DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

FILE COPY
AUG 08 2016

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-657635

July 1, 2016

RECEIVED
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OFC. OF ENVIRONMENTAL
QUALITY CONTROL

Mr. Scott Glenn, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Glenn:

SUBJECT: Final Environmental Assessment and Finding of No Significant Impact
Auyong Homestead Road Improvements
TMK (1) 8-7-026, Waianae, Oahu, Hawaii

With this letter, the Department of Design and Construction (DDC) hereby transmits the final environmental assessment and finding of no significant impact (FEA-FONSI) for the Auyong Homestead Road Improvements situated at TMK (1) 8-7-026, in the district of Waianae on the island of Oahu for publication in the next available edition of the Environmental Notice.

DDC 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, a copy of the FEA-FONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact Edward Visaya of our Civil Division at 768-8807 or email at evisaya@honolulu.gov.

Very truly yours,

Robert J. Kroning, P.E.
Director

EV:DT:pto

Enclosures

17-029

FILE COPY
AUG 08 2016

AGENCY PUBLICATION FORM

Project Name:	Auyong Homestead Road Improvements
Project Short Name:	Auyong Homestead Road Improvements
HRS §343-5 Trigger(s):	Use of county lands and funds
Island(s):	Oahu
Judicial District(s):	Waianae
TMK(s):	(1) 8-7-026
Permit(s)/Approval(s):	Community Noise Permit, National Pollutant Discharge Elimination System (NPDES) Permits, Permit to Transport Oversize/Overweight Equipment/ Loads on State Highways, Construction Dewatering Permit, Permit to Excavate (Trenching), Street Usage Permit.
Proposing/Determining Agency:	Department of Design and Construction
Contact Name, Email, Telephone, Address	Mr. Edward Visaya, evisaya@honolulu.gov, (808) 768-8807, 650 South King Street, Honolulu, Hawaii 96813
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Gray, Hong, Nojima & Associates, Inc.
Contact Name, Email, Telephone, Address	Ms. Sheryl Nojima, snojima@grayhongnojima.com, (808) 521-0306, 201 Merchant Street, Ste 1900, 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

Provide a description of the proposed action and purpose and need in 200 words or less.

The City and County of Honolulu is proposing drainage improvements and roadway pavement resurfacing to Auyong Homestead Road in Nanakuli. The drainage improvements are intended to relieve standing water on the road after rainfall events through a controlled release of the discharge into the Ulehawa U-3 Channel. The roadway pavement resurfacing will consist of resurfacing a portion of the existing asphaltic concrete roadway to provide an improved smooth surface for vehicular users of Auyong Homestead Road and the surrounding neighborhood.

Direct impacts resulting from construction activities include possible traffic congestion along Auyong Homestead Road, disruption of surrounding residential/commercial activities, noise, and dust. With the prescribed mitigation measures, no long-term adverse indirect, secondary and cumulative impacts to environmental, natural, social, cultural, archeological and economic resources are anticipated. Beneficial long-term impacts include reduction of ponding waters and improved roadway surface on Auyong Homestead Road.

The opinion of probable construction cost is $310,000, which will be funded by the City and County of Honolulu. It is anticipated that construction will commence in late 2017 and should be completed within 6 months.

AUYONG HOMESTEAD ROAD IMPROVEMENTS

FINAL ENVIRONMENTAL ASSESSMENT

TMK: (1) 8-7-026
Waianae, Oahu, Hawaii

July 2016

Prepared for:
City and County of Honolulu
Department of Design and Construction

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS
201 Merchant Street, Suite 1900 / Honolulu, HI 96813 / Phone: (808) 521-0306 / Fax: (808) 531-8018

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Appendix A: Pre-Assessment Consultation Public Comments

Appendix B: Draft Environmental Assessment Public Comments

Appendix C: Water Quality and Biological Surveys for the Auyong Homestead Road Improvements Project in Nanakuli, O'ahu,

Appendix D: Draft Archaeological Monitoring Plan for the Auyong Homestead Road Improvements Project, Lualualei Ahupua'a, Wai'anae District, Island of O'ahu TMK (1) 8-7-026:002-023

Appendix E: Draft Cultural Impact Assessment for the Auyong Homestead Road Improvements Project, Lualualei Ahupua'a, Wai'anae District, Island of O'ahu TMK (1) 8-7-026:002-023

Chapter 1 – PROJECT PROFILE

Name of Project:	Auyong Homestead Road Improvements Waianae, Oahu, Hawaii
Applicable Law	Hawaii Revised Statutes - Chapter 343 Hawaii Administrative Rules - Title 11, Chapter 200 (Use of county lands and funds)
Type of Document	Final Environmental Assessment/ Finding of No Significant Impact
Island:	Oahu
Location:	Waianae
TMK:	(1) 8-7-026
Landowner:	City and County of Honolulu Road Right-of-Way
Existing Use:	Roadway
State Land Use:	Urban District
Land Use Ordinance Zoning:	R-5 Residential B-1 Neighborhood Business
Special Designations	Special Management Area
Flood Zone	Based on Flood Insurance Rate Map (FIRM) January 19, 2011 • AE (areas inundated by 100-year flood, base flood elevations determined) • D (areas where flood hazards are undetermined, but possible) • VE (coastal flood zone with wave action, base flood elevations determined)
Potential Required Permits:	<u>State of Hawaii</u> • Community Noise Permit • National Pollutant Discharge Elimination System (NPDES) Permits • Permit to Transport Oversize/Overweight Equipment/ Loads on State Highways <u>City and County of Honolulu</u> • Construction Dewatering Permit • Permit to Excavate (Trenching) • Street Usage Permit
Name of Applicant or Proposing Agency:	Department of Design and Construction City and County of Honolulu
Address	650 South King Street
City, State, Zip	Honolulu, Hawaii 96813

Accepting Authority:	Department of Design and Construction For Mayor, City and County of Honolulu
Consultant:	Gray, Hong, Nojima & Associates, Inc.
Address	201 Merchant Street, Suite 1900
City, State, Zip	Honolulu, Hawaii 96813

Project Summary:

The City and County of Honolulu is proposing drainage improvements and roadway pavement resurfacing to Auyong Homestead Road in Nanakuli. The drainage improvements are intended to relieve standing water on the road after rainfall events through a controlled release of the discharge into the Ulehawa U-3 Channel. The roadway pavement resurfacing will consist of resurfacing a portion of the existing asphaltic concrete roadway to provide an improved smooth surface for vehicular users of Auyong Homestead Road and the surrounding neighborhood.

Direct impacts resulting from construction activities include possible traffic congestion along Auyong Homestead Road, disruption of surrounding residential/commercial activities, noise, and dust. With the prescribed mitigation measures, no long-term adverse indirect, secondary and cumulative impacts to environmental, natural, social, cultural, archeological and economic resources are anticipated. Beneficial long-term impacts include reduction of ponding waters and improved roadway surface on Auyong Homestead Road.

The opinion of probable construction cost is $310,000, which will be funded by the City and County of Honolulu. It is anticipated that construction will commence in late 2017 and should be completed within 6 months.

Chapter 2 – GENERAL DESCRIPTION OF PROPOSED ACTION

2.1 BACKGROUND

The provisions of Chapter 343 of the Hawaii Revised Statutes (HRS), which require an Environmental Assessment (EA), apply to the proposed improvements due to the use of City funds and work within City lands including road right-of-ways (ROWs). A Draft Environmental Assessment (DEA), prepared in accordance with Chapter 343, HRS and Chapter 11-200, Hawaii Administrative Rules (HAR), addressed short-term, long-term, cumulative, positive and negative impacts of the proposed improvements on environmental, natural, social (including cultural and archeological aspects), and economic resources. The project details were published in the Department of Health Office of Environmental Quality Control's (OEQC) *The Environmental Notice* on February 23, 2016, thereby commencing the 30-day public comment period. The DEA was also circulated for review to affected government agencies, utility companies and community groups as part of the comment period. Based on the comments received during the 30-day period (refer to Appendix B), this Final Environmental Assessment (FEA) was prepared with a Finding of No Significant Impact (FONSI). Therefore, it is anticipated that the proposed improvements will not have significant impacts on the environment, and an Environmental Impact Statement will not be required.

2.2 LOCATION

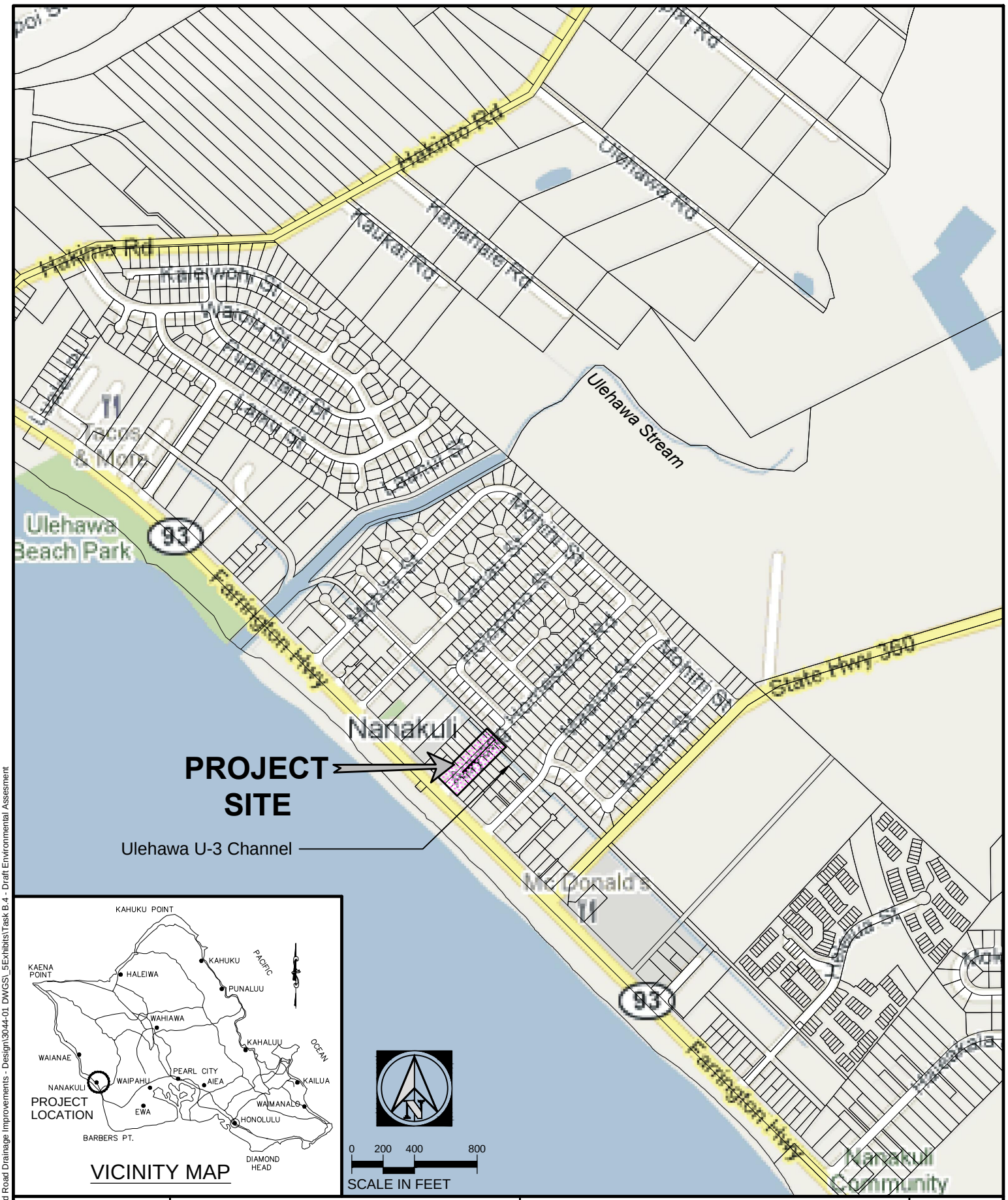
Auyong Homestead Road ROW is presently under the jurisdiction of the City and County of Honolulu. The ROW runs mauka to makai and serves several privately-owned properties located along both sides of the road in the Nanakuli neighborhood of Oahu (refer to Figure 1). Since the scope of this project focuses on the area of Auyong Homestead Road between Farrington Highway (refer to Figures 2 and 3) and mauka end of its bridge over the Ulehawa U-3 Channel; the term "Auyong Homestead Road" will refer the portion in the project area rather than the entire road. The proposed project site is located in a residential area in Nanakuli on the western side of the Island of Oahu. Most of the roadway was constructed without curbs, gutters, or sidewalks except for the areas adjacent to the 7-Eleven store and along the bridge (refer to Figure 4).

2.3 NEED AND PURPOSE

The proposed project improvements will include (1) construction of an underground drainage system with discharge into the Ulehawa U-3 Channel and (2) resurfacing of the existing asphaltic concrete pavement within the Auyong Homestead Road ROW.

The need for the drainage improvement stems from reports by the City and County of Honolulu Department of Facilities Maintenance, that during heavy rains, runoff backs up on Farrington Highway into low lying areas such as Auyong Homestead Road. Since Auyong Homestead Road does not have an existing drainage infrastructure, during heavy rains, excessive ponding typically covers half of the road. The standing water remains several days until it eventually percolates and/or evaporates.

During the pre-assessment consultation phase, a representative from the Nanakuli-Maili Neighborhood Board provided the following additional insight (refer to Appendix A): "Many times, vehicles cannot pass through because of the remaining water that sits for days and without adequate sidewalks for our residents, this was a major challenge for the people who use this street to get to the bus stop or 7-Eleven store or on to Farrington Highway." The purpose of the proposed drainage improvement is to alleviate prolonged ponding that occurs during heavy rains by constructing an underground system in Auyong Homestead Road.



CAD DRAWING: 3044-01_LOCATION	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS	VICINITY & LOCATION MAP	1
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

P:\3044-01 Auyong Homestead Road Drainage Improvements - Design\3044-01 DWGS_5Exhibits\Task B.4 - Draft Environmental Assesment

PHOTO 1-1:
FARRINGTON
HIGHWAY
(TOWN BOUND)

PHOTO 1-2:
FARRINGTON
HIGHWAY
(MAKAHA BOUND)

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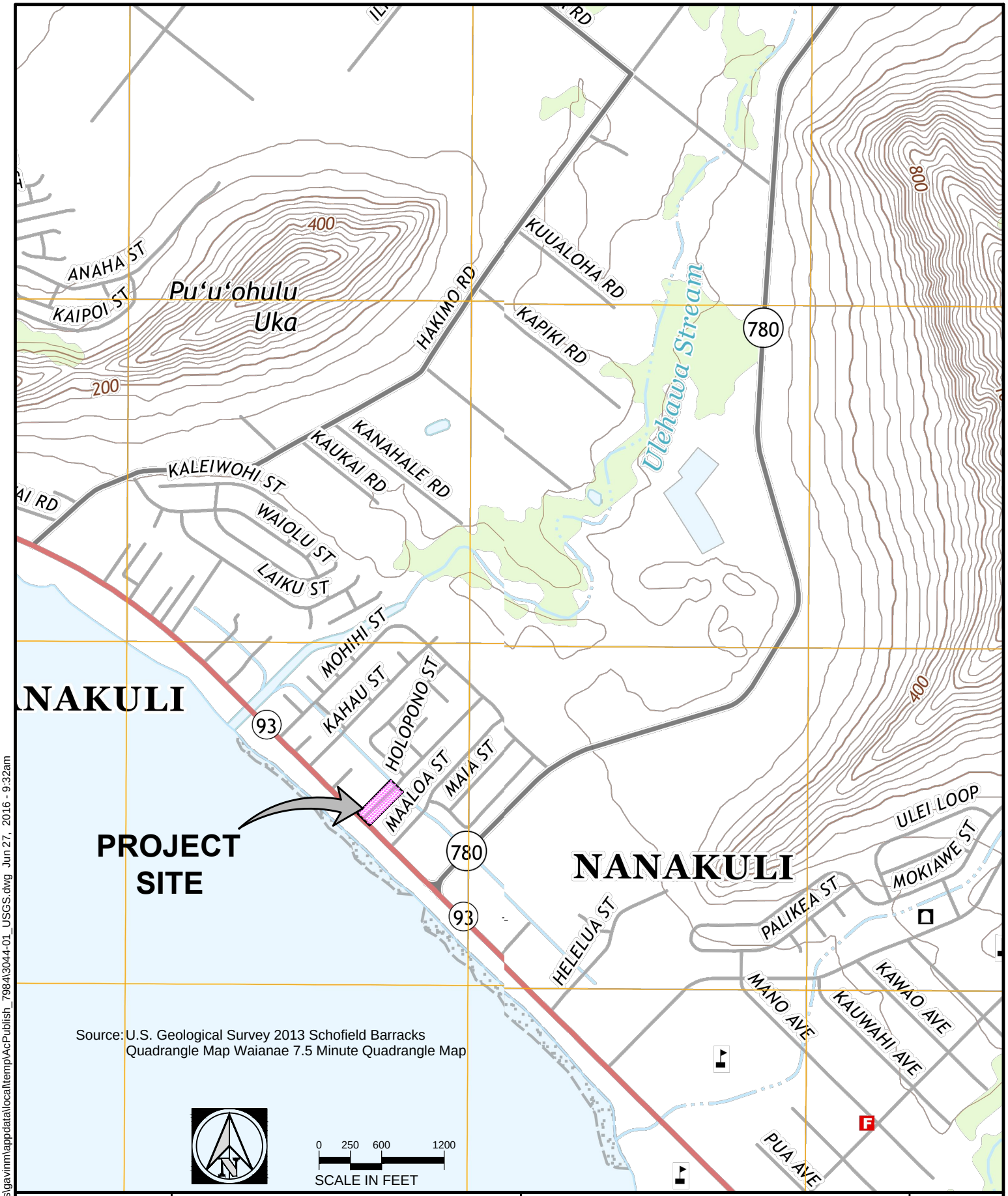
CAD DRAWING:	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS 201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306	SITE PHOTOS - 1	2
SCALE: NO SCALE			
PROJECT #: 3044-01			Page 5



CAD DRAWING: 3044-01_USGS	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS	USGS MAP	3
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

Drawing name: C:\Users\gavinm\appdata\local\temp\AcPublish_7984\3044-01_USGS.dwg Jun 27, 2016 - 9:32am

PHOTO 2-1:
AUYONG
HOMESTEAD ROAD
(MAUKA BOUND)

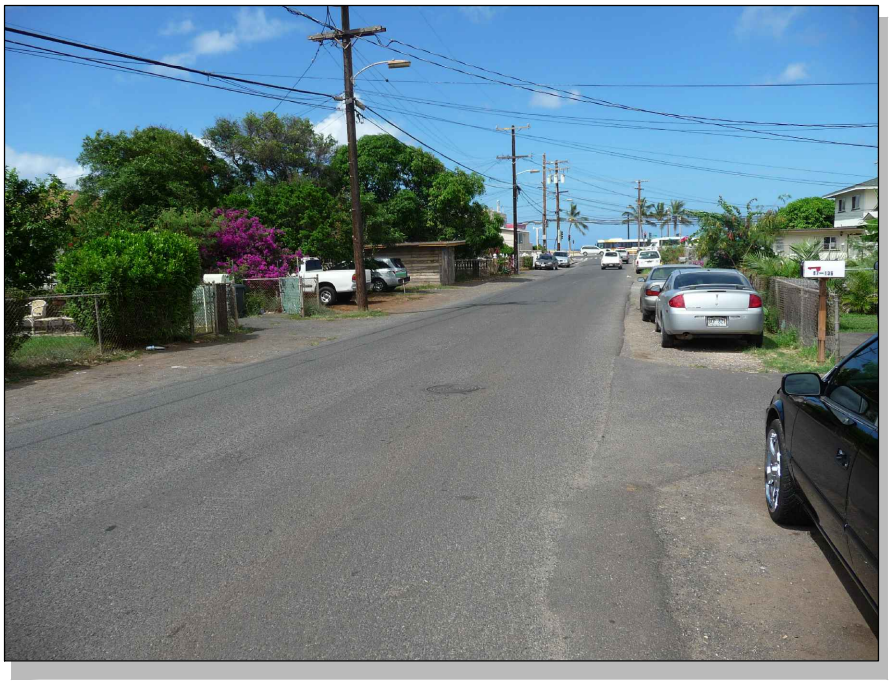


PHOTO 2-2:
AUYONG
HOMESTEAD ROAD
(MAKAI BOUND)

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CAD DRAWING:	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS 201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306	SITE PHOTOS - 2	4
SCALE: NO SCALE			
PROJECT #: 3044-01			

The purpose of the pavement resurfacing is to provide a drivable and smooth riding finished roadway surface for the vehicular users on Auyong Homestead Road and surrounding neighborhood. Rough roadway surfaces adversely affect vehicle performance, increase vehicle maintenance costs, and can potentially create safety concerns for vehicular traffic. Although the City and County of Honolulu typically schedules the resurfacing of residential roadways every 12 to 15 years, the last recorded resurfacing on Auyong Homestead Road was performed in 1991.

2.4 PROPOSED ACTION

The proposed project improvements will include: (1) construction of an underground drainage system with discharge into the Ulehawa U-3 Channel and (2) resurfacing of the existing asphaltic concrete pavement within the Auyong Homestead Road ROW.

The proposed drainage improvements will provide drainage relief to Auyong Homestead Road after heavy rains subside by the use asphalt swales to direct ponding water into a proposed grated inlet. The grated inlet will connect to an underground drainage system which will convey the ponded runoff into the Ulehawa U-3 Channel (refer to Figure 5). The invert elevation of the drain line outlet to the Ulehawa U-3 Channel will be located above the high water level in the channel known as the ordinary high water mark (OHWM), so that storm water can free flow into the channel. As an added precaution, to prevent the possibility of backflow from the channel onto Auyong Homestead Road, an inline drainage check valve will be installed in the drain line just upstream of the discharge outlet (refer to Figure 6). The valve flap will not swing open unless the water surface level in the Ulehawa U-3 Channel is below the outlet. Thus, under extreme storm conditions, if the channel water level rises above the outlet, the flap valve will not open until the channel water level subsides.

The road pavement resurfacing will cover the portion of Auyong Homestead Road from Farrington Highway to the mauka end of its bridge over Ulehawa U-3 Channel. The existing pavement will be removed then resurfaced with new asphalt concrete pavement. Existing pavement markings and vehicle loop detectors will be restored upon completion of resurfacing work.

2.5 ALTERNATIVES

Each of the alternatives, with the exception of the “No Action” alternative, will include the pavement resurfacing of Auyong Homestead Road, from Farrington Highway to the mauka end of its bridge over Ulehawa U-3 Channel as described in Section 2.4 – Proposed Action. The “No Action” alternative of not resurfacing the pavement is discussed above in Section 2.3 – Need and Purpose; therefore, this section will be limited to the discussion of the alternatives based on the drainage improvements.

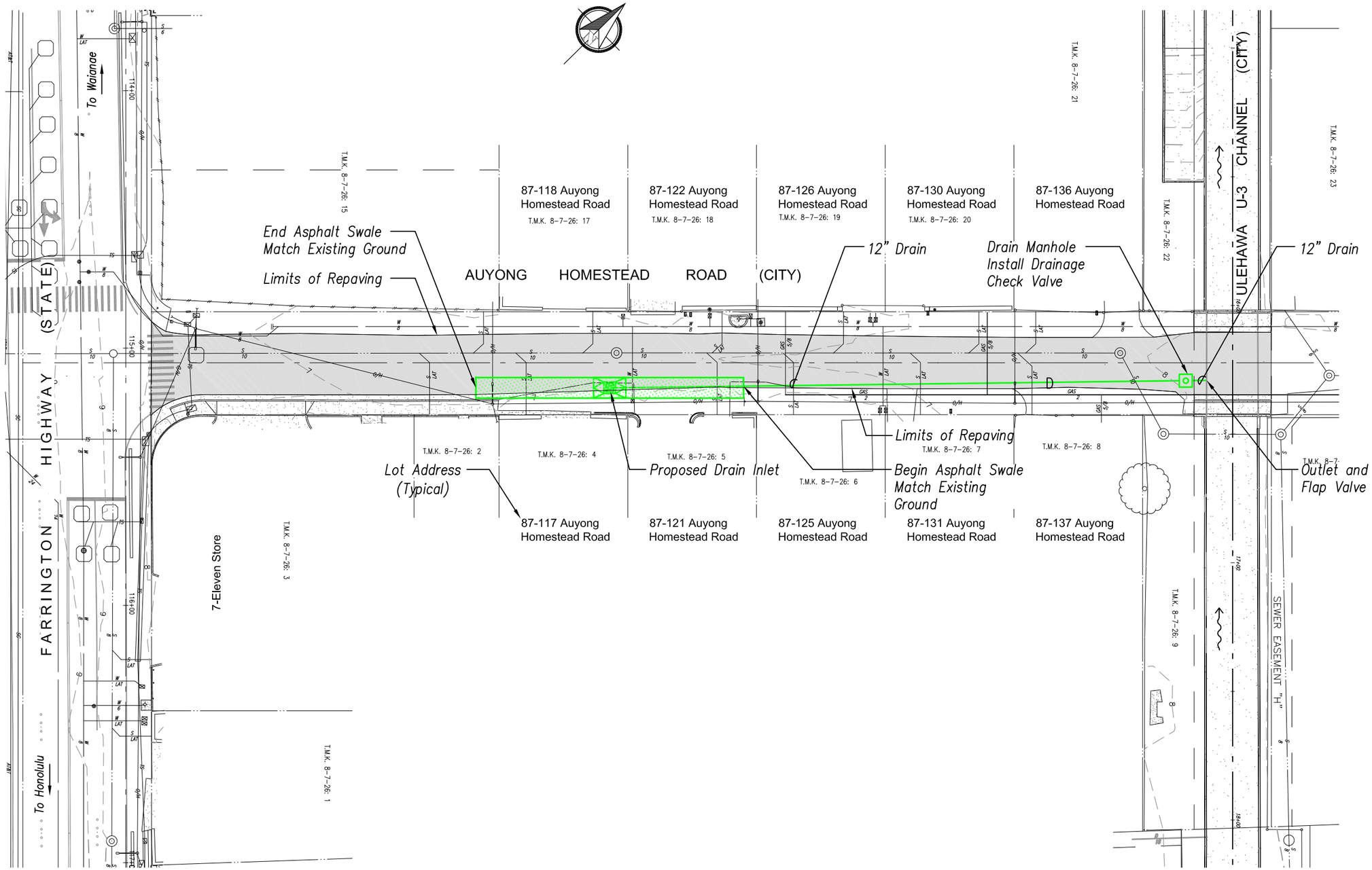
During the planning phase stage of this project, alternatives were developed based primarily on the proximity to existing drainage infrastructure in the vicinity of the project site. For Alternatives 1 and 2, asphalt concrete swales in Auyong Homestead Road would direct runoff into a grated drain inlet that would be constructed in the sump area fronting 87-117 Auyong Homestead Road. The swales would be sloped towards a drain inlet connected to an underground drainage system. The path to the discharge point at Ulehawa Beach Park differs between Alternatives 1 and 2.

1. *Alternative 1* - Discharge to Ulehawa Beach Park via new drain line in Farrington Highway connecting to the City and County of Honolulu's existing drainage system in Maaloa Street
2. *Alternative 2* - Discharge to Ulehawa Beach Park via new drain line along Ulehawa U-3 Channel connecting to the City and County of Honolulu's existing drainage system in Maaloa Street
3. *Alternative 3* - No Action

2.5.1 ALTERNATIVE 1 - DISCHARGE TO ULEHAWA BEACH PARK VIA NEW DRAIN LINE IN FARRINGTON HIGHWAY CONNECTING TO THE CITY AND COUNTY OF HONOLULU'S EXISTING DRAINAGE SYSTEM IN MAALOA STREET

Under this alternative, storm water collected in the proposed grated inlet would discharge into the Pacific Ocean through an existing drainage outlet in Ulehawa Beach Park across Farrington Highway via an underground drainage system. The simplest route would be a direct connection to the existing Hawaii Department of Transportation (HDOT) drainage system on the makai side of Farrington Highway. However, per consultation with HDOT staff, a drain connection to their existing system in Farrington Highway would not be permitted. Therefore, any new drainage system would be connected to the City and County of Honolulu's existing drainage system. The closest existing City drain line is in the Maaloa Street right-of-way (ROW). Storm water would be conveyed to the system in Maaloa Street via new drain lines in Auyong Homestead Road, Farrington Highway, and Maaloa Street (refer to Figure 7).

In order to avoid conflicts with the Honolulu Board of Water Supply's (BWS) existing 24-inch water line and manholes, the underground drainage system for Alternative 1 would be located in the Waianae-bound lane of Farrington Highway. Portions of the existing 8-inch water line in Farrington Highway and Maaloa Street would be relocated and/or lowered to provide adequate clearance from the proposed drain line. Other utilities that may conflict with the proposed drain line include existing traffic signal infrastructure, U.S. Army signal ducts, and various service lateral and fire hydrant connections.



LEGEND

D — Drainline

Area to be Repaved

PROPOSED ACTION - DRAINAGE PLAN

30 15 0 30 60

Scale in Feet

Gray, Hong, Nojima & Associates, Inc.
CONSULTING ENGINEERS
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Fax: (808) 531-8018
Telephone: (808) 521-0306

AUYONG HOMESTEAD ROAD IMPROVEMENTS

PROPOSED ACTION

CAD DRAWING: 3044-01_DRAINAGE PLAN

SCALE: 1" = 30'-0"

DATE: JUNE 2016

PROJECT #: 3044-01

FIGURE

5

PHOTO 3-1:
ULEHAWA U-3 CHANNEL
(SOUTHEAST DIRECTION)

PHOTO 3-2:
PROPOSED
DISCHARGE POINT
(FACING WEST)

PHOTO 3-3:
PROPOSED
DISCHARGE POINT
(FACING SOUTH)

CAD DRAWING:	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS 201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306	SITE PHOTOS - 3	6
SCALE: NO SCALE			
PROJECT #: 3044-01			Page 11

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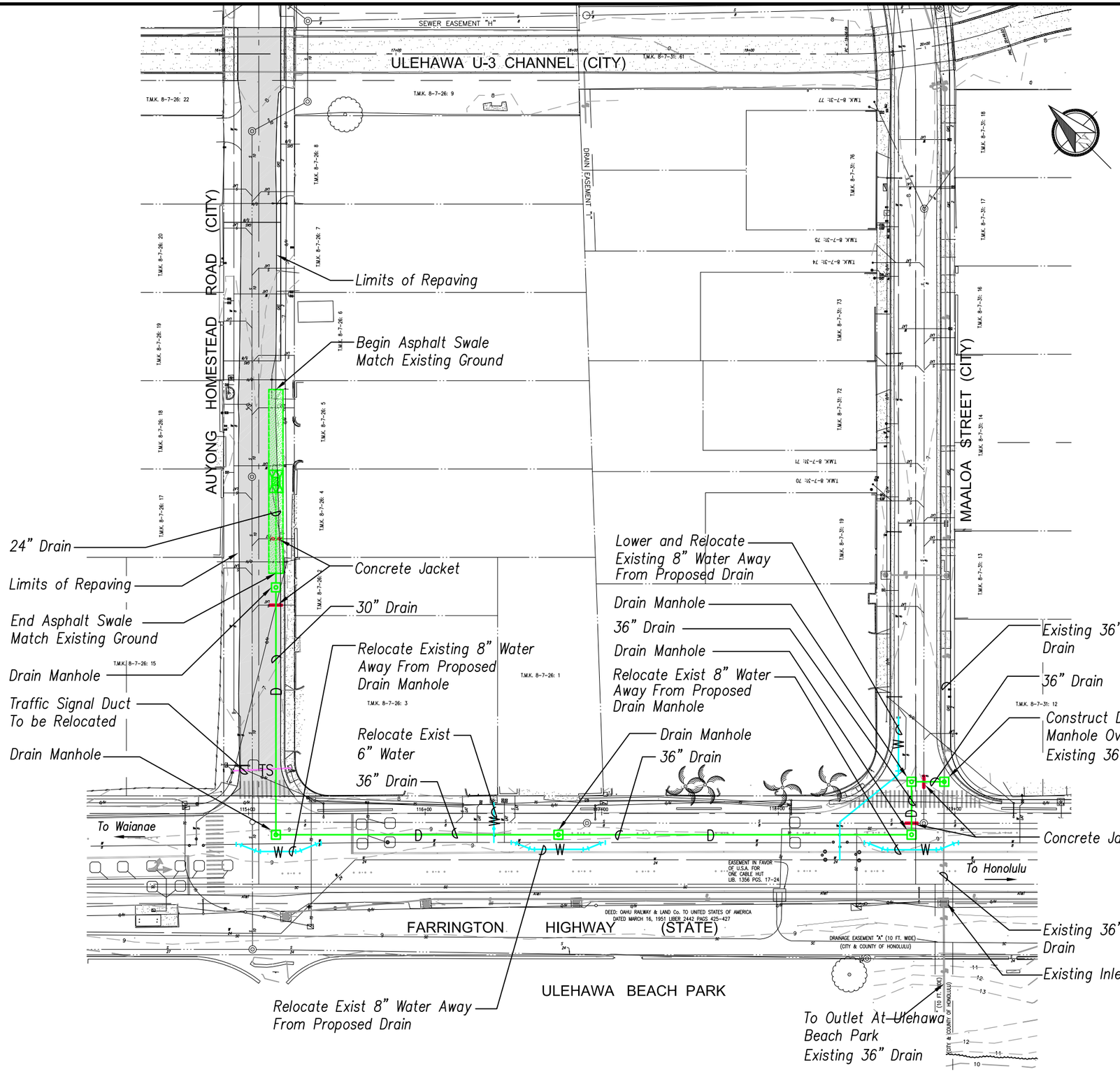

LEGEND

- D — Drainline
- W — Waterline
- TS — Traffic Signal Duct
- Concrete Jacket
- Area to be Repaved

ALTERNATIVE 1 - DRAINAGE PLAN

60 30 0 60 120

Scale in Feet

Gray, Hong, Nojima & Associates, Inc.
CONSULTING ENGINEERS
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Fax: (808) 531-8018
Telephone: (808) 521-0306

AUYONG HOMESTEAD ROAD IMPROVEMENTS

ALTERNATIVE 1

CAD DRAWING: 3044-01_DRAINAGE PLAN

SCALE: 1" = 60'-0"

DATE: JUNE 2016

PROJECT #: 3044-01

FIGURE

7

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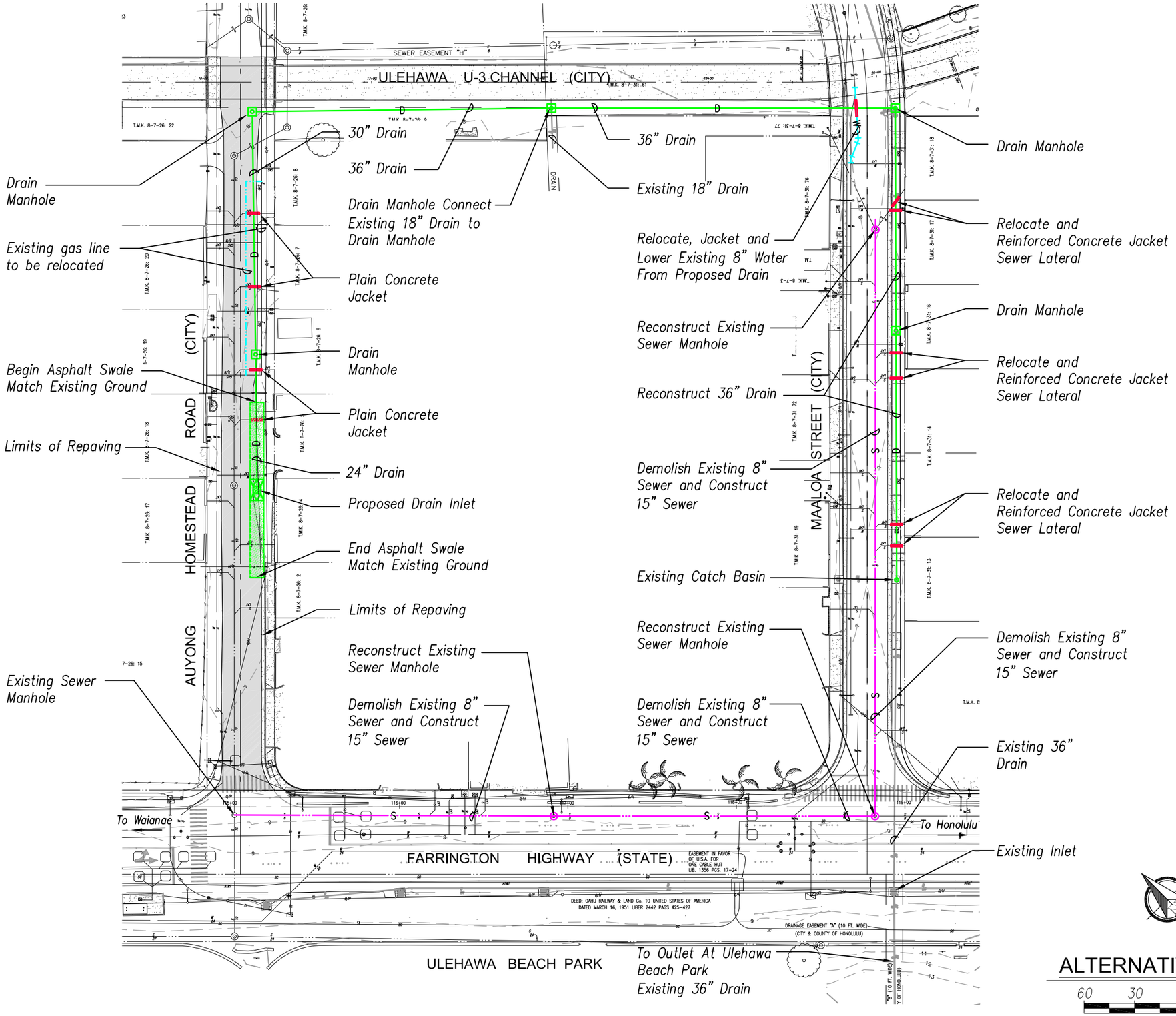
2.5.2 ALTERNATIVE 2 - DISCHARGE TO ULEHAWA BEACH PARK VIA NEW DRAIN LINE ALONG ULEHAWA U-3 CHANNEL CONNECTING TO THE CITY AND COUNTY OF HONOLULU'S EXISTING DRAINAGE SYSTEM IN MAALOA STREET

This alternative is similar to Alternative 1, except that the proposed drain line would be installed along the Ulehawa U-3 Channel ROW and connect to the existing drainage system in Maaloa Street (refer to Figure 8). In order to connect to the Maaloa Street drainage system, the existing 36-inch drain will need to be lowered to ensure that the proposed drainage system will have adequate slope and cover. Furthermore, reconstruction of the existing drain line in Maaloa Street would result in conflicts with existing sewer laterals. Lowering the existing 8-inch sewer line is not an option, since the existing sewer slope is currently at the minimum required for an 8-inch pipe per the City and County of Honolulu Wastewater Standards (1993). Therefore, in order to comply with the standards, the existing sewer line and manholes stretching from Maaloa Street into Farrington Highway and ending near Auyong Homestead Road, would need to be redesigned and replaced.

Alternative 2 would include a proposed drain manhole to intercept the runoff from an existing 18-inch drain located in the Ulehawa U-3 Channel ROW. Additional utilities requiring relocation and/or lowering include the 8-inch water line near Maaloa Street Bridge, gas line, and various service laterals.

2.5.3 ALTERNATIVE 3 - NO ACTION

The No Action alternative has no environmental consequences but during heavy rains, runoff will continue to back up on Farrington Highway into Auyong Homestead Road. Since Auyong Homestead Road does not have existing drainage infrastructure, excessive ponding will recur. The standing water will remain until it eventually percolates and/or evaporates resulting in inconveniences to residents and motorists, potential health hazards, and possible flood damage to adjacent properties.



