loa o ke ahupuaa mai ke kuahiwi a ke kai, ke hoomoe ia ma ka loa, paa ke kukuna o ka la, lulu ka makani o ka hikina, he umi lau kanaka nana e amo, alaila hiki. Iaia e ku ana i ke kahua o Lamakee, komo mai ka makau ia Kapunohu, no ka nui o ko Paopele kino ke nana aku, nolaila, pane iho o Kanikaa ke 'kua ia o Kapunohu: "Mai makau oe i ka hekili nui i ka lani, aohe ikaika. O kau ka pahu i ka ihe ia Kanikawi, o ka'u ke nahu." Mahope o keia olelo ana a Kanikaa, e nahu iho ana o Kanikaa ma ke kua o Paopele, lilo o Paopele i laila, e pahu iho ana o Kapunohu i ka ihe, ku o Paopele, halulu ana i lalo a make iho la. Nolaila, kaulana o Lamakee a hiki i keia la, no ka make ana o Paopele ke kanaka koa ia Kapunohu, nolaila, hee aku la ke kaua a hiki i Kaluaowilinau ma Puuepa, pela a hiki i Upolu, a Puakea, a Kamilo, koe, kahi a na elemakule i kukulu lepa ai. Nolaila, o Kukuipahu kekahi o na ahupuaa nui o Kohala, a hiki i keia la, mamuli o ka hana a kela mau elemakule. Puni ae la ka aina o Kohala ia Niulii, a oia wale no ke 'lii o Kohala puni ia wa.

A pau ke kaua ana, holo mai la o Kapunohu, me ke 'kua ona o Kanikaa, a me kana laau palau o Kanikawi, i Oahu nei i kona kaikuahine, oia ka wahine a Olopana. Kau mai la ia ma ka waa mai Kohala mai a kau i Keanapou i Kahoolawe, moe a ao, holo mai la a pae ma Kahalepalaoa, i Lanai, mai laila mai a Kaluakoi i Molokai pae, a hala ia, ma laila mai a pae ma ka lae o Makapuu, Kailua, Koolau. E noho ana ke kaikuahine i laila, o Konahuanui ka inoa, ike mai la ia Kapunohu, uwe iho la laua a pau, i aku ke kaikuahine: "Aohe ai moa, he pololi, he ai no aia i waena. A o ko kaikoeke hoi o Olopana, aia no i ka mahiai me na kanaka." I aku o Kapunohu: "E hele kaua e kuhikuhi oe ia'u i ka mala ai." Hele aku la laua a hiki, kuhikuhi mai la ke kaikuahine, ewalu loi kalo nui, a hoi aku la ke kaikuahine.

Noke aku la o Kapunohu i ka huhuki a pau na loi ai ewalu, ku ae la ke ahu o ka ai ma kapa, noke aku ana o Kapunohu i ka huhui a paa, hoo i ka ai i na lima, ma o a ma o, o ka aumaka iho la no ia o ke amo ana a hiki i ka hale, ua like me aha loi ai ma kela lima keia lima. A hiki o Kapunohu i ka hale me ka ai, nana mai la ke kaikuahine a olelo mai la: "Ka haha! Kupanaha oe! Kai no o ka huhuki ae nei kau hookahi loi, eia ka o ka huhuki no kau a pau loa." I aku o Kapunohu: "Nui hoi paha ka ai, aole e kii liilii." Lalau aku la o Kapunohu i kana ihe ia Kanikawi, a hahaki ae la i ka maka,

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nohu then picked up his spear, Kanikawi, broke off the point and started the fire. When the fire lit, he took some of the taro and cut it up and threw the pieces into the fire and in this way used the taro for firewood. Because of this action of Kapunohu, the saying, "the hard taro of Waiahole," is known from Hawaii to Niihau.

When Olopana saw what Kapunohu had done, he began to scheme, that with the use of Kapunohu he would be able to conquer the whole of Oahu, as he and Kakuhihewa, the king of the Kona side of Oahu, were on bad terms. Through the advice of his priest, Olopana was made doubly sure that Kapunohu was a very strong and brave man and was fearless and willing to meet all comers. Therefore Olopana made Kapunohu the commander-in-chief of his forces and urged upon him to go and fight Kakuhihewa. In this battle Kakuhihewa was slain by Kapunohu and the whole of Oahu came under the rule of Olopana.

After the death of Olopana, Kapunohu left Oahu and journeyed to Kauai. Boarding his canoe he set sail and first landed at Poki, in Waimea; from this place he continued on to Wahiawa and then on to Lawai in Koloa where he settled down. There lived at this place a great warrior, by the name of Kemamo, who was noted for his great strength and skill in the use of the sling; he was without equal in its practice; his left hand was considered better than his right, and he could throw a stone for a distance of six miles and in the seventh mile its force ceased. No person in Kauai was found who could face him, not from amongst the chiefs or soldiers. Because of this man people were afraid to travel between Koloa and Nawiliwili; those on the Koolau side could not pass over to Nawiliwili and those from the Kona side were afraid to travel toward the Koloa side, for the reason that Kemamo and his wife Waialeale[21] lived between Koloa and Nawiliwili.

When Kapunohu arrived at Lawai he was entertained that night by some of the people of the place, and on the next day he prepared to continue on his journey. When he was ready to start, the people said: "You must not go by this way or you will get killed by our great warrior." Kapunohu then asked: "Who is this warrior?" "Kemamo." "In what is his strength?" "He is very skilful in the use of the sling. He never misses a shot, and the strength of his flying stone will go over five miles. Therefore you must not go for you will get killed." Kapunohu said: "Then he is not strong. The sling is only a plaything for the boys of our place and it is not considered of any consequence." These remarks made by Kapunohu were carried around until they reached Kemamo; so Kemamo made the remark: "Yes, this is the first time that my strength in the use of the sling has been denied. Well and good; if he desires to come and test as which of us is the stronger, let him come on." When Kapunohu heard this, he went out to meet Kemamo. Upon seeing Kapunohu, Kemamo asked: "Are you the man that has said that I have no strength in the use of the sling?" Kapunohu replied: "Yes, I am the man. It is because these people said that you are very skilful in the use of the sling, so I said, that it is the plaything with the small boys at our place."

When Kemamo heard this he became very angry toward Kapunohu and said: "What will the stranger bet on the proposition?" Kapunohu replied: "My life will be

[21]Kauai's loftiest mountain.

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my stake." "Yes," said Kemamo, "and what else?" Kapunohu replied: "That is all a traveler takes with him. If you beat me my life shall be forfeited, and if I should beat you your life shall be forfeited." Kemamo agreed to this and the bet was declared made. Kemamo then said: "The course over which we shall compete in throwing the stone with the sling, shall be from Koloa to Moloaa in Koolau. We must make our throws over these points and toward Moloaa; whoever throws the greatest distance beyond Moloaa wins." Kapunohu replied: "Yes, I will agree to that, but I am going to use my spear while you use your sling." Kemamo agreed to this. Kemamo then asked: "Who shall take the first chance? Shall it be the stranger, or shall it be the native son?" Kapunohu answered: "Let the native son take the first chance and the stranger the last."

Kemamo then took up his sling and threw his stone, which went six miles and over, and it only fell and rolled after it had entered into the seventh mile, stopping at Anahola, where it was picked up by the best runner of Kauai, a man by the name of Kawaikuauhoe. Kapunohu then threw his spear, darting along from Koloa and over Niumalu, and as it shielded the sun from the coconut trees at this place the land was given the name of Niumalu,[22] as known to this day; then it went on and into the water in upper Wailua, giving the place the name of Kawelowai as well as the land next to it which is called Waiehu; from this place it again took an upward flight flying along till it pierced through a ridge at Anahola, which is called Kalaea, leaving a hole through it, which can be seen to this day; from this place it went on past Moloaa, then past Waiakalua, then into Kalihikai, where it grew weaker and finally stopped at Hanalei.

Kemamo was therefore beaten and the conditions of their bet were carried out. Kapunohu became thereby king of Kauai.

[22] *Niumalu*, shaded coconuts would be one definition.

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a heaha hou ae?" I aku keia: "O ka waiwai iho la no ia a kamahele o na iwi, ina wau e eo, alaila make au, a ina hoi oe e eo, make oe ia'u." Ae mai la o Kemamo: "Ae ua mau ia pili ana." Olelo aku o Kemamo: "O ka pahu a kaua, e ku ai a maa, mai Koloa a Moloaa i Koolau ka pahu ia ma waena o laila ka kaua hana, a i puka ma o o Moloaa eo kekahi o kaua." Ae aku la o Kapunohu. I aku nae o Kapunohu: "O ka'u hana i ike o ka pahee, malaila no wau, o kau hana hoi i ike o ka maa, malaila no oe." Ae mai la o Kemamo. I aku o Kemamo: "Ia wai mua, i kamaaina paha, i ka malihini paha?" I aku o Kemamo: "I kamaaina ka mua, he hope ka ka malihini."

Ia wa, maa o Kemamo a pau eono maila, a i ka hiku nawaliwali, pela ka nawe hele ana a hiki i Anahola waiho, ilaila loaa i ke kukini mama o Kauai, o Kawaikuauhoe kona inoa. Pahee o Kapunohu i kana ihe, holo aku la kana ihe mai Koloa aku a Niumalu, o ka malu o ka la i ka ihe a Kapunohu, kapaia ia aina o Niumalu a hiki i keia la. Mailaila aku ka holo ana, a hiki i Kawelowai mauka o Wailua, nolaila kela inoa, e pili la, o Kawelowai, a me Waiehu, no ke komo ana o ka ihe i loko o ka wai, a lele hou, mailaila aku a Kalalea i Anahola, o ia kela puka e hamama ala a hiki i keia la, malaila aku a hiki i Moloaa, malaila aku a Waiakalua a Kalihikai maalili ka ihe, a Hanalei pau ka holo o ka ihe. A eo ae la o Kemamo hooko ia ka laua pili, a lilo ae la o Kapunohu i alii no Kauai.

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Appendix C Land Commission Award 7713 and Land Grant 188

Mahele Record: 07713*K

Claim Number:	07713*K
Claimant:	Kamamalu, Victoria
Other claimant:	
Other name:	
Island:	Kauai
District:	Kona, Puna
Ahupuaa:	Huleia, Makaweli, Niumalu, Haiku, Kipu, Kalapaki
Ili:	Kikiaola

Apana:	9	Awarded:	1
Loi:	0	FR:	
Plus:		NR:	440-444v5+
Mala Taro:	0	FT:	408-411v3
Kula:	0	NT:	650v1
House lot:	0	RP:	4475,4476,4477,4478,4479,
Kihapai/Pakanu:	0	Number of Royal Patents:	8
Salt lands:	0	Koele/Poalima:	No
Wauke:	0	Loko:	No
Olona:	0	Lokoia:	No
Noni:	0	Fishing Rights:	No
Hala:	0	Sea/Shore/Dunes:	No
Sweet Potatoes:	0	Auwai/Ditch:	No
Irish Potatoes:	0	Other Edifice:	No
Bananas:	0	Spring/Well:	No
Breadfruit:	0	Pigpen:	No
Coconut:	0	Road/Path:	No
Coffee:	0	Burial/Graveyard:	No
Oranges:	0	Wall/Fence:	No
Bitter Melon/Gourd:	0	Stream/Muliwai/River:	No
Sugar Cane:	0	Pali:	No
Tobacco:	0	Disease:	No
Koa/Kou Trees:	0	Claimant Died:	No