ALTERNATIVE 2 - DRAINAGE PLAN

Gray, Hong, Nojima & Associates, Inc.
CONSULTING ENGINEERS
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Fax: (808) 531-8018
Telephone: (808) 521-0306

AUYONG HOMESTEAD ROAD IMPROVEMENTS

ALTERNATIVE 2

CAD DRAWING: 3044-01_DRAINAGE PLAN
SCALE: 1" = 60'-0"
DATE: JUNE 2016
PROJECT #: 3044-01

FIGURE 8

P:\3044-01 Auyong Homestead Road Drainage Improvements - Design\3044-01 DWGS_5Exhibits\Task B.4 - Draft Environmental Assesment\3044-01_DRAINAGE PLAN

Chapter 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 TOPOGRAPHY

According to a topographic survey of the project area and site observations, the immediate project site within Auyong Homestead Road contains a sump condition. On one end, the elevation at the Ulehawa U-3 Channel bridge crossing is 8.5 feet mean seal level (MSL). The road slopes down towards to a low point of 6.6 feet MSL near 87-117 Auyong Homestead Road and then rises back upward towards Farrington Highway. The proposed improvements will provide long-term benefits to the topography of the road with the addition of the swale.

3.2 CLIMATE

Hawaii's climate includes mild temperatures throughout the year, moderate humidity, persistence of northeasterly trade winds, significant differences in rainfall within short distances, and infrequent severe storms. According to the Western Regional Climate Center, the nearest climate recording station, Lualualei 804, is located near the Lualualei Naval Reservation about 2.5 miles north of the project site. Lualualei 804, recorded about 65 years of rainfall and temperature data. The average annual rainfall is reported at 26.43 inches with the majority occurring between September and March, thus, construction should be avoided during these months to the extent possible. The average high temperature is 83.4°F with the warmest month in August (88.1°F). The average low temperature is 68.3°F with the coolest month in January (63.2°F).

3.3 FLOOD AND TSUNAMI HAZARD

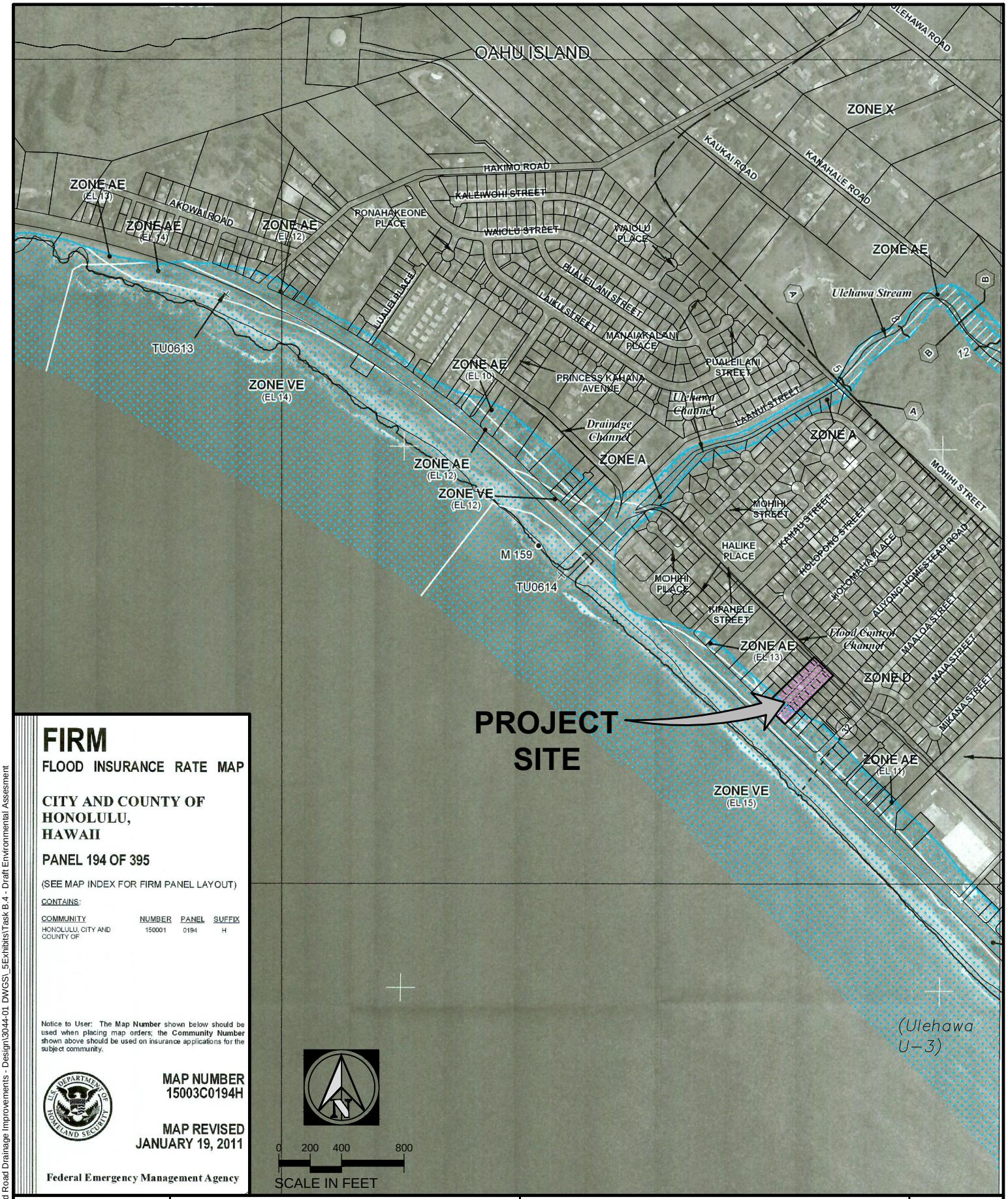
According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) 15003C0194H, the project site is located in an area designated as Zones AE, D and VE (refer to Figure 9). FEMA defines these regions as:

- *Zone AE* regions are high risk areas where flooding has a 1% chance annually (100 year flood). Base flood elevations have been determined within these zones from previous detailed analyses. Flood insurance is mandatory and City and County of Honolulu development codes apply. Portions of Auyong Homestead Road near Farrington Highway are designated Zone AE with a base flood elevation of 11 feet.

- *Zone D* regions are unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities. Most of Auyong Homestead Road is designated as Zone D.

- *Zone VE* is considered a coastal high hazard area which is subject to high velocity wave action from storms or seismic sources. Flood insurance is mandatory and City and County of Honolulu development codes apply. Portions of Auyong Homestead Road near Farrington Highway are designated as Zone VE.

The project is not anticipated to result in changes to the existing elevations in any high risk flood zones (AE and VE). During construction, the contractor will be prohibited from erecting temporary structures and the storage of fill, excavated material, or equipment within the high risk flood zone.



FIRM

FLOOD INSURANCE RATE MAP

CITY AND COUNTY OF HONOLULU, HAWAII

PANEL 194 OF 395

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HONOLULU, CITY AND COUNTY OF	150001	0194	H

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

MAP NUMBER 15003C0194H

MAP REVISED JANUARY 19, 2011

Federal Emergency Management Agency

CAD DRAWING: 3044-01_FLOOD	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS	FLOOD INSURANCE RATE MAP	9
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

P:\3044-01 Auyong Homestead Road Drainage Improvements - Design\3044-01 DWGS_5Exhibits\Task B.4 - Draft Environmental Assesment

Impacts and Mitigation Measures

The proposed improvements includes a drainage system which will provide long-term benefits by reducing the potential for flooding in the vicinity of Auyong Homestead Road by:

- Allowing runoff to drain from Auyong Homestead Road after periods of prolonged and/or intense rainfall.
- The use of a drainage check valve that will prevent backflow of storm water from Ulehawa U-3 Channel.
- Construction of the outlet above the Ulehawa U-3 Channel's high water level which will offer resilience as the sea level rises.

The project site is located within the tsunami evacuation zone based on Civil Defense Tsunami Evacuation Zone maps from the Pacific Disaster Center. Theses maps were developed by the City and County of Honolulu with data from the State Civil Defense and display the evacuation area impacted by the worst-case tsunami. The City and its contractor will monitor bulletins from the Pacific Tsunami Warning Center, cooperate with the appropriate authorities, and remove any construction related obstructions caused by the improvements as to not impede evacuation. All applicable City, State, and Federal laws and standards will be followed, thus, no long-term impacts are expected.

3.4 SOILS

Existing Conditions

According to the U.S. Department of Agriculture Web Soil Survey, the project area is comprised of Coral Outcrop (CR). CR is defined by the U.S. Soil Conservation Service Soil Survey (1972) as "……coral or cemented calcareous sand on the island of Oahu. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of the uplands. Elevations range from sea level to approximately 100 feet. The annual rainfall amounts to 18 to 40 inches. Coral Outcrop is geographically associated with Jaucas, Keaau, and Mokuleia soils."

Impacts and Mitigation Measures

In order to mitigate erosion and runoff of loose soil material, site specific best management practices (BMP) will be included in the project's construction plans during the design phase. The contractor will be required to adhere to these BMPs, thus no long term impacts are anticipated.

3.5 WATER RESOURCES

This section discusses possible impacts to surface water and water quality in the vicinity of the project site. Most of the impacts will be associated with short-term construction-related activities. Through the use of BMPs, permits, and conformance with applicable Federal, State, City rules, and regulations, the proposed improvements are not anticipated to have any long-term impacts on surface water or water quality.

3.5.1 SURFACE WATER

Existing Conditions

Since the proposed action results in the discharge of storm water, the proposed improvements may affect adjacent surface waters in the project area, namely Ulehawa U-3 Channel. Ulehawa U-3 Channel, constructed in the 1960, runs generally from south to north and is somewhat parallel to Farrington Highway. The U-3 Channel is concrete lined and approximately 4,630 feet long. The channel width near Auyong Homestead Road Bridge is approximately 20 feet wide. The U-3 Channel conveys runoff into Ulehawa U-1 Channel which in turn connects to the ocean. As mentioned previously, the intent is to locate the invert of the discharge above the visible ordinary high water mark (OHWM) on the concrete wall of the channel.

Impacts and Mitigation Measures

Typically if done at or below the OHWM, work in waterways may be subject to jurisdiction of the Army Corps of Engineers (ACOE) under Section 10 of the Rivers and Harbors Act of 1899 or Section 404 of the Clean Water Act. Section 10 requires that a Department of Army (DA) permit be obtained for structures or work in or affecting navigable waters of the U.S. Section 404 requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S. Should a Section 404 permit be necessary, ACOE will require a Clean Water Act Section 401 water quality certification from the Department of Health (DOH). Section 401 of the Clean Water Act mandates that no federal permit or license can be issued that may result in a discharge to waters of the U.S. unless the State certifies that the discharge complies with State Water Quality Standards. As part of the pre-assessment consultation process, ACOE reviewed the project information and determined that the proposed work in and around Ulehawa U-3 Channel will not require a DA permit (refer to Appendix A).

In addition to DA permits, work near or in adjacent surface waters may be subject to the State Department of Land and Natural Resources (DLNR) Commission on Water Resource Management (CWRM) Stream Channel Alteration Permit (SCAP) in accordance with HAR Chapter 169 of Title 13. According to DLNR CWRM, a SCAP is required "for any temporary or permanent activity within the stream bed or banks that may: 1) Obstruct, diminish, destroy, modify, or relocate a stream channel; 2) Change the direction of flow of water in a stream channel; 3) Place any materials or structures in a stream channel; or 4) Remove any material or structure from a stream channel." DLNR CWRM was also consulted prior to preparation of the DEA and determined that the proposed work in and around Ulehawa U-3 Channel is exempt from a SCAP (refer to Appendix A).

The impact on Ulehawa U-3 Channel is expected to be minimal and short-term. No long term impacts are expected for the following reasons: (1) The proposed project will not alter the geometry or change the function of the channel; (2) The proposed project will not construct any obstructions in the channel; (3) The construction plans and permit applications will be reviewed by pertinent government agencies for comments and approval prior to construction; (4) BMPs measures will be applied to minimize or prevent the discharge of sediment, debris, and other material into the channel; and (5) All applicable City, State, and Federal laws and standards will be followed.

3.5.2 WATER QUALITY

Existing Conditions

Hawaii's waters are protected under the Water Quality Standards, HAR Chapter 54 of Title 11, which is administered by the State Department of Health (DOH). The Water Quality Standards

contain rules to protect and maintain existing uses of the receiving state waters and prevent degradation of water quality (anti-degradation policy) through basic and specific criteria for different classifications of state waters.

According to the Water Quality Standards Map for the Island of Oahu, the inland waters in the vicinity of the project area are designated Class 2. The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. The marine waters along the shoreline at the mouth of the Ulehawa Channel are designated Class A. The standards for Class A waters require that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters.

In addition to the State marine and inland classifications, the DOH develops a list of impaired waters that do not or are not expected to attain or maintain applicable water quality criteria. In accordance with the Clean Water Act §303(d), the DOH must submit this list, plus a priority ranking of the impaired waters for Total Maximum Daily Load (TMDL) to the U.S. Environmental Protection Agency (EPA). TDML represents the maximum amount of pollutants that a water body can receive and still meet water quality standards. According to Clean Water Act Section 303(d) list, the nearby surface waters (Ulehawa Stream, Ulehawa Beach, and Nanaikapono Beach) are not currently classified as impaired.

Water quality sampling was done in conjunction with the biological assessment for this project by AECOS, Inc. on June 10, 2015. The water samples were analyzed for the various nitrogen parameters, phosphorous, turbidity, and chlorophyll a (refer to Appendix C). While the results show poor water quality, it was noted that "single samples cannot be used to determine compliance with many of the water quality criteria…which require calculating a geometric mean or establishing a frequency occurrence based on multiple samples collected over time at each station."

Impacts and Mitigation Measures

According to AECOS (2015), the small increase in drainage area attributed to the proposed project relative to the existing overall watershed area of the U-3 Channel is not expected to result in a measurable impact on water quality. Moreover, there is no reason to suspect that the quality of the proposed runoff will be different from that already being discharged into the channel.

During construction, site specific best management practices (BMPs) will be implemented to maintain the existing uses and quality of water and to comply with the State's Water Quality Standards (HAR, Chapter 11-54) and permitting requirements (HAR, Chapter 11-55). In addition, BMPs will be designed, operated, and maintained to properly isolate and confine construction activities and to the maximum extent practical, contain any potential water pollutant(s) discharges from adversely impacting the designated uses (as determined by the classification of the receiving water) of surrounding State Waters including the Ulehawa U-3 Channel, Ulehawa Channel and Pacific Ocean.

If required, coverage under the State's National Pollutant Discharge Elimination System (NPDES) general permit will be obtained prior to the start of construction. The state's NPDES general permit calls for the application of permanent and construction BMPs to regulate sources that discharge pollutants into state waters. Due to the low elevations along most of the project

site, groundwater may be encountered during excavation. To construct the proposed drainage system, trenches would need to be properly dewatered. Discharge of dewatering effluent into state waters may require a Notice of Intent Form G (NOI G) - Construction Activity Dewatering Effluent, to be covered by NPDES General Permit HAR (Chapter 55 of Title 11 Appendix G). The NOI G would include a dewatering plan, dewatering system maintenance plan, field sampling and specified analyses for water quality and toxicity data of the dewatering effluent. The contractor will be required to treat the dewatering effluent using appropriate BMP methods, such as sedimentation, chemical pretreatment, and filtration prior to discharge. Discharge pollution controls will be monitored and maintained by the contractor on a routine basis and after each significant rain event.

Marine recreational activities are not expected to be compromised for the following reasons: (1) The construction plans and permit applications will be reviewed by pertinent government agencies for comments and approval prior to construction; (2) The contractor shall obtain required NPDES Permit coverage for discharge of dewatering effluent if necessary; (3) The contractor will be responsible for conformance with applicable provisions of HAR Chapter 54 (Water Quality Standards) and 55 (Water Pollution Control) of Title 11; and (4) BMPs measures will be applied to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Since all applicable City, State, and Federal laws and standards will be followed, no long-term impacts are expected.

3.6 AIR QUALITY

Air quality can be impacted by increasing traffic volume generated during construction-related activities. These impacts, if any, will be temporary and limited to working hours. In addition, the contractor will be required to maintain construction equipment in proper working order. Activities associated with the construction phase of the project will comply with Chapter 60 of Title 11, HAR, Air Pollution Control. Since post-construction traffic volumes will remain essentially identical to current levels, no significant long-term effects are anticipated.

3.7 NOISE

Noise related to construction activities primarily controlled by hours of operation. All construction will be limited to daytime hours and the contractor would be required to obtain a Community Noise Permit from the DOH as required. Activities associated with the construction phase of the project will comply with Chapter 46 of Title 11, HAR, Community Noise Control. Noise levels in the developed residential area are anticipated to be identical prior to and after project implementation, therefore no long term impacts are anticipated.

3.8 FLORA AND FAUNA

A biological field survey of the project area was conducted by AECOS, Inc. on June 10, 2015 (refer to Appendix C). The area investigated included portions of the residential neighborhood along Auyong Homestead Road and along the Ulehawa U-3 Channel banks. As expected in an established residential area, vegetation consisted primarily of weeds and ornamental plants. The following summarizes the findings of the survey (AECOS, 2015):

- “No botanical resources of interest or potential concern from a conservation perspective - such as rare endemics or special trees (protected by County ordnance) - are present in the Project area. No plant species protected by State of Hawaii Administrative Rules (HDLNR, 2007, 2015) or federal endangered species regulations (USFWS, 2008, 2014) occur in the Project area.”

- "Native amphidromous organisms may migrate through the Project area. Native stream macrofauna are diadromous: eggs are laid in the stream and the larvae that hatch from these eggs move down stream and out into the ocean where they develop for a time before migrating back into fresh water to grow to maturity (Ford and Kinzie, 1982; Kinzie, 1988). No native stream *oʻopu* or *ʻōpae* were observed during the survey and habitat upstream from the Project is degraded and not conducive to their recruitment. Construction BMPs developed to prevent degradation of the water quality in the channel will protect any native and non-native aquatic biota present in the Project aquatic environments. The Project as currently planned is not anticipated to have any negative impacts on native stream biota."

- "No aquatic species protected by State of Hawaii Administrative Rules (HDLNR, 2007, 2015) or federal endangered species regulations (USFWS, 2008, 2014) occur in Ulehawa Stream or the U-3 channel."

- "No species protected by state or federal regulations are present. The Project is not expected to adversely impact avian resources extant in the Project vicinity."

- "No mammalian species currently protected or proposed for protection under either the federal or State of Hawaii endangered species programs were detected during the course of this survey (DLNR, 2015; USFWS; 2008, 2014). Hawaiian hoary bat or *ʻōpeʻapeʻa* (*Lasiurus cinereus semotus*) was not detected during the course of this survey. Bats are rarely observed in coastal Oahu and there is no suitable habitat at the Project site due to absence of tree cover, and hence roosting sites."

3.9 ARCHAEOLOGICAL FEATURES

An archaeological monitoring plan has been prepared by Pacific Legacy, Inc. for the proposed improvements (refer to Appendix D). The plan was submitted to the Hawaii State Historic Preservation Division (SHPD) for review and approval. Although there are no past archaeological studies in the vicinity of the project site, Pacific Legacy researched past studies in various locations within a 1-mile radius of the project area. These studies reported that there are various historical sites and cultural deposits in the vicinity of the project site. According to Pacific Legacy (2015), it is possible that cultural deposits may be encountered during construction, consisting of fire pits, artifacts scatters and shell and bone midden deposits. In addition, although no human remains have been found in the vicinity, their discovery is a possibility in shoreline sandy areas. The following summarizes key components of the monitoring plan as recommended by Pacific Legacy (2015):

1. The monitoring archaeologist will conduct a pre-construction briefing with the construction crew to discuss the archaeological monitoring procedures. In the event that a significant historic site is encountered, the monitoring archaeologist shall have the authority to stop construction in the immediate vicinity of the find until proper authorities have been notified and/or proper mitigation measures are undertaken.

2. Protective barriers will not be necessary during construction. If a significant find is made during construction, a construction barrier should be placed around the finding to protect it.

3. During construction, the archaeological monitor will need to be on-site during trenching and other activities that disturb the ground. Anything below 12 inches will be the depth considered. A daily Archaeological Monitoring Log (AML) will be done by the archaeological monitor for every day that he/she will be on-site. This AML will act as the official record for all archaeological activities on-site.

4. In the event that subsurface cultural deposits are encountered, ground disturbing activities will cease at that location and the SHPD archaeological staff will be notified. Mitigation measures will be discussed and determined with the SHPD archaeological staff.

5. If traditional Hawaiian artifacts are recovered, they will be collected for further analysis. Artifacts that are determined to be more than 50 years old will also be collected for further analysis. Recent artifacts less than 50 years old will be documented in the field.

6. In the event that human burials are encountered during archaeological monitoring, the proper personnel at the SHPD will be notified. SHPD and the Oahu's Island Burial Council will be notified and their recommendations implemented.

7. The treatment of the recovered cultural remains and associated samples will be done by the archaeological consultant's office. The laboratory work will include, cleaning, sorting, identifying, and documenting of the collected materials. Artifacts collected at the site will be identified and recorded.

8. The archaeological consultant will provide a temporary curation facility for the archaeological samples collected on-site. Consultation with SHPD will determine the final curation of the recovered materials.

9. A complete Archaeological Monitoring Report will be prepared following the completion of a subsurface construction activities documenting all finds encountered during archaeological monitoring.

3.10 CULTURAL RESOURCES

A cultural impact assessment was conducted by Pacific Legacy in order to identify and assess the potential effects of the proposed improvements on cultural practices and features at the site (refer to Appendix E). The current assessment took the form of a historic background study and contacting individuals and organizations with ties to the community. A rigorous effort was made by Pacific Legacy to identify and locate persons knowledgeable about traditional practices; however, none identified in the assessment were willing to participate in an interview. A lack of interest about the proposed drainage project assumes that the project is not seen to significantly impact on any ongoing cultural practices (Pacific Legacy, 2015). All other methods were adhered to in the assessment.

The historic background study revealed that there is a rich cultural and legendary history around the project area. Archival research indicated that the project area was heavily disturbed for infrastructure related activities for the existing Lualualei Homesteads. While this decreases the likelihood of finding cultural resources, sink holes may be encountered during construction activities. It is recommended by Pacific Legacy (2015) that a traditional Hawaiian blessing ceremony be performed by a priest/priestess or minister/preacher prior to any major event or construction related activities.

3.11 PUBLIC FACILITIES AND SERVICES

This section discusses the project's probable impacts associated with existing infrastructure serving the project site and surrounding areas. Most of the impacts will be associated with short-term construction-related activities. The contractor will be required to: (1) verify the locations of all utilities in the vicinity of the project, (2) protect existing utilities during construction, and (3) prevent unintended interruption of utility service. After completion of the project the affected areas in the City road ROW will be restored to original or better condition, including pavements, driveways, curbs, sidewalks, gutters, signage, pavement markings, etc., using the same or approved material(s).

3.11.1 ROADWAY

Existing Conditions

Auyong Homestead Road was constructed in the late 1940s as a part of the Auyong Subdivision and is presently under the jurisdiction of the City. Auyong Homestead Road runs mauka to makai with a right-of-way width of 40-feet and an existing pavement width of approximately 18 feet. Most of Auyong Homestead Road was constructed without curbs, gutters, or sidewalks except for the areas adjacent to the 7-Eleven store and along its bridge over the U-3 Channel.

Impacts and Mitigation Measures

There will be temporary inconvenience to motorists and pedestrians due to construction-related activities along Auyong Homestead Road. Therefore, construction work within the roadway will be avoided during peak traffic hours on weekdays. The contractor will be required to coordinate with residents in the vicinity of the project site at least two weeks prior to the start of construction with possible earlier notification in consideration of adjacent businesses operations. The Oahu Transit Services, TheBus, The Handi-Van, and The State Department of Education will also be notified of any construction activities that could affect their respective services prior to the start of construction.

Traffic control plans for the project site will be prepared and conform to the latest State and City rules and comply with current Federal Highways Manual of Uniform Traffic Control Devices. The contractor will implement, install and maintain all necessary traffic control measures (e.g., signs, lights, barricades, cones, flagmen, special duty police officers and other safety equipment) to facilitate the flow of construction equipment, motor vehicle and pedestrian traffic in the area during construction. During non-working hours, the contractor will cover any trenches with a safe non-skid bridging material and all lanes will be open to traffic. The contractor will also provide safe pedestrian access through the project site and install/maintain all applicable signs and other protective facilities. Access to all affected residences and business will be maintained throughout the duration of the proposed project construction. The contractor will be directed to commence daily construction activities (including mobilization, deliveries, onsite equipment and employee parking) only during non-peak hours (8:30 am to 3:30 pm). The contractor will coordinate with the City to determine where construction vehicles and materials can be placed during non-peak hours. In addition, the contractor will be required to obtain a street usage permit prior to temporary closure of any area street. Since the project is not adding to the current population or development, the proposed improvements will not directly generate additional traffic or require the construction of additional road infrastructure within the project area. Since all applicable City, State, and Federal laws and standards will be followed, no long-term impacts are expected.

3.11.2 WATER SYSTEMS

Municipal water service in the area is provided by the Board of Water Supply (BWS) via an existing 8-inch water line and water laterals. While relocation of the water line and laterals are not anticipated for this project, construction drawings will be submitted to the BWS for review. Water service is expected to remain active throughout construction; however, in the event that water service must be interrupted during construction, the contractor will notify the affected property owners and businesses in advance and coordinate its work with the BWS to minimize the impact to the water system. Access to fire apparatus will be maintained throughout the construction site and any interruption to the existing fire hydrant system during construction will be reported to the Honolulu Fire Department by the contractor. Since the project is not adding directly to population or development, the proposed improvements will not require additional water demand. All applicable BWS, City, State, and Federal laws and standards will be followed, thus, no long-term impacts are expected.

3.11.3 WASTEWATER COLLECTION SYSTEMS

The properties along Auyong Homestead Road are serviced by an existing 10-inch sewer line and 6-inch sewer service laterals. During the design phase, construction drawings will be submitted to the City's Department of Planning and Permitting for review. The proposed project will not require additional sewer service nor is it expected to interrupt current sewer services. However, in the event that sewer service must be interrupted during construction, the contractor will notify the affected property owners and businesses in advance. Since the project is not adding to the current population or development, the proposed improvements will not directly generate an increase in demand for sewer service or require the construction of additional sewer infrastructure within the project area. All applicable City, State, and Federal laws and standards will be followed, thus, no long-term impacts are expected.

3.11.4 DRAINAGE SYSTEMS

Based on site visits and available information, Auyong Homestead Road appears to serve a drainage area of approximately 4.5 acres. While there is an existing sump condition, there is no natural or constructed drainage relief. The proposed improvements will alleviate ponding by conveying storm water from road right-of-way into the Ulehawa U-3 Channel. With no existing drainage systems within the vicinity of the project site, no short term impacts are anticipated. During construction no addition of impervious area will be added to the existing site. All applicable City, State, and Federal laws and standards will be followed, thus, no long-term impacts are expected.

3.11.5 ELECTRIC/TELEPHONE/CABLE/TRAFFIC SIGNAL UTILITIES

<u>Existing Conditions</u>

Electrical and telecommunications services in the area are provided by Hawaiian Electric Company (HECO), Hawaiian Telcom, and Oceanic Time Warner Cable. Traffic signal conduits and loop detectors near Farrington Highway are maintained by the State. Per consultation with HECO during the pre-assessment consultation phase, the project area is currently served by overhead lines.

Impacts and Mitigation Measures

During construction, the contractor will provide access to the existing utility company's easement(s) and facilities in the project area. If the construction activities should encroach within the necessary radial clearance of the overhead lines, the appropriate utility companies will be notified and necessary precaution such as de-energizing the line might be necessary. Should trenching operation encroach within 10 feet of existing poles, adequate support (approved by utility companies) will be provided to the poles. The traffic signal system shall be kept operational during construction. Any relocation (if necessary) shall be approved by the appropriate agencies, and the City will provide similar land rights to utility companies for the relocated area. In the event that electrical and/or telecommunication service must be interrupted during construction, the contractor will notify the affected property owners and business in advance. During the design phase, construction drawings will be submitted to the appropriate utilities for review. Since the project is not adding to the existing population or development, the proposed improvements will not directly generate an increase in demand of electrical, cable, and telephone system service or construction of supporting infrastructure within the project area. All applicable utility company, City, State, and Federal laws and standards will be followed, thus, no long-term impacts are expected.

3.11.6 GAS UTILITIES

Hawaii Gas maintains gas mains of various sizes which serve commercial and residential customers in the project site. Construction drawings will be submitted to Hawaii Gas for review and comment. During construction some gas lines will be exposed during trenching activities and may conflict with the proposed improvements. The contractor will obtain written clearance prior to excavation and coordinate necessary relocation with Hawaii Gas and the affected residents and businesses in advance to minimize any impacts. All excavation and backfill around the gas lines will be done in accordance with Hawaii Gas requirements and in the presence of Hawaii Gas representatives. Since the project is not adding to the existing population or development, the proposed improvements will not directly generate an increase in demand of gas service or require the construction of additional gas infrastructure within the project area. Adequate support and protection to gas lines exposed in the trench will be approved by Hawaii Gas. No long-term impacts on the gas utilities are expected.

3.12 CONSTRUCTION ACTIVITIES

During construction, normal requirements for mitigation of construction impacts will be utilized. These requirements include traffic control, compliance with BMPs, compliance with hours prescribed for construction to minimize noise impacts, and coordination with adjacent businesses and residents. All BMPs are to be in place prior to the commencement of any construction activities. Proposed BMPs include but are not limited to the following:

(1) All loose material, small tools and equipment will be removed from the construction site after each work day is completed.

(2) City-approved area(s) to store or stockpile construction related materials and equipment will be designated prior to the start of construction.

(3) Solid waste, removed vegetation, debris and unsuitable excavated materials will be properly disposed at a site approved by the City.

(4) All hazardous or toxic waste, will be disposed of in the manner specified by federal, state, local regulations or the manufacturer.

(5) All sanitary waste from portables will be collected and disposed of properly.

(6) Any debris and other deleterious material will be contained and prevented from entering adjoining properties and State waters.

(7) Sediment control filters shall be installed on catch basins and drain inlets in and around the site. Sediment control filters to be removed during times of above normal events and replaced after the event has passed.

(8) Properly maintain all erosion control features. Inspect, remove debris collected, and make necessary repairs to all erosion control measures within 24 hours of any storm event of 0.25-inch or greater, daily during periods of prolonged rainfall and weekly during dry periods.

(9) To the extent possible, construction will be done during dry weather so that there is low or no construction-related runoff. The contractor will be required to temporarily suspend work during periods of heavy rain.

(10) Equipment shall be inspected daily to ensure that oil leaks do not occur. Vehicular equipment will not be allowed to enter the channel bed. Fueling and lubricating of equipment and motor vehicles will be conducted away from the channel bed and in a manner to protect against spills and evaporation. Lubricants and excess oils will be disposed of in accordance with applicable federal, state and local regulations.

(11) Any existing improvements in the project site, and in adjacent areas, that are not to be removed, shall be preserved and protected. Any and all damages resulting from construction activities shall be restored to its original, or better, condition.

(12) The roadway (including sidewalk and gutters) shall be cleaned on a daily basis to be free of debris and sediment resulting from construction operations (flushing into the catch basins are prohibited).

(13) All other requirements per applicable NPDES General Permit conditions and construction related BMP requirements.

3.13 ECONOMIC AND SOCIAL FACTORS

Existing Conditions

The pre-design opinion of probable cost of the proposed improvements is estimated to be $310,000 and will be funded by the City and County of Honolulu. This will translate into economic benefits for contractors, their employees, material suppliers, and other service providers. The proposed improvements will alleviate ponding during heavy rains on the roadways, property damage, and inconvenience to residences in that area.

Impacts and Mitigation Measures

The proposed improvements are expected to be constructed within a 6-month period. During this period there will be short-term socio-economic impacts due to construction activities. These

impacts include the following inconveniences to residents, motorists, pedestrians, commercial/business entities:

- Noise
- Dust
- Interruption of pedestrian and vehicular traffic along Auyong Homestead Road.
- Restriction of on-street parking
- Possible utility disruptions

Advance communication will be essential for the proposed improvements. Thus, residents, businesses and public facilities to be affected by construction activities will be notified by the City or by the contractor prior to the commencement of construction and any utility down time. Other mitigation measures include:

- Application of appropriate site-specific BMPs.
- Scheduling construction activities during day time non-peak traffic hours (8:30 am to 3:30 pm).
- Locating and securing construction equipment within the project area to minimize interference with nighttime residential and business activities.
- Providing traffic control procedures throughout the project area to minimize traffic disruptions, provide safety for pedestrians, provide a means to access Farrington Highway, and provide access to properties and businesses along Auyong Homestead Road.
- Maintaining access to all affected public facilities throughout construction.
    - The DTS, OTS, Emergency Medical Service, Police and the Fire Department will be notified of any construction activities that could affect its respective services at least two weeks prior to the start of construction.
    - Access to fire apparatus will be maintained throughout the construction site. Any interruption to existing fire hydrants during construction will be reported to the Honolulu Fire Department by the contractor.
    - Coordination with the Department of Environmental Services to provide continued scheduled trash pickup for those residents that live in the area during construction.
    - Coordination with the Department of Education, including the appropriate administrators at Nanakuli High School and Nanaikapono Elementary School, regarding any relocation of stops or route disruptions to the public school bus service.

Since the project area is fully developed, the proposed improvements are not expected to change nor have a significant impact on the urbanized land uses. Existing commercial or residential activity will not be directly displaced by the proposed project. The proposed improvements will not result in new residential units or visitor units or generate any new residents to the island of Oahu. As a result, there should be no impact on the existing residential population. In the long-term, surrounding residents and businesses will benefit by the reduction of ponding water and improved roadway surface on Auyong Homestead Road. All applicable City, State, and Federal laws and standards will be followed, thus, no negative long-term impacts are expected.

Chapter 4 – RELATIONSHIP TO LAND USE POLICIES AND CONTROLS

4.1 HAWAII STATE PLAN

The purpose of the Hawaii State Plan, adopted in 1978 (amended in 1986), is to "improve the planning process in this state, to increase the effectiveness of government and private actions, to improve coordination among different agencies and levels of government, to provide for wise use of Hawaii's resources and to guide the future development of the state" (HRS §226-1). The Hawaii State Plan serves as a guide for the future long-range development of the State. The Plan consists of objectives, and policies for the State to provide a basis for determining priorities and allocating limited resources. The Plan establishes a State-wide planning system to coordinate and guide all major state and county activities. The State Plan promotes the growth and diversification of the State's economy, the protection of the physical environment, the provision of public facilities, and the promotion of and assistance to socio-cultural advancement. The proposed improvements are consistent with the following objectives of the Hawaii State Plan:

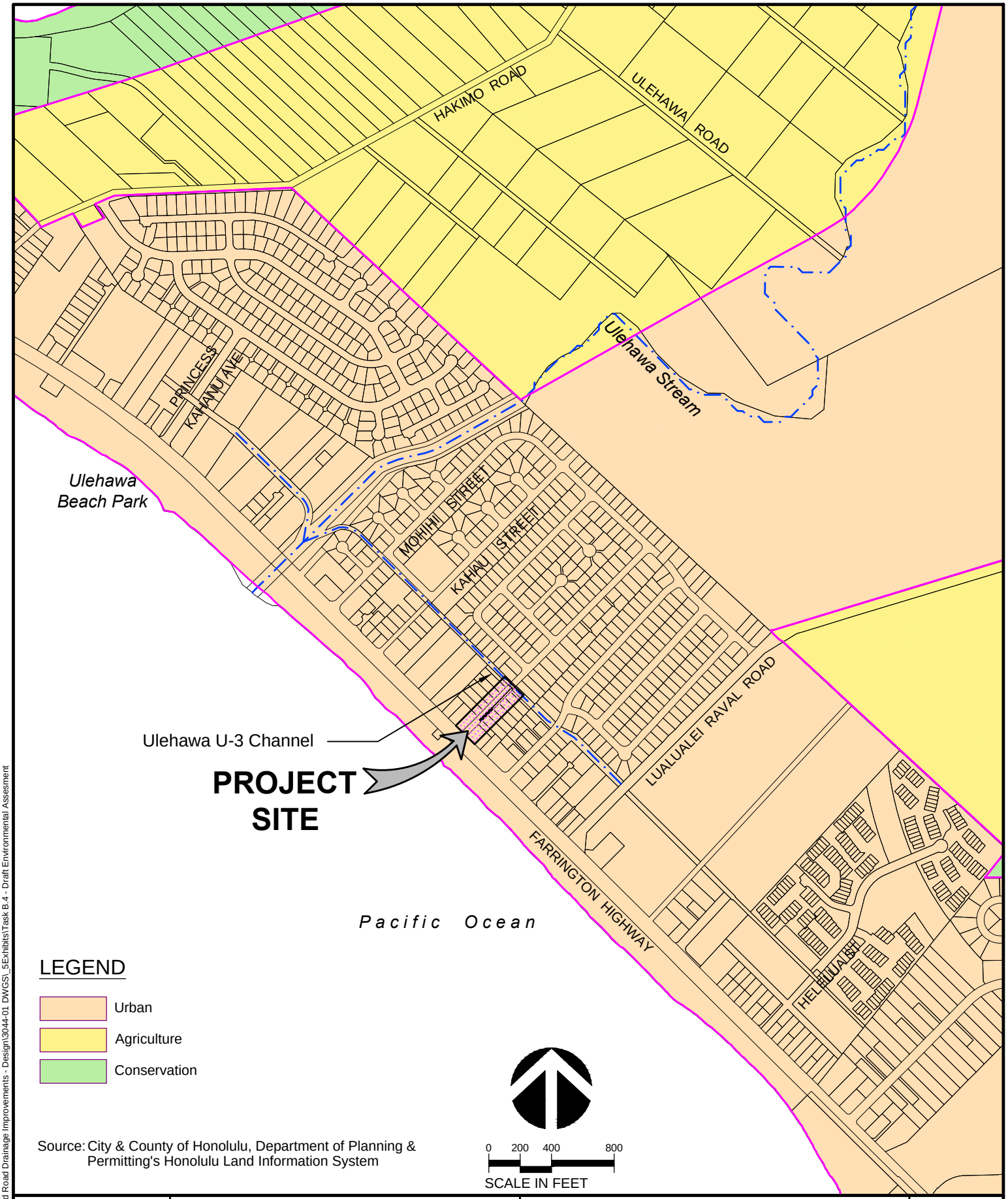
- "Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters." (§226-13.b.5).

- "Encourage transportation systems that serve to accommodate present and future development needs of communities." (§226-17.b.6).

The Hawaii State Planning Act was amended again in 2012 as part of Act 286 to create a climate change adaptation policy for the State of Hawaii. The purpose of Act 286 is to "….encourage collaboration and cooperation among county, state, and federal agencies, policy makers, businesses, and other community partners to plan for the impacts of climate change and avoid, minimize, or mitigate loss of life, land, and property of future generations" (Act 286, SB 2745, SD 1, July 9, 2012). As a result, a new section on priority guidelines to prepare the State to address the impacts of climate change was added to the Hawaii State Planning Act (HRS §226-109). The proposed improvements are consistent with this section by promoting sector resilience in areas such as water, roads, airports, and public health (HRS §226-109(7)). The proposed improvements will allow the drainage of ponded water in the project area after heavy rains. Without the proposed improvements, the ponded water can remain for extended periods, adversely affecting the infrastructure along the road and the livelihood of the residents in the area. In addition the outlet of drainage the system will be constructed above the high water level in Ulehawa U-3 Channel and outfitted with a check valve. These precautions will prevent the backflow of water from the channel onto the street.

4.2 STATE LAND USE PLAN

The purpose of the State Land Use Plan is to establish a state-wide zoning law where all land in the State is classified into four districts (urban, rural, agricultural and preservation). The plan was enacted to prevent haphazard development which will be detrimental to the States long-term growth and income potential. According to the State of Hawaii - Land Use Commission maps, the proposed improvements lie within an Urban State Land Use District (refer to Figure 10). According to the Land Use Commission Website, an urban district "generally includes lands characterized by "city-like" concentrations of people, structures and services." Jurisdiction of this district lies primarily with the respective counties, therefore, the proposed improvements



Source: City & County of Honolulu, Department of Planning & Permitting's Honolulu Land Information System

CAD DRAWING: 3044-01_SLU	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS	STATE LAND USE DISTRICT	10
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

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and the surrounding apartment and business areas are regulated by City and County of Honolulu ordinances and regulations.

4.3 CITY AND COUNTY OF HONOLULU GENERAL PLAN

Oahu's General Plan is a written commitment by the City and County of Honolulu to a future for the Island of Oahu which it considers desirable and attainable (Department of Planning and Permitting, 2002). The general plan consists of various objectives of desirable conditions for the welfare and benefit of the people of Oahu. To obtain the objectives, the plan includes broad policies used to develop planning documents, programs and legislation to guide Oahu's future. The proposed improvements are consistent with the following objectives and policies:

- Natural Environment Objective A, Policy 6 - Design surface drainage and flood-control systems in a manner which will help preserve their natural settings.

- Transportation and Utilities Objective A, Policy 1b - Develop and maintain an integrated ground-transportation system consisting of the following elements and their primary purposes: Roads and highways-for commercial traffic and travel in nonurban areas.

- Transportation and Utilities Objective A, Policy 5 - Improve roads in existing communities to reduce congestion and eliminate unsafe conditions.

- Transportation and Utilities Objective C, Policy 2 - Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.

- Transportation and Utilities Objective D, Policy 1 - Give primary emphasis in the capital-improvement program to the maintenance and improvement of existing roads and utilities.

- Physical Development and Urban Design Objective F, Policy 3 - Provide and maintain roads, public facilities, and utilities without damaging the character of older communities.

4.4 CITY AND COUNTY OF HONOLULU WAIANAE SUSTAINABLE COMMUNITIES PLAN

To assist in the implementation of the policies and objectives of the General Plan, the City developed eight regional development or sustainable community plans (Ewa, Primary Urban Center, Central, East, Koolau Poko, Koolau Loa, North Shore and Waianae). The proposed improvements are located within the Waianae Sustainable Communities Plan (WSCP) boundary. The WSCP establishes policies to support the existing population through maintaining and enhancing the regions unique character, families, lifestyle, and economic outlook. The proposed improvements recognize the following sections of the WSCP.

- Section 4.5.1: The WSCP acknowledges that drainage improvements are necessary due to the lack of adequate drainage facilities along Auyong Homestead Road.

- Section 4.5.2.1: Corrective measures include the construction of a new drainage system.

4.5 CITY AND COUNTY OF HONOLULU ZONING

The City's Land Use Ordinance (LUO), Chapter 21 of the Revised Ordinances of Honolulu (ROH), was established to implement the land use policy of the City, as established by the General Plan and the eight regional development or sustainable community plans. The purpose of the LUO is to provide development and design standards to preserve natural/historic/scenic resources, protect public health and safety, and promote development in accordance with adopted land use polices. The LUO established several zoning districts each with its own set of permitted land uses and development standards. The proposed improvements are located in Residential (R-5) and Business-Neighborhood (B-1) zoning districts (refer to Figure 11). According to the LUO, R-5 and B-1 are defined as follows:

- "The intent of the R-5 district is to provide areas for urban residential development. This district would be applied extensively throughout the island.

- The intent of the B-1 neighborhood business district is to provide relatively small areas which serve the daily retail and other business needs of the surrounding population. It is intended that this district be generally applied to areas within or adjacent to urban residential areas, along local and collector streets, but not along major travel routes or on a large scale basis. It would also be applied to rural and urban fringe town centers which may or may not be located along major travel routes."

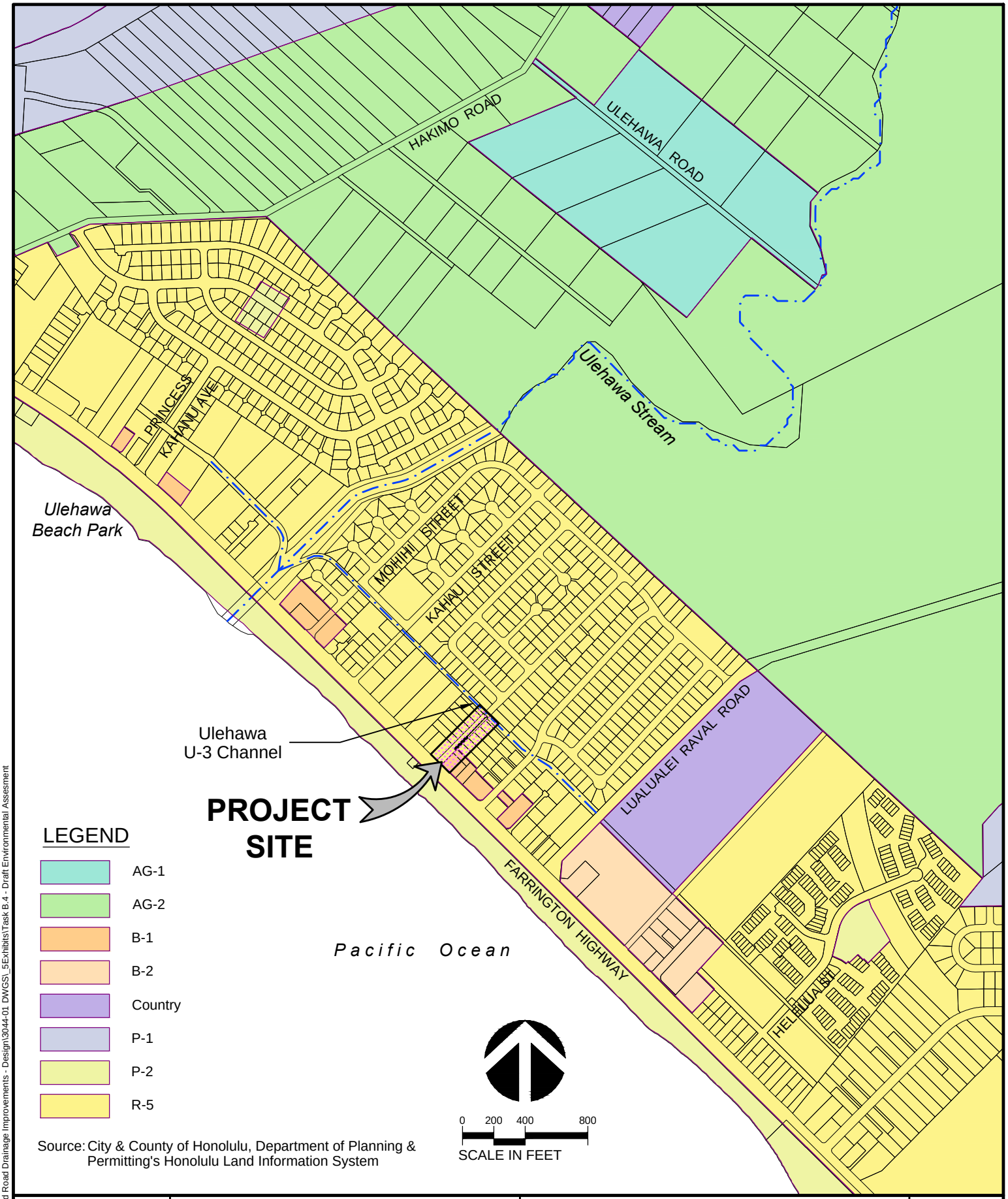
The LUO permits the use of these zoning districts for road pavement resurfacing projects and public facilities such as drainage systems, therefore the proposed action will be in compliance with the policies and objectives of the City Zoning Districts regulations.

4.6 CITY AND COUNTY OF HONOLULU PUBLIC INFRASTRUCTURE MAP

Provisions of the Public Infrastructure Map (PIM) are set forth in Chapter 4 Article 8 of the Revised Ordinances of Honolulu (ROH). PIM shows major infrastructure projects that have a significant impact on surrounding land uses or environment, establishes a new facility, changes the function of an existing facility, or modifies an existing facility which would permit significant new development or redevelopment. The proposed project is not considered a major infrastructure project that would permit significant new development or redevelopment; therefore, it is not required to be identified on the Waianae PIM.

4.7 CITY AND COUNTY OF HONOLULU FLOOD HAZARD AREAS

The purpose of a Special Flood Hazard Area is to regulate development in flood/tsunami prone areas to reduce property damage, loss of life, health/safety hazards and cost related to flood control and damage. Special Flood Hazard Areas are areas consisting of the general floodplain area (Zone A), floodway area (floodway in Zone AE), flood fringe area (Zones AE, AO, AH), and coastal high hazard area (Zone V and VE). As mentioned in Section 3.3 - Flood and Tsunami Hazard, a portion of the project area is located in the special flood hazard area (AE and VE). The proposed work involved in the Special Flood Hazard Area will be limited to resurfacing of the existing road and will not include the construction of any structures (as defined in ROH Chapter 21A). In addition, and the road resurfacing will match the existing elevations; therefore, the proposed improvements in the Special Flood Hazard Areas will not result in an increase of base flood elevations.



Source: City & County of Honolulu, Department of Planning & Permitting's Honolulu Land Information System

CAD DRAWING: 3044-01_ZONING	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS	ZONING MAP	11
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

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4.8 COASTAL ZONE MANAGEMENT ACT

The Hawaii Coastal Zone Management (CZM) Program, enacted as HRS Chapter 205A, was promulgated in 1977 in response to the Federal Coastal Zone Management Act of 1972. The lead agency to manage the Hawaii's CZM is the Department of Business, Economic Development and Tourism State Office of Planning. The Hawaii CZM area encompasses the entire State (including its land area), as problems that occur on land will eventually impact/influence the quality of the coastal waters and marine resources. Impacts of the project relative to the CZM program's ten policy areas are as follows:

- *Recreational Resources*
  To provide coastal recreational opportunities accessible to the public.

Comment: The proposed improvements are within an existing road that is inland and away from the shoreline, therefore the proposed project does not obstruct access or prevent recreational opportunities to coastal areas.

- *Historic Resources*
  To protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Comment: The EA for the proposed project includes a cultural impact assessment and archaeological monitoring plan. An archaeological monitor will be on site during construction activities.

- *Scenic and Open Space Resources*
  To protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Comment: The proposed improvements are within an existing road that is inland and away from the shoreline, therefore the proposed project preserves both open space and the coastal scenic properties of the location.

- *Coastal Ecosystems*
  To protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Comment: A biological survey was done in and around the project site. No endangered or threatened aquatic species were found in the Ulehawa U-3 Channel as well as the Ulehawa stream. Construction BMP's will be implemented to protect the aquatic life in the streams. If applicable, an NPDES permit will be obtained prior to any project-related discharge that could affect the coastal ecosystem.

- *Economic Uses*
  To provide public or private facilities and improvements important to the State's economy in suitable locations.

Comment: During construction the contractor will coordinate with adjacent business and implement traffic control plans to minimize any adverse economic effect. The project would result in improved roadway surface and traffic circulation within the

Auyong/Mohihi neighborhood that will benefit businesses and commuters in the Nanakuli area.

- *Coastal Hazards*
  To reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

Comment: The proposed improvements are located within an existing road that is inland and away from the shoreline, therefore, the proposed project should not be considered a coastal development. The contractor will be made aware that the proposed project is located in a tsunami evacuation zone and will be directed to cooperate with the appropriate authorities in the event of a tsunami. After construction, the improvements will reduce ponding and facilitate emergency evacuation.

- *Managing Development*
  To improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Comment: The proposed improvements conform to City and County of Honolulu land use designations for the project area and will require various government approvals that include provisions for public input and protection of costal resources.

- *Public Participation*
  To stimulate public awareness, education, and participation in coastal management.

Comment: Pre-assessment consultation letters and the DEA were sent out to various government agencies, landowners, and the affected neighborhood board (refer to Appendices A and B).

- *Beach Protection*
  To protect beaches for public use and recreation.

Comment: The proposed improvements are located within an existing road that is inland and away from any beaches. If applicable, an NPDES permit will be obtained prior to any project-related discharge that could affect the coastal ecosystem.

- *Marine Resources*
  To implement the State's ocean resources management plan.

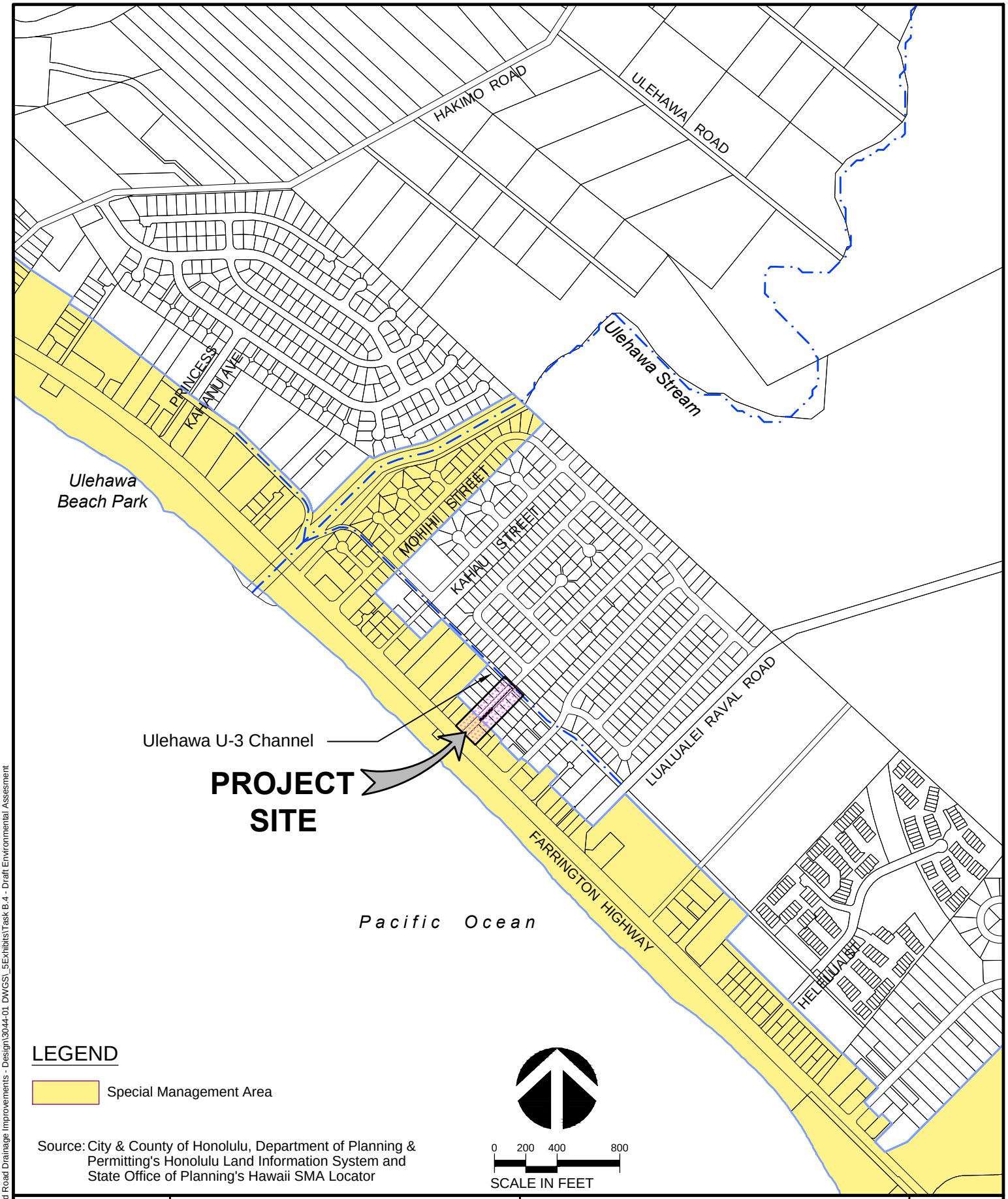
Comment: Marine or costal resources would not be affected since the proposed improvements are located within an existing road that is inland and away from the shoreline.

4.9 SPECIAL MANAGEMENT AREA

The City and County of Honolulu implements provisions of the Coastal Zone Management (CZM) by controlling development within designated areas along the shoreline called Special Management Areas (SMA). The proposed project site is within the SMA (refer to Figure 12). The proposed project does not fall under the definition of “development” as indicated by the ROH Chapter 25, §25-1.3(2):

- (B) Repair of maintenance of roads and highways within existing right-of-way.
- (N) Installation of underground utility lines and appurtenant aboveground fixtures less than four feet in height along existing corridors.

Since the proposed improvements does not fall under the definition of “development”, this project is exempt from the SMA requirements described in ROH Chapter 25.



Source: City & County of Honolulu, Department of Planning & Permitting's Honolulu Land Information System and State Office of Planning's Hawaii SMA Locator

CAD DRAWING: 3044-01_SMA	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD IMPROVEMENTS	FIGURE
DATE: JUNE 2016	CONSULTING ENGINEERS	SPECIAL MANAGEMENT AREA	12
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

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Chapter 5 – POTENTIAL PERMITS AND APPROVALS

5.1 OVERVIEW

Potential permits and approvals that may be required prior to the construction of the proposed improvements are listing in this Chapter. The applicability of these permits will be coordinated with the respective agencies, and permit applications will be prepared as planning and design of the project proceeds.

5.2 STATE OF HAWAII

Department of Health	Chapter 343 Environmental Review Process Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) Permit Community Noise Control Permit Disability Communication and Access Board Review for Conformance with Accessibility Guidelines (HRS §103-50 Review)
Department of Land and Natural Resources	State Historic Preservation Division Review for Compliance with HRS Chapter 6E
Department of Transportation	Transport of Oversize and Overweight Vehicle

5.3 CITY AND COUNTY OF HONOLULU

Dept. of Planning and Permitting	Construction Dewatering Permit One-Time Review (including construction plan review coordination with other City agencies) Permit to Excavate Public Right-of-Way (Trenching)
Dept. of Transportation Services	Street Usage Permit

5.4 OTHER APPROVALS

In addition to the anticipated permits and approvals listed above, the construction plans will be routed through the following utilities for review during the design phase of the project:

- Hawaiian Electric Company
- Hawaii Gas
- Hawaiian Telcom
- Oceanic Time Warner Cable

Chapter 6 – COMPLIANCE WITH CHAPTER 343, HAWAII REVISED STATUTES

6.1 ANTICIPATED DETERMINATION

The proposed improvements will have no potential significant short-term, long-term, or cumulative adverse impacts on the environment, and therefore, the preparation and processing of an Environmental Impact Statement is not required. Based on the information and analysis presented in this document, the City Department of Design and Construction is issuing a Finding of No Significant Impact (FONSI) for the proposed improvements.

6.2 FINDINGS AND REASONS SUPPORTING THE DETERMINATION

The FONSI was based on evaluating the proposed improvements with Section 11-200-12 HAR, which states, "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…:" meets any of the following criteria:

1. The project involves an irrevocable commitment to loss or destruction of any natural or cultural resource.
The proposed improvements will not involve irrevocable commitment to loss of destruction of any natural or cultural resource. The project site lies within an existing City and County of Honolulu roadway and the surrounding area has been subject to substantial construction activities and development. Furthermore, a biological survey conducted in conjunction with this project (Section 3.8 – Flora and Fauna) found no Federally-listed or State-listed endangered, threatened or candidate species within the project site.

However, construction activities may encounter cultural deposits in the project area (Section 3.9 – Archeological Features). To protect mitigate the area's historic/cultural resources, an archaeological monitoring plan was prepared and submitted to SHPD for review and approval. Should burials (or other cultural finds) be encountered during ground disturbance, the contractor will immediately cease all work and notify the appropriate agencies pursuant to applicable statutes, rules, and/or regulations.

2. The project curtails the range of beneficial uses of the environment
The proposed improvements do not curtail the range of beneficial uses of the environment. The proposed project will be constructed within the existing Auyong Homestead Road right-of-way; therefore, access to and beneficial uses of the adjacent coastline will not be adversely affected. The project would have long-term favorable effects by draining ponding water that could pose as health hazards and would adversely affect the environment and public safety. Therefore the proposed improvements would contribute to increased environmental quality.

3. The project 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.
The proposed improvements will not conflict with the State's long-term environmental policies or goals and guidelines of the State of Hawaii specified in HRS Chapter 344, as demonstrated by the discussion in this chapter and Chapters 3 and 4. The purpose of Chapter 344 HRS is to

establish a state environmental policy that will conserve natural resources and enhance the quality of life.

The project will conserve the natural resources in the area and enhancing the long-term quality of life for residents and businesses in the project area by implementing measures that would reduce hazards such as standing water and improve vehicular circulation and traffic safety within the project limits.

4. The project substantially affects the economic welfare, social welfare, and cultural practices of the community or State.
The proposed improvements would not substantially affect the economic, social welfare, or cultural practices of the community or the State. There may be some short-term positive and negative economic and social impacts as related to construction. Short-term negative impacts include traffic congestion, blockage of street frontage, reduction of on-street parking and noise, etc. which would be minimized by the appropriate mitigation measures. Short-term positive impacts include hiring of construction workers and the purchasing of the materials.

In the long-term, the drainage improvements and roadway pavement resurfacing would have positive economic effects through protection of private property and safety of residents, motorists and pedestrians along Auyong Homestead Road. The proposed improvements are limited to the Auyong Homestead Road, thus, there will be no negative impact or change to the overall character of the community or the State.

5. The project substantially affects public health.
Public health would not be adversely affected by the proposed improvements. The proposed improvements would provide positive, long-term public health benefits to residents and businesses by implementing measures that would reduce hazards such as standing water and improve vehicular circulation and traffic safety within the project limits.

6. The project involves substantial secondary impacts, such as population changes or effects on public facilities.
The proposed improvements will not involve secondary impacts, such as population increase, generate additional vehicle traffic, or affect demand for public facilities or utilities.

7. The project involves a substantial degradation of environmental quality.
The proposed improvements are not anticipated to involve a substantial degradation of environmental quality. Short-term impacts such as traffic, noise, and air quality are related to construction and would be mitigated through traffic control plans, and the appropriate use of BMPs. Once completed, the project would contribute to increased environmental quality by reducing the amount of ponding on the roadways, property damage, and inconvenience to residence in that area.

8. The project is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.
Short-term impacts to the environment from the proposed project will mainly have to do with construction activities. Long-term or cumulative environmental impacts are not anticipated.

The commitment for larger actions will not be necessary as the project is only intended to provide a safer environment by draining ponding water accumulated after heavy rain events and maintaining the existing road. It should be noted that the City and County of Honolulu has another project in the design stage which will resurface the remainder of the City roads in the

Auyong-Mohihi-Maaloa neighborhoods that are not within the project area. These projects are not dependent on one another.

9. The project substantially affects a rare, threatened, or endangered species, or its habitat.
A biological survey (Section 3.8 – Flora and Fauna) found no Federally-listed or State-listed endangered, threatened or candidate species within the project site. Construction BMPs will further protect any biota present in the Ulehawa U-3 Channel.

10. The project detrimentally affects air or water quality or ambient noise levels.
The proposed improvements will not have detrimental long-term impacts on air or water quality, or ambient noise levels. Short-term impacts to air quality and noise may occur during the construction of the project. However, the contractor will be required to obtain applicable permits, comply with current State and City regulations, and provide appropriate BMPs. After construction, noise and air quality will revert back to pre-construction levels.

Water quality maybe impacted, but appropriate implementation of BMPs during construction to the maximum extent practical will contain any potential water pollutant(s) discharges entering the channel. After construction, the storm water discharge from the proposed drainage improvements into Ulehawa U-3 Channel is not expected to result in a measurable impact on existing water quality in the channel (refer to Section 3.5.2 – Water Quality).

11. The project 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.
The proposed improvements are located near the shoreline and within the flood plain, the tsunami evacuation zone, and the Special Management Area. Short-term impacts may occur during the construction of the project, but they will be mitigated by the appropriate construction measures (refer to Section 3.3 – Flood and Tsunami Hazard) and compliance with applicable City, State, and Federal standards.

Damage to the proposed improvements and project area from floods, tsunamis, and sea level rise will be minimized, since the project itself is designed to convey runoff from the project area to the adjacent flood control channel. Furthermore, the drainage improvements will include a check valve and be constructed above the channel high water level to provide a level of protection against backflow of storm water.

12. The project substantially affects scenic vistas and viewplanes identified in county or state plans or studies.
Since the proposed improvements will be located in a low-lying roadway, construction activities will not block scenic vistas and view planes. There will not be any long-term effects since the proposed improvements will be constructed at grade and underground within an existing roadway.

13. The project requires substantial energy consumption.
The only energy consumption involved with proposed improvements are related to operation of construction equipment and vehicles. After construction is completed, energy consumption will essentially return to that which existed prior to construction.

Chapter 7 – LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS CONSULTED

7.1 PRE-ASSESMENT CONSULTATION

The following government agencies, utility companies, property owners, and other organizations were consulted prior to the preparation of the environmental assessment for comments and concerns associated with the Auyong Homestead Road Improvements. Letters providing project information along with scope map were sent for their review. Copies of response letters were received from parties marked below with a check (✓). A copy of those responses and subsequent acknowledgements are provided in Appendix A.

Federal Government

- ✓ U.S. Army Corps of Engineers, Honolulu District
- U.S. Fish and Wildlife Service
- U.S. Natural Resources Conservation Service

State Government

- ✓ Department of Accounting and General Services
- Department of Business Economic Development and Tourism
- ✓ State Office of Planning
- Department of Education
- Department of Hawaiian Home Lands
- Department of Health
- ✓ Clean Water Branch
- ✓ Environmental Planning Office
- ✓ Wastewater Branch
- Department of Land and Natural Resources
- ✓ Commission on Water Resource Management
- ✓ Engineering Division
- ✓ Land Division
- ✓ Department of Transportation
- Office of Hawaiian Affairs

City and County of Honolulu Government

- ✓ Board of Water Supply
- ✓ Department of Community Services
- ✓ Department of Design and Construction
- Department of Environmental Services
- Department of Facility Maintenance
- ✓ Department of Planning and Permitting
- ✓ Department of Parks and Recreation Services
- ✓ Department of Transportation Services
- ✓ Honolulu Fire Department
- ✓ Honolulu Police Department

Elected Officials

- State Senator: District 21
- State Representative: District 43
- Honolulu City Council: District 1
- ✓ Nanakuli-Maili Neighborhood Board No. 36

Other Organizations

- ✓ 7-Eleven Hawaii
- ✓ Hawaii Gas
- ✓ Hawaiian Electric Company
- Hawaiian Telcom
- Oceanic Time Warner Cable

Residents

87-117 Auyong Homestead Road
87-118 Auyong Homestead Road
87-121 Auyong Homestead Road
87-122 Auyong Homestead Road
87-125 Auyong Homestead Road
87-126 Auyong Homestead Road
87-130 Auyong Homestead Road
87-131 Auyong Homestead Road
87-136 Auyong Homestead Road
87-137 Auyong Homestead Road

7.2 DRAFT ENVIRONMENTAL ASSESSMENT

Notification on the availability of the DEA was provided in the February 23, 2016 issue of OEQC's The Environmental Notice. The DEA was sent to various federal, State and City agencies, elected officials, utility companies, and large land owners below and was also publicly available online through the OEQC website. Copies of response letters were received from parties marked below with a check (✓). A copy of those responses and subsequent acknowledgements are provided in Appendix B.

Federal Government

U.S. Army Corps of Engineers, Honolulu District
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service

State Government

- ✓ Department of Accounting and General Services
- Department of Business Economic Development and Tourism
- ✓ State Office of Planning
- ✓ Department of Education
- Department of Hawaiian Home Lands
- Department of Health
- ✓ Clean Water Branch
- ✓ Environmental Planning Office
- ✓ Office of Environmental Quality Control
- Department of Land and Natural Resources
- ✓ Engineering Division
- ✓ Land Division
- ✓ State Historic Preservation Division
- Department of Transportation
- ✓ Office of Hawaiian Affairs
- University of Hawaii Environmental Center

University of Hawaii Water Resources Research Center
Waianae Public Library

City and County of Honolulu Government

- ✓ Board of Water Supply
- ✓ Department of Community Services
- ✓ Department of Design and Construction
- Department of Environmental Services
- Department of Facility Maintenance
- ✓ Department of Planning and Permitting
- ✓ Department of Parks and Recreation Services
- ✓ Department of Transportation Services
- Honolulu Fire Department
- ✓ Honolulu Police Department

Elected Officials

State Senator: District 21
State Representative: District 43
Honolulu City Council: District 1
Nanakuli-Maili Neighborhood Board No. 36

Other Organizations

- ✓ 7-Eleven Hawaii
- ✓ Hawaii Gas
- ✓ Hawaiian Electric Company
- ✓ Hawaiian Telcom
- Oceanic Time Warner Cable

Residents

87-117 Auyong Homestead Road
87-118 Auyong Homestead Road
87-121 Auyong Homestead Road
87-122 Auyong Homestead Road
87-125 Auyong Homestead Road
87-126 Auyong Homestead Road
87-130 Auyong Homestead Road
87-131 Auyong Homestead Road
87-136 Auyong Homestead Road
87-137 Auyong Homestead Road

Chapter 8 – LIST OF PREPARERS

The following list identifies the persons, firms, and government agency involved with the preparation of the environmental assessment for the proposed action.

1. Sheryl Nojima and Gavin Masaki Gray, Hong, Nojima & Associates, Inc.	EA Project Manager
2. Chad Linebaugh AECOS, Inc.	Water Quality and Biological Survey
3. Paul L. Cleghorn and Kimberly M. Mooney Pacific Legacy, Inc.	Cultural Impact Assessment and Archaeological Monitoring Plan
4. Edward Visaya Department of Design and Construction City and County of Honolulu	Project Coordinator

Chapter 9 – REFERENCES

AECOS Inc., *Water Quality and Biological Surveys for the Auyong Homestead Road Improvements Project in Nanakuli, Oahu,* October 26, 2015.

City and County of Honolulu, Department of Planning and Permitting, *General Plan*, 1992, amended 2002.

City and County of Honolulu, Department of Planning and Permitting, *Land Use Ordinance*, October 22, 1986, amended 2015.

City and County of Honolulu, Department of Planning and Permitting, *Permit Register,* September 2008.

City and County of Honolulu, Department of Planning and Permitting, *Waianae Sustainable Communities Plan,* March 2012.

Gray, Hong, Nojima and Associates, *Auyong Homestead Road Drainage Improvements - Preliminary Engineering Report (Final Submittal),* October 24, 2012.

Pacific Legacy, Inc., *Draft Archaeological Monitoring Plan for the Auyong Homestead Road Improvement Project, Lualualei Ahupuaa, Waianae District, Island of Oahu, TMK (1) 8-7-026: 002-023,* June 2016.

Pacific Legacy, Inc., *Draft Cultural Impact Assessment for the Auyong Homestead Road Improvements Project, Lualualei Ahupuaa, Waianae District, Island of Oahu, TMK (1) 8-7-026: 002-023,* November 2015.

State of Hawaii, Department of Health, *Water Quality Standard Map of the Island of Oahu,* June 2014.

State of Hawaii, Department of Health Clean Water Branch, *2014 State of Hawaii Quality Monitoring and Assessment Report: Integrated Report to the U.S. Environmental Protection Agency and the U.S. Congress Pursuant to Sections §303(d) and §305(b) Clean Water Act (P.L. 97-117),* September 2, 2014.

State of Hawaii, Hawaii State Plan Council, Department of Planning and Economic Development, *Hawaii State Plan: Revised*, 1986.

U.S. Department of Agriculture Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii,* 1972.

U.S. Federal Emergency Management Agency, *Flood Insurance Rate Map, City and County of Honolulu, Hawaii,* Map Number 15003C0194H, January 19, 2011.

U.S. Geological Survey, *Schofield Barracks Quadrangle Map Waianae 7.5 Minute Quadrangle Map*, 2013.

U.S. Soil Conservation Service, *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii*, August 1972.

Web Sites Used in Preparation of this Report:

City and County of Honolulu: Department of Planning and Permitting
Interactive GIS Maps and Data
http://gis.hicentral.com

City and County of Honolulu: Revised Ordinances of Honolulu
http://www1.honolulu.gov/council/ocs/roh/

State of Hawaii: Department of Health
Clean Water Branch - http://health.hawaii.gov/cwb/
e-Permitting Portal - https://eha-cloud.doh.hawaii.gov/epermit/
Environmental Planning Office, Land Use Planning Review -
http://health.hawaii.gov/epo/home/landuse-planning-review-program/
Office of Environmental Quality Control - http://health.hawaii.gov/oeqc/

State of Hawaii: Department of Land and Natural Resources
Commission on Water Resource Management - http://dlnr.hawaii.gov/cwrm/
Engineering Division, National Flood Insurance Program - http://dlnreng.hawaii.gov/nfip/
Flood Hazard Assessment Tool - http://gis.hawaiinfip.org/fhat/

State of Hawaii: Hawaii Administrative Rules
http://hawaii.gov/lrb/desk/hi3.html

State of Hawaii: House Revised Statutes
http://www.capitol.hawaii.gov/hrscurrent/

State of Hawaii: Office of Planning
Hawaii Statewide GIS Program - http://planning.hawaii.gov/gis/
Hawaii State Planning Act - http://planning.hawaii.gov/hawaii-state-planning-act/
State CZM Program - http://planning.hawaii.gov/czm/

United States: Army Corps of Engineers
Climate Change Adaption
http://www.corpsclimate.us/ccaceslcurves.cfm
Honolulu District Regulatory Branch -
http://www.poh.usace.army.mil/Missions/Regulatory.aspx

United States: National Oceanic and Atmospheric Administration
Tides and Currents - http://tidesandcurrents.noaa.gov/
Western Regional Climate Center - http://www.wrcc.dri.edu/

United States: National Resource Conservation Service
Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/

APPENDICES

Appendix A: Pre-Assessment Consultation Public Comments

Appendix B: Draft Environmental Assessment Public Comments

Appendix C: Water Quality and Biological Surveys for the Auyong Homestead Road Improvements Project in Nanakuli, O'ahu,

Appendix D: Draft Archaeological Monitoring Plan for the Auyong Homestead Road Improvements Project, Lualualei Ahupua'a, Wai'anae District, Island of O'ahu TMK (1) 8-7-026:002-023

Appendix E: Draft Cultural Impact Assessment for the Auyong Homestead Road Improvements Project, Lualualei Ahupua'a, Wai'anae District, Island of O'ahu TMK (1) 8-7-026:002-023

APPENDIX A

Pre-Assessment Consultation Public Comments

DEPARTMENT OF THE ARMY
HONOLULU DISTRICT, U.S. ARMY CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

October 21, 2015

SUBJECT: No Permit Required for Auyoung Homestead Drainage Project; DA No. POH-2010-00167

Edward Visaya
Civil Division
Department of Design and Construction
City & County of Honolulu
650 South King Street, 15th Floor
Honolulu, Hawaii 96813

Dear Mr. Visaya:

We have received your letter September 9, 2015 requesting a determination of permitting requirements for the proposed Auyoung Homestead Drainage Project located in the village of Nanakuli, Oahu. We have assigned your project Department of the Army (DA) file number POH-2010-00167. Please reference this number in all future correspondence concerning this project.

We have reviewed your submittal pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States, prior to conducting the work (33 U.S.C. 403). Section 404 requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including wetlands and navigable waters of the U.S, prior to conducting the work (33 U.S.C. 1344).

Based on our review of the information you furnished, and assuming your project is conducted only as set forth in the information provided, this office has determined the proposed activity does not affect the course, capacity, condition, or location of a Navigable Water of the U.S. as defined by Section 10 and would not result in the discharge of dredged or fill material into waters of the U.S. as defined by Section 404. Therefore, a DA permit will not be required.

We have prepared and enclosed a *Preliminary Jurisdictional Determination* (JD), which is a written indication that wetlands and waterways within your project area may be waters of the United States (Enclosure 1). If you believe the Preliminary JD is inaccurate, you may request an Approved JD, which is an official determination regarding the presence or absence of waters of the U.S.

Although a permit is not required from this office, we recommend use of Best Management Practices to avoid and minimize adverse impacts to the aquatic resource. It is your responsibility to ensure that your project complies with all other Federal, State, or local statutes, ordinances and regulations.

Thank you for your cooperation with the Honolulu District Regulatory Program. Should you have any questions related to this determination, please contact me at 808-835-4306 or via e-mail at kate.m.bliss@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Office by accessing our web-based customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Sincerely,

Kate Bliss

Kate Bliss
Project Manager
Regulatory Office

Enclosure(s)

cc:
State of Hawaii DBEDT Office of Planning (John Nakagawa)
State of Hawaii DOH-CWB (Darryl Lum)
Gray, Hong, Nojima & Associates, Inc. (Gavin Masaki)

US Army Corps of Engineers, Honolulu District

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

File Number: POH-2010-00167
Project Title: Auyoung Homestead Drainage Project
Subject: PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary jurisdictional determination (JD) finds that there "*may be*" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

A. REPORT COMPLETION DATE FOR PRELIMINARY JURSDICTIONAL DETERMINATION: 9/9/15

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Edward Visaya
Civil Division
Department of Design and Construction
City & County of Honolulu
650 South King Street, 15th Floor
Honolulu, Hawaii 96813

C. DISTRICT OFFICE: Honolulu District, CEPOH-RO

D. PROJECT LOCATION(S), BACKGROUND INFORMATION, AND WATERS:
State or Territory: Hawaii
City: Nanakuli
County: Oahu
Center Coordinates of Site: 21.39035, -158.15324
Name of nearest waterbody: Pacific Ocean
Identify the amount of waters in the review area:
☒ Non-wetland waters: 1,000 linear feet
Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal: Ulehawa U-3 Channel
Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION:
☒ Office (Desk) Determination. Date: 10/20/15
☐ Field Determination. Date(s):

F. EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

G. SUPPORTING DATA:
Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite quad name:
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☒ National wetlands inventory map(s).
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Google Earth, 2013.
  or ☒ Other (Name & Date):Submitted by consultant.
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Kate Blim

Signature and date of
Regulatory Project Manager

_____
Signature and date of
person requesting preliminary JD

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

RECEIVED
DDC-CIVIL DIVISION
CITY & COUNTY OF HONOLULU
15 OCT 29 A11 :06

In reply, please refer to:
EMD/CWB

10049CEC.15

October 27, 2015

DDC
RECEIVED
OCT 29 2015
CDD

15X630284

Mr. Edward Visaya
Civil Division
Department of Design and Construction
City and County of Honolulu
650 South King Street, 15th Floor
Honolulu, Hawaii 96813

Dear Mr. Visaya:

Subject: Water Pollution Control Requirements in the State of Hawaii for Auyoung Homestead Drainage Project
U-3 Channel, Ulehawa Stream, Nanakuli, Island of Oahu, Hawaii
DA File No. POH-2010-00167

Reference is made to the "No Permit Required (NPR)" determination letter, dated October 21, 2015, from Ms. Kate Bliss, Project Manager, Regulatory Office of the Honolulu District Office, Pacific Ocean Division (POH) of U.S. Army Corps of Engineers (COE), to you regarding the subject drainage project.

Ms. Bliss stated in her October 21, 2015 letter that:

> "We have reviewed your submittal pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States, prior to conducting the work (33 U.S.C. 403). Section 404 requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including wetlands and navigable waters of the U.S, prior to conducting the work (33 U.S.C. 1344).
>
> Based on our review of the information you furnished, and assuming your project is conducted only as set forth in the information provided, this office has determined the proposed activity does not affect the course, capacity, condition, or location of a Navigable Water of the U.S. as defined by Section 10 and would not result in the discharge of dredged or fill material into waters of the U.S. as defined by Section 404. Therefore, a DA permit will not be required."

The Department of health (DOH), Clean Water Branch (CWB) is given the responsibility of water pollution control in the State of Hawaii under the authorization of Federal Clean Water Act (CWA); Hawaii Revised Statutes (HRS), Chapter 342D; and Hawaii Administrative Rules (HAR), Chapters 11-54 (titled Water Quality Standards (WQS)) and 11-55 (titled Water Pollution Control).

HRS, Section 342D-1 defines the term "Water pollutant" means dredged spoil, solid refuse, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, sediment, cellar dirt and industrial, municipal, and agricultural waste.

HRS, Subsection 342D 50(a) requires that:

> **"No person, including any public body, shall discharge any water pollutants 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."**

Therefore, pursuant to HRS, Chapter 342D, HAR, Chapters 11-54 and 11-55, the DOH-CWB is providing the following comments:

1. The CCH-DDC shall ensure that water pollutant(s) discharges resulting from project construction related activities will comply with the State's general policy of water quality antidegradation as specified in HAR, subsection 11-54-1.1.