Other Plants: Other Trees: 0

Other Mammals: Miscellaneous:

No. 7713*K, Victoria Kamamalu - Land Division N.R. 440-444v5

Opukaula, `Ili, Waimano, Ewa, Oahu
Kilauluna, `Ili, Waimano, Ewa, Oahu
Hananau, `Ili, Waimano, Ewa, Oahu
Kanenelu, `Ili, Waimano, Ewa, Oahu
Pohe, `Ili, Waimano, Ewa, Oahu
Kaulu, `Ili, Waimano, Ewa, Oahu
Kapuna, `Ili, Waimano, Ewa, Oahu
Poupouwela, `Ili, Manaiki, Ewa, Oahu
Kapaloa, `Ili, Waiawa, Ewa, Oahu
Panio, `Ili, Waiawa, Ewa, Oahu
Kuhialoko, `Ili, Waiawa, Ewa, Oahu
Kahoaiai, `Ili, Waiawa, Ewa, Oahu
Papaa, `Ili, Waiawa, Ewa, Oahu
Kaohai, `Ili, Waiawa, Ewa, Oahu
Kalona, `Ili, Waiawa, Ewa, Oahu
Kuhiawaho, `Ili, Waiawa, Ewa, Oahu
Kapuaihalulu, `Ili, Waiawa, Ewa, Oahu

2.
Haleaka, `Ili, Waiawa, Ewa, Oahu
Piloaumoa, `Ili, Waiawa, Ewa, Oahu
Kionaole, `Ili, Waiawa, Ewa, Oahu
Hanakehau, `Ili, Waiawa, Ewa, Oahu
Kapopou, `Ili, Waiawa, Ewa, Oahu
Kalimukele, `Ili, Waiawa, Ewa, Oahu
Kumuulu, `Ili, Waiau, Ewa, Oahu
Hapuna, `Ili, Kalihi, Kona, Oahu
Waiaula, `Ili, Kalihi, Kona, Oahu
Kalaepohaku, `Ili, Kapalama, Oahu
Kauluwela, `Ili, Honolululu land, Oahu
Kanewai, `Ili, Waikiki, Oahu
Kapaakea, `Ili, Waikiki, Oahu
Komoawaa, `Ili, Waikiki, Oahu
Waialae, `Ili, Waikiki, Oahu

3.
Halawa, Ahupua`a, Koolau, Molokai

Kaa, Ahupua`a, Lanai

Kelawea,	Ahupua`a,	Lahaina,	Maui
Moalii,	Ahupua`a,	Lahaina,	Maui
Aki,	Ahupua`a,	Lahaina,	Maui
Paunau,	Ahupua`a,	Lahaina,	Maui
Waihee,	Ahupua`a,	West Puali,	Maui
Kalua,	`Ili,	Wailuku,	Maui
Haiku,	Ahupua`a,	Hamakualoa,	Maui
Makapuu,	Ahupua`a,	Hana,	Maui
Kawela,	Ahupua`a,	Hana,	Maui
Onouli,	Ahupua`a,	Hana,	Maui
Kaumanu,	Ahupua`a,	Hana,	Maui
2	Kahalehili,	Ahupua`a,	Hana,	Maui
3	Kaeleku,	Ahupua`a,	Hana,	Maui
Honokalani,	Ahupua`a,	Hana,	Maui
Kawaipapa,	Ahupua`a,	Hana,	Maui
5	Niumalu,	Ahupua`a,	Hana,	Maui
2	Palemo,	Ahupua`a,	Hana,	Maui
3	Pakakia,	Ahupua`a,	Hana,	Maui
2	Kahuakamalii,	Ahupua`a,	Hana,	Maui
Ihuula,	Ahupua`a,	Hana,	Maui
Oloewa,	Ahupua`a,	Hana,	Maui
4	Papalauhau,	Ahupua`a,	Hana,	Maui
4	Mokae,	Ahupua`a,	Hana,	Maui
Puekahi,	Ahupua`a,	Hana,	Maui
Puuiki,	Ahupua`a,	Hana,	Maui
3	Kapohoe,	Ahupua`a,	Hana,	Maui
Pukuilua,	Ahupua`a,	Hana,	Maui
2	Kaou,	Ahupua`a,	Hana,	Maui
Halehana,	Ahupua`a,	Hana,	Maui
Kaukuhalahala,	Ahupua`a,	Hana,	Maui
2	Piapia,	Ahupua`a,	Hana,	Maui
Koakapuna,	Ahupua`a,	Hana,	Maui
Kawaalua,	Ahupua`a,	Hana,	Maui
Pueokahi,	Ahupua`a,	Hana,	Maui
Pueokauiki,	Ahupua`a,	Hana,	Maui
Pohakanele,	Ahupua`a,	Hana,	Maui
Ahuakaio,	Ahupua`a,	Hana,	Maui
Kihapuhala,	Ahupua`a,	Hana,	Maui
Papahawahawa,	Ahupua`a,	Hana,	Maui
Muolea,	Ahupua`a,	Hana,	Maui
Puuhaoa,	Ahupua`a,	Hana,	Maui
Kahalawe,	Ahupua`a,	Hana,	Maui
Ohia,	Ahupua`a,	Hana,	Maui
Kolokole,	Ahupua`a,	Hana,	Maui
Kapuuomahuka,	Ahupua`a,	Hana,	Maui
Mahulua,	Ahupua`a,	Hana,	Maui