2. Site-specific Construction Best Management Practices (BMPs) shall be designed, implemented, operated, and maintained by the CCH-DDC, General Contractor (GC) and the subcontractor(s), if any, in a manner to properly **isolate and confine** the construction activities and to contain and prevent any potential water pollutant(s) discharges from adversely impacting the State waters, including U-3 Channel, Ulehawa Stream and Pacific Ocean. It is the responsibility of the CCH-DDC to ensure that the proposed construction work will not cause the applicable water quality criteria, as specified in HAR, Sections 11-54-1-1, 11-54-4, 11-54-5, 11-54-6, and 11-54-8 to be violated in the receiving State waters, including Ulehawa Stream.

3. Applicable receiving water quality monitoring and assessment plan shall be properly designed and implemented to ensure the adequacy of the implemented BMPs measures and to demonstrate that the project construction and operation related discharge activities do not cause basic and applicable specific water quality criteria to be violated in the receiving State waters.

4. To comply with toxic material control requirements, your attention is specifically directed to the requirements contained in HAR, Subparagraph 11-54-4(a)(4) and Paragraph 11-54-4(c).

5. A National Pollutant Discharge Elimination System (NPDES) permit coverage is required for effluent discharges from the following activities, if any:

   - Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre 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. An NPDES permit is required before the commencement of the construction activities;

   - Discharge of hydrotesting effluent;

   - Discharge of construction site dewatering effluent;

   DOH-CWB requires that a Notice of Intent to be covered by an NPDES general permit for any of the above activities be submitted at least 30 calendar days before the commencement of the respective activities.

   The CCH-DDC may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible. An application for the NPDES permit is to be submitted at least 180 calendar days before the commencement of the respective activities.

6. Whether an NPDES permit or a CWA, Section 401 WQC is required or not for the proposed construction activity related discharge, if CCH-DDC and its GC discharges water pollutants or allow or cause any water pollutants to enter State waters must comply with applicable State WQS as established in HAR, Chapter 11-54. HAR, Chapter 11-54 (became effective on November 15, 2014) is located at: http://co.doh.hawaii.gov/sites/har/admrules/default.aspx.

7. Discharges, either directly or indirectly, to the receiving State waters from the operation of the complete drainage system shall comply with conditions and requirements specified in the MS4 permit (Permit No. HIS000002) issued to CCH by the DOH-CWB on February 16, 2015.

Please contact Mr. Edward Chen of the Engineering Section, DOH-CWB at (808) 586-4309 if you have any questions in this regard.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

EC:np

c: Dr. Wendy Wiltse, PICO, EPA [via e-mail Wiltse.Wendy@epa.gov only]
Regulatory Office, POH, COE [via e-mail cepoh-ro@usace.army.mil only]
Ms. Michelle R. Lynch, POH, COE
[via e-mail Michelle R. Lynch@usace.army.mil only]
Ms. Kate M. Bliss, POH, COE [via email kate.m.bliss@usace.army.mil only]
Mr. John Nakagawa, CZM Program, OP, DBEDT
[via e-mail JNakagaw@dbedt.hawaii.gov only]
Commission on Water Resource Management, DLNR

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

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

(P)1021.5

FEB 1 3 2015

Mr. Gavin Masaki, PE
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

Subject: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
Waianae, Oahu, Hawaii
TMK: (1) 8-7-026

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

If you have any questions, your staff may call Ms. Gayle Takasaki of the Public Works Division at 586-0584.

Sincerely,

DOUGLAS MURDOCK
Comptroller

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813-2926
Telephone: (808) 521-0306
Fax: (808) 531-8018
email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Mr. Douglas Murdock
Comptroller
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810-0119

Attn: Ms. Gayle Takasaki

SUBJECT: Ref. No. (P)1021.5
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Murdock:

Thank you for your correspondence dated February 13, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the project does not affect any of the Department of Accounting and General Services' projects or existing facilities.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

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
ACTING DIRECTOR
OFFICE OF PLANNING

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

Ref. No. P-14669

March 2, 2015

Mr. Gavin Masaki, PE
Gray, Hong, Nojima & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Masaki:

Subject: Pre-Consultation Auyong Homestead Road Drainage Improvements, Waianae, Oahu; TMK: (1) 8-7-026

Thank you for the opportunity to provide comments on the pre-consultation request for a Draft Environmental Assessment (Draft EA) on the Auyong Homestead Road Drainage Improvements. The pre-consultation review material was transmitted to our office by letter dated January 30, 2015. It is our understanding that this project calls for the construction of roadway drainage improvements that include a grated inlet and underground drainage system that will allow discharge of the standing water to the Ulehawa U-3 Channel. The review material states water runoff backs up from Farrington Highway and into Auyong Homestead Road during periods of heavy and/or prolonged rainfall. The roadway does not have existing drainage infrastructure, thus runoff accumulates until it covers half the road. The drainage improvements are intended to eliminate the extended ponding issues.

The Office of Planning (OP) has reviewed the transmitted material and have the following comments to offer:

1. OP provides technical assistance to state and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, priorities, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse policies and objectives of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

   The Draft EA should include an analysis on the Hawaii State Plan, HRS Chapter 226, that addresses whether this project conforms or is in conflict with state and county

plans, policies, and controls. The analysis should include a discussion on the project's ability to meet the objectives, policies, and priority guidelines listed in HRS Chapter 226.

2. OP is the lead agency for the Hawaii Coastal Zone Management Program. The coastal zone management 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" see HRS § 205A-1 (definition of "coastal zone management area").

   The Draft EA should include an analysis of the proposed project's ability to meet the objectives and policies set forth in HRS § 205A-2. This analysis should be included in a section of the Draft EA that examines how this project conforms or is in conflict with state and county plans, policies, and controls. Where a conflict or inconsistency exists, the analysis must describe the extent to which the applicant has reconciled its proposed action with HRS § 205A-2. These objectives and policies include: recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

3. The Draft EA should provide a complete list of all federal, state, and county permits required for this project. A listing of required permits will allow OP to verify the project's consistency with the plans, programs, and policy objectives that fall under our authority.

4. Part of the proposed roadway improvement project appears to lie within the Special Management Area (SMA) (see Figure 4) delineated by the City and County of Honolulu's Department of Planning and Permitting (DPP). Please consult with DPP on the procedures and requirements for addressing SMA regulations.

5. OP has reviewed the maps transmitted to us and compared them to the known coastal resources in the area: the intersection of Farrington Highway and Auyong Homestead Road is approximately 200 feet from the shoreline; the project is within the Ulehawa watershed; is located in Flood Hazard Zone – AE; and the roadway in question has insufficient drainage infrastructure. The impetus for this project is large amounts of ponding on the roadway that will not quickly dissipate. Therefore, a stormwater impact evaluation should be included in the Draft EA. Development and land use activities can create erosion, increased stormwater runoff, and pollution that cause direct, secondary, and cumulative impacts to Hawaii's resources.

Please consider OP's *Stormwater Impact Assessment* in your stormwater impact evaluation for this project. This document can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. Mitigation measures and best management practices listed in this guidance can be applied to water runoff strategies to prevent damage to coastal ecosystems. This guidance document will assist in integrating stormwater impact assessment within the planning and environmental review process of a project. The document can be found at http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf.

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at 587-2845.

Sincerely,

Leo R. Asuncion
Acting Director

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813-2926
Telephone: (808) 521-0306
Fax: (808) 531-8018
email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Mr. Leo R. Asuncion
Acting Director
Office of Planning
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Attn: Mr. Josh Hekekia

SUBJECT: Ref. No. P-14669
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Asuncion:

Thank you for your correspondence dated March 2, 2015, regarding the subject project. We acknowledge your comments relating to the preparation of the Draft Environmental Assessment (DEA) for the proposed project. The following are offered in response to the comments provided:

1. The DEA will include an analysis of the proposed project's consistency with Hawaii State Plan in Hawaii Revised Statutes (HRS) Chapter 226 in a section addressing state and county plans, policies, and controls.

2. We acknowledge that the State Office of Planning (OP) is the lead agency for the Hawaii Coastal Zone Management (CZM) Program. The DEA will include a discussion of the project's ability to meet the applicable objectives and policies set forth in HRS § 205A-2 in a section that examines how this project conforms or is in conflict with state and county plans, policies, and controls.

3. The DEA will include a list of applicable Federal, State and County permits. We understand that this list will allow your office to verify the project's consistency with the plans, programs, and policy objectives that fall under the OP's authority.

4. We acknowledge that part of the project appears to lie within the Special Management Area (SMA) delineated by the City and County of Honolulu. We further acknowledge that the Department of Planning and Permitting (DPP) should be consulted on the procedures and requirements for addressing SMA regulations. For your information, a consultation letter was submitted to DPP on January 30, 2015.

5. We acknowledge that a stormwater impact evaluation should be included in the DEA, therefore, the OP's *Stormwater Impact Assessment* document will be reviewed as part of the DEA.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

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 15-026

February 9, 2015

Ms. Sheryl E. Nojima, P.E., PhD
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813-2926
Via email only: gmasaki@greyhongnojima.com

Dear Ms. Nojima and Mr. Masaki:

SUBJECT: Pre Consultation (PC) for Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PC to our office on February 4, 2015. Thank you for allowing us to review and comment on the proposed project. The PC was routed to the Clean Water and Wastewater Branches. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal 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 Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at:
http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: CWB, WWB {via email only}

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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Telephone: (808) 521-0306
Fax: (808) 531-8018
email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Ms. Laura Leialoha Philips McIntyre, AICP
Program Manager, Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: Ref. No. EPO 15-026
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Ms. McIntyre:

Thank you for your correspondence dated February 9, 2015, regarding the subject project and for routing our Pre-Assessment Consultation to the Clean Water and Wastewater Branches. We acknowledge your comments and will review the following websites for information pertinent to the preparation of the Draft Environmental Assessment (DEA) for the proposed project:

1. Standard comments and available strategies to support sustainable and healthy design http://health.hawaii.gov/epo/home/landuse-planning-review-program/.
2. Various links found that the Hawaii Environmental Health Portal https://eha-cloud.doh.hawaii.gov/.
3. Recently revised Water Quality Standards Maps found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

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:

LUD – 1 8 7 026 008 Auyong
Homestead Drainage-ID2061

February 12, 2015

Ms. Sheryl E. Nojima, Ph.D., P.E., President
Gray Hong Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813-2926

Dear Ms. Nojima:

Subject: Pre-Assessment Consultation Auyong Homestead Road Drainage Improvements, TMK (1) 8-7-026 Waianae, Oahu 96792

Thank you for allowing us the opportunity to provide comments on the above subject project. At this time, we have no comments to offer as the project scope apparently does not involve or affect the treatment or disposal of domestic wastewater. However, should there be a need for such, all wastewater plans must conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems."

Should you have any questions, please contact Mr. Mark Tomomitsu at 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:lmj

c: Ms. Laura McIntyre, DOH-Environmental Planning Office (15-026)
Mr. George I. Atta, C&C of Honolulu, Dept. of Planning & Permitting 7th Floor

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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www.grayhongnojima.com

April 14, 2015

Ms. Sina Pruder, P.E., Chief
Wastewater Branch
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Attn: Mr. Mark Tomomitsu

SUBJECT: Ref. No. LUD-1 8 7 026 008 Auyong Homestead Drainage-ID2061
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Ms. Pruder,

Thank you for your correspondence of February 12, 2015, regarding the subject project. We acknowledge that your Department does not have any comments to offer at this time. We further acknowledge that should the project scope involve or affect the treatment or disposal of domestic wastewater, that all wastewater plans must conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems."

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

Gavin Masaki

From: Rebecca.R.Alakai@hawaii.gov
Sent: Friday, February 13, 2015 1:51 PM
To: Gavin Masaki
Subject: Auyong Homestead Road Drainage Improvements

February 13, 2015

RFD.4128.3

Sheryl E. Nojima, PE, PHD
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, HI 96813
Via email

Request for Determination
Stream Channel Alteration Permit
Auyong Homestead Road Drainage Improvements
Ulehawa U-3 Channel, Waianae, Oahu, TMK (1) 8-7-026:999

Dear Ms. Nojima:

We are responding to your February 3, 2015, request for determination regarding the subject project which proposes construction of an underground drainage system and a drainage outlet into the existing concrete wall.

Based on the information that you provided, the Commission does not require a Stream Channel Alteration Permit Application to be submitted for the proposed project because some of the work is outside of the stream channel and the drainage outlet into the subject channel involves drainageway maintenance activities and maintenance of existing facilities are exempt from obtaining a permit per HRS §174C-71(3)(A) and HAR §13-169-50.

The Commission on Water Resource Management (Commission) Stream Protection and Management Branch has the responsibility to protect stream channels from alteration whenever practicable to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses in the State under the authorization of the State Water Code, HRS Chapter 174C, and HAR Chapter 13-169 (Protection of Instream Uses of Water). According to Chapter 174C-3, HRS, "Stream channel" means "a natural or artificial watercourse with a definite bed and banks which periodically or continuously contains flowing water" and "Channel alteration" means: 1) to obstruct, diminish, destroy, modify, or relocate a stream channel; 2) to change the direction of flow of water in a stream channel; 3) to place any material or structures in a stream channel; and 4) to remove any material or structures from a stream channel.

Please be advised that the project may require other agency approvals regarding wetlands, water quality, grading, stockpiling, and floodways. This letter should not be used for other regulatory jurisdictions or used to imply compliance with other federal, state, or county rules. Work performed without appropriate permits or authorizations may be subject to fines and/or remedial actions.

If you have any questions, contact Rebecca Alakai at 587-0266, or rebecca.r.alakai@hawaii.gov.

Rebecca Alakai
Planner, Stream Protection and Management Branch
Commission on Water Resource Management
Dept. of Land and Natural Resources
1151 Punchbowl St, Rm 227, Honolulu, HI 96813
Ph: 587-0266 Fax: 587-0219
rebecca.r.alakai@hawaii.gov
http://dlnr.hawaii.gov/cwrm/

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Ms. Rebecca R. Alakai
Planner, Stream Protection and Management Branch
Commision on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street, Rm 227
Honolului, Hawaii 96813

SUBJECT: Ref. No. RFD.4128.3
Request of Determination
Stream Channel Alteration Permit
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Ms. Alakai:

Thank you for your correspondence dated February 13, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the Commission will not require a Stream Channel Alteration Permit Application to be submitted for the proposed project. We further acknowledge that this project may require other agency approvals and your letter should not be used to imply compliance with other federal, state, or county rules.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING 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

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 11, 2015

Gray, Hong, Nojima & Associates, Inc.
Attn: Gavin Misaki, PE
201 Merchant Street, Suite 1900
Honolulu, HI 96813

Dear Mr. Masaki,

SUBJECT: Pre-Assessment Consultation, Auyong Homestead Road Drainage Improvements

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

At this time, enclosed are comments from (1) Land Division – Oahu District; (2) Commission on Water Resource Management; and (3) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 5, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Assessment Consultation, Auyong Homestead Road Drainage Improvements
LOCATION: TMK: (1) 8-7-026 Waianae, Oahu, Hawaii
APPLICANT: City and County of Honolulu Department of Design and Construction, by its consultant, Gray, Hong, Nojima & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by March 4, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: _____
Print Name: _____
Date: 2/12/15

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 5, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FR.:

TO:

RECEIVED
LAND DIVISION
2015 FEB 20 PM 3:13
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Assessment Consultation, Auyong Homestead Road Drainage Improvements
LOCATION: TMK: (1) 8-7-026 Waianae, Oahu, Hawaii
APPLICANT: City and County of Honolulu Department of Design and Construction, by its consultant, Gray, Hong, Nojima & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by March 4, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: _____
Print Name: Dean Uyeno, Hydrologic Program Manager
Date: FEB 19 2015

RFD.4128.3
121121

From: Rebecca R. Alakai
To: gmasuda@grayhongnojima.com
Subject: Auyong Homestead Road Drainage Improvements
Date: 02/13/2015 01:50 PM

February 13, 2015

RFD.4128.3

Sheryl E. Nojima, PE, PHD
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, HI 96813
Via email

Request for Determination
Stream Channel Alteration Permit
Auyong Homestead Road Drainage Improvements
Ulehawa U-3 Channel, Waianae, Oahu, TMK (1) 8-7-026:999

Dear Ms. Nojima:

We are responding to your February 3, 2015, request for determination regarding the subject project which proposes construction of an underground drainage system and a drainage outlet into the existing concrete wall.

Based on the information that you provided, the Commission does not require a Stream Channel Alteration Permit Application to be submitted for the proposed project because some of the work is outside of the stream channel and the drainage outlet into the subject channel involves drainageway maintenance activities and maintenance of existing facilities are exempt from obtaining a permit per HRS §174C-71(3)(A) and HAR §13-169-50.

The Commission on Water Resource Management (Commission) Stream Protection and Management Branch has the responsibility to protect stream channels from alteration whenever practicable to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses in the State under the authorization of the State Water Code, HRS Chapter 174C, and HAR Chapter 13-169 (Protection of Instream Uses of Water). According to Chapter 174C-3, HRS, "Stream channel" means "a natural or artificial watercourse with a definite bed and banks which periodically or continuously contains flowing water" and "Channel alteration" means: 1) to obstruct, diminish, destroy, modify, or relocate a stream channel; 2) to change the direction of flow of water in a stream channel; 3) to place any material or structures in a stream channel; and 4) to remove any material or structures from a stream channel.

Please be advised that the project may require other agency approvals regarding wetlands, water quality, grading, stockpiling, and floodways. This letter should not be used for other regulatory jurisdictions or used to imply compliance with other federal, state, or county rules. Work performed without appropriate permits or authorizations may be subject to fines and/or remedial actions.

If you have any questions, contact Rebecca Alakai at 587-0266, or

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
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W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
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CONSERVATION AND COASTAL LANDS
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 5, 2015

MEMORANDUM

TO: FR:

DLNR Agencies:
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

2015 FEB 27 PM 2:43
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

'15 FEB 11 AM 10:48 ENGINEERING

FROM: TO: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Assessment Consultation, Auyong Homestead Road Drainage Improvements
LOCATION: TMK: (1) 8-7-026 Waianae, Oahu, Hawaii
APPLICANT: City and County of Honolulu Department of Design and Construction, by its consultant, Gray, Hong, Nojima & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by March 4, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: Chris Takahashi
Print Name: Carty S. Chang, Chief Engineer
Date: 2/27/15

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: Pre-Assessment Consultation for an EA for Auyoung Homestead Road Drainage Improvements, Waianae
Oahu.010

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zones AE, VE, and D. The National Flood Insurance Program regulates developments within Zones AE and VE as indicated in bold letters below, but not Zone D.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

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

(X) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.
( ) Mr. Stanford Iwamoto at (808) 241-4846 of the County of Kauai, Department of Public Works.

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

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

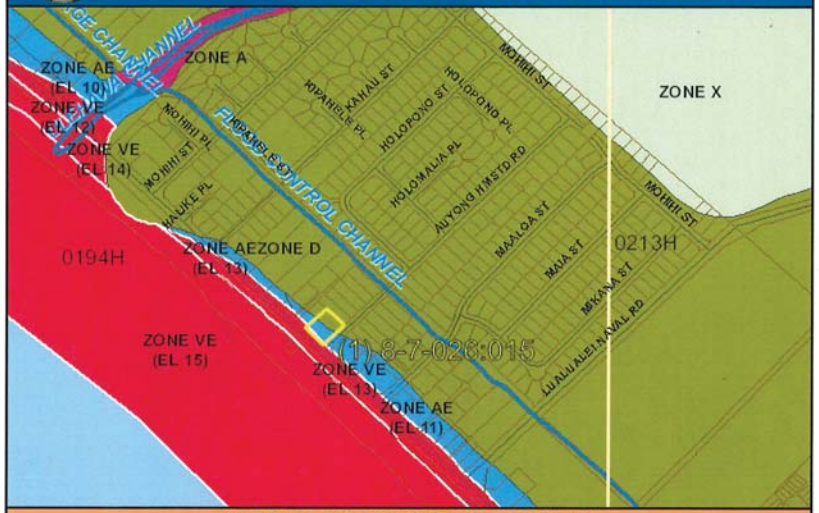
( ) Other: _____

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

Signed: Chris Takahashi
CARTY S. CHANG, CHIEF ENGINEER
Date: 2/27/15

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

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

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

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

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

OTHER FLOOD AREAS

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

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 8-7-026-015
PARCEL ADDRESS:	
FIRM INDEX DATE:	NOVEMBER 05, 2014
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0194H
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

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

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

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

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
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Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
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www.grayhongnojima.com

April 14, 2015

Mr. Russell Y. Tsuji
Land Administrator
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Attn: Mr. Steve Molmen

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Tsuji:

Thank you for your correspondence dated March 11, 2015 regarding the subject project. We understand that the various divisions of the Department of Land and Natural Resources were given the opportunity to review the pre-assessment consultation letter. As of this time, we acknowledge your transmittal of comments from the following Divisions:

1. Land Division – Oahu District has no comments.

2. Commission on Water Resource Management

   a. Based on the information provided, the Commission does not require a Stream Channel Alteration Permit Application to be submitted for the proposed project.

3. Engineering Division has the following comments:

   a. According to the Flood Insurance Rate Map (FIRM), the project site is located in Zones AE, VE and D. The National Flood Insurance (NFIP) regulates Zones AE and VE but not D.

   b. The project must comply with the rules and regulations of the NFIP presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development is undertaken within a Special Flood Hazard Area.

   c. 44CFR indicates the minimum standards set forth by the NFIP; however, the City and County of Honolulu's flood ordinance may take precedence over the minimum NFIP standards if proven to be more restrictive.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

FORD N. FUCHIGAMI
DIRECTOR

DEPUTY DIRECTORS
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
DIR 0115
HWY-PS 2.9330

March 17, 2015

Mr. Gavin Masaki
Gray, Hong, Nojima and Associates
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

Subject: Preliminary Consultation for Draft Environmental Assessment Preparation
Auyoung Homestead Road, Waianae, Oahu
TMK: (1) 8-7-26:000

We received your letter dated January 30, 2015, requesting early consultation on the proposed drainage improvement project as it relates to the preparation of a Draft Environmental Assessment. The proposed work initiated by the Department of Design and Construction of the City and County of Honolulu, will consists of grated inlet and underground drainage system to allow future water runoff to be discharged into the Ulehawa U3 Channel.

The proposed work will occur along the Auyoung Homestead Road, which belongs to the City and County of Honolulu and outside of the State's Right-of-Way. Therefore, the Department of Transportation does not have any comments with reference to the proposed work or the location of the proposed drainage system.

If you have any questions, please contact Jenny Lee, Systems Planning Section, Highways Division, Planning Branch, at 587-1832. Please reference file review number PS 2015-023 in all contacts and correspondence regarding these comments.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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www.grayhongnojima.com

April 14, 2015

Mr. Ford N. Fuchigami
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Attn: Ms. Jenny Lee

SUBJECT: Ref. No. PS-2015-023
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Fuchigami:

Thank you for your correspondence dated March 17, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the proposed project is outside the State's Right-of-Way and that the Department of Transportation does not have any comments.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

BOARD OF WATER SUPPLY

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

March 6, 2015

KIRK CALDWELL, MAYOR

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

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

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

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

Ms. Sheryl E. Nojima, P.E., PhD
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Ms. Nojima:

Subject: Your Letter Dated January 30, 2015 Requesting Comments on the Environmental Assessment Pre-Consultation for the Auyong Homestead Road Drainage Improvements – Tax Map Key: 8-7-026

Thank you for the opportunity to comment on the proposed road drainage project.

The construction drawings should be submitted for our review.

The construction schedule should be coordinated to minimize impact to the water system.

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

Very truly yours,

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

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
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email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

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

Attn: Mr. Robert Chun

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Lau:

Thank you for your correspondence dated March 6, 2015, regarding the subject project. We acknowledge your comments relating to the preparation of the Draft Environmental Assessment (DEA) for the proposed project:

1. The construction drawings should be submitted to the Board of Water Supply for review.
2. The construction schedule should be coordinated to minimize impact to the water system.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813 • AREA CODE 808 • PHONE: 768-7762 • FAX: 768-7792

KIRK CALDWELL
MAYOR

GARY K. NAKATA
ACTING DIRECTOR

February 12, 2015

Mr. Gavin Masaki, PE
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1)-8-7-026, Waianae, Oahu, Hawaii

We have reviewed your letter dated January 30, 2015, and the attached information for the Auyong Homestead Road Drainage Improvements Project, regarding the Pre-Assessment Consultation.

Our review of the documents indicates that the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

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

Sincerely,

Gary K. Nakata
Acting Director

GKN:sgk

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audroy Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
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www.grayhongnojima.com

April 14, 2015

Mr. Gary K. Nakata
Acting Director
Department of Community Services
City and County of Honolulu
715 South King Street, Suite 311
Honolulu, Hawaii 96813

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Nakata:

Thank you for your correspondence dated February 12, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

February 17, 2015

Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Attn: Gavin Masaki, P.E.

Dear Mr. Masaki:

Subject: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

The Department of Design and Construction does not have comments to offer on the pre-assessment consultation.

Thank you for the opportunity to review and comment. Should there be any questions, please contact me at 768-8480.

Sincerely,

Robert J. Kroning, P.E.
Director

RJK: cf (597001)

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
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Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
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www.grayhongnojima.com

April 14, 2015

Mr. Robert J. Kroning, P.E.
Directior
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Kroning:

Thank you for your correspondence of February 17, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the Department of Design and Construction has no comment at this time.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2015/ELOG-209 (NI)

May 15, 2015

Mr. Gavin Masaki
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

SUBJECT: Zoning Ordinance Inquiry
Construction of Drainage Improvements
Auyong Homestead Road - Waianae

This is in response to your letter, received on February 2, 2015, requesting confirmation that the construction of a new underground drainage system by the Department of Design and Construction (DCC) would require a Special Management Area (SMA) minor or major use.

As explained below, the proposed project does not fall under the definition of "Development" as indicated by Chapter 25, Section 25-1.3(2):

(N) Installation of underground utility lines and appurtenant aboveground fixtures less than four feet.

Please contact Nicholas Ing of our staff at (808) 768-8052, if you have any questions.

Very truly yours,

for George I. Atta, FAICP
Director

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

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Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
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www.grayhongnojima.com

May 19, 2015

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

Attn: Mr. Nicholas Ing

SUBJECT: Ref. No. 2015/ELOG-209 (NI)
Zoning Ordinance Inquiry
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Atta:

Thank you for your correspondence dated May 15, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the proposed project does not fall under the definition of "Development" as indicated by Revised Ordinances of Honolulu Chapter 25, Section 25-1.3(2). We understand that this project is exempt from Special Management Area requirements since it is not considered a "Development."

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM
GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

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

KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

February 27, 2015

Mr. Gavin Y. Masaki, PE
Gray • Hong • Nojima & Associates, Inc.
Consulting Engineers
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

Subject: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvement
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

The Department of Parks and Recreation has reviewed the preliminary plans for the above-mentioned project and has no comments or concerns regarding the project at this time.

Should you have any questions, please contact Dexter Liu, Leeward Oahu District Manager, at 675-6030.

Sincerely,

Michele K. Nekota
Director

MKN:by
(597105)

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
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Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
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www.grayhongnojima.com

April 14, 2015

Ms. Michele K. Nekota
Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Ms. Nekota:

Thank you for your correspondence dated February 27, 2015, regarding the subject project. We acknowledge that the Department of Parks and Recreation has no comments or concerns regarding the project at this time.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP2/15-597249R

February 26, 2015

Mr. Gavin Masaki, P.E.
Project Manager
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

SUBJECT: Pre-Consultation for Draft Environmental Assessment (DEA) Auyong Homestead Road Drainage Improvements; Tax Map Key: (1) 8-7-026; Waianae, Oahu, Hawaii

In response to your letter dated January 30, 2015, we have the following comments:

1. The DEA should discuss any traffic impacts the project may have on the surrounding roadways including short-term impacts during construction. The DEA should also discuss measures to mitigate these impacts.

2. Nanakuli Neighborhood Board No. 36, as well as the area residents, businesses, etc., should be kept apprised of the details of the proposed project and its impacts, particularly during construction, on the adjoining local street area network.

3. A street usage permit from the City's Department of Transportation Services shall be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

4. The DEA should include a description of Public Transit and any impacts your project may have on Public Transit bus and paratransit operations during construction. Several City bus routes use a section of Farrington Highway nearby, and there are bus transit stops along it. Basic information is available on our websites: www.thebus.org and www.honolulu.gov/dts. If your project affects bus routes and services, you should contact our staff at 768-8370 to coordinate your planned activities.

5. Any construction materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets and Farrington Highway.

We reserve further comment pending submission of the DEA.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

Michael D. Formby
Director

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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www.grayhongnojima.com

April 14, 2015

Mr. Michael D. Formby
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Attn: Mr. Michael Murphy

SUBJECT: TP2/15-597249R
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Formby:

Thank you for your correspondence dated February 26, 2015, regarding the subject project. We acknowledge your comments relating to the preparation of the Draft Environmental Assessment (DEA) for the proposed project. The following are offered in response to the comments provided:

1. We acknowledge that the DEA should include a discussion of the traffic impacts on the surrounding roadways including the short-term impacts during construction and measures to mitigate these impacts.

2. We acknowledge that the area Neighborhood Board, as well as the area residents, businesses, etc., should be kept apprised of the details of the proposed project and its impacts, particularly during construction. The area Neighborhood Board and surrounding area residents and businesses will be included in the DEA distribution list during the environmental review process.

3. The contractor will be required to obtain appropriate street usage permits from the City's Department of Transportation Services for any construction-related work that may require the temporary closure of any traffic lane on a City street.

4. The DEA will include a description of Public Transit and the impact of the proposed project on Public Transit bus and paratransit operations during construction. We will coordinate with your department if the proposed project affects bus routes and services.

5. The contractor will be required to transfer any construction material and equipment from the project site during non-peak hours (8:30 a.m.to- 3:30 p.m.).

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

February 19, 2015

Ms. Sheryl E. Nojima, P.E., Ph.D.
President
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813-2926

Dear Ms. Nojima:

Subject: Preassessment Consultation
Auyong Homestead Road Drainage Improvements
Tax Map Key: 8-7-026

In response to your letter dated January 30, 2015, regarding the above-mentioned subject, the Honolulu Fire Department has no objections at this time.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

SOCRATES D. BRATAKOS
Assistant Chief

SDB/DO:bh

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Mr. Socrates D. Bratakos
Assistant Chief
Honolulu Fire Department
City and County of Honolulu
636 South Street
Honolulu, Hawaii 96813-5007

Attn: Battalion Chief Terry Seelig

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Assistant Chief Neves:

Thank you for your correspondence of February 19, 2015, regarding the subject project. We acknowledge that based on your review of the information provided, the Honolulu Fire Department has no objection at this time.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE MT-DK

February 12, 2015

Mr. Gavin Masaki, P.E.
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

This is in response to a letter from Sheryl E. Nojima, P.E., Ph.D., of your agency requesting comments on a Pre-Assessment Consultation for an Environmental Assessment for the proposed drainage improvements along Auyoung Homestead Road.

The Honolulu Police Department has no concerns regarding the project at this time.

If there are any questions, please call Major Kurt Kendro of District 8 (Kapolei-Waianae) at 723-8403.

Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By
MARK TSUYEMURA
Management Analyst VI
Office of the Chief

Serving and Protecting With Aloha

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
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www.grayhongnojima.com

April 14, 2015

Mr. Louis M. Kealoha
Chief of Police
Honolulu Police Department
City and County of Honolulu
801 South Beretainia Street
Honolulu, Hawaii 96813

SUBJECT: Ref. No. MT-DK
Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Chief Kealoha:

Thank you for your correspondence dated February 12, 2015, regarding the subject project. We acknowledge that the Honolulu Police Department has no concerns regarding the project at this time.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

Gavin Masaki

From: Patty [pattyteruya@gmail.com]
Sent: Monday, February 09, 2015 11:53 AM
To: Gavin Masaki
Cc: Cynthia K.L. Rezentes; aoia007@yahoo.com; Stacelynn Eli; Ms. Jolyn Ballenti; Hanalei Aipoalani; landfordr001@hawaii.rr.com; manakujsr@yahoo.com; pgrannygrace@yahoo.com; Andria Tupola; senshimabukuro@capitol.hawaii.gov; repjordan@capitol.hawaii.gov; Kymberly Pine
Subject: Auyong Homestead Road Drainage Improvements - Nanakuli Hawaii

Aloha e, Mr. Gary Hong:

My name is Patty Kahanamoku Teruya and serve on the Nanakuli-Maili NB#36 and my family that reside on Mohihi Street next to Auyong Hmstd Rd (the other alternate road out onto to Farrington Highway). We use and travel on Auyong Homestead Road daily and once reside along this street.

Although this project is way overdue we are glad that funding from the C&C will be used to improve this street particularly because of years of not having a existing drainage and whenever we have heavy rainfall there is no where the runoff can go but remains on the road until it does eventually evaporates. So many just use the Mohihi Street exit rather than try to get out of the large water puddles.

Many times, vehicles cannot pass through because of the remaining water that sits for days and without adequate sidewalks for our residents, this was a major challenge for the people who use this street to get to the bus stop or 7-11 store or on to Farrington Highway.

My questions are economic and social impacts and I would like to know if Auyoung Homestead Street drainage improvement project will have to close the street down completely during construction and from where? i.e. entrance to the bridge on both sides or only only on the right side? 2) where will the construction vehicles be parking while under construction? 3) will prior signage be up for notice to the residents and community? 4) will residents along the 87-136 through 87-118 and across them be notified and will they have to park outside from their resident area zone during constructions? 5) what time is the proposed construction work from and how long is the project work 6) The bus stop for our keikis pick up and drop of at the Ulehawa Bridge daily, will this have to be moved or will it be safe for our keikis to walk through this construction? Will you be preparing a back-up plan for the school bus and trash pick up for the residents that live in this area?

Currently, we have the 7-11 Nanakuli Store being under renovation and it seems that they are there 7 days a week, the problem is during the morning peak of traffic (when school buses are moving in and

out) and traffic trying to get on Farrignton Highway from Auyong Hmstd Rd, the construction trucks are parked along side Auyong Hmstd Road on the 7-11 side and vehilces are having such a difficult time driving in expecially when vehicles are trying to exit from this street during busy peak time. And what a mess it is during this construction, I have called 911 several occasions and reported these vehicles parked illegally.

Right now, these are my concerns and questions and appreciaet your time and consideration to the above prior to the construction work project. I have copied my members on the board along with our area representatives.

Mahalo piha,

Patty

Aloha Ke Akua - Patty Kahanamoku Teruya

In Hawaii we greet friends, loved ones and strangers With Aloha, which means with love. Aloha is the key word to the universal spirit of real hospitality, which makes Hawaii renowned as the world's center of understanding and fellowship. Try meeting or leaving people with aloha. You'll be surprised by their reaction. I believe in it and it is my creed. "Aloha to you."

Uncle Duke Paoa Kahanamoku

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

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Fax: (808) 531-8018
email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Ms. Patty Kahanamoku Teruya
Nanakuli-Maili Neighborhhod Board No. 36
City and County of Honolulu
530 South King Street, Room 406
Honolulu, Hawaii 96813

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Ms. Teruya,

Thank you for your correspondence dated February 9, 2015, regarding the subject project. We acknowledge your comments relating to the preparation of the Draft Environmental Assessment (DEA) for the proposed project. The following are offered in response to the questions provided:

1. *My questions are economic and social impacts and I would like to know if Auyoung Homestead Street drainage improvement project will have to close the street down completely during construction and from where? i.e. entrance to the bridge on both sides or only on the right side?*

   The extent of the road closure is not known at this time, but it is anticipated that only one side of the road would be closed. The construction plans will include traffic control plans with police officers to safeguard pedestrians and vehicular traffic.

2. *Where will the construction vehicles be parking while under construction?*

   The contractor will coordinate with the Department of Design and Construction to determine where construction vehicles can be parked when they are not in use.

3. *Will prior signage be up for notice to the residents and community?*

   The Contractor will be required to publish timely notification in the local newspaper.

4. *Will residents along the 87-136 through 87-118 and across them be notified and will they have to park outside from their resident area zone during constructions?*

   It is anticipated that residents living at properties abutting the project site will not be able park along the road during construction (8:30 a.m.to - 3:30 p.m). The Department of Design and Construction and its contractor will be instructed to notify these residents by use of flyers and signage.

5. *What time is the proposed construction work from and how long is the project work*

   Construction work, to every extent possible, will be done during non-peak hours (8:30 a.m.to- 3:30 p.m.). Construction is expected to last 3 to 6 months.

6. *The bus stop for our keikis pick up and drop of at the Ulehawa Bridge daily, will this have to be moved or will it be safe for our keikis to walk through this construction? Will you be preparing a back-up plan for the school bus and trash pick up for the residents that live in this area*

   The Department of Design and Construction and its contractor will be instructed to coordinate with the State Department of Education and City Department of Environmental Services (whom oversee the refuse collection) to provide school bus and trash pickup for the residents that live in the area.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Per our previous email correspondence there will be additional opportunities to comment on this project. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

Gavin Masaki

From: GHN Email
Sent: Thursday, March 12, 2015 3:47 PM
To: Sheryl Nojima; Gavin Masaki
Subject: FW: Pre-Assessment Consultation, Auyong Homestead Road Drainage Improvements- 7 Eleven Concern/Question
Attachments: img-312114459-0001.pdf

From: Fujitani, Ryan [mailto:Ryan_Fujitani@7-11.com]
Sent: Thursday, March 12, 2015 3:44 PM
To: GHN Email
Subject: Pre-Assessment Consultation, Auyong Homestead Road Drainage Improvements- 7 Eleven Concern/Question

Dear Sir/Madam:
We apologize for the late response since the attached letter dated 1/30/15 only arrived at our corporate offices today. (Its' very likely the result of our store being shut down for renovations on the same date the letter was postmarked). However, we are concerned if the proposed improvements will also remediate or address the flooding that also occurs along Farrington Highway during heavy rains. Ideally, we would like to receive some assurance that will not adversely affect our store operations. Can someone please advise?

Thanks,
Ryan

Ryan Fujitani I Real Estate Asset Manager
7-Eleven Hawaii I 1755 Nuuanu Ave. 2nd Floor I Honolulu I HI I 96817
Phone: (808) 447-7204 I Fax: (808) 523-5890 I Email: Ryan_Fujitani@7-11.com

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
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email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Mr. Ryan Fujitani
Real Estate Asset Manager
7-Eleven Hawaii
1755 Nuuanu Ave, 2nd Floor
Honolulu, Hawaii 96817

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Fujitani:

Thank you for your correspondence dated March 12, 2015, regarding the subject project. We acknowledge your concerns relating to the project. The purpose of this project is to alleviate excessive ponding in the vicinity of your property along Auyong Homestead Road after heavy rains. As you are probably aware, the agency responsible for Farrington Highway is the State Department of Transportation Highways Division. Thus, flooding along Farrington Highway is not within the City and County of Honolulu's jurisdiction.

Please also note that the contractor will be responsible for public notification of the project in the local newspaper prior to the start of construction. In addition, the contractor will coordinate construction activities with adjacent property owners so as to minimize inconveniences to the extent possible.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

HAWAI'I GAS
THE CLEAN ENERGY COMPANY

February 19, 2015

Ms. Sheryl E. Nojima, PE, PhD
President
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Ms. Nojima:

Subject: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Please be advised that Hawaii Gas maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Waianae. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call Kris Tanner at 596-1425.