Poopoo, Ahupua`a, Hana, Maui
Lapalapaiki, Ahupua`a, Hana, Maui
Waieli, Ahupua`a, Hana, Maui
Paihala, Ahupua`a, Hana, Maui
Kalihi, Ahupua`a, Hana, Maui
Kakiweka, Ahupua`a, Hana, Maui
Kailihiakoko, Ahupua`a, Hana, Maui
Puukohola, Ahupua`a, Hana, Maui
Kahalawe, Ahupua`a, Hana, Maui
Puaaluu, Ahupua`a, Hana, Maui

Kahua, Ahupua`a, Kohala, Hawaii
Honokane, Ahupua`a, Kohala, Hawaii
Holualoa 1,2, Ahupua`a, Kona, Hawaii
Kahaluu, Ahupua`a, Kona, Hawaii
Keopunui, Ahupua`a, Kona, Hawaii
Keauhou, Ahupua`a, Kona, Hawaii
Honuaino, Ahupua`a, Kona, Hawaii
2 Honokua, Ahupua`a, Kona, Hawaii
Haukalua 1, 2, Ahupua`a, Kona, Hawaii
Pakini, Ahupua`a, Kau, Hawaii
Keauhou, `Ili, KapapalaKau, Hawaii
Kahuai, Ahupua`a, Puna, Hawaii
Kauhaleau, Ahupua`a, Puna, Hawaii
Kauaea, Ahupua`a, Puna, Hawaii
Piopio, Ili in Waiakea, Puna, Hawaii
Kalalau, Ahupua`a, Puna, Hawaii
Honohononui, `Ili in Waiakea, Puna, Hawaii
Pahoehoe, Ahupua`a, Puna, Hawaii
Onomea, Ahupua`a, Puna, Hawaii
Alae, Ahupua`a, Puna, Hawaii
Kekelani, `Ili in Waimanu, Hamakua, Hawaii
Kuilei, Ahupua`a, Puna, Hawaii

N.R. **569v5**
No. 7713, Victoria Kamamalu from page 440

Huleia, a district of Kauai, however, the Government cattle shall graze there.
Makaweli, Ahupua'a, Kona, Kauai
Places unsuitable for the soldiers and the fort
Maunalua, `Ili, Waimanalo, Koolaupoko, Oahu
Pahoa, `Ili, Waianae, Waianae, Oahu
Kaluanui, Ahupua`a, Koolauloa, Oahu
Kawailoa, Ahupua`a, Waialua, Oahu
Paalaa, Ahupua`a, Waialua, Oahu

Kaelepulu, `Ili, Kailua, Koolaupoko, Oahu
Kikiwelawela, `Ili, Kaneohe, Koolaupoko, Oahu

Victoria Kamamalu's lands in the Mahele by the Mo`i, in the month of January 1848, continued:

Huleia, a district of Kauai, however, the Government cattle shall graze there.

Makaweli Ahupua`a, Kona, Kauai.

F.T. 408-411v3
No. 7713, V. Kamamalu
F.T. 408-411v3
No. 7713, V. Kamamalu
No. 10474, N. Namauu
No. 7716, R. Keelikolani
No. 7714B, M. Kekuaiwa
No. 7712, M. Kekuanaoa [7714B]

A True Copy
(Sig). A. G. Thurston
Clerk Interior Dept.

Copy of the Division of Lands agreed upon in Privy Council August 27, 1850

Kekuanaoa and his children to receive fee simple titles for those lands here set off to them - they resigning to the Government all title to the other lands granted them in the Buke Mahele.

No. 7713, Ko Victoria Kamamalu mau aina ma ke ano Alodio

No. 7713, Ko Victoria Kamamalu mau aina ma ke ano Alodio

Honokane, Ahupuaa, Kohala, Hawaii
Kahua, Ahupuaa, Kohala, Hawaii
Keopu, Ahupuaa, Kona, Hawaii
2 Holualoa, Ahupuaa, Kona, Hawaii
Kahaluu, Ahupuaa, Kona, Hawaii
Keauhou, Ahupuaa, Kona, Hawaii
Honuaino, Ahupuaa, Kona, Hawaii
Honokua, Ahupuaa, Kona, Hawaii
Pakini, Ahupuaa, Kau, Hawaii
Keauhou, Ili is Kapapala, Kau, Hawaii
Kahuwai, Ahupuaa, Puna, Hawaii
Kauwalehau, Ahupuaa, Puna, Hawaii
Kauaea, Ahupuaa, Puna, Hawaii
Honohononui, ili o Waiakea, Hilo, Puna, Hawaii

Piopio, ili o Waiakea, Hilo, Puna, Hawaii
Kalalau, Ahupuaa, Puna, Hawaii
Pahoehoe, Ahupuaa, Hilo, Hawaii
Alae, Ahupuaa, Puna, Hawaii
Onomea, Ahupuaa, Puna, Hawaii
Kuilei, Ahupuaa, Hamakua, Hawaii
Kekelani, ili no Waimanu, Hamakua, Hawaii

Kalua, Ahupuaa, Wailuku, Maui
Waihee, Ahupuaa, Puali, Kom. [Komohana]

Aki, Ahupuaa, Lahaina, Maui
Paunau, Ahupuaa, Lahaina, Maui
Kelawea, Ahupuaa, Lahaina, Maui

Halawa, Ahupuaa, Koolau, Molokai

Kaa, Ahupua, Kona, Lanai

Maunalua, ili no Waimanalo, Koolaupoko, Oahu
Kaelepulu, ili no Kailua, Koolaupoko, Oahu
Kikiwelawela, Ahupuaa, Heeia, Koolaupoko, Oahu
Kaluanui, Ahupuaa, Koolauola, Oahu
Kawailoa, Ahupuaa, Wailalua, Oahu
Paalaa, Ahupuaa, Waialua, Oahu
Waiawa, Ahupuaa, Ewa, Oahu
Pahoa, ili no Waianae, Waianae, Oahu
He mau ili ma Waimano, Ewa, Oahu
Poupouwela, ili in Mananaiki, Ewa, Oahu
Kumuulu, no Waiau, Ewa, Oahu
Kapuna no Kalihi, Kona, Oahu
Waiaula no Kalihi, Kona, Oahu
Kalaepohaku no Honolulu, Kona, Oahu
Kauluwela no Honolulu, Kona, Oahu
Kapaakia no Waikiki, Kona, Oahu
Komowaa no Waikiki, Kona, Oahu
Kanewai no Waikiki, Kona, Oahu
Waialae no Waikiki, Kona, Oahu

Makaweli, Ahupuaa, Kauai
Huleia, Puna, Kauai
Kikiaola, Waimea, Kauai

Ko ke Aupuni hapakolu loko o ko V. Kamamalu mau aina. Makapuu, Kawela, Oniuli, Kaumanu, 2 Kahalehili, Kaeleku, Honokalani, Kawaipapa, 5 Niumalu, 2 Palemo, 2 Pakakea, Nahuakamaii, Ihuuloi, Hoewaa, 2 Papauhau, Hamoa, 3 Mokae, Puekahi, Puuiki, 3 Pohue, Pukuilua,Haou,

Halehana, Kaukuhalahala, Peapea, Koakupuna, Kawalua, Pueokauiki, Pohakanele, Ahuakaio, Kihapuhala, Papahawahawa, Muolea (The above ahupuaa in Hana, Maui) Moalii Ahupuaa Lahaina Maui.

F.T. 538-539v3
No. 7713, M. Kekuanaoa (for Victoria), 1 April 1854, Counter the government

A. Paki, sworn, for the Government, Knows that the fish pond called “Kawa”, in Honolulu, was broken up in the year 1847 & the materials of the wall taken to help to construct the wall or breakwater erected by the Government on the west side of the harbor. The Government got permission from M. Kekuanaoa to take the materials of the wall of “Kawa” to make the Breakwater. He did not give the Government any portion of the soil of “Kawa,” or of “Kaakaukukui.” The land on which now stands the Government slaughter House, occupied by John Meek, is a portion of the ili of “Kalui.”[?] I do not know what title the Government has to that place, but I have heard that Kekualoa had given it to the Government - this I state as hearsay only.

G.P. Judd, sworn, for Government, says, I was the Hawaiian Minister of Finance in the year 1847, and remember when the wall was built from the present lime kiln House running over to the land of sea & Sumner, Known as Kohololoa.” It was built to prevent the filling up of the Harbor of Honolulu. It was thought advisable to remove a part of the wall of a fish pond in “Kawa,” which I supposed belonged to the Government. Finding, however, that it was claimed by M. Kekuanaoa, for Victoria, Mr. Young and I applied to him for the privilege of removing it, which he granted to us, and accordingly it was removed under the direction of Piikoi and the stones put into the new wall first named, and my impression is that we built a new partition wall for the Governor's fishpond. I will not be certain however. Piikoi will know. Piikoi ran a plow through the fish pond to give direction to the stream and divert it from the harbor. I never knew of any definite cession of the fish pond or other land to the Government, but I think Kekuanaoa consented that the Government should divide the fish pond, in Privy Council. I didn't know that he claimed the land where the wall runs from the Lime Kiln, but I don't recollect that he said anything particular about it.

See P. 548. [about Pearl Harbor]

F.T. 548v3
No. 7713, M. Kekuanaoa (V. Kamamalu), Aprila 19, 1854, counter the Government, from page 538

Keone Ana, sworn says, I have nothing to testify to in reference at the claim of M. Kekuanaoa in Kaakuukukui, pertaining to the wall built to protect the harbor from filling in, which wall runs from the Lime Kiln to Sea & Sumner's land.

I am sure he gave it to Government in 1847, but I will not swear anything about it until I have laid the matter before the Privy Council, as to “Kaliu,” he said he had nothing to say.

To page 555

F.T. **555-557v3**
No. 7713, M. Kekuanaoa (for V. Kamamalu) from page 538, counter the Government

Keoni Ani, sworn, presents a plan which he says was made by Order of the King in Council, in the year 1848, perhaps, and placed in my charge, as minister of the Interior. The plan shows two rows of lots laid out from the Beach seaward. The Government built the wall or breakwater in the year 1847, I think. The Government claimed no more land as I understood the matter than what is shown on the plan. When the wall was built by the Government no opposition was made to its erection by any private party. The wall was erected by the Government to prevent the harbor from being filled up with the mud washed down by the Nuuanu River. When this wall was built the wall of the loko called “Kawa” was taken down and the size of the loko reduced. After the wall was built, this plan was made by the Government and laid before the Privy Council, who resolved to sell the lots as laid out for the benefit of the Treasury. Two of the lots were accordinglydisposed of with the approval of the Privy Council, to Louis Gravier. After that, a proposition was made in Privy Council to sell some of the lots to a steam boat company, but at the suggestion of M. Kekuanaoa, the proposition was dropped. Kekuanaoa advising the Council that they were disposing of the Government property too fast. After the report of a committee appointed by the Privy Council on the subject of the filling up of the harbor, the Council resolved to remove the wall of the loko called “Kawa” and M. Kekuanaoa assented.

I do not know to whom the land really belonged. I have always seen this, that when the government wanted a piece of land for their purposes, the konohikis have always given their consent. A. Paki, who had charge of Kaliu, and M. Kekuanaoa, who had charge of Kaakaukukui were both in Privy Council at the time referred to. I consider that the place where this wall is built belonged to the Government previous to that time, because by law, the papakoa and the harbor belongs [sic] to the Government. All the chiefs were in Council at the time these things were transacted. The place where the wall is built is papa koa, perhaps, mud perhaps.