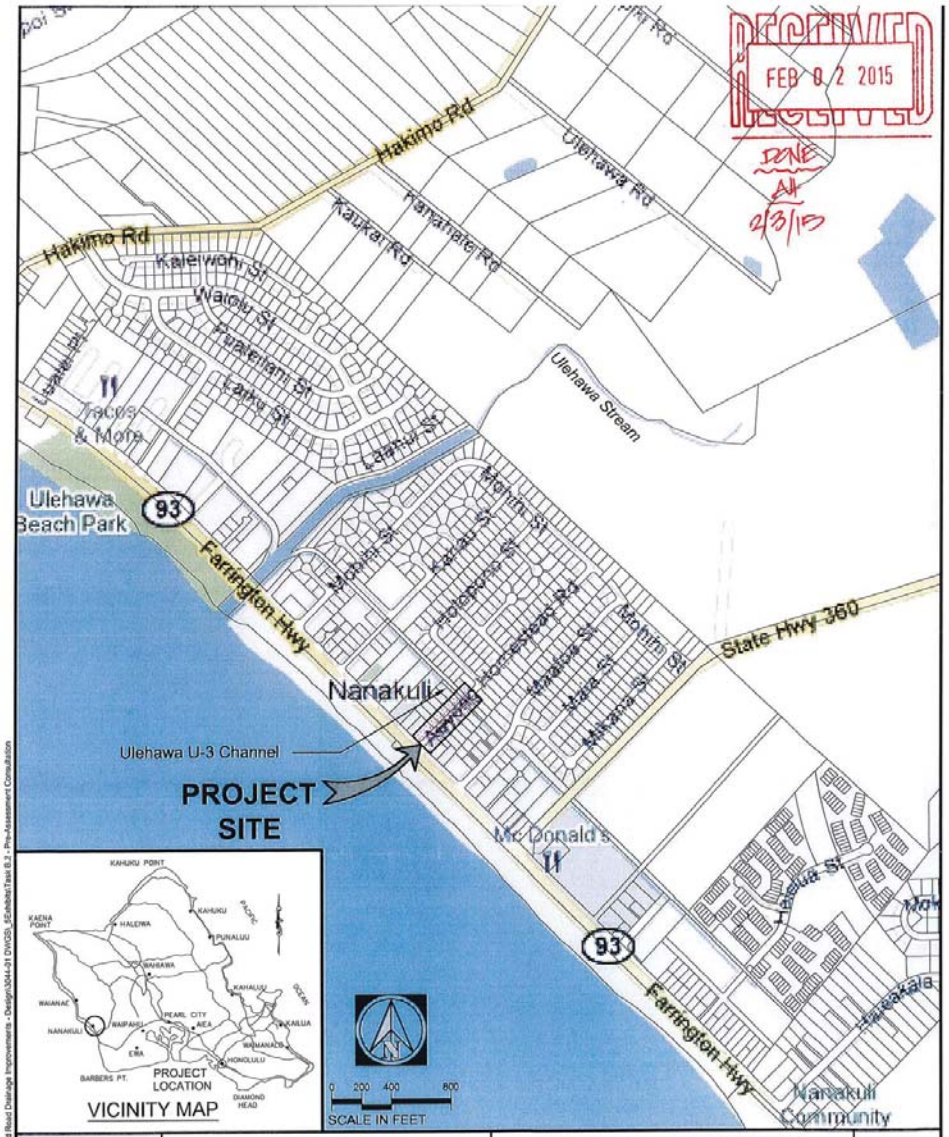
Sincerely,

Hawaii Gas

Keith K. Yamamoto
Manager, Engineering

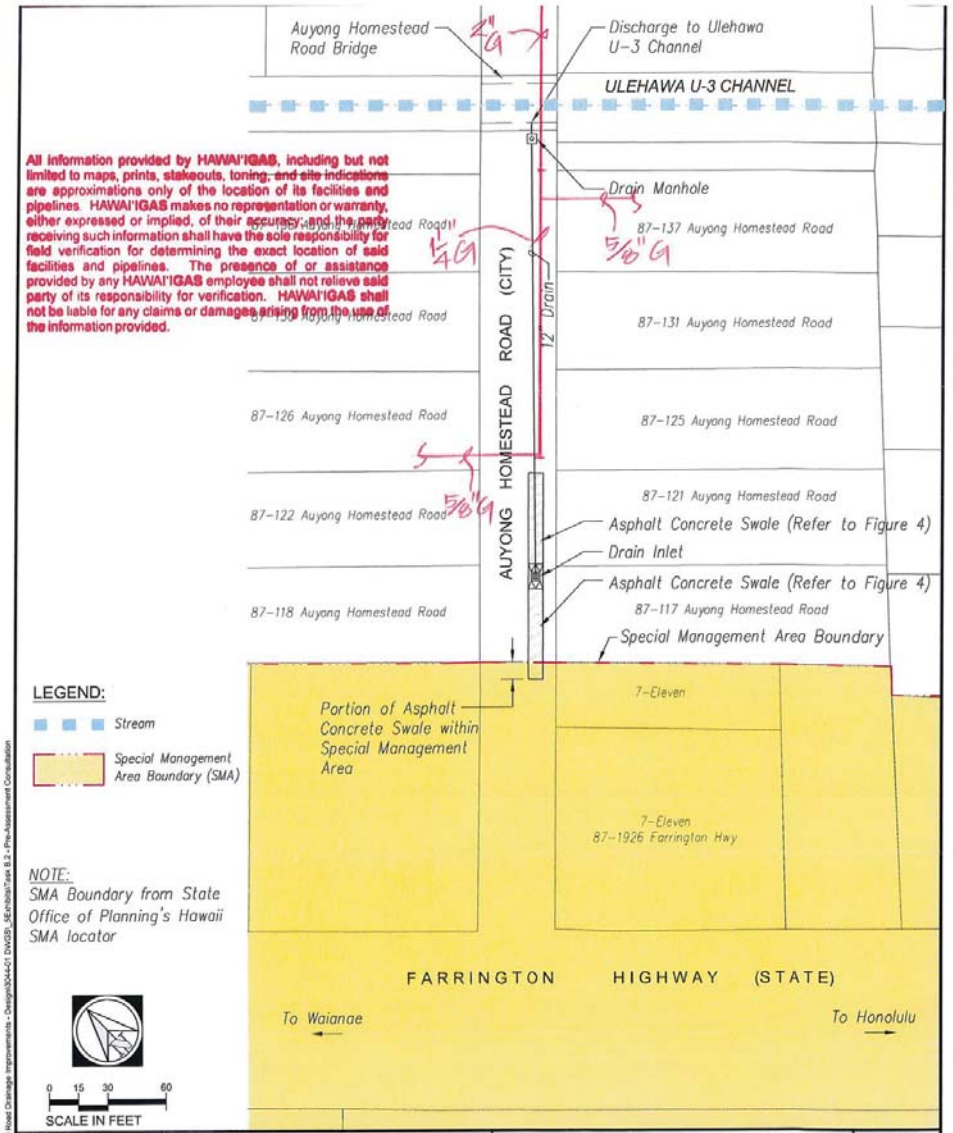
KKY:krs
15-113

Attachments



CAD DRAWING: 3044-01_LOCATION DATE: FEB 2015 SCALE: AS NOTED PROJECT #: 3044-01	Gray · Hong · Nojima & Associates, Inc. CONSULTING ENGINEERS 201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306	AUYONG HOMESTEAD ROAD DRAINAGE IMPROVEMENTS VICINITY & LOCATION MAP	FIGURE 1

P:\3044-01 Auyong Homestead Road Drainage Improvements - Design\3044-01 DWGS_EXhibits\Task 6.2 - Pre-Assessment Consultation



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CAD DRAWING: 3044-01_DRAINAGE	Gray · Hong · Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD DRAINAGE IMPROVEMENTS	FIGURE
DATE: FEB 2015	CONSULTING ENGINEERS	PROPOSED DRAINAGE PLAN	3
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

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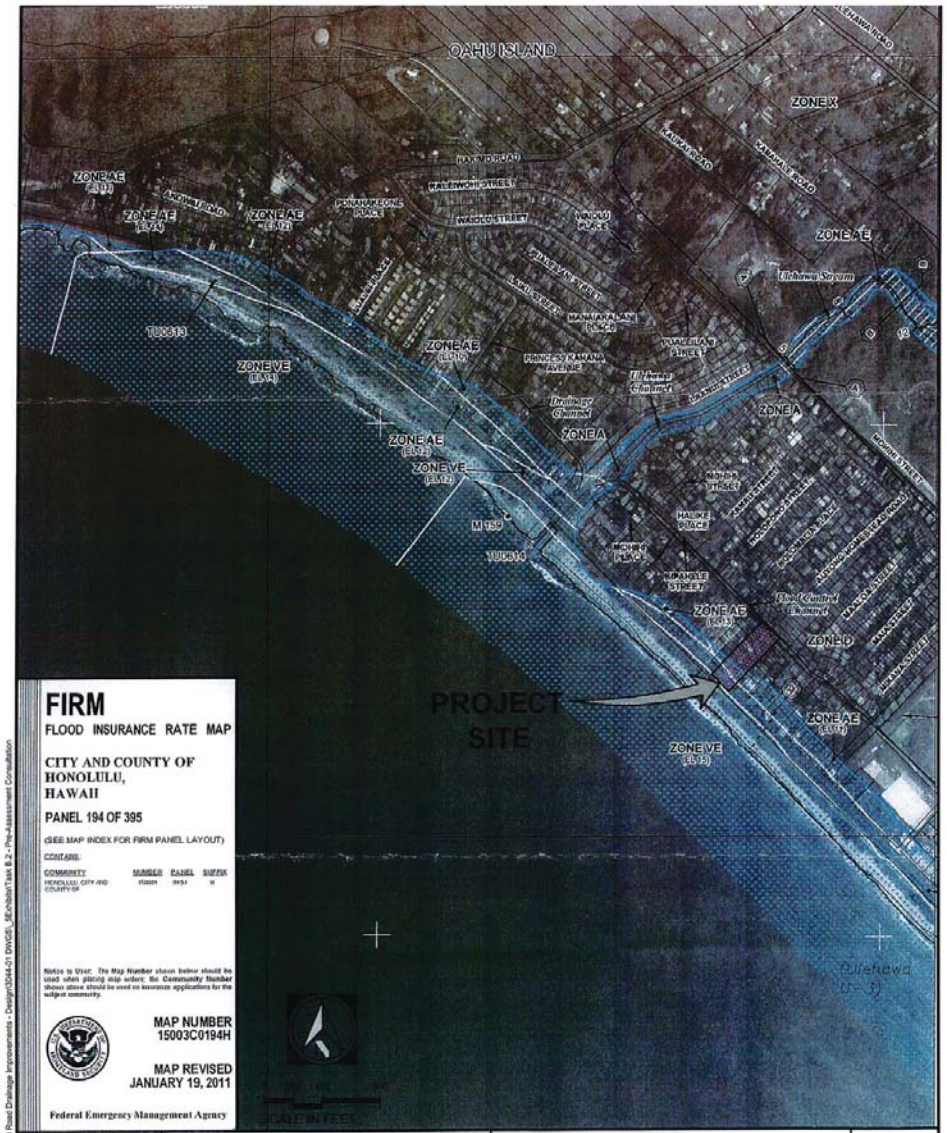

CAD DRAWING: 3044-01_FLOOD	Gray · Hong · Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD DRAINAGE IMPROVEMENTS	FIGURE
DATE: FEB 2015	CONSULTING ENGINEERS	FLOOD INSURANCE RATE MAP	2
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

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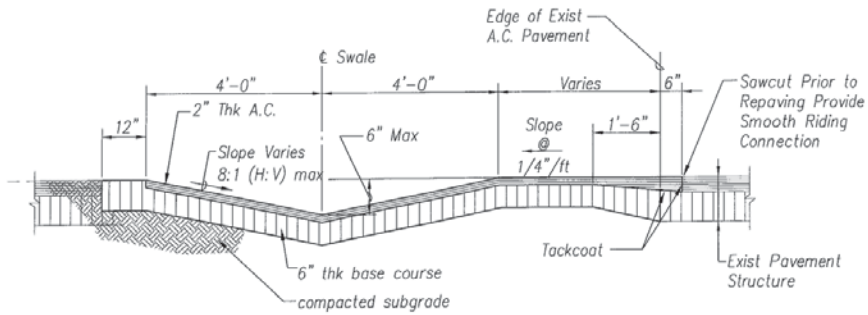

TYPICAL SECTION

ASPHALT CONCRETE (A.C.) SWALE DETAIL

Scale: 3/8" = 1'-0" (8-1/2"x11")

CAD DRAWING: 3044-01_DETAILS	Gray • Hong • Nojima & Associates, Inc.	AUYONG HOMESTEAD ROAD DRAINAGE IMPROVEMENTS	FIGURE
DATE: FEB 2015	CONSULTING ENGINEERS	A.C. SWALE DETAIL	4
SCALE: AS NOTED	201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Fax: (808) 531-8018 Telephone: (808) 521-0306		
PROJECT #: 3044-01			

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Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Daniel S.C. Hong, PE
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Toby T. Hanzawa, PE, LEED AP
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Winston M. Taniguchi, PE

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www.grayhongnojima.com

April 14, 2015

Mr. Keith K. Yamamoto
Manager, Engineering
Hawaii Gas
P.O. Box 3000
Honolulu, Hawaii 96802-3000

Attn: Ms. Kris Tanner

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Yamamoto:

Thank you for your correspondence dated February 19, 2015 and the sketch identifying gas lines in the subject project area. We acknowledge that based on your review of the information provided, Hawaii Gas maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Waianae. We will keep your office apprised of any project developments during the planning and design phases to minimize any potential conflicts with the existing gas facilities in the project area.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

Gavin Masaki

From: Kuwaye, Kristen [kristen.kuwaye@hawaiianelectric.com]
Sent: Tuesday, March 03, 2015 2:48 PM
To: GHN Email; Gavin Masaki
Cc: Liu, Rouen; '1.11.152595@ecollab.heco.com'
Subject: Auyong Homestead Road Drainage Improvements

Kristen Kuwaye on behalf of Rouen Liu

Dear Ms. Sheryl Nojima,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.
We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Auyong Homestead Road Drainage Improvement Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245.

Sincerely,
Rouen Q. W. Liu
Permits Engineer

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CONSULTING ENGINEERS

Daniel S.C. Hong, PE
Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Audrey Y.T. Yokota, PE
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
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Fax: (808) 531-8018
email@grayhongnojima.com
www.grayhongnojima.com

April 14, 2015

Mr. Rouen Q. W. Liu
Permits Engineer
Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96740

Attn: Ms Kristen Kuwaye

SUBJECT: Pre-Assessment Consultation
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Liu:

Thank you for your correspondence dated March 3, 2015 regarding the subject project. We acknowledge that based on your review of the information provided, Hawaiian Electric Company (HECO) has no objection at this time. However, should HECO have existing easements and facilities on the subject property, HECO will need continued access for maintenance of said facilities.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com. Again, thank you for your participation in the environmental review process.

Very truly yours,

GRAY, HONG, NOJIMA & ASSOC., INC.

Sheryl E. Nojima, PhD, PE
President

GM:SN:rl

cc: Edward Visaya, Department of Design and Construction

3044-01

APPENDIX B

Draft Environmental Assessment Public Comments

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

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

(P)1039.6

FEB 26 2016

Mr. Edward Visaya, P.E.
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Visaya:

Subject: Draft Environmental Assessment for
Auyong Homestead Road Improvements
Waianae, Oahu, Hawaii
TMK: (1) 8-7-026

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

If you have any questions, you may call Ms. Gayle Takasaki of the Public Works Division at 586-0584.

Sincerely,

DOUGLAS MURDOCK
Comptroller

c: Mr. Gavin Masaki, Gray, Hong, Nojima & Assoc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650345

April 27, 2016

Mr. Douglas Murdock, Comptroller
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810-0119

Attention: Ms. Gayle Takasaki

Dear Mr. Murdock:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii
REF: (P)1039.6

Thank you for your correspondence of February 26, 2016, regarding the subject project. We acknowledge that since the subject project does not impact any of your department's projects or existing facilities, your office has no comments to offer at this time.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR
Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, 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/

Ref. No. P-15079

March 18, 2016

Mr. Edward Visaya, P.E.
Department of Design and Construction
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Visaya:

Subject: Draft Environmental Assessment – Auyong Homestead Road Improvements, Waianae, Oahu; Tax Map Key: (1) 8-7-026

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for the proposed Auyong Homestead Road drainage improvement project. The Draft EA review material was transmitted to our office by letter dated February 22, 2016.

It is our understanding that the Department of Design and Construction (DDC) is proposing drainage improvements and roadway pavement resurfacing to Auyong Homestead Road in Nanakuli. The drainage improvements will alleviate standing water on this roadway resulting from heavy storm events through a controlled release of the discharge into the Ulehawa U-3 Channel. The roadway pavement resurfacing will consist of resurfacing a portion of the existing asphaltic concrete roadway to provide an improved smooth surface for vehicular users of Auyong Homestead Road and the surrounding neighborhood.

According to the Draft EA, direct impacts resulting from construction activities include possible traffic congestion along Auyong Homestead Road, disruption of surrounding residential/commercial activities, noise, and dust. Long-term benefits resulting from the project include reduction of ponding waters and improved roadway surface on Auyong Homestead Road.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. The Draft EA addresses a number of our comments made in a previous pre-consultation letter dated March 2, 2015 (Reference Number P-14669). The Draft EA addresses the project's consistency with the objectives and policies of the Hawaii Coastal Zone

Management Act, listed in Hawaii Revised Statutes (HRS) § 205A-2; details the exemption from needing to obtain a Special Management Area (SMA) permit; examines coastal erosion/sediment loss issues during the construction phase; and lists some of applicable objectives and policies of the Hawaii State Plan, as listed in HRS Chapter 226.

2. The analysis on the Hawaii State Plan (Section 4.1, page 29) would benefit from including an analysis on the roadway's vulnerability to climate change impacts such as sea-level rise and coastal erosion. Section 6.2, Item #11, page 40 of the Draft EA provides an analysis of the likelihood of damage to the area being located in the tsunami zone and near coastal waters. The mitigation strategies on flooding, tsunami inundation, and shoreline vulnerability offered in this section should also be included (and expanded upon to include the effects of sea-level rise) in the Hawaii State Plan analysis in Section 4.1 of the Draft EA. This analysis should elaborate on the project's consistency to or conflict with HRS § 226-109 – the Priority Guidelines on Climate Change Adaptation. This project site is within the SMA and within close proximity to the shoreline. The effects of sea-level rise may pose higher risks of coastal flooding, exacerbate coastal erosion, increase the frequency for roadway maintenance, and may result in a greater likelihood of tsunami inundation. The Final Environmental Assessment (Final EA) will benefit from including an examination on this matter and suggest mitigation strategies.

3. Section 3.3, page 18 states that the improvements include a drainage system which will provide long-term benefits by reducing the potential flooding in the vicinity of Auyong Homestead Road by:
   - Allowing runoff to drain from the roadway after periods of prolonged and/or intense rainfall
   - Use of a drainage check valve that will prevent backflow of stormwater from Ulehawa U-3 Channel.

   Furthermore, the Draft EA states that the drainage improvements will not result in a marked increase in stormwater runoff relative to the size of the watershed. A key objective in stormwater mitigation strategies is reducing the cumulative effect of volume and intensity of stormwater inundation. During heavy storms, hardened surfaces allow storm runoff to flow into dry gulches and streams, overwhelming nearby coastal areas with sediment and land-based pollutants.

   The Final EA should consider the use of Low Impact Development (LID) design concepts and stormwater runoff best management practices (BMPs). The Draft EA does state that the DDC will include BMPs to control erosion and sediment loss during the construction phase and will rely on Federal, State, and County roadway standards to meet flooding concerns. However, LID design features embrace decentralized micro-scale

controls that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source. Examples of effective LID stormwater control methods that can be utilized for this project include vegetated/grassed swales, bioretention basins, and permeable pavers for road surface material. These, and other methods, are explained in OP's "Low Impact Development, A Practitioners Guide." For more information on this, please examine Section 2.4 (Better Design Criteria), pages 2-3 to 2-16 of this guide. It can be viewed or downloaded from the OP website at http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

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

✓c: Gavin Masaki, P.E., Gray, Hong, Nojima & Associates, Inc

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650340

April 26, 2016

Mr. Leo R. Asuncion
Director
Office of Planning
State of Hawaii
235 South Beretania Street, 6th Floor
Honolulu, Hawaii 96813

Attention: Mr. Josh Hekekia

Dear Mr. Asuncion:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 18, 2016, regarding the subject project. The following are offered in response to the comments provided:

1. We acknowledge that the Draft Environmental Assessment has addressed various comments from the preassessment consultation letter response (Reference Number P-14669) including the project's consistency with the objectives and policies of the Hawaii Coastal Zone Management Act, listed in Hawaii Revised Statutes (HRS) § 205A-2; details the exemption from needing to obtain a Special Management Area (SMA) permit; examines coastal erosion/sediment loss issues during the construction phase; and lists some of applicable objectives and policies of the Hawaii State Plan

2. HRS § 226-109, priority guidelines on climate change adaptation, will be discussed as part of the Final Environmental Assessment. We understand that the project site is within the SMA and within close proximity to the shoreline. We acknowledge that the effects of sea-level rise may pose higher risks of coastal flooding, exacerbate coastal erosion, increase the frequency

for roadway maintenance, and may result in a greater likelihood of tsunami inundation.

3. We acknowledge importance of Low Impact Design concepts and storm water runoff best management practices. Unfortunately, the project site is relatively small and situated within an existing public roadway in a heavily urbanized area. There is limited open space available to properly infiltrate, filter, store, reuse, evaporate, or detain runoff storm water.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR Mark Yonamine
Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

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

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

March 4, 2016

Mr. Edward Visaya
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment for Auyong Homestead Road Improvements,
TMK (1) 8-7-026, Waianae, Oahu, Hawaii

Dear Mr. Visaya:

The Department of Education (DOE) appreciates the opportunity to comment on the Draft Environmental Assessment (DEA) for this project. The DOE has reviewed the DEA and offers the following comments:

The DOE is concerned about how this project will impact school traffic and operations. The DOE would appreciate a consultation with the project manager or consultant to discuss the development of traffic control plans and related specification as referenced in the DEA. Please contact Principal Debra Knight of Nanaikapono Elementary and Principal Darin Pilialoha of Nanakuli High and Intermediate.

We appreciate the opportunity to provide comments. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Gavin Masaki, Gray, Hong, Nojima & Associates, Inc.
Debra Knight, Principal, Nanaikapono Elementary
Darin Pilialoha, Principal, Nanakuli High and Intermediate

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
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KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650337

April 26, 2016

Mr. Kenneth G. Masden, II
Public Works Manager, Planning Section
Office of School Facilities and Support Services
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawaii 96804

Attention: Heidi Meeker

Dear Mr. Masden:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 4, 2016, regarding the subject project. We acknowledge that the project may effect school operations and traffic. Detailed traffic control plans will be developed by the contractor prior to the start of construction. At the appropriate time, the contractor will be directed to consult Principal Debra Knight of Nanaikapono Elementary and Principal Darin Pilialoha of Nanakuli High and Intermediate for development of traffic control plans.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, 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

03020PNN.16

March 9, 2016

Mr. Edward Visaya
City and County of Honolulu
Department of Design and Construction
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Visaya:

SUBJECT: Comments on the Draft Environmental Assessment for Auyong Homestead Road Improvements
TMK: (1) 8-7-026
Waianae, Island of Oahu, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your transmittal, dated January 22, 2016, 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 an 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 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, P.E., CHIEF
Clean Water Branch

NN:ak

c: DOH-EPO #16-058 [via e-mail Noella.Narimatsu@doh.hawaii.gov only]
Ms. Sheryl Nojima, Gray, Hong, Nojima & Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650346

April 27, 2016

Mr. Alec Wong, P.E., Chief
Clean Water Branch
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Wong:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii
Ref: 03020PNN.16

Thank you for your correspondence of March 9 2016, regarding the subject project. The following are offered in response to the comments provided:

1. We acknowledge that 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. We acknowledge that a National Pollutant Discharge Elimination System (NPDES) permit may be required for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). A NPDES permit is not anticipated as the proposed project is not anticipated to

exceed one (1) acre in disturbance, require construction dewatering, or involve hydrotesting of any water lines.

3. We understand that the Army Corp of Engineers, Regulatory Branch, should be contacted if the project involves work in, over, or under waters of the United States. We further understand that a Clean Water Act Section 401 Water Quality certification 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..." For your information, the Army Corps of Engineers were consulted as part of the preassessment phase and their response is included in Appendix A of the Final Draft Environmental Assessment.

4. We acknowledge that all discharges related to the project construction or operation activities, whether or not a NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55.

5. We acknowledge 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. Unfortunately, the project site is relatively small and situated within an existing public roadway in a heavily urbanized area. There is limited space available to allow for treatment and/or reuse of storm water.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR M. Yonamine

Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, 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

FEB 2 9 2016

In reply, please refer to
File:
EPO 16-058

February 25, 2016

Ms. Sheryl Nojima
Gray, Hong, Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Ms. Nojima:

SUBJECT: Draft Environmental Assessment (DEA) for Auyong Homestead Road Improvements, Waianae, Oahu
TMK: 8-7-026

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2016-02-23-OA-5B-DEA-Auyong-Homestead-Road-Improvements.pdf

EPO strongly recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments. EPO has recently prepared draft Environmental Health Management Maps for each county. They are online at: http://health.hawaii.gov/epo/egis

We suggest you review the requirements for the National Pollutant Discharge Elimination System (NPDES) permit. We recommend contacting the Clean Water Branch at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov after relevant information is reviewed at:

1. http://health.hawaii.gov/cwb
2. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/standard-npdes-permit-conditions
3. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms

EPO recommends you review the need and/or requirements for a Clean Air Branch permit. The Clean Air Branch can be consulted via e-mail at: Cab.General@doh.hawaii.gov or via phone: (808) 586-4200.

If noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work. Please call the Indoor and Radiological Health Branch at (808) 586-4700 and review relevant information online at: http://health.hawaii.gov/irhb/noise

EPO encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal 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 Portal is continually updated. Please visit it regularly at: https://eha-cloud.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 previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new 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://www2.epa.gov/ejscreen

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

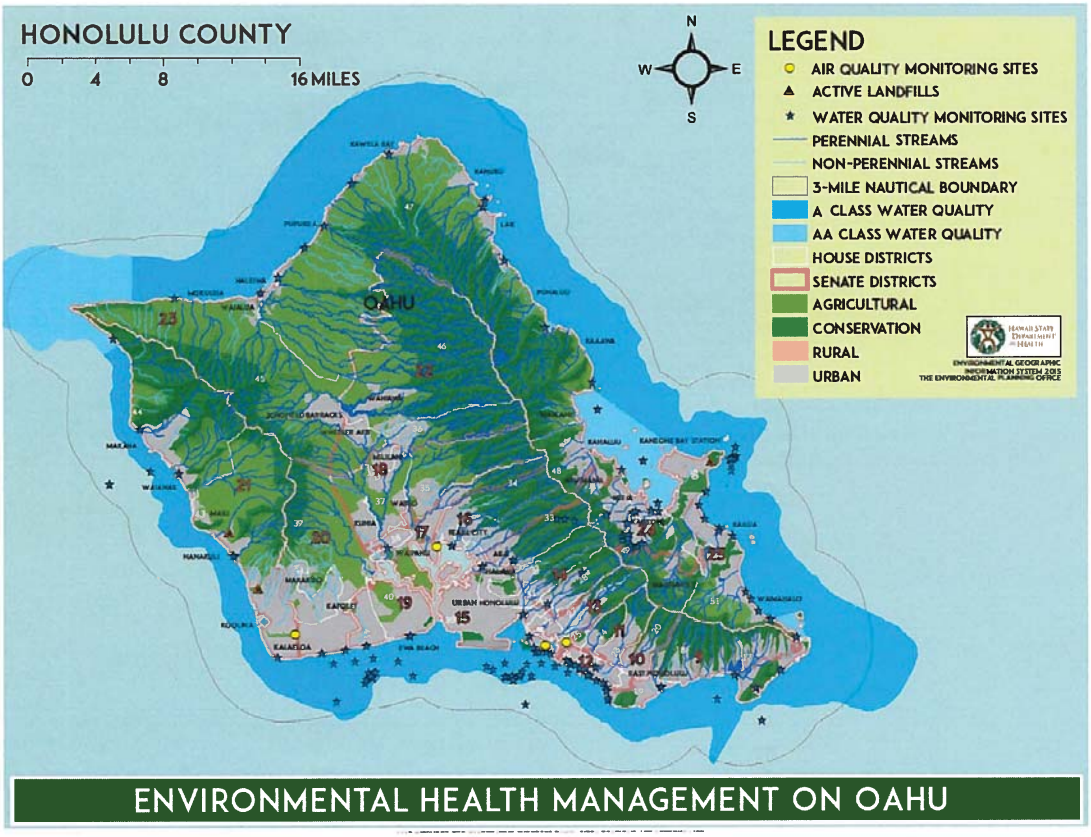
Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

Attachment 1: EPO Draft Environmental Health Management Map
Attachment 2: OEQC Viewer Map of Area
Attachment 3: U.S. EPA EJSCREEN Report

c: Edward Visaya, City & County of Honolulu, Department of Design and Construction
DOH: CWB, CAB, IRHB {via email only}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A CLASS WATER QUALITY
AA CLASS WATER QUALITY
HOUSE DISTRICTS
SENATE DISTRICTS
AGRICULTURAL
CONSERVATION
RURAL
URBAN
HAWAII STATE DEPARTMENT OF HEALTH
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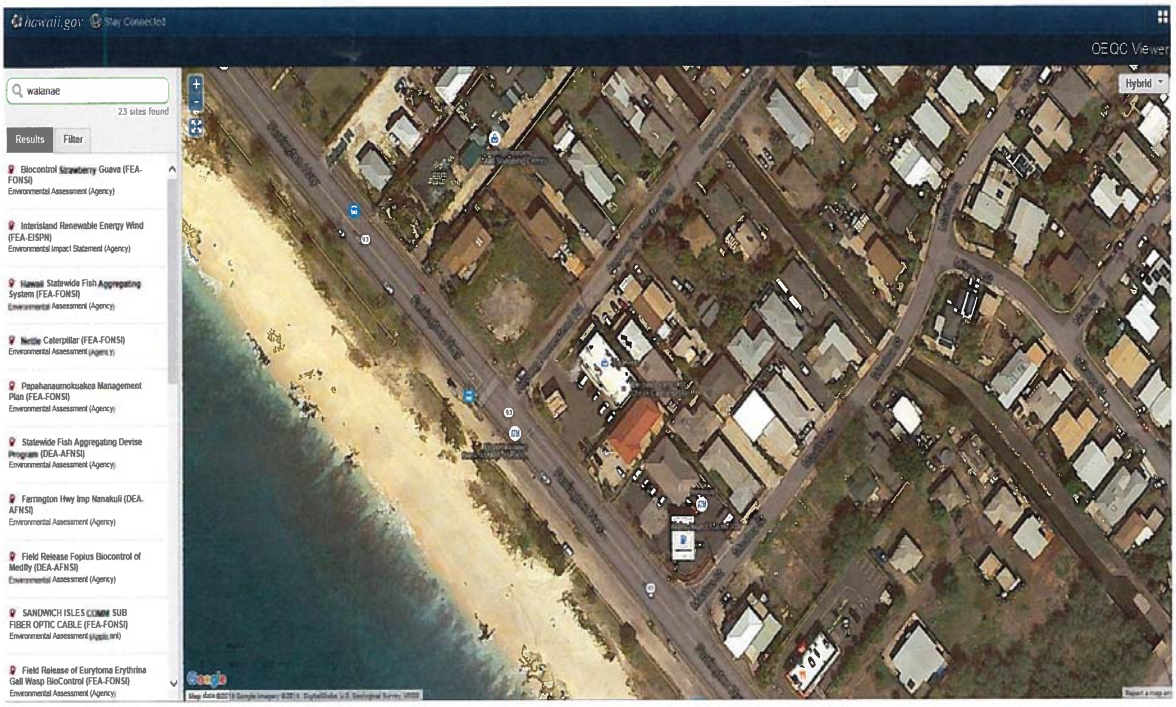
THE ENVIRONMENTAL PLANNING OFFICE
OAHU
ENVIRONMENTAL HEALTH MANAGEMENT ON OAHU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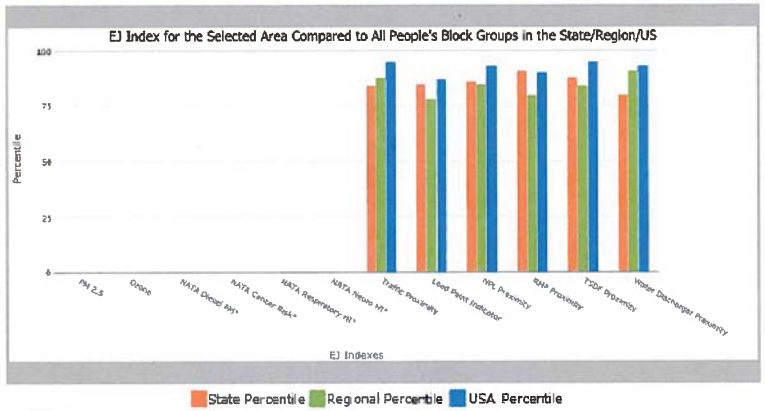
23 sites found
Results
Filter
Biocontrol Strawberry Guava (FEA-FONSI)
Environmental Assessment (Agency)
Interisland Renewable Energy Wind (FEA-EISPN)
Environmental Impact Statement (Agency)
Hawaii Statewide Fish Aggregating System (FEA-FONSI)
Environmental Assessment (Agency)
Nettle Caterpillar (FEA-FONSI)
Environmental Assessment (Agency)
Papahanaumokuakea Management Plan (FEA-FONSI)
Environmental Assessment (Agency)
Statewide Fish Aggregating Devise Program (DEA-AFNSI)
Environmental Assessment (Agency)
Farrington Hwy Imp Nanakuli (DEA-AFNSI)
Environmental Assessment (Agency)
Field Release Fopius Biocontrol of Medfly (DEA-AFNSI)
Environmental Assessment (Agency)
SANDWICH ISLES COMM SUB FIBER OPTIC CABLE (FEA-FONSI)
Environmental Assessment (Applicant)
Field Release of Eurytoma Erythrina Gall Wasp BioControl (FEA-FONSI)
Environmental Assessment (Agency)
Hybrid

EJSCREEN Report

for 1 mile Ring Centered at 21.390489,-158.152950, HAWAII, EPA Region 9

Approximate Population: 9338

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*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	84	88	95
EJ Index for Lead Paint Indicator	85	78	87
EJ Index for Proximity to NPL sites	86	85	93
EJ Index for Proximity to RMP sites	91	80	90
EJ Index for Proximity to TSDFs	88	84	95
EJ Index for Proximity to Major Direct Dischargers	80	91	93



This report shows environmental, demographic, and EJ indicator values. 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

for 1 mile Ring Centered at 21.390489,-158.152950, HAWAII, EPA Region 9

Approximate Population: 9338

EPA United States Environmental Protection Agency

EJSCREEN Report

for 1 mile Ring Centered at 21.390489,-158.152950, HAWAII, EPA Region 9

Approximate Population: 9338

Selected Variables	Raw Data	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	9.95	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	48.1	N/A
NATA Diesel PM (µg/m³)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Cancer Risk (lifetime risk per million)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	170	280	68	190	69	110	84
Lead Paint Indicator (% Pre-1960 Housing)	0.15	0.17	57	0.25	51	0.3	43
NPL Proximity (site count/km distance)	0.083	0.092	69	0.11	64	0.096	68
RMP Proximity (facility count/km distance)	0.21	0.18	78	0.41	57	0.31	66
TSDF Proximity (facility count/km distance)	0.087	0.092	63	0.12	62	0.054	85
Water Discharger Proximity (facility count/km distance)	0.21	0.33	54	0.19	77	0.25	70
Demographic Indicators							
Demographic Index	70%	51%	93	46%	81	35%	89
Minority Population	95%	77%	85	57%	89	38%	93
Low Income Population	44%	25%	85	35%	67	34%	70
Linguistically Isolated Population	3%	6%	45	9%	33	5%	61
Population With Less Than High School Education	18%	10%	85	18%	58	14%	69
Population Under 5 years of age	11%	6%	86	7%	82	7%	85
Population over 64 years of age	8%	14%	20	12%	37	13%	27

* The National-scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. 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: http://www.epa.gov/ttn/atw/natamain/index.html.

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.

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650347

April 27, 2016

Ms. Laura Leialoha Phillips McIntyre, AICP
Program Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Ms. McIntyre:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of February 25, 2016, regarding the subject project. The following are offered in response to the comments provided:

1. As requested, the following website information will be reviewed throughout the project:

   a. Standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. We acknowledge that projects are required to adhere to all applicable standard comments.

   b. Draft Environmental Health Management Maps: http://health.hawaii.gov/epo/egis

   c. Hawaii Environmental Health Portal: https://ehacloud.doh.hawaii.gov

   d. The draft Office of Environmental Quality Control (OEQC) viewer: http://ehaweb.doh.hawaii.gov/oeqc-viewer

   e. The U.S. Environmental Protection Agency (EPA) environmental justice (EJ) mapping and screening tool called EJSCREEN: http://www2.epa.gov/ejscreen

2. During the design phase, requirements for the National Pollutant Discharge Elimination System (NPDES) permit shall be reviewed. The Clean Water Branch shall be consulted should there be any questions after the relevant information is reviewed from the following websites:

   a. http://health.hawaii.gov/cwb

   b. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/standard-npdes-permit-conditions

   c. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms

3. Prior to construction the requirements for a Clean Air Branch permit shall be reviewed. The Clean Air Branch shall be consulted should there be any questions after relevant information is reviewed.

4. We acknowledge that should noise created during the construction phase of the project exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control", a noise permit may be required and should be obtained before the commencement of work. The Indoor and Radiological Health Branch shall be consulted should there be any questions after relevant information is reviewed at: http://health.hawaii.gov/irhb/noise.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR M. Yonamine

Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

OFFICE OF
ENVIRONMENTAL QUALITY CONTROL

DAVID Y. IGE
GOVERNOR

SCOTT GLENN
INTERIM DIRECTOR

DEPARTMENT OF HEALTH, STATE OF HAWAI'I
235 South Beretania Street, Suite 702, Honolulu, HI 96813

Phone: (808) 586-4185
Email: oeqchawaii@doh.hawaii.gov

March 18, 2016

Mr. Robert J. Kroning, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

Dear Mr. Kroning:

SUBJECT: Draft Environmental Assessment (DEA) and Anticipated Finding of No Significant Impact (AFNSI) for Auyoung Homestead Road Improvements, TMK 8-07-026, in the judicial district of Wai'ānae

Having received your January 22, 2016, letter, transmitting the subject document, the Office of Environmental Quality Control (OEQC) offers the following comments for your consideration:

1. Please discuss the long term effects of climate change and sea-level rise on the proposed project.
2. Best Management Practices (BMPs): Before work, the OEQC strongly encourages the Department of Design and Construction to check with the Clean Water Branch of the Department of Health regarding BMPs to minimize water runoff from the project site.
3. Native vegetation: Please consider using the requirements of Act 233, Session Laws of Hawai'i (native vegetation in landscaping).

Thank you for the opportunity to review and comment. If there any questions, please contact Leslie Segundo of our office at (808) 586-4185.

Sincerely,

Scott Glenn
Interim Director

16-232

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650341

April 26, 2016

Mr. Scott Glenn, Interim Director
Office of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, Hawaii 96813

Attention: Mr. Leslie Segundo

Dear Mr. Glenn:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 18, 2016, regarding the subject project. The following are offered in response to the comments provided:

1. The purpose of the proposed drain is not to adequately convey storm water from Auyong Homestead Road during future storms resulting from climate change, rather, it is meant to provide drainage relief to the road after heavy rains subside. As an added precaution, to prevent the possibility of backflow from the Ulehawa U-3 channel onto Auyong Homestead Road, an inline drainage check valve will be installed in the drain line just upstream of the discharge outlet.

   The Final Environmental Assessment will include a discussion on sea level rise. It should be noted that under historical sea level rise rates (U.S. Army Corps of Engineers Sea Level Change Curve Calculator), it may take over 100 years before the proposed drain outlet to Ulehawa U-3 Channel is submerged under Mean Higher High Water elevation based on the U.S. National Oceanic Atmospheric Organization's Tides and Currents.

2. The Department of Heath Clean Water Branch provided comments in response to consultation with the Army Corps of Engineers during the

Preassessment stage and in response to the Draft Environmental Assessment. The comments will be reviewed and any appropriate provisions, including Best Management Practices, will be implemented to the extent possible.

3. We understand that Act 233 requires new or renovated landscaping of State-developed buildings, complexes, facilities, or housing to incorporate a certain percentage of native plants. The proposed project is not anticipated to require any landscaping.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, 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 24, 2016

City and County of Honolulu
Department of Design and Construction
Attention: Mr. Edward Visaya, PE
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Gray, Hong, Nojima & Associates, Inc. via email: gmasaki@grayhongnojima.com
Attention: Mr. Gavin Masaki, P.E.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Messrs. Visaya and Masaki:

SUBJECT: Draft Environmental Assessment – Auyong Homestead Road Improvements

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 Land Division – Oahu District 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
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

RECEIVED
LAND DIVISION
2016 MAR -9 AM 6:12
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

February 26, 2016

MEMORANDUM

FROM: TO:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
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 – Oahu District
X Historic Preservation

TO: FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment – Auyong Homestead Road Improvements
LOCATION: Waianae, Island of Oahu; TMK: (1) 8-7-026
APPLICANT: City and County of Honolulu

Transmitted for your review and comment is information on the above referenced *project*. Please submit any comments by **March 23, 2016**.

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: Tim Ohno
Date: 3/8/16

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

March 31, 2016

City and County of Honolulu
Department of Design and Construction
Attention: Mr. Edward Visaya, PE
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Gray, Hong, Nojima & Associates, Inc. via email: gmasaki@grayhongnojima.com
Attention: Mr. Gavin Masaki, P.E.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813

Dear Messrs. Visaya and Masaki:

SUBJECT: Draft Environmental Assessment – Auyong Homestead Road Improvements

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you on March 24, 2016, enclosed are comments from the Engineering Divisionon 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

RECEIVED
LAND DIVISION
2016 MAR 30 AM 10: 52
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

'16 MAR 03 AM 10:54 ENGINEERING

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 26, 2016

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
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 – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment – Auyong Homestead Road Improvements
LOCATION: Waianae, Island of Oahu; TMK: (1) 8-7-026
APPLICANT: City and County of Honolulu

Transmitted for your review and comment is information on the above referenced *project*. Please submit any comments by **March 23, 2016**.

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.
(X) Comments are attached.

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 3/24/16

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

To: Land Division/ Russell Y. Tsuji

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 designated Flood Hazard.

The owner or the project property and/or their representative is responsibile to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

National Flood Insurance Program establishes the rules and regulations of the NFIP - Title 44 of the Code of Federal Regulations (44CFR). The NFIP Zone X is a designation where there is no perceived flood impact. Therefore, the NFIP does not regulate any development within a Zone X designation.

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators 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: 3/24/14

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650343

April 26, 2016

Mr. Russell Y. Tsuji, Land Administrator
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Attention: Ms. Lydia Morikawa

Dear Mr. Tsuji:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 24 and 31, 2016, regarding the subject project. We acknowledge that the project's draft environmental assessment was distributed to your department's Engineering Division, Commission on Water Resource Management, Land Division – Oahu District, and Historic Preservation Division. As of this time, we acknowledge your transmittal of comments from the following Divisions:

1. Engineering Division:

   a. 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 designated Flood Hazard.

   b. The owner or the project property and/or their representative are responsible to research the Flood Hazard Zone designation for the project.

   c. The NFIP Zone X is a designation where there is no perceived flood impact. Therefore, the NFIP does not regulate any development within a Zone X designation.

   d. 44CFR indicates the minimum standards set forth by the NFIP; however, the City and County of Honolulu's flood ordinance may take precedence over the NFIP standards if proven to be more restrictive.

2. Land Division – Oahu District has no comments.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR
Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
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

May 25, 2016

Russell Y. Tsuji, Land Administrator
Land Division
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Log No. 2016.00523
Doc No. 1604GC10
Archaeology

Dear Mr. Tsuji:

SUBJECT: **Chapter 6E-8 Historic Preservation Review**
Draft Environmental Assessment — Auyong Homestead Road Improvements
Lualualei Ahupua‘a, Waianae District, Island of O‘ahu
TMK: (1) 8-7-026:002-023

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the proposed Auyong Homestead Drainage and Road Improvements (Gary, Hong, Nojima & Associates, Inc. 2016). The City and County of Honolulu (CCH), Department of Design and Construction (DDC), proposes drainage improvements and roadway pavement resurfacing to Auyong Homestead Road. We received this submittal on March 4, 2016.

Construction-related activities are expected to affect an area totaling only 1,672.2 square meters (m) (18,000 square feet), within a total project area covering approximately 8,094 square m (2 acres). Auyong Homestead Road is located in the coastal portion of Lualualei Ahupua‘a, in Wai‘anae District. The project segment of Auyong Homestead Road is bounded on the northeast end by the Ulehawa U-3 Channel, over which a concrete bridge has been built for the road; and on the southwest end by Farrington Highway. The sides, the road shoulders, are bounded by residential lots in the northwest and southeast, and by one commercial lot at the southwest end on each side, fronting Farrington Highway.

The planned improvements will include construction of a drain inlet beneath the southeast side of the road, approximately 40 m (130 feet) from the southwest end of the corridor. The drain will carry runoff water from the lots beside the road to a 12-inch drainline, which is to be installed under the southeast side of the road. The drainline will carry the runoff northeast to the Ulehawa U-3 Channel, at the northeast end of the corridor. The Ulehawa U-3 Channel carries water northwest, to be discharged into Ulehawa Beach Park, on the north side of Ulehawa Canal (formerly Ulehawa Stream and wetland). Improvements will also include repaving of Auyong Homestead Road from Farrington Highway to the bridge over the channel, between the road shoulders.

Archaeological monitoring is to accompany all trenching and other ground-disturbing activities reaching a depth greater than 30.5 cm (12 inches) below surface.

On February 25, 2016, the SHPD received a draft archaeological monitoring plan prepared in support of the Auyong Homestead Road Improvements Project, TMK: (1) 8-7-026:002-023 (Cleghorn and Mooney, November 2015). SHPD reviewed this draft plan and requested revisions (May 13, 2016; Log No. 2016.00447, Doc. No. 1603JA18).

Based on the above information **SHPD’s determination is no historic properties affected with implementation of archaeological monitoring**.

SHPD looks forward to receiving the revised draft archaeological monitoring plan for review and acceptance prior to initiation of the project.

Please contact me at (808) 693-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Archaeology Branch Chief

cc: Lydia Morikawa, DLNR (Lydia.Morikawa@hawaii.gov)
Edward Visaya, DDC (evisaya@honolulu.gov)
Gavin Masaki, Consultant (gmasaki@grayhongnojima.com)

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-655148

June 13, 2016

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

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii
Log No. 2016.00523
Doc No. 1604GC10

Dear Dr. Lebo:

Thank you for your correspondence of May 25, 2016, regarding the subject project. We acknowledge your comments as indicated below:

1. Based on your review of the document provided, your department's determination is no historic properties affected with implantation of archaeological monitoring.

2. The revised archaeological monitoring plan should be submitted to your department for review and acceptance prior to initiation of the project.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: ~~Sheryl Nojima, Gray Hong Nojima and Associates, Inc.~~

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

RECEIVED
DDC-CIVIL DIVISION
C & C OF HONOLULU
'16 MAR 11 A11:41

HRD 16-7368B

March 1, 2016

DDC
RECEIVED
MAR 11 2016
CDD

16-646050

Edward Visaya, P.E.
Department of Design and Construction
City and County of Honolulu
650 S. King Street, 11th Floor
Honolulu, Hawai'i 96813

Re: Draft Environmental Assessment
for Auyong Homestead Road Improvements
Wai'anae, O'ahu, Hawai'i
TMK: (1) 8-7-026

Aloha Mr. Visaya:

The Office of Hawaiian Affairs (OHA) received your letter dated February 22, 2016, on the above-titled project. Given the project descriptions provided, our agency has no comments at this time. Should you have any questions, please contact Everett Ohta at 594-0231 or everetto@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:acm

C: Gavin Masaki – Gray, Hong, Nojima & Associates, Inc.

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, Hawai'i 96817

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650349

April 27, 2016

Dr. Kamanaopono Crabbe
Ka Pouhana, Chief Executive Officer
Office of Hawaiian Affairs
State of Hawaii
560 N. Nimitz Highway, Suite 200
Honolulu, Hawaii 96817

Attention: OHA Compliance Enforcement

Dear Dr. Crabbe:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 1, 2016, regarding the subject project. We acknowledge that based on your review of the project descriptions provided, your department does not have any comments to offer at this time.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

BOARD OF WATER SUPPLY

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

March 18, 2016

KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
ADAM C. WONG, Vice Chair
DAVID C. HULIHEE
KAPUA SPROAT
BRYAN P. ANDAYA

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

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

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

TO: ROBERT J. KRONING, DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTN: EDWARD VISAYA, P.E.

FROM: ERNEST Y. W. LAU, P.E., MANAGER AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT ON AUYONG HOMESTEAD ROAD IMPROVEMENTS –TAX MAP KEY: 8-7-026

The construction drawings should be submitted for our review.

The construction schedule should be coordinated to minimize impact to the water system.

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

cc: Gray, Hong, Nojima & Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650352

April 27, 2016

MEMORANDUM

TO: Ernest Y. W. Lau, P.E., Manager and Chief Engineer
Board of Water Supply

ATTN: Robert Chun

FROM: Robert J. Kroning, P.E., Director
Department of Design and Construction

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 18, 2016, regarding the subject project. We acknowledge your comments as indicated below:

1. The construction drawings should be submitted to the Board of Water Supply for review.

2. The construction schedule should be coordinated to minimize impact to the water system.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813 • AREA CODE 808 • PHONE: 768-7762 • FAX: 768-7792

KIRK CALDWELL
MAYOR

GARY K. NAKATA
DIRECTOR

BARBARA YAMASHITA
DEPUTY DIRECTOR

March 23, 2016

Mr. Edward Visaya, P.E.
City and County of Honolulu
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Visaya:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

We have reviewed your letter dated February 22, 2016, and the enclosed copy of the Draft Environmental Assessment of the Auyong Homestead Road Improvements.

Our review of the documents provided indicates the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

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

Sincerely,

Gary K. Nakata
Director

GKN:jc

cc: Gavin Masaki, P.E.,
Gray, Hong, Nojima and Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650351

April 27, 2016

MEMORANDUM

TO: Gary K. Nakata, Director
Department of Community Services

FROM: FOR Robert J. Kroning, P.E., Director
Department of Design and Construction

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 23, 2016, regarding the subject project. We acknowledge that based on your review of the documents provided, the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

March 3, 2016

Date Received MAR 7 2016
File:
To: SN GM
Action:

Gary, Hong, Nojima & Associates, Inc.
Attn: Gavin Masaki, PE
201 Merchant, suite 1900
Honolulu, Hawaii 96813

Dear Mr. Masaki:

Subject: Draft Environmental Assessment- Auyong Homestead Road Improvements, Waianae, Oahu, Hawaii

The Department of Design and Construction does not have comments to offer at this time

Thank you for the opportunity to review. Should there be any questions, please contact me at 768-8480.

Sincerely,

Robert J. Kroning, P.E.
Director

RJK: ms (643970)

cc: Department of Construction and Design
Edward Visaya, PE

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS

Sheryl E. Nojima, PhD, PE
Michael H. Nojima, PE, LEED AP
Craig I. Nishimura, PE
Guy K. Fukushima
Toby T. Hanzawa, PE, LEED AP
Gavin Y. Masaki, PE, LEED AP
Winston M. Taniguchi, PE

201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813-2926
Telephone: (808) 521-0306
Fax: (808) 531-8018
email@grayhongnojima.com
www.grayhongnojima.com

May 6, 2016

Mr. Robert J. Kroning, P.E.
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Auyong Homestead Road Drainage Improvements
TMK: (1) 8-7-026 Waianae, Oahu, Hawaii

Dear Mr. Kroning:

Thank you for your correspondence of March 3, 2016, regarding the subject project. We acknowledge that based on your review of the information provided, the Department of Design and Construction has no comments to offer at this time.

Should there be any questions, please contact Gavin Masaki of our office at 521-0306 or email at gmasaki@grayhongnojima.com . Again, thank you for your participation in the environmental review process.

Sincerely,

GRAY, HONG, NOJIMA & ASSOCIATES, INC.

Sheryl E. Nojima, PhD, PE
President

cc: Mr. Edward Visaya, Department of Design and Construction

GM:SN:rl

3044-01

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

March 24, 2016

2016/ELOG-490 (df)

MEMORANDUM

TO: Robert J. Kroning, P.E., Director
Department of Design and Construction

ATTENTION: Edward Visaya

FROM: George I. Atta, FAICP, Director
Department of Planning and Permitting

SUBJECT: Auyong Homestead Road Improvements, Waianae, TMK: 8-7-026

This is in response to the February 22, 2016 letter from Gray, Hong, Nojima & Associates, Inc., requesting comments to the Draft Environmental Assessment (DEA) for the subject project.

1) The document incorrectly references Farrington Highway as Kamehameha Highway. Please have your consultant review the DEA and make the appropriate correction.

2) Section 4.6 (City and County of Honolulu Public Infrastructure Map): Revise the last sentence to read "*The proposed project is not considered a major infrastructure project that would permit significant new development or redevelopment, therefore, is not required to be identified on the Waianae PIM.*"

Should you have any questions, please contact Don Fujii of the Site Development Division at extension 88107.

cc: Eugene Takahashi – DPP
✓Gray, Hong, Nojima & Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650353

April 29, 2016

MEMORANDUM

TO: George I. Atta, FAICP, LEED AP, CEI, Director
Department of Planning and Permitting

ATTN: Site Development Division – Don Fujii

FROM: Robert J. Kroning, P.E., Director
Department of Design and Construction

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii
REF: 2016/ELOG-490 (df)

Thank you for your correspondence of March 24, 2016, regarding the subject project. We acknowledge your comments as indicated below:

1. We apologize for the incorrect reference of Farrington Highway as Kamehameha Highway. The Final Environmental Assessment will include a correct reference of Farrington Highway.

2. The last sentence in Section 4.6 (City and County of Honolulu Public Infrastructure Map), will be revised to read *"The proposed project is not considered a major infrastructure project that would permit significant new development or redevelopment, therefore, is not required to be identified on the Waianae PIM."*

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

DEPARTMENT OF PARKS & RECREATION
CITY AND COUNTY OF HONOLULU
1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

16-645352

DEPT OF DESIGN & CONSTR
C & C OF HONOLULU
16 MAR -3 PM 3:13

KIRK CALDWELL
MAYOR

DDC
RECEIVED
MAR - 8 2016
CDD

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

February 29, 2016

MEMORANDUM

TO: Robert J. Kroning, P.E., Director
Department of Design and Construction

FROM: Michele K. Nekota
Director

SUBJECT: Draft Environment Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7—026, Waianae, Oahu, Hawaii

Thank you for the opportunity to review the Draft Environmental Assessment for the subject Auyong Homestead Road Improvements.

The Department of Parks and Recreation has no comment as the proposed project will have no impact on any of our programs and facilities. You may remove us as a consulted party for the balance of the EIS process.

Should you have any questions, please contact John Reid, Planner at 768-3017.

MNK:jr
(644027)

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650342

April 26, 2016

MEMORANDUM

TO: Michele K. Nekota, Director
Department of Parks and Recreation

FROM: FOR Robert J. Kroning, P.E., Director
Department of Design and Construction

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of February 29, 2016, regarding the subject project. We acknowledge that your department has no comments as the proposed project is not expected to impact any programs or facilities of the department. As requested, we will remove your department from our list of agencies to be consulted for the balance of the environmental assessment process.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP2/16-645260R

March 28, 2016

MEMORANDUM

TO: Robert J. Kroning, P.E., Director
Department of Design and Construction

ATTENTION: Edward Visaya, P.E.

FROM: Michael D. Formby, Director
Department of Transportation Services

SUBJECT: Draft Environmental Assessment, Auyong Homestead Road Improvements

This responds to a letter from Gray, Hong, Nojima and Associates, Inc., dated February 22, 2016, requesting our review and comments for the subject inquiry.

To the extent practicable, the design of the project should consider the City's Complete Streets ordinance and include possible features to encourage walking, bicycling or use of transit.

Thank you for the opportunity to review this matter. Should you have any questions, please contact Michael Murphy of my staff at 768-8359.

cc: Gavin Masaki, P.E., Gray, Hong, Nojima & Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650339

June 6, 2016

MEMORANDUM

TO: Michael D. Formby, Director
Department of Transportation Services

ATTN: Michael Murphy

FROM: Robert J. Kroning, P.E., Director
Department of Design and Construction

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii
REF: TP2/16-645260R

Thank you for your correspondence of March 28, 2016, regarding the subject project. We acknowledge that the design of the project should consider the City's Complete Streets ordinance and we will coordinate closely with the Department of Transportation Services for determining appropriate Complete Street features as well as support for community involvement activities.

As our schedule to advertise for construction bids is summer 2017, we would appreciate your Complete Streets planning assessment and conceptual design by the end of this year, so the project design can address them.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

MARIE A. McCAULEY
CARY OKIMOTO
DEPUTY CHIEFS

DDC RECEIVED MAR 1 2016

RECEIVED DDC-CIVIL DIVISION C & C OF HONOLULU '16 MAR -2 A8:58

CDD 16X644301

OUR REFERENCE MT-DK

March 1, 2016

16 MAR -2 AM 7:23

DEPT OF DESIGN & CONSTRUCTION C & C OF HONOLULU

MEMORANDUM

TO: Robert J. Kroning, P.E., Director
Department of Design and Construction

ATTENTION: Edward Visaya, P.E.

FROM: Louis M. Kealoha, Chief of Police

SUBJECT: Draft Environmental Assessment
Auyoung Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for the opportunity to comment on the subject project.

The Honolulu Police Department has reviewed the information provided and has concerns regarding the safe flow of vehicular traffic within the project area.

The project area will require a sufficient amount of traffic control devices (e.g., flag persons, clear signage, special duty officers, etc.) to be used for traffic management to ensure a safe means of ingress/egress for construction vehicles, motorists, or pedestrians in the vicinity.

If there are any questions, please call Major Kurt Kendro of District 8 (Kapolei) at 723-8403.

LOUIS M. KEALOHA
Chief of Police

By
MARK TSUYEMURA,
Management Analyst VI
Office of the Chief

cc: Mr. Gavin Masaki, P.E.
Gray, Hong, Nojima & Associates, Inc.

Serving and Protecting With Aloha

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650348

April 26, 2016

MEMORANDUM

TO: Louis M. Kealoha, Chief of Police
Honolulu Police Department

FOR

FROM: Robert J. Kroning, P.E., Director
Department of Design and Construction

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 1, 2016, regarding the subject project. We acknowledge the following comments that have been provided:

1. Honolulu Police Department (HPD) has concerns regarding the safe flow of vehicular traffic within the project site.

2. During construction of the project, the contractor shall implement traffic control devices (e.g., flagmen, clear signage, special duty officers, etc.) to be used for traffic management to provide a safe means of ingress/egress for construction vehicles, motorists, and pedestrians in the vicinity.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

SEVEN-ELEVEN HAWAII, INC.
7-ELEVEN Stores

March 23, 2016

Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Dear Sirs:

Reference is made to that letter dated February 22, 2016 regarding the Draft Environmental Assessment regarding that certain drainage improvements and roadway paving resurfacing to Auyong Homestead Road in Nanakuli between Farrington Highway and its bridge over the Ulehawa U-3 channel received from Sheryl E. Nojima, President of Gray Hong Nojima and Associates, Inc.

Seven-Eleven Hawaii, Inc (SEH) has reviewed the above and would like to provide the following comments:

1) We would like to be notified at least 45 days prior to the commencement of the project. Our tenant, gasoline partner, and vendors need time to schedule and coordinate their deliveries accordingly.
2) Are there any measures being taken to address and minimize disruption for customers and potential loss of business? e.g Continued convenient ingress/egress, for customers and consideration for no construction during high volume hours 5a-9a,.
3) We would like to receive assurance that if any existing utility lines currently feeding the property are either cut or are relocated, those same lines are immediately repaired or removed appropriately and not abandoned in place.

Please contact me via phone at 447-7204, or e-mail at ryan_fujitani@7-11.com if there are any further questions or concerns.

Sincerely,

SEVEN-ELEVEN HAWAII, INC.,
a Hawaii corporation

By_____
Ryan K. Fujitani
Real Estate Asset Manager

cc: Gray, Hong, Nojima, and Associates Inc. Attn: Gavin Masaki

1755 NUUANU AVE., 2ND FLOOR • HONOLULU, HI 96817-3293 • (808) 526-1711 • FAX: (808) 523-5890

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650336

April 29, 2016

Mr. Ryan Fujitani
Real Estate Asset Manager
7-Eleven Hawaii
1755 Nuuanu Ave, 2nd Floor
Honolulu, Hawaii 96817

Dear Mr. Fujitani:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 23, 2016, regarding the subject project. The following are offered in response to the comments provided:

1. The City and County of Honolulu typically requires that the contractor notify property owners, tenants, and businesses abutting the project site of the impending construction work at least 14 calendar days prior to commencing construction. Due to various scheduling issues, it may be difficult to increase the notification period to 45 calendar days; however, we will work with the contractor to provide as much advance notice as possible prior to commencement of construction.

2. Unfortunately the contractor will be restricted to a relatively limited window for construction during the day (8:30 a.m. to 3:30 p.m.); therefore, we cannot further restrict the work hours by delaying the start time to 9:00 a.m. However, the contractor will be required to provide safe pedestrian access through the project site and maintain access to the 7-Eleven driveway along Auyong Homestead Road for the duration of the proposed project. During nonworking hours, all lanes will be open to traffic.

3. It is not anticipated that any existing utility lines currently feeding into the 7-Eleven along Auyong Homestead Road will be affected. Should service be

interrupted due to construction activities, 7-Eleven Hawaii and the appropriate utility companies will be notified and service will be immediately restored.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

HAWAI'I GAS
THE CLEAN ENERGY COMPANY

March 21, 2016

Mr. Edward Visaya, PE
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Visaya:

Subject: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Please be advised that Hawaii Gas maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call Colin Chikamoto at 596-1430.

Sincerely,

Hawaii Gas

Keith K. Yamamoto
Manager, Engineering

KKY:krs

cc: Mr. Gavin Masaki, PE, Gray, Hong, Nojima & Associates, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650350

April 27, 2016

Mr. Keith K. Yamamoto
Manager, Engineering
Hawaii Gas
P.O. Box 3000
Honolulu, Hawaii 96802-3000

Attention: Colin Chikamoto

Dear Mr. Yamamoto:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 21 2016, regarding the subject project. We acknowledge that based on your review of the information provided, Hawaii Gas maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area. We will keep your office apprised of any project developments during the planning and design phases to minimize any potential conflicts with the existing gas facilities in the project area.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

BA/G

March 22, 2016

Mr. Edward Visaya, PE
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

Record Copy

Dear Mr. Visaya:

Subject: Auyong Homestead Road Improvements

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company would like to note that the proposed project area may impact HECO's existing facilities where we have appropriate land rights. Should our facilities need to be relocated, similar land rights will need to be provided for HECO's impacted facilities. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.

We appreciate your efforts to keep us apprised of the subject project in the planning process. As the Auyong Homestead Road Improvement project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245

Sincerely,

for RL

Rouen Q.W. Liu
Permits Engineer

RL:kmk

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650338

April 26, 2016

Mr. Rouen Q. W. Liu
Permits Engineer
Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96740

Dear Mr. Liu:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 22 2016, regarding the subject project. The following are offered in response to the comments provided:

1. We acknowledge that the proposed project may impact existing Hawaiian Electric Company's (HECO) facilities where it has appropriate land rights. Should HECO's facilities need to be relocated, the City will provide similar land rights.

2. We acknowledge that should HECO have existing easements and facilities on the subject property, provisions will be made for access during construction.

3. HECO will be consulted during the design phase to avoid potential conflicts and impacts to any of your system facilities.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR

Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

Hawaiian Telcom

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DDC-CIVIL DIVISION
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March 24, 2016

DDC
RECEIVED
MAR 29 2016
CDD

16X647744

Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813
Attention: Mr. Edward Visaya, P.E.

Dear Mr. Visaya:

Subject: **Draft Environmental Assessment**
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the subject project.

Hawaiian Telcom does not have any comments to offer at this time.

If you have any questions or require assistance in the future on this project, please call me at 546-7761.

Sincerely,

Les Loo
Network Engineer – OSP Engineering
Network Engineering & Planning

cc: G. Masaki – Gray, Hong, Nojima & Associates
File [Nanakuli]

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
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KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

CDD-A 16-650344

April 27, 2016

Mr. Les Loo
Network Engineer – OSP Engineering
Network Engineering and Planning
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Loo:

SUBJECT: Draft Environmental Assessment
Auyong Homestead Road Improvements
TMK: (1) 8-7-026, Waianae, Oahu, Hawaii

Thank you for your correspondence of March 24, 2016, regarding the subject project. We acknowledge that based on your review of the document provided, Hawaiian Telcom does not have any comments to offer at this time.

Should there be any questions or comments in the future, please contact Edward Visaya, Civil Division, at 768-8807 or email at evisaya@honolulu.gov. Again, thank you for your participation in the environmental review process.

Very truly yours,

FOR
Robert J. Kroning, P.E.
Director

EV:DT:pto

cc: Sheryl Nojima, Gray Hong Nojima and Associates, Inc.

APPENDIX C

Water Quality and Biological Surveys for the Auyong Homestead Road Improvements Project in Nanakuli, O'ahu,

AECOS No. 1441

Water quality and biological surveys for the Auyong Homestead Road Improvements Project in Nānākuli, Oʻahu

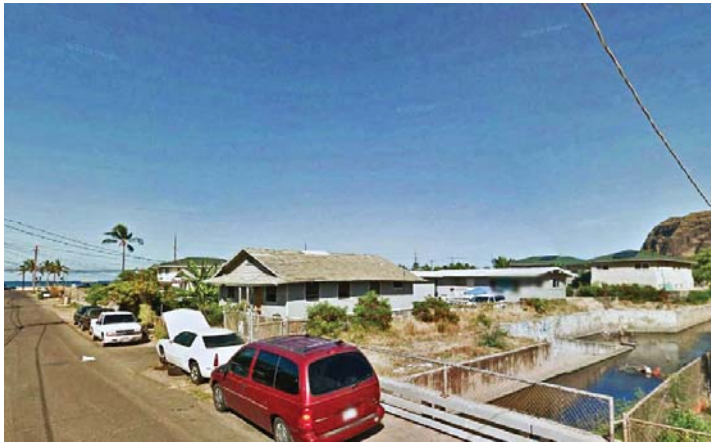

Photo credit: Google © 2015

Prepared by:

AECOS, Inc.
45-939 Kamehameha Hwy, Suite 104
Kāneʻohe, Hawaiʻi 96744-3221

October 26, 2015

Water quality and biological surveys for the Auyong Homestead Road Improvements Project in Nānākuli, Oʻahu

October 26, 2015 *AECOS* No. 1441

Chad Linebaugh
AECOS, Inc.
45-939 Kamehameha Hwy, Suite 104
Kāne'ohe , Hawai'i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: aecos@aecos.com

Introduction

The City and County of Honolulu (C&C), is planning to construct a 12-inch drain beneath Auyong Homestead Road that will discharge into the Ulehawa U-3 concrete channel (herein U-3 channel), a man-made tributary to Ulehawa Stream. In addition C&C will be resurfacing the asphalt pavement of the roadway. The Project is proposed to improve the roadway surface and to alleviate flooding along Auyong Homestead Road between the channel and nearby Farrington Highway. *AECOS*, Inc. was contracted to conduct environmental surveys to support permitting for the Project[1]. Our surveys were undertaken on June 10, 2015 and included measuring water quality, assessing aquatic biota in the waterbody, and surveying terrestrial flora and fauna at the Project site. This report details findings of those surveys.

Ulehawa Stream originates near Palikea on the leeward slopes of the Waianae Mountains at an elevation of 2800 ft (850 m) and flows a distance of 4.7 mi (7.6 km) before reaching its coastal estuary near Ulehawa Beach Park along Oʻahu's west shore. The Hawaii Stream Assessment (Hawaii Cooperative Park Service Unit, 1990) classifies Ulehawa Stream (identification code 3-5-002) as a continuously flowing, perennial stream. In the Lualualei Homesteads area, drainage channels discharge into the stream from the north and south comprising the only tributaries to Ulehawa Stream (Figure 2).

[1] Report prepared for Gray, Hong, Nojima & Associates for environmental entitlements. This report will become part of the public record for the Project.

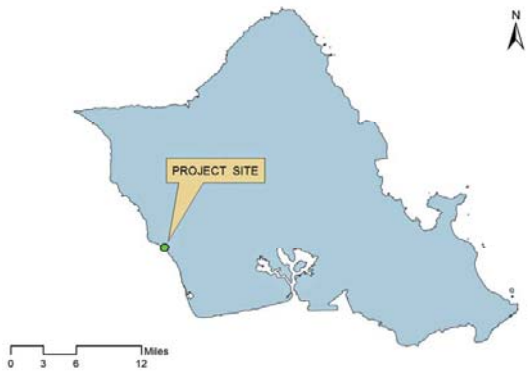

Figure 1. General location of Project area in western O'ahu.

Figure 2. General location of Project area in the Ulehawa watershed.

Methods

Water Quality

Field measurements of temperature, salinity, pH, and dissolved oxygen were taken and water samples for analysis of salinity by salinometer, turbidity, total suspended solids (TSS), ammonia, nitrate+nitrite, total nitrogen, total phosphorus, and chlorophyll α were collected from the Project site and vicinity on June 10, 2015 (Figure 3).

Figure 3. Locations of three water quality stations sampled on June 10, 2015.

Sampling stations were located where the proposed drain would enter into the U-3 channel at the Project site (Sta. Auyong), upstream in the U-3 channel at Lualualei Naval Rd. (Sta. LNR), and in the estuary of Ulehawa Stream, just downstream from the U-3 channel discharge point (Sta. Ulehawa).

Samples at stations Auyong and LNR were collected using a horizontally oriented Niskin-type sampler, while Sta. Ulehawa samples were collected by

Figure 4. Water in U-3 channel at Sta. Auyong (Project site, above) and Sta. LNR (below).

inserting sample bottles directly into the stream. All samples were collected from just below the water surface between 0920 and 1050 during an incoming tide (predicted low tide +0'2" at 0528 hrs and high tide of +1'4" at 1228 hrs; NOAA, 2015). At the time of sampling, water in the channel appeared green and turbid at Stas. Auyong and LNR (Figure 4, above). Stream water at Sta. Ulehawa appeared slightly turbid and brown in color.

Table 1. Analytical methods and instruments used for water quality analyses in Ulehawa Stream.

Analysis	Method	Reference	Instrument
Temperature	SM 2550 B	SM (1998)	YSI Model 550A DO meter thermistor
Salinity(field)	SM 2510-B	SM (1998)	Reichert refractometer
pH	SM 4500 H+	SM (1998)	pHep HANNA meter
Dissolved Oxygen	SM 4500-O G	SM (1998)	YSI Model 550A DO meter
Salinity (salinometer)	SM 2510-B	SM (1998)	AGE Model 2100 salinometer
Turbidity	USEPA 180.1 Rev 2.0	EPA (1993)	HACH 2100Q Turbidimeter
Total Suspended Solids	Method 2540 D	SM (1998)	Mettler Toledo H31 analytical balance
Ammonia	Kerouel &Aminot	Kerouel & Aminot (1997)	Seal AA3 Autoanalyzer, colorimetric
Nitrate + Nitrite	Grasshoff	Grasshoff et al (1983)	Seal AA3 Autoanalyzer, colorimetric
Total Nitrogen	Grasshoff 9.6.3	Grasshoff et al (1983)	Seal AA3 Autoanalyzer, UV
Total Phosphorus	Grasshoff 9.1.5	Grasshoff et al (1983)	Seal AA3 Autoanalyzer, UV
Chlorophyll *a*	SM 10200-H	SM (1998)	Turner Fluorometer

Samples, collected in appropriate bottles, were stored on ice for transport to the *AECOS*, Inc. laboratory (Log No. 31043). Analytical methods and instruments used for all parameters are listed in Table 1.

Botanical Survey

A survey of plants growing in the Project area was undertaken by traversing the Auyong Homestead Road work area on foot. Plants were identified in the field; those not immediately identifiable were photographed and/or a part collected for identification in the laboratory. Plant names follow *Manual of the Flowering Plants of Hawai'i* (Wagner, Herbst, & Sohmer, 1999) for native and naturalized flowering plants and *A Tropical Garden Flora* (Staples & Herbst, 2005) for crop and ornamental plants. Some plant names have been updated as presented in various published papers as summarized by Imada (2012).

Aquatic Biota

Biologists made visual observations of aquatic organisms by walking along the U-3 channel banks in the Project area and Ulehawa Stream channel. Less than ideal conditions were encountered, with turbid green water present throughout the surveyed reaches of the U-3 channel. The waters of Ulehawa Stream had underwater visibility of three to four feet. Dip nets were utilized to confirm the identification of species observed and to reach deeper parts of the stream channel. As the survey progressed, notes were made on relative abundances (e.g., rare, common, abundant) of each species observed. Nomenclature and identifications follow *Hawai'i's Native and Exotic Freshwater Animals* (Yamamoto and Tagawa, 2000) and *Hawai'i's Sea Creatures: A Guide to Hawai'i's Marine Invertebrates* (Hoover, 2006).

Avian Survey

A bird survey included a single, stationary point-count at which all birds observed during an 8-minute period were recorded. The station was located at the Auyong Homestead Rd. bridge over the U-3 channel. No bird species additional to the point-count results were observed in the area. Species identifications were verified with *A Photographic Guide to the Birds of Hawaii: the Main Islands and Offshore Waters* (Denny, 2010). Taxonomy follows the Checklist of North and Middle American Birds by American Ornithologists' Union (AOU, 2014).

Terrestrial Mammal Survey

A list of mammal species observed in the Project area was noted as biologists conducted the water quality, aquatic biota, and avian surveys. Visual observation for tracks, scat or other signs of mammalian usage in the Project area was undertaken concurrently with other environmental surveys. Nomenclature and identification of mammals follows *Mammals in Hawai'i* (Tomich, 1986).

Survey Results

Water Quality

Field salinity readings confirmed the Project is located in the estuarine reach of the Ulehawa Stream system (salinities were that of seawater). Channel water at the Project is saline and subject to tidal influence. Water quality in the channel is poor: the water has depressed dissolved oxygen (DO) and is laden with sediment and nutrients. Chlorophyll concentrations are very high, producing the greenish water observed during sampling (Fig. 4). Similar water quality conditions prevail in the channel where crossed by Lualualei Naval Road (Sta. LNR). Conditions are generally better in the main channel of Ulehawa Stream (Sta. Ulehawa), though the often stagnant waters at this location are far from pristine. Analytical results for all measured parameters are presented in Table 2.

Vegetation

The survey area included the roadside of Auyong Homestead Rd. up to the fenced or walled property borders along both sides of the road. The survey extended from Farrington Hwy to the U-3 channel and included easements on both sides of the channel, though recent herbicide application alongside the channel limited the amount of plant life encountered there. Vegetation throughout the survey area is limited to ruderal weeds with a few common ornamental species. Many places along the road are gravel or bare ground devoid of any vegetation.

Flora

A listing of all vascular plants observed in the survey area is presented as Table 3. In total, 29 flowering plants (no ferns or conifers) were recorded. Of these 29 species, two species (7%) are cultivated or ornamental plants, one (3%)

Table 2. Results of water quality field measurements and laboratory analyses.

Station	Time	Temp.	Salinity (field)	Salinity by salinometer	Dissolved Oxygen	DO % sat	pH
	hhmm	(°C)	(psu)	(psu)	(mg/l)	(%)	(su)
Sta. Auyong	0920	26.1	35.4	34.2983	2.46	37	7.54
Sta. LNR	0955	27.5	34.0	33.0565	4.47	68	7.71
Sta. Ulehawa	1050	27.0	37.1	35.1024	6.55	101	8.27

Station	Turbidity	TSS	NH_3	NO_3+NO_2	Total N	Total P	Chl *a*
	(ntu)	(mg/l)	(µg N/l)	(µg N/l)	(µg N/l)	(µg P/l)	(µg/l)
Sta. Auyong	22.7	59	228	19	3010	392	36.6
Sta. LNR	18.6	56	481	13	2920	531	35.9
Sta. Ulehawa	5.37	13	21	4	295	33	5.55

is native in the Hawaiian Islands (*Heliotropium curassavicum*, indigenous; no endemic plants were observed) and the remaining 26 species (90%) are introduced or naturalized plants. No early Polynesian introductions (so-called "canoe plants") are present.

The bulk of plants growing on the verge of Auyong Homestead Rd. in the Project site comprise: *Sida ciliaris*, Bermuda grass (*Cynodon dactylon*), pigweed (*Portulaca oleracea*), *Calyptocarpus vialis*, and swollen fingergrass (*Chloris barbata*). Clumps of buffelgrass (*Cenchrus ciliaris*) and wire grass (*Elusine indica*) grow in cracks in driveways, the road, and the easements on both sides of the U-3 channel. A few *koa haole* (*Leucaena leucocephala*) saplings and Guinea grass (*Urochloa maxima*) grow through the fence lining the undeveloped property at the corner of Auyong homestead Rd. and Farrington Hwy. The fence also supports the vine, *Ipomoea obscura*. Ornamental plantings of bougainvillea (*Bougainvillea spectablis*) and snowbush (*Breynia disticha*) grow along fences fronting residences along the road.

Table 3. Checklist of plants found in the Project area.

Family *Genus species*	Common name	Status	Abundance
FLOWERING PLANTS DICOTYLEDONS			
ACANTHACEAE			
Asystasia gangetica (L.) T. Anderson	Chinese violet	Nat	R
AMARANTHACEAE			
Alternanthera pungens Kunth	khaki weed	Nat	O
ASTERACEAE (COMPOSITAE)			
Calyptocarpus vialis Less.	---	Nat	C
Parthenium hysterophorus L.	false ragweed	Nat	R
Tridax procumbans L.	coat buttons	Nat	O
BORAGINACEAE			
Heliotropium curassavicum L.	*kīpūkai;* seaside heliotrope	**Ind**	U
CONVOLVULACEAE			
Ipomoea obscura (L.) Ker-Gawl.	---	Nat	O
CUCURBITACEAE			
Coccinia grandis (L.) Voigt	scarlet-fruited gourd	Nat	R
EUPHORBIACEAE			
Breynia disticha J.R.Forst. & G.Forst	snowbush	Orn	R
Euphorbia albomarginata Torr. & A.Gray	rattlesnake plant	Nat	R
Euphorbia hirta L.	garden spurge	Nat	O
FABACEAE			
Desmanthus pernambucanus (L.) Thellung	virgate mimosa	Nat	O
Indigofera spicata Forssk.	creeping indigo	Nat	O
Leucaena leucocephala (Lam.) deWit	*koa haole*	Nat	O
MALVACEAE			
Malvastrum coromandelianum coromandelianum (L.) Garcke	false mallow	Nat	R
Sida ciliaris L.	---	Nat	C
NYCTAGINACEAE			
Boerhavia coccinea Mill.	false *alena*	Nat	O
Bougainvillea spectabilis Wild.	bougainvillea	Orn	R
PORTULACACEAE			
Portulaca oleracea L.	pigweed	Nat	O

Table 3 (continued).

Family *Genus species*	Common name	Status	Abundance
MONOCOTYLEDONS			
CYPERACEAE			
Cyperus rotundus L.	nut grass	Nat	R
Kyllinga brevifolia Rottb.	*kili'o'opu*; green kyllinga	Nat	R
POACEAE (GRAMINEAE)			
Cenchrus ciliaris L	buffelgrass	Nat	O
Chloris barbata (L.) Sw.	swollen fingergrass	Nat	C
Cynodon dactylon (L.) Pers.	Bermuda grass	Nat	C
Dactyloctenium aegyptium (L.) Willd.	beach wiregrass	Nat	R
Eleusine indica (L.) Gaertn.	wiregrass	Nat	O
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat	U
Urochloa maxima (Jacq.) Webster	Guinea grass	Nat	O
ZINGIBERACEAE			
Hedychium flavescens Carey ex Roscoe	yellow ginger	Nat	R

LEGEND TO TABLE 3

Status = distributional status
- **Ind** = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
- Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
- Orn = exotic, ornamental; species planted and maintained, not naturalized,
- **Pol** = Polynesian introduction before 1778.