Iona Kapena, sworn, says the names of the land lying between the wall of the Government and the loko called “Kawa” are Kaakaukukui and Kaliu. I pointed out the boundary line between Kaakaukukui and Kaliu a few days ago to Messers Lee and Robertson. The boundary has been well known to me ever since I was a boy. The breakwater or wall is built on the land of Kaakaukukui.

M. Kekuanaoa states that he never understood before that the Government meant to take this place now in dispute. I have heard the testimony of Young, who says the Government took it. I gave my consent to the Government to remove the wall of Kawa and for the materials, but I did not intend that the Government should take away any part of Kaakaukukui.

N.T. **598-599v3**
No. 7713, V. Kamamalu - protest

M. Kekuanaoa and Mahuka were the persons who settled the land of V. Kamamalu with objections to C. Kanaina's rights to that property over which there was a dispute. Below are the statements of witnesses clarifying their /two/ rights.

Kumuhonua, sworn, I have seen the place over which there is a dispute between C. Kanaina and V. Kamamalu, Kaanaenui is the name. I have seen that it is the center for Waialae. The boundaries as I have seen from Kaiahaki to Kauhaki, from there to Pohakuaumiumi, then to Kaananiau and run directly to Puukuaka; from there to Kalohupale; Kapahulu is on this side and from there run directly to Kupikipikio point Mt. Leahi is for Kapahulu.

The boundaries of the land Kekio: on the mauka direction of Makahuna road is the taro land, detached and following to the sea of Kapua and the coconut grove.

Poo wahine: I am a native of Waiale and since I was very young and at the time of Kahekili, I have known that place over which there is a dispute. Keanaenui is the name and it is the center of Waialae. I have known the boundaries as they are at Kuialauahi to Aumeume Rock, to Kaananiau, to Mount Kuaka and from there to Kalahu to the lae of Kupikipikio. Those are the boundaries which separate Waialae from Kapahulu. Mt Leahi is for Kapahulu.

The land Kekio runs from mauka of Makahuna Street, then separated to the extreme makai to the sea and the coconut grove.

Kuapuu, sworn, I am a land child of Waialae and I have seen the boundaries of Waialae as they were pointed out to me by my parents, from Kuahaki to Kauhaki, therefrom to Aueume Rock and so on just as Poo has related here.

The boundaries of Kekio run from mauka of Makahuna road, then it separates until the extreme makai of Kapua sea and a road called Kukii. The report given of this survey is imperfect because he had taken Waialae's pasture.

Kaula, sworn, I have not been a native very long, but I have heard the same thing from my older brother whose name is Hanakinau, as the reports given by those people above. I had heard these things after the death of Kaahumanu I.

Hehea, sworn, I am a land child of Waialae and have seen the boundaries of Waialae exactly as those witnesses have related above.

The boundaries of the land, Kekio by name, of Keekapu, are exactly as the statements given

N.T. **373-375v10**
No. 7713, Victoria Kamamalu, Waianae, 17 August 1854

Testiony on the boundary between the ahupuaa of Waianae and the ili of “Pahoa.”

Nahinu, sworn, says the ili of Pahoa is but small. The loko, makai, belongs to this ili. The boundary of the piece is dispute runs along to the eastward of an enclosure belonging to Kaapuiki, and up through the coconut grove and along a stone wall to some hau trees, and then up mauka and across to the east corner of the land, and from thence running makai to the loko.

This ili consists of three pieces, first, the fish pond; second, the piece which I have tried to describe; third, the mauka piece undisputed.

I learned these boundaries from my ancestors who lived here from ancient times.

Cross examined. I accompanied Kekuanaoa and M. Hopkins when they suspected [inspected?] the boundary line in question. I saw the marks made at that time on the coconut trees by order of Kekuanaoa, in presence of M. Hopkins. The line marked out by them on the northwest side, runs farther mauka than that described by me in my testimony.

Ohule, sworn, says he knows the middle Mana of Pohao about which the present dispute exists. It is only of late that I have heard that the boundary was disputed. This middle piece is bounded: Mauka by a stone wall. The western boundary runs up through the coconut grove and then runs to the southward, and then at the corner of what used to be a wauke patch, turns seaward and runs down to the hau trees and the stone wall. I was born on this land. The land on which stand the church and parsonage belongs to the ahupuaa of Waianae.

Kaapuiki, sworn, says when I came here to live, the boundaries of the middle piece of Pahoa were nearly the same as have been described by the preceding witnesses. Afterwards, when the law was made to restore the ancient boundaries of all the lands, Kulepe, the then tax officer, gave to “Pahoa” the land now claimed by Victoria, on the southeast side of the coconut grove, and disputed by the King. I was luna of Waianae when that arrangement was made by Kulepe. I was under Kekuanaoa. The people who live on the disputed land formerly went to the labor days on Waianae,” but of late they labor on “Pahoa.”

Kulepe, sworn, says, “Pahoa” consists of two pieces; the fish pond forming the part of the mauka piece. I have lived here about 15 years. I was appointed tax officer of Waianae in 1841. In 1850, the boundaries of the makai piece of “Pahoa” were pointed out to me by three kamaainas, who are all now dead. In the same year, Hopkins and Kekuanaoa came down here but I did not accompany them when they went round this land. I do not know anything myself of the true boundary, except what I heard from these kamaainas in 1850. About 1841, I restored a lihi of “Pahoa,” which lies between the fish pond and the stone wall, and was claimed for “Pahoa,” on account of some coconut trees. This was the only lihi of “Pohoa” restored by me. The people who formerly lived on the land now in dispute used to do konohiki labor for the ahupuaa of “Waianae.”

Molea, sworn, confirms in full, the testimony of Nahinu and Ohule.