Abundance = occurrence ratings for plants
- R – Rare - only one or two plants seen.
- U - Uncommon - several to five plants observed.
- O - Occasional - found between five and ten times; not abundant anywhere.
- C - Common - considered an important part of the vegetation and observed numerous times.
- A - Abundant - found in large numbers; may be locally dominant.
- AA - Abundant - abundant and dominant; defining vegetation type.

Aquatic Biota

Table 4 includes a listing of aquatic animals identified by *AECOS* biologists on June 10, 2015 in the U-3 channel and in Ulehawa Stream in vicinity of the Project. Results from a previous biotic surveys conducted in the Ulehawa Stream estuary (Englund et al; 2000) are included in our table as the potential exists for migration of biota from Ulehawa Stream to the Project site.

Table 4. List of aquatic species observed in the survey area. Note: abundance codes are only presented for species observed in the vicinity of the project site during the June 2015 survey.

PHYLUM, CLASS, ORDER FAMILY *Genus species*	Common name	Abundance	Status	ID Code
INVERTEBRATES				
CNIDARIA, SCYPHOZOA RHIZOSTOMEAE CASSIOPEIDAE				
Cassiopea medusa Light	upside-down jellyfish	--	Nat	2
MOLLUSCA,GASTROPODA NEOTAENIOGLOSSA THIARIDAE				
Tarebia granifera Lamarck	quilted melania	C	Nat	1
MOLLUSCA,BIVALVIA OSTREOIDA OSTREIDAE				
unid.	indet. oyster	R	--	1
ARTHROPODA,INSECTA ODONATA LIBELLULIDAE				
Crocothemis servilia Drury	scarlet skimmer	R	Nat	1
ARTHROPODA, MAXILIPODA SESSILIA BALANIDAE				
Amphibalanus eburneus Gould	---	R	Nat	1
ARTHROPODA, MALACOSTRACA, DECOPODA GRAPSIDE				
Metopograpsus thukuhar Owen	*'alamihi, kūkūau*; purple-clawed shore crab	R	Nat	1,2
PALAEMONIDAE				
Palaemon debilis Dana	*'ōpae huna* feeble shrimp	--	Ind	2
Periclimenes cf. *grandis* Stimpson	---	--	Ind	2

Table 4 (continued).

PHYLUM, CLASS, ORDER FAMILY *Genus species*	Common name	Abundance	Status	ID Code
PORTUNIDAE				
Thalamita crenata Latreille	crenate swimming crab	--	Ind	2
	FISHES			
CHORDATA, ACTINOPTERYGII				
ACANTHURIDAE				
Acanthurus triostegus sandvicensis Streets	*manini*; convict tang	--	End	2
CICHLIDAE				
Sarotheron melanotheron Rüppell	blackchin tilapia	A	Nat	1,2
ELEOTRIDAE				
Eleotris sandwicensis Vaillant&Sauvage	*ʻoʻopu akupa*	--	**End**	2
GOBIIDAE				
Bathygobius cocosensis Bleeker	*ʻoʻopu ōhune;* Cocos frillgoby	--	**Ind**	2
KUHLIIDAE				
Kuhlia sandvicensis Steindachner	*ʻāholehole* zebra head flagtail	--	**Ind**	2
Kuhlia xenura Jordan and Gilbert	*ʻāholehole* Hwn. flagtail	O	**End**	1
MUGILIDAE				
Mugil cephalus Linnaeus	*ʻamaʻama* striped mullet	C	**Ind**	1,2
POECIILIDAE				
Gambusia affinis Baird	mosquitofish	--	Nat	2
Poecilia sp.	indet. molly	C	Nat	1
Poecilia mexicana Steindachner	Mexican molly	--	Nat	2

LEGEND TO TABLE 4

Abundance categories:
- R – Rare – only one or two individuals observed.
- U – Uncommon – several to a dozen individuals observed.
- O – Occasional – seen irregularly in small numbers
- C – Common -observed everywhere, although generally not in large numbers.
- A – Abundant – observed in large numbers and widely distributed.

Status categories:
- **End** – Endemic – species found only in Hawaii
- **Ind** – Indigenous – species found in Hawaii and elsewhere
- Nat – Naturalized – species were introduced to Hawaii intentionally, or accidentally.

Table 4 (continued).

Location codes:
- 1 – observed by *AECOS*, Inc in U-3 channel or Ulehawa Stream on June 10, 2015
- 2 – reported in Ulehawa estuary (Englund et al, 2000)

Schools of blackchin tilapia (*Sartherodon melanotheron*) and mollies (*Poecilia* hybrids and indeterminate juveniles) are abundant throughout the channel. The quilted melania (*Tarebia granifera*) is conspicuous, attached to debris and rubbish in the waterway. Small schools of mullet (*Mugil cephalus*) and *ʻāholehole* (*Kuhlia xenura*) are encountered occasionally in the channel and in Ulehawa Stream. A few *ʻalamihi* (*Metopograpsus thukuhar*) are present along banks of the channel and stream. Both the channel and the stream banks host *Amphibalanus eburneus*, a barnacle that can tolerate a broad range of salinity.

The channel at the Project site may serve in some capacity as passageway for native amphidromous animals, though none were observed during the survey. The endemic *ʻoʻopu akupa* (*Eleotris sandvicensis*) is reported from the Ulehawa Stream estuary. This species resides in brackish waterways and does not migrate further upstream like other native biota (e.g., *ʻoʻopu nakea* or *Awaous guamensis* and *ōpae kalaʻole* or *Atyoida bisulcata*). These latter species, if present in the Ulehawa Stream system, would migrate upstream as juveniles, seeking suitable habitat. Eggs and larvae would move downstream to develop in the ocean. However, habitat upstream from the Project site is very poor and unlikely to be suitable for native species.

Avian Survey

During the eight minute, stationary point-count, 67 individual birds of ten species representing eight families were observed. House Finch (*Haemorhous mexicanus*) is sighted consistently, with both individuals and small flocks present in the channel easement, on houses in close proximity to the Project site and on power lines running above Auyong Homestead Rd. Common Mynas (*Acriotheres tristis*) and Zebra Dove (*Geopelia striata*) are numerous as well, in fact, House Finch and Common Myna and Zebra Dove accounted for over three-quarters (76%) of the birds observed during the stationary point-count. Spotted Dove (*Streptopelia chinensis*) and Red-vented Bulbul (*Pycnonotus cafer*) utilize the channel easement and nearby residential lots. A single Red Junglefowl (*Gallus gallus*) was heard but not sighted during the point-count. This species is believed to have been an early Polynesian introduction to the Islands. Table 5 list all birds observed during the June 2015 survey.

Table 5. List of birds observed at the Project site.

PHYLUM, CLASS, ORDER, FAMILY *Genus species*	Common name	Status	SPC Abundance
CHORDATA, AVES	BIRDS		
COLOMBIFORMES			
COLUMBIDAE			
Geopelia striata Linnaeus	Zebra Dove	Nat	12
Streptopelia chinensis Scopoli	Spotted Dove	Nat	4
GALLIFORMES			
PHASIANIDAE			
Gallus gallus Linnaeus	Red Junglefowl; *moa*	Pol	1 AD
PASSERIFORMES			
FRINGILLIDAE			
Haemorhous mexicanus Statius Muller	House Finch	Nat	28
PASSERIDAE			
Passer domesticus Linnaeus	House Sparrow	Nat	2
PYCNONOTIDAE			
Pycnonotus cafer Linnaeus	Red-vented Bulbul	Nat	5
Pycnonotus jocosus Linnaeus	Red-whiskered Bulbul	Nat	1
STURNIDAE			
Acridotheres tristis Linnaeus	Common Myna	Nat	11
THRAUPIDAE			
Paroaria coronata J.F. Miller	Red-crested Cardinal	Nat	2
PELECANIFORMES			
ARDEIDAE			
Bubulcus ibis Linnaeus	Cattle Egret	Nat	1

LEGEND TO TABLE 5

Abundance categories:
- R – Rare – only one or two individuals observed.
- U – Uncommon – several to a dozen individuals observed.
- O – Occasional – seen irregularly in small numbers
- C – Common -observed everywhere, although generally not in large numbers.
- A – Abundant – observed in large numbers and widely distributed.

Table 5 (continued).

Status categories:
- **End** – Endemic – species found only in Hawaii
- **Ind** – Indigenous – species found in Hawaii and elsewhere
- Nat – Naturalized – species were introduced to Hawaii intentionally, or accidentally.

AD - auditory detection only, species not sighted

Terrestrial Mammals

No mammals were observed during the survey. Scat from a domestic dog (*Canis f. familiaris*) was observed along the verge of Auyong Homestead Rd. It is certainly possible that House cat (*Felis catus*), Small Indian mongoose (*Herpestes a. auropunctatus*), and one or all of the four naturalized rodents (Family Muridae) in the Hawaiian Islands utilizes the Project area, though no tracks, scat or other evidence was sighted.

Assessments

Water Quality

At the Project site, the U-3 channel is classified as a Class 2, estuary in the Hawai'i water quality standards (HDOH, 2014a). Beneficial uses of Class 2 waters are designated as follows:

> *"The objective of class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping and navigation. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation on and in these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. No new treated sewage discharges shall be permitted within estuaries".*

Specific water quality criteria have been promulgated that, if met, are designed to allow the water bodies to achieve the designated beneficial uses. Criteria for all estuaries except Pearl Harbor are presented in Table 6 (HDOH, 2014a).

Ulehawa Stream does not appear on the Department of Health list of impaired waters in Hawai'i (HDOH, 2014b) prepared under Clean Water Act, §303(d). A listing would indicate the water body may not meet State of Hawai'i water

quality criteria for streams, estuaries, embayments or coastal waters. In general, water quality at all three of the stations sampled can be described as poor. However, single samples cannot be used to determine compliance with many of the water quality criteria laid out in Table 6, which require calculating a geometric mean or establishing a frequency of occurrence based on multiple samples collected over time at each station.

Table 6. State of Hawai'i water quality criteria for estuaries from HAR §11-54-05.2(b) (HDOH, 2014a).

Parameter	Total Nitrogen (µg N/l)	Ammonia (µg N/l)	Nitrate + Nitrite (µg N/l)	Total Phosphorus (µg P/l)	Turbidity (NTU)	Chl. (mg/l)
Geometric mean not to exceed given value	200.0	6.0	8.0	25.0	1.5	2.0
Not to exceed more than 10% of the time	350.0	10.0	25.0	50.0	3.0	5.00
Not to exceed more than 2% of the time	500.0	20.0	35.0	75.0	5.0	10.0

pH – shall not deviate more than 0.5 units from ambient and shall not be < 7.0 nor > 8.6.
Dissolved oxygen – not less than 75% saturation.
Temperature – shall not vary more than 1 °C from ambient.
Salinity – not more than 10% from ambient conditions.

During the June 10 water quality sampling event, ammonia, total nitrogen and total phosphorus concentrations in the U-3 channel, as measured at stations Auyong and LNR, were an order of magnitude greater than the geometric mean not-to-be-exceed criteria for these substances. Turbidity in the U-3 channel was similarly elevated with respect to not-to-exceed criteria. Nutrient concentrations and turbidity levels in Ulehawa Stream channel (Sta. Ulehawa) were only slightly elevated with respect to state standards during the June 10 sampling event. Further, the dumping of household garbage into the channel has been documented at the Project site (KHON2, 2012) and copious amounts of solid waste are present upstream from the Project site (Fig. 4, Sta. LNR).

Given the small additional area of watershed (5 ac added to 180 ac for the U-3 channel) being drained by the new structure, a measurable impact on water

quality is not anticipated to be a result of the Project. There is no reason to suspect that the quality of the runoff being added will be any different from that already contributed from the urban environment surrounding the U-3 channel.

Botanical Resources

Of the plant species present, 90% are non-native species naturalized on the Island of O'ahu. Ornamental plants comprise another 7%. *Kīpūkai* or seaside heliotrope is the only indigenous plant observed. This species is common in coastal assemblages throughout the main Hawaiian Islands. Thus, no botanical resources of interest or potential concern from a conservation perspective—such as rare endemics or special trees (protected by County ordnance)—are present in the Project area. No plant species protected by State of Hawai'i Administrative Rules (HDLNR, 2007, 2015) or federal endangered species regulations (USFWS, 2008, 2014) occur in the Project area.

Aquatic Resources

Native amphidromous organisms may migrate through the Project area. Native stream macrofauna are diadromous: eggs are laid in the stream and the larvae that hatch from these eggs move down stream and out into the ocean where they develop for a time before migrating back into fresh water to grow to maturity (Ford and Kinzie, 1982; Kinzie, 1988). No native stream *'o'opu* or *'ōpae* were observed during the survey and habitat upstream from the Project is degraded and not conducive to their recruitment. Construction BMPs developed to prevent degradation of the water quality in the channel will protect any native and non-native aquatic biota present in the Project aquatic environments. The Project as currently planned is not anticipated to have any negative impacts on native stream biota.

No aquatic species protected by State of Hawai'i Administrative Rules (HDLNR, 2007, 2015) or federal endangered species regulations (USFWS, 2008, 2014) occur in Ulehawa Stream or the U-3 channel.

Avian Resources

Naturalized, urban dwelling birds comprise the bulk of species encountered in the Project vicinity. No species protected by state or federal regulations are present. The Project is not expected to adversely impact avian resources extant in the Project vicinity.

Terrestrial Mammals

No mammalian species currently protected or proposed for protection under either the federal or State of Hawaiʻi endangered species programs were detected during the course of this survey (DLNR, 2015; USFWS; 2008, 2014). Hawaiian hoary bat or *ʻōpeʻapeʻa* (*Lasiurus cinereus semotus*) was not detected during the course of this survey. Bats are rarely observed in coastal Oʻahu and there is no suitable habitat at the Project site due to the absence of tree cover, and hence roosting sites.

Critical Habitat/Jurisdictional Waters

There is no federally designated Critical Habitat for any plant or animal species currently protected under the Endangered Species Act of 1973, as amended, within the Project site (USFWS, 2015). There is no equivalent statute under state law.

The U-3 channel is likely a jurisdictional waterway (a determination is made by the U.S. Army Corps of Engineers) since it is contiguous with Ulehawa Stream which is perennial and discharges into the Pacific Ocean. Under federal law, working in jurisdictional waters requires a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. The boundary of jurisdiction within the estuary would be the mean higher high water (MHHW) elevation on the shore. If the Project does not include work below the MHHW a Section 404 permit would not be required.

Recommendations

No or minimal direct or indirect impacts to area natural resources can be anticipated from this Project involving repaving and drainage improvements within an urban neighborhood. Possibly, during heavy rains, the new drain will contribute to a slight increase in outflow volume from Ulehawa Stream mouth. As the outflow area is presently bathed in sea water (an estuary), but periodically flushed with freshwater runoff, the impact of the added volume would be immeasurable given the small area of watershed to be served by this new drain (area run-off presumably already reaches the drainage channel as sheet flow or floodwater overflow). Standard best management practices (BMPs) should be applied during construction to prevent material from leaving the job site and entering the stream system. Use of construction BMPs is all that can be done to prevent further decline in the already poor water quality in the U-3 channel.

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APPENDIX D

Draft Archaeological Monitoring Plan for the Auyong Homestead Road Improvements Project, Lualualei Ahupua'a, Wai'anae District, Island of O'ahu TMK (1) 8-7-026:002-023

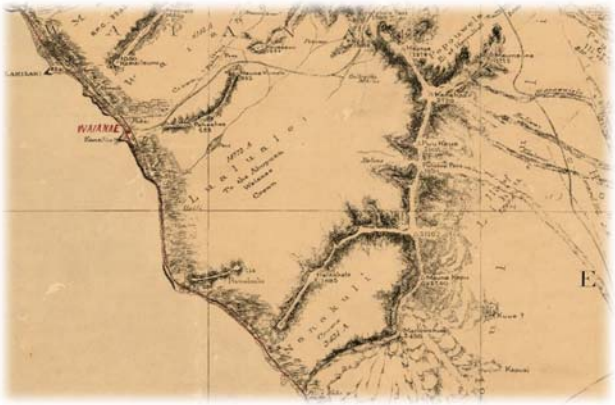
Pacific Legacy

Historic Preservation

DRAFT

ARCHAEOLOGICAL MONITORING PLAN FOR THE AUYONG HOMESTEAD ROAD IMPROVEMENTS PROJECT, LUALUALEI AHUPUA‘A, WAI‘ANAE DISTRICT, ISLAND OF O‘AHU

[TMK (1) 8-7-026:002-023]



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ARCHAEOLOGICAL MONITORING PLAN FOR THE AUYONG HOMESTEAD ROAD IMPROVEMENTS PROJECT, LUALUALEI AHUPUA‘A, WAI‘ANAE DISTRICT, ISLAND OF O‘AHU

[TMK (1) 8-7-026:002-023]

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Frontispiece: Lualualei portion of C. J. Lyons' 1881 Hawaiian Government Survey map of O'ahu.

1.0 INTRODUCTION

Pacific Legacy, under contract Gray Hong Nojima & Associates, Inc., has prepared this Archaeological Monitoring Plan (AMP) for the proposed Auyong Homestead Road Improvements Project in Lualualei Ahupuaʻa, Waiʻanae District, Island of O'ahu. The subject study area is situated on approximately 2 acres of land within *ko kaha kai* (Lit. locality by the sea, Pukui and Elbert (1986:213) portion of Lualualei *Ahupuaʻa* [TMK (1) 8-7-026:002-023] (Figure 1). The project area in question is owned by the City and County of Honolulu. The project consists of constructing a drain inlet and an underground drainage system that will convey runoff into Ulehawa U-3 Channel. The channel then discharges to Ulehawa Beach Park. (Figures 1-3). The entire pavement width of Auyong Homestead Road between Farrington Highway and the bridge will also be repaved as part of the project.

To ensure that the proposed construction activities do not adversely affect any possible subsurface cultural deposits or features, Pacific Legacy has prepared this AMP for the project. This AMP has been designed to satisfy the cultural resource management requirements of the Department of Land and Natural Resources as promulgated in Hawaiʻi Administrative Rules (HAR) §13-279: Rules Governing Standards for Archaeological Monitoring Studies and Reports). It recommends that appropriate interim protection measures to be undertaken during construction, including the requirements for archaeological monitoring.

1.1 Statutory Requirements

HAR §13-279-4 specifies the components to be included within an Archaeological Monitoring Plan. It also indicates that the completed AMP will need to be reviewed and approved by the Hawaiʻi State Historic Preservation Division prior to the implementation of the Plan and the initiation of any ground disturbing activities related to the specific project. HAR §13-279-4 states that:

(a) Archaeological monitoring shall be based on a written plan, which specifies:

(1) What kinds of archaeological remains or historic properties are anticipated;
(2) Where in the construction area these properties are likely to be found;
(3) Needed fieldwork, which may include, but not be limited to, profile documentation of cultural layers' stratigraphy, drawings, photographs, excavation of exposed features;
(4) A provision that the archaeologist conducting the monitoring has the authority to halt construction in the immediate area of a find, in order to carry-out the plan. Construction can shift to other areas in such a case;
(5) A coordination meeting with the construction team and archaeologist, so the construction team is aware of the plan;
(6) Any laboratory work expected to be done;
(7) Report preparation; and
(8) Archiving of the collections.

(b) This plan shall be reviewed and approved by the SHPD prior to the monitoring project, pursuant to chapters 13-275 and 13-284.

Figure 1. USGS Topographical Map showing location of Project Area.

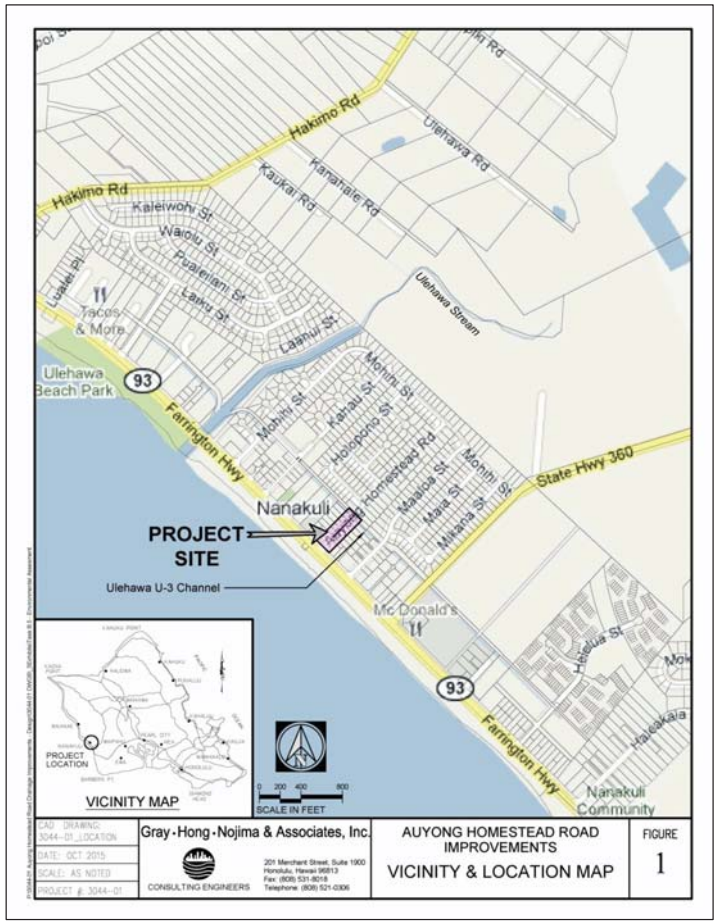

Figure 2. Project location map (courtesy of Gray, Hong, Nojima, & Associates, Inc.).

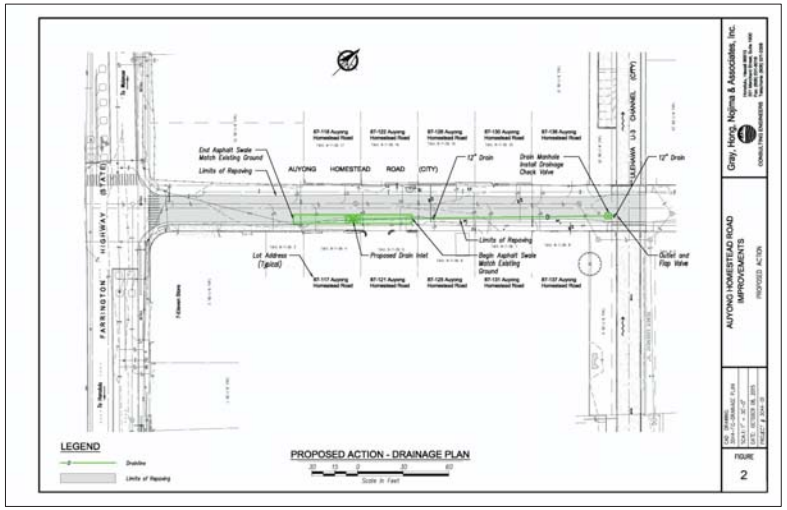

Figure 3. Construction Plan for the Auyong Homestead Road Improvements Project (courtesy of Gray, Hong, Nojima, & Associates, Inc. October 8th, 2015).

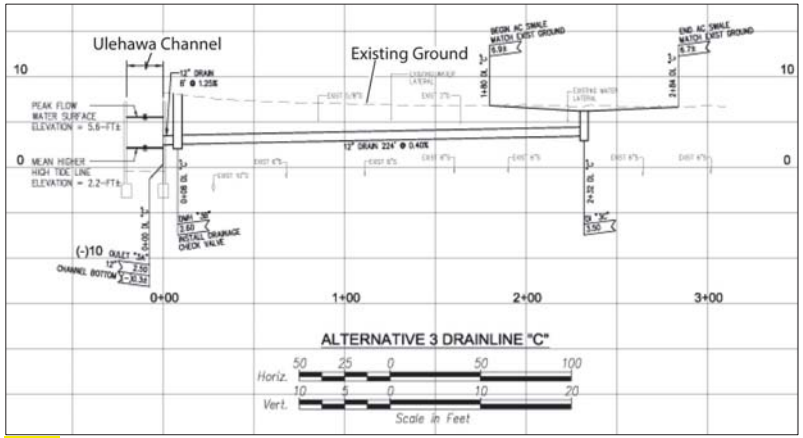

Figure 4. Auyong Homestead Improvements Project profile plan (courtesy of Gray, Hong, Nojima, & Associates, Inc.).

Figure 5. Project Area Outline with Associated TMK Numbers.

2.0 PROJECT LOCATION AND ENVIRONMENTAL SETTING

The proposed Auyong Homestead Road Improvements project is located in the *ahupua'a* of Lualualei in the Wai'anae District, between the *ahupua'a* Nānākuli and Wai'anae [TMK (1) 8-7-026:002-023]. This project study area is comprised of the segment of Auyong Homestead Road that stretches from Farrington Highway to the Ulehawa Channel (U-3) tributary, which is predominantly an active public roadway including associated sidewalks and shoulders. Across Farrington Highway of the project area is a 10 ft. wide easement for the highway and immediately *makai* (seaward) is a stretch of Ulehawa Beach Park. On the *mauka* (mountain-ward) end of the project area is the Ulehawa Channel (U-3) that cross-cuts Auyong Homestead Road from northwest to southeast, over which a small concrete bridge has been constructed. The project area is bound to the northwest and southeast by residential lots with the exception of the two lots fronting Farrington Highway, which are commercial. Currently, the project area is largely used as a thoroughfare for local residents and as access/egress to the 7-Eleven convenience store located on the corner of Auyong Homestead Road and Farrington Highway.

2.1 Geology, Sediments, Hydrology, Climate, and Vegetation

Several geological processes including shield-building volcanism, subsidence, weathering, erosion, sedimentation, followed by rejuvenated volcanism created the island of O'ahu. Generally, the island is made up of heavily eroded remnants of the Pliocene era Wai'anae and Ko'olau shield volcanoes. The project area is located west of the Wai'anae Mountain range on the leeward coast of O'ahu in the *ahupua'a* of Lualualei roughly 50 meters inland of the Pacific Ocean at ca. 10-13 ft. amsl. The project area is in the coastal flat between the ridges of Pu'u O Hulu and Pu'u Heleakala. Manmade Ulehawa Canal, which is in the former location of the natural stream and marsh traditionally named Ulehawa, is located less than 500 meters northwest of the project area. A tributary canal connecting to Ulehawa Canal abuts the project area to the northeast, or *mauka*, of the project area.

Soils in the immediate vicinity of the project area are described by the National Cooperative Soil Survey (operated by the USDA's Natural Resources Conservation Service), as beaches (BS) and coral outcrop (CR) Substrate within the project area are classified as coral outcrop (CR) (Figure 6).

Beaches

Beaches (BS) occur as sandy, gravelly, or cobbly areas on all the islands in the survey area. They are washed and rewashed by ocean waves. The Beaches consist mainly of light-colored sands derived from coral and seashells. A few of the beaches, however, are dark colored because their sands are from basalt and andesite. Beaches have no value for farming. Where accessible and free of cobbles and stones, they are highly suitable for recreation areas and resort development. (Capability classification VIIIw, nonirrigated) (Foote et al. 1972:28).

Coral Outcrop

> Coral outcrop (CR) consists of coral or cemented calcareous sand on the island of Oahu. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of the uplands. Elevations range from sea level to approximately 100 feet. The annual rainfall amounts to 18 to 40 inches. Coral outcrop is geophysically associated with Jaucas, Keaau, and Mokuleia soils…This land type is used for military installations, quarries, and urban development. Vegetation is sparse and consists of kiawe, koa haole, and fingergrass (Foote et al. 1972:29).

For the general area, the area receives less than 20 inches of rain per year (Juvik and Juvik 1998:56). According to *Atlas of Hawaii*, the area only receives 10 to 15 inches of rain per year (Armstrong 1973:58). While seasonal variability is relatively mild, the climate of the Hawaiian Islands exhibits warm temperatures, dry conditions, and persistent trade winds that originate from the northeast during the summer season (May through September). Hawai'i's winter season (October through April) is typically characterized by cooler temperatures, elevated precipitation, and variable winds, including Kona (southerly) winds and storms (Juvik and Juvik 1998).

The vegetation of the project area prior to European Contact would have been coastal lowland shrubs and grassland. Currently, the area is developed with residential homes and vacant lots with a variety of exotic landscaping plants and weeds.

Figure 6. Custom Soil Resource Report map showing project area (courtesy of USDA NRCS 2015).

3.0 BACKGROUND RESEARCH

3.1 Pre-European Contact Cultural Landscape

In general, traditional and mythological accounts from pre-European contact Hawai'i represent a belief system explaining all aspects of the physical universe and spirit realm, the origin and nature of mankind, and the history of the community, as well as collectively remembering the heroic adventures, exceptional feats, and cautionary tales of their ancestors. These traditional accounts are contained in the hearts and minds of cultural practitioners and customarily passed on through oration. Throughout the passage of time, figures transcend earthly legends into the cosmic, divine, and fearsome realm of the gods that is only separated from the mundane world by a thin veil and has the power to interact with and cast influence on the mundane. To this day, a sense of respect, reverence, and fear is still held on to by cultural practitioners and those indoctrinated in these traditions, as it is believed that the very landscape is imbued with the *mana* (life force or supernatural energy) of the divine.

3.1.1 The Natural World

The mundane, or lifeways and land use, of pre-European contact Hawaiians are also part of the cultural landscape and are interpreted through archaeological research in conjunction with oral histories and recorded traditional accounts. Traditionally in Hawai'i, environmental zones were perceived and determined by various natural features and resource criteria (Handy and Handy 1991:54-56). The following is a summary of Handy and Handy (1991:54-56) description of Hawai'i's general terrestrial environmental zones:

1. *Ko Kaha Kai*: Land by the sea, or coastal region providing marine resources (fish and other marine animals, seaweed and salt). "Kaha was a special term applied to areas facing the shore but not favorable for planting.
2. *Kula*: The plains or sloping lands (without trees) above the coastal region.
   a) *Kula kai:* Seaward plains.
   b) *Kula uka*: Inland or upland slopes (towards the mountains).
3. *Kahawai:* The place (having) water. The area beyond or intersecting the *kula* lands. This upland zone provided suitable agricultural sites and abundant naturally occurring resources which were used for religious, domestic, and economic purposes.
4. *Wao:* Wilderness
   a) *Wao kanaka:* Region of man. Lower forest, providing hard wood (*koa*) for spears, utensils, and logs for canoes; *lau hala* (pandanus leaves) for thatch and mats; *māmaki* for bark cloth (*tapa*); *kukui* (candlenut) for oil; wild yams, roots, and sandalwood.
   b) *Wao akua*: Region of deities. …remote, awesome, seldom penetrated, source of supernatural influences, both evil and beneficent.
   c) *Wao ma'ukele*: Rain forest. Here grew giant trees and tree ferns (*'ama'u*) under almost perpetual cloud and rain.

The Auyong Homestead Road Improvements Project lands are located in the *ko koha kai*. Handy and Handy (1991) maintain that marine resources represent the main source of protein in the traditional Hawaiian diet. Thus, the project area, being located in the *ko koha kai and kula kai,* would have been a valuable marine resource access point for Lualualei Ahupua'a, especially in terms of sustenance. Also, this area would have been somewhat marshy, due to its close proximity to where Ulehawa Stream naturally met the Pacific Ocean. Some traditional aquatic resources were found in wetlands such as this, including *'o'opu* (gobies) and *'opae* (shrimp), according to Titcomb in *Native Use of Fish in Hawaii* (1972:4).

Traditionally in ancient Hawa iian culture, marine zones were also distinguished by various natural features and resource criteria. The following describes the marine environmental zones (Handy and Handy 1991:56-57):

> 1. Neritic zone: Near-shore waters, extending from the upper reaches of the tidal edge to about 200m in depth. Contains the most resources for human use. Corresponding to the Hawaiian marine habitats of:
> a) *Kai pu'e one*: (heaps [of] sand) the sandy edge of the sea, inshore dunes, or outer sand bar;
> b) *Kai po'i*: (sea-breaking) out to where the wave breaks;
> c) *Kai kohola*: the lagoon, the shallow sea inside the reef;
> d) *Kai pualena*: the yellowish sea, where the streams flow in and roil the waters;
> e) *Kai 'ele*: the dark sea; and
> f) *Kai uli*: the deep blue-sea.
> 2. Pelagic zone: the open ocean, waters lying beyond or exceeding the depth of 200 meters.
> a) *Kai-pōpolohua-mea-a-Kāne:* the far reaches of the open sea (Jeffery Clark 1986:34).

Marine environments were subject to the traditional resource management system as well, supported by the *kapu* (religious law) system in ancient Hawai'i, which preserved *lōkahi* (balance) on many levels between humans and these resources. Various marine resources were key to pre-Contact era Hawaiian lifeways for various uses, such as *i'a* (fish), *he i'a mea iwi mawaho* (shellfish), *he'e* (squid/octopus), *limu* (seaweed), *pa'akai* (salt), *'āko'ako'a* (coral), *pōhaku* (stones), *manu* (bird), and *honu* (turtle). These resources were used for sustenance, tool making, medicine, trade, architecture, and ceremony. *Pa'akai* was one of the most important marine resource for its many applications, including food preservation, seasoning, medicine, and ceremonial use (Brigham 1908; Westervelt 1915).

Immediately *makai* of the Auyong Homestead Road Improvements Project area is the Neritic Zone. The Neritic Zone begins immediately offshore at the project's southwest end, with white sandy beaches of the *kai pu'e one* (playful waters of the *kai po'i* and the *kai'ele)* of the Wai'anae coast that was notoriously abundant in a variety of marine life (Maly and Maly 2003:972,1413). In *Native Use of Fish in Hawaii*, Titcomb (1972) recited an old proverb, "Ewa was the land dearly loved by Kakuhihewa, as was also the warmth of Waianae and Waialua, the tenacious poi of Waianae, the delicious poi of Kamaile, and the tender mullet of Lualualei" (Titcomb 1972:31).

3.1.2 Life in the Ahupuaʻa

With great variations of geological features, each *ahupuaʻa* had its own dynamic resource management system that was based on traditional customs upheld by the *kapu* system, or ancient religious law. The *ahupuaʻa* typically extended form the coast to the nearest mountain top or ridge and resources from the land and sea were equally distributed within the *ahupuaʻa*. Lyons (1875) describes the geographic nature of the *ahupuaʻa* as well as the movement of resources from mountain to sea and vice versa, stating:

> The Ahupuaa ran from the sea to the mountain, theoretically. That is to say the central idea of the Hawaiian division of land was emphatically central, or rather radial. Hawaiian life vibrated from *uka,* mountain, whence came wood, kapa, for clothing, olona, for fish line, ti-leaf for wrapping paper, *ie* for rattan lashing, wild birds for food, to the *kai,* sea, whence came *ia*, fish, and all connected therewith. Mauka and makai therefore fundamental ideas to the native of an island (Lyons 1875: 104).

The *ahupuaʻa* was also an important socio-political unit in the pre-Contact era, each unit with its own hierarchy. Kirch (1985) holds that *moku* were independent chiefdoms, divided into a number of radial land divisions, referred to as *ahupuaʻa,* with subdivisions of *ʻili* and *moʻo* within. According to Kirch (1985),

> Each ahupuaʼa was controlled by a lesser chief, who in turn appointed one or more stewards to oversee production, organize work parties, collect tribute, and in other ways represent the chief. Ahupuaʻa were economically self-sufficient to some degree, although differences in the local resource base (agricultural land, water resources, stone for tools, and so on) resulted in differences in the production patterns of individual land sections. Within the ahupuaʻa, there were yet smaller sections and divisions, especially the ʻili and moʻo, which were held and worked by extended households or groups of commoners.

According to Handy and Handy (1991), for the purpose of taxation, the chief political subdivision of the pre-Contact era was the *ahupuaʻa,* which was generally under the management of the *konohiki* (steward or caretaker). The term *ahupuaʻa* itself is derived from the fact that each coastal *ahupuaʻa* boundary was marked with an altar (*ahu*) which held a carved wooden effigy of a pig (*puaʻa*) head during the Makahiki festival, when harvest tributes (taxes) were offered to the god of rain. Handy and Handy (1991) refer to the lower chief who represented the *ahupuaʻa* as *aliʻi ʻai ahupuaʻa*, which translates to English as "chief who eats the ahupuaʻa" (1991:48). Yet, according to Malo (1951:142) the *konohiki* was tasked with collecting levies from the *makaʻāinana* (commoners; literally "people that attend the land") of the *ahupuaʻa* for the king and of the *aliʻi ʻai ahupuaʻa*. The word *konohiki* is defined by Pukui and Elbert (1986) as the, "Headman of an ahupuaʻa land division under the chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights" (1986:166). Thrum (1924) wrote that the *konohiki* was a local representative or steward of the landlord owner whose privileges and duties were, "…practically those which go with that position in any land and in common with his brethren today in Russia or Ireland he had his failings and was not always popular among his fellows…" (1924:60).

Handy and Handy (1991) liken the *ahupuaʻa* tenure system to western share cropping, where "sharing between the chief and tenant was comprehensive and reciprocal in benefits" (1991:48).

Kirch and Sahlins (1992) delve further into the social dynamics of the *ahupuaʻa* in their historical ethnography, *Anahulu: The Anthropology of History in the Kingdom of Hawaiʻi, Volume One*. Kirch and Sahlins (1992:17) state the following about variations in land use in the ancient *ahupuaʻa*:

> Economically more highly valued, the coastal areas were also generally preferred for chiefly residence. Here were the most extensive wet taro lands, offshore and onshore fish ponds, as well as access to the sea and the fishing and surfing that in Hawaii were sports of kings. Still, the uplands were also necessary for the Hawaiian existence. In addition, to things mentioned by Lyons, people were specifically dependent on the uplands for the timber and thatching of their houses; the materials for their canoes, bowls, weapons, images, agricultural tools, and other objects using hardwoods; rope, line, fishnetting; lighting (from candlenuts); pasture for domestic animals (in the nineteenth century); various fruit trees; and more (Kirch and Sahlins 1992:19).

Thus, resources needed for daily life were best grown in or collected from the habitats that they were best suited for and likely distributed, through trade, gifting, or taxes, from *mauka* to *makai* or vice versa within the *ahupuaʻa*.

3.1.3 Traditional Hawaiian Land Divisions

The pre-Contact economy of the Hawaiian Islands was based upon agricultural production that worked within a tiered system of land divisions (Lyons 1875; Malo 1951; Handy and Handy 1991; Kirch 1985; AKAC 2010). In 1875, Curtis J. Lyons, the distinguished surveyor published an article in *The Islander* on land issues, which identified the *ahupuaʻa* as the principal subdivision in a *moku* (district). In this article, he states:

> ...Its name is derived from the *Ahu* or altar; (literally, pile, *kuahu* being the specific term for altar) which was erected at the point where the boundary of the land was intersected by the main road, *alaloa,* which circumferenced each of the islands. Upon this altar at the annual progress of the *akua makahiki* (year god) was deposited the tax paid by the land whose boundary it marked, and also an image of a hog, *puaa,* carved out of kukui wood and stained with red ochre. How long this was left on the altar, I do not know, but from this came the name, *ahupuaʻa,* of the pile of stones, which title was also given to the division of land marked thereby… (Lyons 1875:103-104).