[Award 7713; Kikiaola Waimea Kona; R.P. 4475; 1 ap.; Ahupuaa; Makaweli Kona; R.P. 4476; 1

ap.; 21,844 Acs.; Niumalu Puna; R.P. 4479; 1 ap.; 1767 Acs; R.P. 4478; Nawiliwili Puna; 1 ap.;2182 Acs Ahp; Haiku Puna; R.P. 4477 1 ap.; 9585 Acs; Kalapaki Puna; R.P. 4480, 1 ap.; 2004 Acs. Ahupuaa; R.P. 4481, Hanamaulu Puna; 1 ap.; 9177 Acs (Ap. 2); Kipu Puna; 1 ap.; 3029 Acres;& R.P. 4482 Mahaulepu Puna; ahupuaa, 1 ap.; 1572 Acs Ahp.]

07713*K - No maps found.

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LAND GRANTS

Waihona A'ina Corporation
1057 Lunaanela St., Kailua, Hi 96734
tel: (808) 261-8822, e-mail: info@waihona.com

Grant Number(LG)00188		Source Book:	1
Grantee:	Lee, William L.	Acreage::	1872 Acs
Ahupua`a	Huleia	Year	1849
District:	Puna	Cancelled	False
Island	Kauai	TMK	4-3-8-01-05&,4-3-3,4
Miscellaneous			

No. 188, Lee, William L., Huleia Ahupuaa, District of Puna, Island of Kauai, Vol. 1, pps. 346-347 [LG Reel 1, 00400-00402.tif]

No. 188
Royal Patent

Kamehameha III, By the Grace of God, King of the Hawaiian Islands, by this Royal Patent, makes known, unto all men, that he has for himself and his successors in office, this day granted and given, absolutely, in Fee Simple unto William L. Lee, his faithful and loyally disposed subject for the consideration of [left blank], paid into the Royal Exchequer, all that certain piece of Land situated at [left blank] in the Island of [left blank] and described as follows:

for and in consideration of the sum of Nine Thousand Three Hundred and fifty dollars paid by the said Lee to Mataio Kekuanaoa, a nd in the further consideration of the said Kekuanaoa's having consented on the fifth of December, 1849 to give the Government Six Hundred and twenty five Acres of land wherever else they may choose the same in Huleia, Island of Kauai.

All those certain pieces of land situated at Huleia District of Puna, Island of Kauai, Hawaiian Islands and particularly described in a certain deed executed by the said M. Kekuanaoa and Kalolo his wife on the fourth day of December A.D. 1849 conveying said lands to William L. Lee his heirs and assigns in Fee Simple forever a certified copy of which said deed is now on ~~file~~ record in the Home Office.

The rights of native tenants and the Taro patches of M. Kekuanaoa reserved

Containing 1872 Acres, more or less, excepting and reserving to the Hawaiian Government, all mineral or metallic mines of every description.

To have and to hold the above granted Land in Fee Simple, unto the said William L. Lee & his Hawaiian Heirs and Assigns forever, subject to the taxes to be from time to time imposed by the Legislative Council equally, upon all landed Property held in Fee Simple.

In Witness whereof, I have hereunto set my Hand, and caused the Great Seal of the Hawaiian Islands to be affixed, at Honolulu, this 21 day of December, 1849

[Page 347]

Helu 188
Palapala Sila Nui

Ma keia palapala sila nui ke hoike aku nei o Kamehameha III, ke Alii nui a ke Akua i kona lokomaikai i hoonoho ai maluna o ko Hawaii Pae Aina, i na kanaka a pau, i keia la, nona iho; a no kona mau hope alii, ua haawi lilo loa aku oia ma ko ano alodio ia William L. Lee i kona wahi kanaka i manao pono ia ia i kela apana aina a pau e waiho la ma Huleia, Kalana o Puna ma ka Mokupuni o Kauai, ko Hawaii Pae Aina, e like ~~a penei hoi~~ ka waiho ana o na Mokuna a me na Palena, me ka Palapala Alodio a Mataio Kekuanaoa a me Kalolo kana wahine i hana'i i ka la 4 o Dekemaba, Makahiki 1849 e haawai lilo ana i ua mau apana aina la ia William L. Lee, nona mau loa aku no, a no kona mau hooilina a me kona mau waihona ma ke ano Alodio, a ua waihoia ke kope oiaio o ua Palapala Alodio la ma ke Keena Kalaiaina. Ua koe nae ke Kuleana o na kanaka a me na Loi o M. kekuanaoa.

Eia ke kumu o ka lilo ana, ua uku aku o William L. lee i na Dala Eiwa Tausani Ekolu Haneri me Kanalima ia Mataio Kekuanaoa, a no ka ae ana mai o M. Keuanaoa i ka la 5 o Dekemaba, Makahiki 1849, e hiki e lawe i ke Aupuni i Eono Haneri me ka lwakaluakumamalima Eka aina ma kahi a ke Aupuni e makemake ai ma Huleia, Kauai, aole nae iloko o ka aina i lilo ia William L. Lee

A maloko o ia Apana 1872 eka a oi iki aku, emi iki mai paha.
~~Eia ke kumu o ka lilo ana; ua haawi mai oia iloko o ka waihona waiwai o ke Aupuni.~~Aka, ua koe i ke Aupuni na mine minerala a me na mine metala a pau.

No William L. Lee, ua aina la i haawiia, no na mau loa aku no, ma ke ano alodio, a me ko na mau hooilina, a me ko na waihona, ua pili nae ka auhau a ka Poe Ahaolelo e kau like ai ma na aina alodio a pau i kela manawa i keia manawa.

A i mea e ikea'i ua kau wau i ko'u inoa, a me ka sila nui o ko Hawaii Pae Aina ma Honolulu i keia la 21 o Dekemaba, 1849.

(Inoa) Kamehameha

(Inoa) Keoni ana

Lalani Eono Mailuna mai a penei hoi, Lalani Ewalu mailalo ae laua mamua o ke kakau ana o na inoa [illegible]

[Land Patent Grant No. 188, Lee, William L., Huleia Ahupuaa, District of Puna, Island of Kauai, 1872 Acre, 1849]

Appendix D Office of Hawaiian Affairs Letter

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD17-8328

November 7, 2017

Lisa Gollin, PhD.
Sole Proprietor and Principal Investigator
LX Gollin Research Hawai'i, LLC
C/O Scientific Consultant Services, Inc.
1347 Kapi'olani Blvd., Suite 408
Honolulu, HI 96814

Re: Cultural Impact Assessment Consultation
Multi-Family Affordable Housing Development
Nāwiliwili Ahupua'a, Puna District, Kaua'i Island
Tax Map Key: (4) 3-8-005-028, 029

Aloha e Lisa Gollin:

The Office of Hawaiian Affairs (OHA) is in receipt of your letter dated October 25, 2017, initiating consultation and seeking comments in preparation of a cultural impact assessment (CIA) for a proposed multi-family affordable housing development located on Pua Loke Street. The proposed project involves construction of fifty dwelling units and associated parking on 1.46 acres of land own by the County of Kaua'i.

OHA appreciates including the list of Federal, State, County agencies, and community members that were consulted with during this undertaking. OHA has no referrals to individuals or organizations for consultation to offer at this time.

Mahalo for the opportunity to comment. We look forward to reviewing the draft CIA. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

C: Kaliko Santos, OHA Kaua'i Community Outreach Coordinator (via email)

Appendix E Example Letter of Inquiry

SCIENTIFIC CONSULTANT SERVICES, Inc.
1347 Kapiolani Blvd., Suite 408 Honolulu, Hawai`i 96814

Aloha kāua,

I am an independent consultant working for Scientific Consultant Services, Inc. (SCS) to prepare a Cultural Impact Assessment (CIA) at the request of **the Kaua'i County Housing Agency** and Environet, Inc. The CIA is being conducted in advance of the proposed construction of a multi-family affordable housing development. The County of Kaua‘i owns the subject parcels. The housing development would include a maximum density of 50 dwelling units and associated parking areas on 1.46 acres of land situated along Pua Loke Street in Līhu‘e, Nāwiliwili Ahupua‘a, Līhu‘e (Puna) District, Kaua‘i Island, Hawai‘i [TMK: (4) 3-8-005: 028 and 029].

The purpose of this CIA is to identify and understand the importance of any Hawaiian and/or historic cultural resources or cultural practices associated with the project area and the surrounding ahupua‘a. In an effort to promote responsible decision-making, the CIA will gather information about the project area and its surroundings through research and interviews with individuals that are knowledgeable about the area in order to assess potential impacts to the cultural resources, cultural practices, and beliefs identified as a result of the proposed project. We are seeking your kōkua and guidance regarding the following aspects of our study:

a. General history and present and past land use;
b. Cultural sites, for example, historic sites, archaeological sites, and burials;
c. Past and ongoing cultural practices and beliefs in the project area;
d. Mo‘olelo and other cultural associations of the project area;
e. Any concerns and recommendations the community might have related to cultural practices within or in the vicinity of the project area;
f. Potential impacts to historic and cultural resources and practices; and,
g. Referrals to kūpuna and kama‘āina and any other knowledgeable parties.

CONTACT INFORMATION PROVIDED

Sincerely yours, *signature*

Lisa Gollin, Ph.D., Sole Proprietor and Principal Investigator,

LX Gollin Research Hawai‘i, LLC

Ph: 808-597-1182 SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS Fax: 808-597-1193
Neighbor Island Offices • Hawai`i Island • Maui • Kaua`i

Appendix F Example Follow-up Letter

SCIENTIFIC CONSULTANT SERVICES, Inc.
1347 Kapiolani Blvd., Suite 408 Honolulu, Hawai'i 96814

Aloha kāua,

On October 3, 2017 Scientific Consultant Services, Inc. (SCS) and I (Lisa Gollin, PhD, independent consultant) sent you a letter inviting your participation and/or comments for a Cultural Impact Assessment (CIA) in advance of the proposed construction of a multi-family affordable housing development on 1.46 acres of land situated along Pua Loke Street in Līhu‘e, Nāwiliwili Ahupua‘a, Līhu‘e (Puna) District, Kaua‘i Island, Hawai‘i [TMK: (4) 3-8-005: 028 and 029].

As described in the original letter, the purpose of this CIA is to identify and understand the importance of any Hawaiian and/or historic cultural resources or practices associated with the project area and the surrounding ahupua‘a. The CIA is performed in compliance with the statutory requirements of the State of Hawai‘i Revised Statute (HRS) Chapter 343 Environmental Impact Statements Law.

SCS, Environment, Inc. (the project planning firm), the **of** the Kaua'i County Housing Agency and I want to make sure that knowledgeable parties receive an opportunity to contribute your mana‘o, recommendations and guidance regarding any of the following aspects of our study:

a. General history and present and past land use;
b. Cultural sites, for example, historic sites, archaeological sites, and burials;
c. Past and ongoing cultural practices and beliefs in the project area;
d. Mo‘olelo and other cultural associations of the project area;
e. Any concerns and recommendations the community might have related to cultural practices within or in the vicinity of the project area;
f. Potential impacts to historic and cultural resources and practices; and,
g. Referrals to kūpuna and kama‘āina and any other knowledgeable parties.

CONTACT INFORMATION PROVIDED
Sincerely yours, *signature*
Lisa Gollin, Ph.D., Sole Proprietor and Principal Investigator,
LX Gollin Research Hawai‘i, LLC

Ph: 808-597-1182 SCS... SERVING ALL YOUR *ARCHAEOLOGICAL* NEEDS Fax: 808-597-1193
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