The islands are divided into several sections called *moku* (districts), in which are particular subdivisions referred to as *ʻokana* (a portion) or *kalana* (a division) (Lyons 1868:67-68; Malo 1951:16-17). According to Curtis J. Lyons (1868) in *Nūpepa Kuakoa*, these units are further divided into *ahupuaʻa*, which are the main units of traditional Hawaiian land division. Within *ahupuaʻa* are *ʻili*, followed by *ʻili paʻa, ʻili kūpono, ʻili lele, lele, moʻo, moʻo ʻāina, paukū, kīhāpai, kōʻele,* and *kuleana* (Pukui and Elbert 1986). However, in some cases, the *ʻili kūpono* or *kū* were a type of sovereign *ʻili* within an *ahupuaʻa* that were not made to pay tribute to the chief (Thrum 1890:106). Within the *paukū* are dry land patches, referred to as *kōʻele*, *hakuone*, and *kuakua* (cultivated specifically for the chief; listed from smallest to largest). In general, high elevations or mountains are called *mauna,* but mountains or mountain summits located centrally on the island are termed *kuahiwi*, while the peaks or ridges on top of the *kuahiwi* are called *kualono*. In 1868, Lyons continues to describe the geography of the typical *ahupuaʻa* as well as the Hawaiian names for these geological features, stating:

> The place where trees are small below the fern belt is termed kuahea (hillock section); below it is the wao (wild place), also called waonahele (wilderness) and wao eiwa (ninth wilderness). The place where trees grew taller below the wao eiwa is the wao maukele, and a little below it again is the waoakua (spirit region); next below that is where voices increase and, hence, called wao kanaka (people's sphere), because there the people cultivate food. Below that is apaa, and next is ilima (where this plant of the Sida genus is found), and below it is pahu (stake or land mark). Below pahu is kula (open country) adjoining habitations, and seaward of the village is the shore, where it joins the sea. Such was the island divisions by the ancient people of Hawaii.
>
> …Places that stand high up in this and that locality are called puu (mounds or peaks) ; if they stand in a row they are a lalani puu, or pae puu (a line or range of peaks or hills)…High places of the earth lying narrow is a lapa (ridge), or kua lapa (shoulder ridge). If the ridges are many they are called olapalapa (rough protuberances). Deep places lying lengthwise are called kahawai, awawa, or owawa (streams, valleys or ditches). Lengthy, solitary places are called alanui (roads), and kuamoo (paths), and if it continues circuiting the island it is a highway. In places where the path is steep it is called piina or hoopiina (ascending path), kooku (hill slope), and auku (up hill road). Descending paths are termed ihona, alu, kalua, and hooihona, and the place where men would rest is oioina (a resting place). Places where water flows continually are streams (kahawai). Inland places are kumu (source) and seaward places are called nuku (point or outlet). Where water is led to places of cultivation, that is called an auwai (watercourse); where the water joins the sea is a muliwai (river) ; waters borne within the land are lokos (lakes or ponds) (C.J. Lyons 1868 as cited in Thrum 1921:67-68).

Perhaps the ancient Hawaiians created names for an array of topographical features and slight variations within the *ahupuaʻa* as a way to help keep the dynamic *mauka-makai* economic structure organized.

The *ahupuaʻa* of Lualualei is the largest in Waiʻanae District, stretching from Kāneʻilio Point on its coastal boundary with Waiʻanae and southward to the *makai* point of Puʻu Heleakalā.

3.1.4 Traditional Names of Localities

The project area is located in the southeast coastal portion of Lualualei Ahupuaʻa and is less than a mile from Nānākuli Ahupuaʻa in the District of Waiʻanae (Figure 5). The district, or *moku*, of Waiʻanae extends from the west edge of Honouliuli Ahupuaʻa in ʻEwa District to Kaena Point, which is the furthest west point of the Island of Oʻahu and creates the southwestern border of Waialua District.

Many traditional stories and mythologies exist for Waiʻanae, but for some it is difficult to discern if they were speaking of the *moku* or the *ahupuaʻa*. Waiʻanae, which translates to English as "mullet water," is the name of the entire *moku* (district) as well as *ahupuaʻa* immediately to the northwest of Lualualei Ahupuaʻa (Pukui et al. 1974:220). Waiʻanae Ahupuaʻa is centrally located within the district, or *moku*, of Waiʻanae. However, it is unclear of whether or not Waiʻanae was its own district in the pre-Contact era or a locality under the district of ʻEwa; or conversely, whether ʻEwa was a locality in Waiʻanae District. Early to mid-20th Century author, John Wesley

Coulter, holds that in a 1909 map of Oʻahu the boundary for ʻEwa and Waiʻanae districts had been separated and that the 1859 version illustrated them as a single district (neither maps were cited). He writes:

> In reviewing the changes made in 1909 and comparing the districts with those of 1859, we find only one change in the island of Hawaii…
>
> On Oahu, the boundaries of Honolulu district remain the same; Ewa and Waianae are separated and formed into two districts, excluding the ahupuaʻa of Waianae Uka which is added to the Waialua district… (Coulter 1935:220-221 as cited in Sterling and Summers 1971:60)

An ancient proverb that describes Waiʻanae, simply states: "*Ka la kapakahi ma Waianae*." This is loosely translated to English by Thrum (1887:81) as "Waianae with its precipitous mountain side on the east has only "the one-sided" afternoon sun." Handy and Handy (1991) describe Waiʻanae as contrasting with the "rich district of ʻEwa," stating that "…Waiʻanae is a dry coastal strip with poor soil and only four rather insignificant streams reaching the sea from rocky mountain gulches or valleys" (Handy and Handy 1991:467). However, they write "[Waiʻanae's] compensatory feature was the exceptionally rich deep-sea fishing available of and beyond Kaʻena Point, where the great current pressed by the northeast trade winds flows in a westerly direction along these shores" (Ibid.)

Pukui et al. 1974, provided no English translation for Lualualei. In the *Hawaiian Dictionary*, Pukui and Elbert (1986:213) translate *lualua* as "Uneven, full of holes, rough, bumpy, as a road" and *lei* as "…garland, wreath; necklace of flowers, leaves, shells, ivory, feathers, or paper, given as a symbol of affection…" (ibid.:200). Pukui, as cited in Sterling and Summers (1978:63), explained that Lualua translates as "relaxed, let down," and Lei translates as "beloved one, wreath." She holds that the meaning could be interpreted two ways: "beloved one spared" or flexible wreath," and believes that the latter is more likely the meaning. Andrews (1865:656) translates Lualualei as "flexible wreath" as well and describes it as a land section in Waiʻanae.

John Papa Ii (Ms.), found in Sterling and Summers (1978:63), provides another explanation for the name Lualualei, which is told as follows:

> Near the end of that year, it was suspected that the son of Papa, named Kalakua, had worn the loin cloth of the king. Kalakua fetched and carried the king's possessions, such as his kahili, mat or spittoon wherever he went in the court or any place he wished to go. In going together constantly the loin cloths they wore had a similar pattern. When they returned to the king's house, Kalakua was taken
>
> at once and kept in solitude. They tried very hard to verify the suspicion they had for a long time.
>
> At that time the king, chiefs and members of the court left Honolulu and sailed by canoe to Waianae. The heir of the kingdom went overland with Papa and others from Honolulu and spent the night with Kumelewai in Ewa…
>
> The coming of this retinue was announced in Waiʻanae and it was told that the family, parents and children included, would be set on fire for the wrong committed by Kalakua.

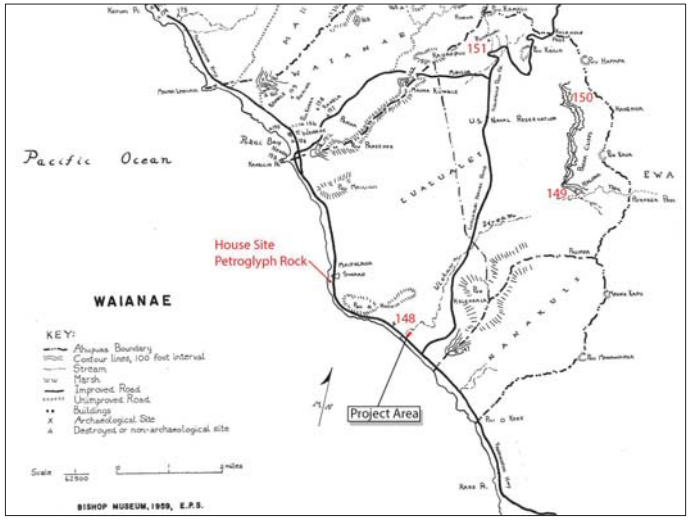

Figure 7. Map of Lualualei Ahupuaʻa portion of Waiʻanae District, showing approximate location of project area (adapted from Sterling and Summers 1978).

> The company, somewhat in the nature of prisoners spent a night at Lualualei. There was a fish pond there on the plain and that was where the night was spent. The next day they reached the southern side of Kane-punio and there they encamped for eight days to wait for another announcement telling of the death and burning of the wrong doers. Only one committed the deed but the whole family was held guilty.
>
> After several days had passed, the proclamation from the king was given by Kulaʻinamoku, that there was no death and that Kalakua did not wear the kingʻs loin cloth. Thus was the family of Luluka spared a cruel death. For that reason, a child born in the family later was named Lualualei. (The beloved or spared.) (Ii Ms.as cited in Sterling and Summers 1978:63-64)

The neighboring *ahupuaʻa*, Nānākuli, is translated to English by Pukui et al. (1974:162) as "look at knee." Pukui and Elbert (1986:260) translate *nānā* as a verb meaning, "To look at, observe, see, notice, inspect; to care for, pay attention to, take care of," and *kuli* as "knee" or "deafness" depending on the context it's used (ibid.:180). Pukui et al. (1974:162) maintain that the name Nānākuli was given to the *ahupuaʻa* in honor of a local chief and is explained as follows,

> … [Nānākuli] said to be named in honor of the tattooed knee of Kaʻopulupulu, a priest whose chief, Ka-hahana, turned a deaf ear to his advice, and, when asked about his knee, told of his relationship with the chief, thus rebuking him… (ibid.:162).

Thrum (1921:87) holds that "Nana-kuli" means "knee examination," but explains the story behind the name differently, stating the incident occurred during Kualiʻiʻs travels "…when his attendants wished to see and press his knees, to relieve the king's fatigue after the journey." Conversely, Pukui et al. (1974:162), hold that the meaning of Nānākuli could also translate as "look deaf," due to the scarceness of food in the area, which would cause its people to pretend to be deaf to passersby to avoid sharing food. In an oral tradition as told by Simeona Nawaa to Pukui in 1945, the name stands for "deaf mutes who just look," due to the shame from their "inability to be hospitable" (as cited in Sterling and Summers 1978:61-62).

3.1.5 Traditional names for Topographical Features in Lualualei

Numerous Traditional place names of various topographical features within the lowland half of Lualualei Ahupuaʻa have been identified near the Auyong Homestead Road Improvements Project area.

Kapuhawai

According to a Nānākuli Homestead resident as reiterated by Handy (1940), somewhere up in the Lualualei military reservation was a sacred spring called, Kapuhawai. In this location, ancient agricultural terraces were still producing feral taro. She maintained that people continued to access the terraces to gather the kalo, which was regarded as "fine eating" (Handy 1940:83).

Māʻili

The plain located roughly two miles (ca. 3 kilometers) north-northwest of the project area is Traditionally named, Māʻili. Pukui and Elbert (1974:139) translate it to English as "pebbly."

Within Māʻili plain is a swamp named Maʻipalaoa, after a chiefess (Sterling and Summers 1978:67). Maʻipalaoa is not listed in Pukui and Elbert (1974), yet Cruz and Hammatt (2010) offer several translations and explanation of its meaning:

> Palaoa translates as "sperm whale" or "ivory," especially whale tusks as used for the highly prized lei palaoa, a necklace made of beads of whale teeth. Maʻi translates as "sickness, illness or disease." … The literal translation for Maʻipalaoa is "sickened whale tooth." …In Hawaiian Street Names (Budnick and Wise 1989:129), Maʻipalaoa is translated as "whale genitals." (Cruz and Hammatt 2010:13)

Puʻu Heleakalā or Haleakala

Puʻu Heleakalā, also referred to as Puʻu O Heleakalā and Puʻu Haleakalā, is seen as the most prominent ridge in northwest Nānākuli, near the border of Nānākuli and Lualualei Ahupuaʻa. It is located less than a mile (ca. 1300 meters) east of the project area. According to Pukui and Elbert (1974:44), Heleakalā is a hill in Nānākuli and its name is translated as "snare by the sun (the hill blocks the rays of the setting sun)." Pukui's translation in 1953 is "…where the sun is snared. This hill faces right into the setting sun and reference is made as to this place being "where the sun's rays are broken" (in Sterling and Summers 1978:62). She adds that the name Haleakalā is likely wrong (ibid.). One example of this misnomer is provided in Sterling and Summers (1978), which was taken from the Hawaiian newspaper, *Ka Nūpepa Kuakoa*, in an article titled, "Haleiwa Hotele, About Leilono," which states:

> …It wasn't long when we arrived at Nanakuli and then to a place which bears a peculiar name. Then we turned to look at Haleakala hill the place said to be the one on which the rays of the sun was broken. This is a barren hill as though plants hated all of its sides. I saw the cave in which Hina made tapa cloths on the slope of a hill f6acing a stream whose mouth was at a place with a peculiar name. (*Ka Nūpepa Kuakoa* 1899 as cited in Sterling and Summers 1978:62).

Andrews (1865:118) offers an alternative translation for Heleakala (given without the macron), which is "moving of the sun." He adds two interesting interpretations, which are as follows:

> 1. The apparent path of the sun in its imaginary daily journey between the summer and winter solstices.
>
> 2. The point in the ecliptic where the sun apparently turns in its path; the path of the sun.

Puʻu o Hulu

Located less than a mile (ca. 1500 meters) north of the project area is Puʻu o Hulu, translated as Hulu's hill. Pukui and Elbert (1986:203) maintain that this hill was named after the chief who fell in love with Māʻiliʻili, who was one of twin sisters. When the chief was unable to tell the sisters apart, a *moʻo* (mystical lizard or water spirit) changed the twins into mountains. It is said that chief Hulu would admire them from this spot.

Puʻu Māʻiliʻili

Puʻu Māʻiliʻili is located roughly 3 miles (5 kilometers) northwest of the project area and is translated to English as, "pebbly hill" (Pukui and Elbert 1986:201). This hill may be the

counterpart of Puʻu o Hulu in the afore mentioned story, representing the twin sisters. Māʻiliʻili is also the name of the stream at the foot of Puʻu Māʻiliʻili.

Ulehawa Stream

Ulehawa is the Traditional name of a stream in Lualualei Ahupuaʻa that formerly drained into the Pacific Ocean less than a quarter mile (ca. 450 meters) northwest of the project area. The name is primarily tied to the stream that was associated with a nearby wetland, but the area is now a canal. The name, which translates to English as, "filthy penis," has been given to the entire beachfront area stretching from Nānāikapono Elementary School to Māʻili Point (Pukui and Elbert 1986:214-215). The name is speculated to have belonged to a local chief (ibid.).

According to Samuel Kamakau (1961), Ulehawa Stream, was the birthplace of the demi-god Maui and his brothers. In this vicinity, Kamakau holds that Maui obtained the secret of fire-making, made adzes and other tools, and perfected his renowned fishing skills. Additionally, he holds that a cave existed in the area where Maui's mother, Hina (the moon goddess), crafted her tapa, the snare for catching the sun, and the famed fishhook Manaiakalani (ibid.). The Ulehawa Stream area was where several other legends involving Maui occurred. According to Beckwith (1970), one Maui legend is summarized as follows:

> Maui-kupua, his mother and brothers live at Ulehawa, Maui and his mother in a cave called Kane-ana, in Waianae district. Maui wishes to unite the islands. His mother sends him to Ka-alae-nui-a-hina, who tells him he must hook Uniho-kahi at the fishing station of Ponaha-ke-one off Ulehawa. Maui and his brothers paddle out to the fishing ground with the hook Manai-a-ka-lani. He tells his brothers to catch the bailer (kaliu) they will see floating by, and himself takes it into the canoe. When they reach the fishing station the bailer has become transformed into a beautiful woman. She accompanies Maui's hook into the sea and bids Uniho-kahi open his mouth, as she and Maui have been disputing about the number of his teeth. When he obeys she hooks him fast. The brothers paddle. Maui bids them not look back; but they disobey, the hook comes loose, and the islands separate again. (Beckwith 1970:233)

Thrum, in *More Hawaiian Folk Tales* (1923), refers to a nearby body of water as "the sea of Ulehawa" in his synopsis of "Maui's Flying Expedition" (as cited in Sterling and Summers 1978:65). His rendition begins as follows:

> One day Maui and his brothers went fishing again in the sea of Ulehawa. They each let down their hooks but caught only sharks. Maui then let down his famous hook ma-nai-aka-lani and caught a moi and ulua. Maui then gave the order to paddle to shore where he took the fishing tackle gourd and hokeo (his paddle) to his mother Hina. The fish he took to the heiau Luaehu because he had to eat it there. (Thrum 1923 as cited by Sterling and Summers 1978:65)

As Maui ate his catch, his wife, Kumu-lama, was abducted by the chief Pea-pea-maka-walu. Subsequently, Maui leaves for his mystical quest to find his wife, which comprises the rest of the story. Thrum (1923) also refers to a fishing station, named Po-naha-ke-one, as being at the sea of Ulehawa in the tale of "Maui and Manai-a-ka-lani." He retells the story as follows:

> Maui-ku-pua lived with his mother Hina. He often wondered why the islands were separated and decided to try and join them. He consulted his mother who

sent to Kaa-lai-nui-ahina (k). Kaa-lae told him the power to do so belonged to Uni-ho-kahi who is found at Po-naha-ke-one (a fishing station at Ule-hawa).

Maui returned home and next day told his mother he was going fishing. Maui asked his brothers to go with him and they made ready their fishing gear. Maui got ready his famous hook ma-nai-a-ka-lani. Maui told his brothers to watch for kaliu (bailer) floating at the bow of the canoe and to catch it. They sailed to the middle of the sea of Ulehawa and Maui took bearings from Hina's place of drying her kapas. There they saw the kaliu and Maui told his brother Maui-mua to catch it. His brother thinking there was no need for one as the canoe already had one did not do so, so Maui caught it as it floated by him. The name of this bailer was Hina-ake-ka.

When the brothers turned around they saw a beautiful woman in back of the canoe. They all sailed on to Ponahakeone and anchored but when the brothers looked around again the woman was gone. Maui knew the bailer (the woman) had dropped into the sea. He called to his brothers to drop a hook to the bottom of the ocean but each time they caught only a fish. Maui then dropped Manaiakalani and told his brothers to prepare to paddle. The hook was grasped by Hina-a-ke-ka who took it to Unihokahi. She asked him to open his mouth so she could see if he had one tooth or many. When he did so, she hooked in Manaiakalani and jerked the line so Maui would know.

Maui then commanded his brothers to paddle hard but not to look back. Finally becoming exhausted and thinking that it was not a fish they had hooked, they gave up and looked back. They saw the chain of islands following and were surprised. Maui was angry because they didn't reach shore and the islands were never joined. The hook was loosened from Unihokahi's mouth and the islands separated and drifted back to their original positions. (Thrum 1923 as cited by Sterling and Summers 1978:65-66)

These stories depict the marine waters of Ulehawa as being legendary fishing grounds as well as the backdrop of significant oral Traditions. They also suggest that the inland areas surrounding Ulehawa Stream were important ancient settlements in the early period of Hawaiian colonization.

3.1.6 Heiau of Lualualei Ahupuaʻa

Several Heiau were discovered in the mountainous areas of Lualualei, which were recorded by McAllister during his 1930s island-wide survey.

Kakioe Heiau (Site 151)

Located more than 5.75 miles (ca. 9.3 kilometers) northeast of the project area is the area traditionally referred to as Pūhāwai, where Kakioe Heiau is said to have stood (Figure 7). According to McAllister (1933), this was a "…small heiau of which nothing now remains but its sacred spring, and the sound of its drums and conchs on the nights of Kane" (as cited by Sterling and Summers 1978:66).

Nioiula Heiau (Site 149)

Nioiula Heiau is located on Halona ridge near the trail to Pokahea Pass, which is nearly 4.5 miles (ca. 7.3 kilometers) northeast of the project area (Figure 7). This heiau was reported by

McAllister (1933) to have been of poʻo kanaka (human head) class. He described the heiau as "paved and walled," though partially destroyed by the time he discovered it (ibid.). McAllister provides further description and possible function as follows:

> A paved and walled heiau said to have been of pookanaka class. The northern portion has been almost completely destroyed, the stone having been used for a cattle pen on the McCandless property. Since the cattle put into the pen sickened and died, it was seldom used and is now abandoned. The heiau probably had three inclosures and three platforms open the west side, but so little remains of the northern part of the heiau that it is difficult to discern inclosures or terraces. This is probably the heiau on which was placed the body of the boxer killed by Kewalo and offered as sacrifice to the gods. The temple is said to have been very ancient, belonging to chief, Kakuihewa. (McAllister 1933 as cited in Sterling and Summers 1978:66)

3.1.7 Waiʻanae District: a *Wahi Pana*

According to Pukui and Elbert (1986), "*wahi*" translates to English as "place" and "*pana*" translates to "celebrated," "legendary," or "noted." When the words are combined, "*wahi pana*" can be interpreted in English as "a place of legends." Waiʻanae, as both an *ahupuaʻa* and *moku* (district), is associated with several gods and demi-gods and has been the backdrop of numerous events in ancient legends.

Many legends, or *moʻolelo,* have taken place or have partially taken place within the District of Waiʻanae, several of which are the famous exploits of the demi-god, Maui. According to Fornander (1916:370), Maui was born in Waiʻanae District. Kamakau (1870) holds that Maui and his brothers were born in the south side of Waiʻanae District, which would have been in either Lualualei or Nānākuli Ahupuaʻa (as cited by Sterling and Summers 1978:64). Numerous Traditional accounts of Maui, are centered around the Ulehawa Stream area, which is in the *ahupuaʻa* of Lualualei, including it being his birthplace as well as the location of many of his trials tribulations (Thrum 1923; Kamakau 1961). According to McAllister (1933), a large rock approximately 1.1 mile northwest of Nānākuli on E. P. Fogarty's property, was given the name "Maui," after the demi-god, "…who is said to have landed here when he first came to the Hawaiian islands from the south…"(as cited by Sterling and Summers 1978:64). He explains the stone as follows:

> This stone at the time was surrounded by water, and it was here that Maui reposed and sunned himself. In the bluff just northeast of the rock is a shelter in which he lived, and in the vicinity was a spring where he obtained water. The large rock is now split in half and adorned with many small, oddly shaped rocks. It is said to be bad fortune to build one's house across a line drawn directly from the rock to the shore. J.J. Mathews is said to have collected detailed information in regard to this site. (Ibid.)

Pukui et al. (1974:220) associates the story of a *moʻo* (lizard) goddess, named Pūhāwai (water hollow), to the Waiʻanae area, stating that she "… once lived inland at a place called Pūhā; she stole a woman's husband; the wind god, Makani-ke-oe, restored him to her."

Beckwith (1919) offers the following lines from one version of the chant of Kualiʻi, which describes the view as interisland seafarers approach Waiʻanae from the island of Kauaʻi:

O Kauai,
Great Kauai, inherited from ancestors,
Sitting in the calm of Waianae,
A cape is Kaena,
Beyond, Kahuku,
A misty mountain back, where the winds meet, Kaala,
There below sits Waialua,
Waialua there,
Kahala is a dish for Makulela,
A fishpond for the shark roasted in ti-leaf,
The tall of the shark is Kaena,
The shark that goes along below Kauai,
Below Kauai, thy land,
Kauai O!
(Beckwith 1919:31)

In "The Hawaiian Romance of Laieikawai," Beckwith (1919) holds that a popular form of this folk tale is told in Waiʻanae, where a Kahuku chief, Kahoʻalii, instructed his son, "Fly about Oahu while I chew the awa; before I have emptied it into the cup return to me and rehearse to me all that you have seen." (Beckwith 1919: 31). The remaining lines of the tale describe the numerous places he passed through on his journey.

In "Ke-ao-mele-mele, The Maid of the Golden Cloud," Westervelt's 1915 version mentions Waiʻanae numerous times. This story tells of a young woman, named Paliula, who was the daughter of the gods, Ku and Hina. Paliula was betrothed to her brother Kahanai, who was raised apart from her by the gods at Waolani. After their marriage they settled in Hilo, but shortly after, Kahanai left Paliula for his male lover, Waiola. Forsaken by her husband, she decided to venture across the islands. During her journey, Paliula stayed in Waiʻanae uka for some time in several locations with several women of noted status, including a *kumu hula*,

Hii-lani-wai, and a chiefess named Kalena, which may have been the namesake for the locality of Kalena in Waiʻanae uka. Her sojourn in Waiʻanae occurred thusly:

> …Waka then took her [Paliula] from island to island until they were near Oahu. When they came to the beach Paliula leaped ashore and went up to Manoa Valley. There she rushed into the forest and climbed the ridges and precipices. She wandered through the rough places, her clothes torn and ragged.
>
> Kane and Kanaloa saw her sitting on the mountain-side. Kane sent servants to find her and bring her to live with them at Waolani. When she came to the home of the gods in Nuuanu Valley she thought longingly of her husband and sang this mele:
>
> "Lo, at Waolani is my lei of the blood-red rain,
> The lei of the misty rain gathered and put together,
> Put together in my thought with tears.
> Spoiled is the body by love,
> Dear in the eyes of the lover.
> My brother, the first born,
> Return, oh, return my brother."
>
> Paliula, chanting this, turned away from Waolani to Waianae and dwelt for a time with the chiefess Kalena.
>
> While Paliula was living with the people of the cold winds of Waianae she wore leis of mokihana berries and fragrant grass, and was greatly loved by the family. She went up the mountain to a great gulch. She lay down to sleep, but heard a sweet voice saying, "You cannot sleep on the edge of that gulch." She was frequently awakened by that voice. She went on up the mountain-ridges above Waianae. At night when she rested she heard the voices again and again. This was the voice of Hii-lani-wai who was teaching the hula dance to the girls of Waianae. Paliula wanted to see the one who had such a sweet voice, so went along the pali and came to a hula house, but the house was closed tight and she could not look in.
>
> She sat down outside. Soon Hii-lani-wai opened the door and saw Paliula and asked her to come in. It was the first time Paliula had seen this kind of dancing. Her delight in the dance took control of her mind, and she forgot her husband and took Hii-lani-wai as her aikane, dwelling with her for a time… (Westervelt 1915:135-137)

Westervelt also tells the story of the "Chief Man-Eater" in *Legends of Old Honolulu,* in which a *cannibalistic* chief and his cohorts from a far off land terrorized the people of Waiʻanae. The chief was eventually pushed up into the Waiʻanae Mountains when the people of Oʻahu fought back. The story is as follows:

> One of the legends of Ke-alii-ai Kanaka (The chief eating men) tells of the sudden appearance on the island of Kauai, in the indefinite past, of a stranger chief from a foreign land, with a small band of followers. The king of Kauai made them welcome. Feasts and games were enjoyed, then came the discovery that secret feasts of a horrible nature were eaten by the strangers. They were driven from the island. They crossed the channel to Oahu. They knew their reputation would

> soon follow them, so they went inland to the lofty range of the Waianae Mountains. Here they established their home, cultivated food and captured human victims, until finally driven out. Then they launched their boats and sailed away toward Kahiki, a foreign land…
>
> Ke alii ai Kanaka was a powerful man. He described as a champion boxer and wrestler. In some way he learned to love the taste of flesh. When his awful appetite became he was driven from his home. As he through the village the women who had his playmates and companions fled from him. His former friends the young warriors called out "Man-eater!" "Man-eater!" and openly despised him. In bitter anger he called the few servants who would follow him, and fled to the royal Waianae Mountains. Driven from his kindred and friends he buried himself and his brutal appetite in the mountain forests.
>
> It is possible that soon after this he visited the island Kauai, and there passed himself off as a chief from a foreign land. But "his hand was against every man" and therefore "every man's hand was against him." Finally he made his permanent home among the Waianae Mountains, in the range that borders Waialua. (Westervelt 1915:193-194)

Kamapuaʻa, the half man, half pig demi-god, had also terrorized the people of Waiʻanae, according to Westervelt's "Kamapuaa Legends":

> Leading his band of rough robbers down through the sandalwood forests of the Wahiawa region he crossed over the plains to the Waianae Mountains. Here they settled for a time, living in caves. Other lawless spirits joined them, and they passed along the Ewa side of the island, ravaging the land like a herd of swine. A part of the island they conquered, making the inhabitants their serfs.
>
> Here on a spur of the Waianae Mountains they built a residence for Kama-unu-aniho, and established her as their priestess, or kahuna, sorceress. They levied on the neighboring farmers for whatever taro, sweet potatoes and bananas they needed. They compelled the fishermen to bring tribute from the sea. They surrounded their homes with pigs and chickens, and in mere wantonness terrorized that part of Oahu. (Westervelt 1915:257-8)

Fornander (1916) retells the story of Nihooleki, the legendary fisherman from Keauhou on the island of Hawaiʻi who settled, married, and became King of Waiʻanae. Kiahaikiaholeha was his name before he died and magically came back to life as Nihooleki. His story is told by Fornander as follows:

> Keauhou in Kona, Hawaii, was the birthplace of Nihooleki and it was from this place that he moved to Kuukuua, in Puuokapolei at Waianae, where he took unto himself a wife. The name Nihooleki was given to his spirit body; his name during his life time was Keahaikiaholeha, a chief, and was the greatest fisher man over all the whole country of Waianae. It was he that owned the mother-of-pearl fish-hook called Pahuhu that could catch so much aku. He was at one time king of Waianae and had fished from all the head lands round about that country. He knew all the fish and fishing grounds in the ocean around that region. After a time he left his parents and young sister in Waianae and set sail for Waimea, Kauai, where he settled; for this was where his wife had come from, being her birthplace.

When Keahaikiaholeha arrived at Waimea he became the king of the whole of Kauai as his wife was its high chiefess. It was his custom to go out fishing every day. This mother-of-pearl fish-hook, Pahuhu, was a great hook; every time it was let down into the sea and pulled up the aku would follow it into the canoe until the canoe was filled with them. The canoe in which he used to go fishing was a double canoe ten fathoms in length, and was manned by twenty paddlers who were its complement to steady the canoe while he fished for aku.

At the death of Keahaikiaholeha, his body was brought back to Kuukuua, Waianae, where it was placed in a tomb. The parents then proceeded to worship the spirit, as was the custom in those days of Hawaii, until it became so strong that it could go about in the form of a live person. After the spirit of Keahaikiaholeha had waxed strong, it returned to Waimea, Kauai, and again took his former wife and lived with her as her husband. The wife was not aware that this was her husband's spirit, fully believing that it was her husband in real flesh. It was while in this spirit form, that he was named Nihooleki. All he did during the day time was to sleep, not even taking food; the wife being the only one that took food. When the wife got hungry she would go to her brothers for food and meat. On one of her calls for food and meat the brothers asked her: "Where is your husband?" The sister replied: "He is at home asleep." "You have a queer husband. All he does is to sleep at home. How is he to satisfy his wife's hunger? Except we help you, you will not be able to live." While this conversation was going on between them, the husband heard all that was being said and when the wife arrived home Nihooleki asked his wife: "Have your brothers any mother-of-pearl fish-hooks?" "They have some." "Go and bring one." When the sister arrived at her brothers' they asked her: "What have you come for?" "I have come for a mother-of-pearl fish-hook for your brother-in-law." "That is right, that will get you something to live on. Here is a hook for the use of which we will charge ten aku. Here is another one for twenty aku," etc. The wife took one of the hooks and returned. When she entered the house and approached where her husband was sleeping she called out:

> Wake up Nihooleki,
> Wake up Nihooleki,
> The night comes and goes,
> The day comes and goes;
> The fishermen have sleepless eyes.
> Wake up, here is our mother-of-pearl fish-hook.

The husband asked: "What kind of a mother-of-pearl fish-hook is it?" "It is one resembling the glitter of a white shark," answered his wife. "It is the one the fish will not bite at."

It will catch but two aku.
One for the male spirit,
One for the female spirit.
The arms of the paddlers would become uselessly lame.
Where is the small pahuhu,
The one partly eaten by Kane?
Hanging there at the gable end
Being watched by a noio.
The current is flowing towards Makaena
Where swarm the aku,
Where the giving would be a pleasure,
When the worthless could have a share,
When the hungry up at Waiahulu could also have a share.

At this the wife again returned to the brothers. "What is it you want?" [they asked] . "My husband says the fish-hook is no good; it will catch but two aku and one cannot at that rate give any away willingly," replied the sister. The brothers again asked: "Where is the fish-hook that would induce the fish to bite more freely?" "My husband said that it is the one hanging up at the gable end of the house being watched by the noio." When they made a search sure enough they found a mother-of-pearl fish-hook that was being watched by the small black bird; it was Pahuhu. The noio was the supernatural bird sister of Nihooleki.

Upon the arrival of the wife at their house, the husband was still asleep. She then called: "Here is the mother-of-pearl fish-hook." "It is a Pahuhu," Nihooleki answered.

That is the mother-of-pearl fish-hook that the fish want,
You can then point with the hand,
You can give with pleasure.
The worthless can share,
The hungry can also have a share
Up at Waiahulu.

The wife then threw the fish-hook in the hand of her husband. He then rose, kissed it and wept over it. The reason why he wept was, because of his death he was thus kept away from his one great pleasure, fishing.

After the fish-hook was secured, Nihooleki said to his wife: "Go and get a canoe from your brothers. Not the one of five fathoms in length, nor the single canoe, but get me the double one that is ten fathoms in length. After you have secured the canoe, ask for twenty paddlers." When the wife arrived in the presence of her brothers, they asked her: "Here you are again, what do you want?" She replied: "I want a canoe." "Yes, you shall have one; take the one that is five fathoms in length." "That is not the one he wants. He wants a double canoe that is ten fathoms in length." "That cannot be. There is no double canoe of that size, nor would he be able to make use of it." The sister replied: "He said there is such a canoe. It is in the canoe shed." When a search was made they found one.

When the canoe was secured the twenty paddlers jumped aboard and took it to Nihooleki. When Nihooleki saw the canoe he knew at once it was the same one that was owned by him when he was alive. He then asked his wife: "Are you a favorite with your brothers?" "Yes." "Go and tell them that I want twenty men to steady the canoe with."

When the paddlers and canoe were ready the canoe was taken and left on the beach near the landing thinking that at the fourth crow of the cock they would make their start, as was the custom with the fishermen of those days; but it was not to be in this case. At the first crow of the cock the men got to the canoe; at the last crowing of the cock they pushed the canoe out. By this time all the other fishermen were out at sea. The men, however, still waited until daylight. When it became light enough to distinguish the features of the men they went back to the house feeling indifferent.

In the meantime Nihooleki was still in bed with his senses, however, all alert. The wife aroused him: "Wake up and make a start; this is the coolest time for the fishermen, when one is not made lazy by the heat of the sun." He answered: "Wait until it is light; at sunrise." Nihooleki then arose, got the bailing cup, reached for the calabash in which were kept all the fishing utensils, affixed his malo, then went out to the canoe and with one hand pushed it out into the sea. The paddlers then came down and jumped aboard. As soon as they got under way Nihooleki took out the fish-hook and began fishing. The aku came in such large numbers that in no time the canoe was loaded. They took this catch and threw it ashore. They went out and got a second canoe load and again it was thrown ashore. This was kept up until six canoe loads had been landed. By this time a large mound of fish had been piled up. The wife proceeded to give away, feed the pigs, give some to the loafers, sell some, and salt some, but a large number were still left over, there being so many. The people from the uplands came down with food, sugar-cane, bananas and everything else good to eat and all went home with fish, even those that came down without anything went home with their share. Those who were still in the uplands when they heard of the fish came down and returned with their share.

Nihooleki and his men then went out to mid-ocean along where his brothers-in-law were fishing, sailing right along by them. When his brothers-in-law saw his well- formed body they called out, "Puipuiakalawaia," making this his third name. Upon their arrival at Makaena, off Waianae, the men looked up and saw that they had reached the island of Oahu. Nihooleki again fished until the canoe was filled with aku. He then ordered his men to eat. After their meal when everyone was satisfied the remaining fish were thrown out until the canoe was bare, when they set off until they landed at Kaunolu, in Lanai, where they again caught some fish and eat till satisfied. Again they set sail until they reached Keauhou, at Kona, Hawaii, when Nihooleki told his men: "You may all go ashore here while I remain with our canoe. When you go ashore, take each of you one aku apiece. There are twenty of you, making twenty aku. When you get to that shed of coconut leaves in front of that house, where women are seated, throw down the fish, but don't look back." The men then went ashore while Nihooleki turned the canoe around. On the return of the men they immediately set sail for Kauai, and the same day reached the Kauai waters where the brothers-in-law were fishing. Nihooleki produced the hook and again the aku came tumbling into the canoe until it was sunk deep in the water with fish. When the brothers-

in-law looked up they saw the canoe and the fish; the canoe was so full that the men had to stand up. Upon their return to shore Nihooleki took up two aku for the male and female spirits, took a bath and went home, and told his wife: "Go to the paddlers and give them that canoe load of fish." He then went in and laid down. The fish from the first catch were beginning to get spoiled.

This was kept up for many days and everybody had fish. One day the news about the great catches was carried to Kamapuaa in the uplands of Waiohulu. Kamapuaa upon hearing the great catches said: "I could get some of that fish if I can only get down to the coast." Kamapuaa was the friend of Nihooleki; he was afflicted with the dropsy and was not able to walk; therefore some people carried him down to the beach; but being very heavy the men could only carry him a little ways at a time. By constant begging he however managed to get to the seashore. Before Nihooleki set out on a certain day to fish he gave his wife the following instruction: "In case a man with the dropsy should come, call him in as he is my friend."

After Nihooleki had started, Kamapuaa arrived and came and looked in at the door. "You filthy man, begone," said the wife of Nihooleki. Kamapuaa with the men that carried him down, went over to the hog pen and there waited for the return of Nihooleki his friend. When Nihooleki returned with the fish, he came and kissed his friend, and then turned to his wife and said: "You are indeed strange. I told you to take good care of my friend, but you have not done so. Never mind, you may stay, but I am going along with my friend." He then told his friend to give some of the fish to the men who brought him down. The men took all they could carry away, but still many fish were left.

When Nihooleki and Kamapuaa were ready to leave Waimea and the wife, Nihooleki addressed his wife saying: "When you give birth to the child within you, call him by my name, Keahaikiaholeha. Here are the tokens by which I shall know him should he search for me, my club and my feather cape." When the wife heard these instructions she wept: by these words the wife knew that this was her own husband, Keahaikiaholeha. When the chiefs and his brothers-in-law heard that this was the king, they came chasing after him. He and his friend then dove into the sea and swam under water until they came up at Kuukuua, at Waianae. One of the Kauai chiefs, however, came following behind them named Pohakuokauai, the same being that rock which is seen at Waianae even to this day. As they drew near to the house where the parents and sister of Nihooleki were living and near to the tomb where his dead body was laid, Nihooleki then turned to his friend and said: "Where are you? When you reach our parents ask them: 'Where is my companion that came along with me?' They will then give you an answer. Then ask them where certain things that belonged to me are. Proceed and take up the threshold where you will find my war helmet; under the place where our sister sleeps you will find a feather cape; at the foot of her sleeping place you will find the lei palaoa; and at the corner in the house is a kahili. Take our sister and make her your wife as she is fair to look upon and is also of proper age."

At the close of his friend's instructions, Kamapuaa continued on his way until he came in the presence of his friend's parents and sister. After proving himself a friend of Nihooleki's by producing the different articles in obedience to the instructions given him by his friend he was married to the sister of Nihooleki.

Keahaikiaholeha, who was Nihooleki, entered the tomb and disappeared. Thus ends this story."(Fornander 1916:488-496)

Kamaile in Wai'anae was one of the settings for the ancient tale of the survival of twin daughters born to Malaekahana and her husband, Kahauokapaka, who was chief of Ko'olauloa and Ko'olaupoko. In this story, Kahauokapaka vowed to kill all daughters born to him and his wife before they bore a son. After the births and brutal executions of four daughters, the distraught Malaekahana asked a priest to help as her womb grew with child. The story is as follows:

When for the fifth time Malaekahana conceived a child, near the time of its birth, she went to the priest and said, "Here! Where are you? Look upon this womb of mine which is with child, for I can no longer endure my children's death; the husband is overzealous to keep his vow; four children were mine, four are dead. Therefore, look upon this womb of mine, which is with child; if you see it is to be a girl, I will kill it before it takes human shape. But if you see it is to be a boy, I will not do it."

Then the priest said to Malaekahana, "Go home; just before the child is to be born come back to me that I may know what you are carrying."

At the time when the child was to be born, in the month of October, during the taboo season at the temple, Malaekahana remembered the priest's command. When the pains of childbirth were upon her, she came to the priest and said, "I come at the command of the priest, for the pains of childbirth are upon me ; look and see, then, what kind of child I am carrying."

As Malaekahana talked with the priest, he said: "I will show you a sign; anything I ask of you, you must give it."

Then the priest asked Malaekahana to give him one of her hands, according to the sign used by this people, whichever hand she wished to give to the priest.

Now, when the priest asked Malaekahana to give him one of her hands she presented the left, with the palm upward. Then the priest told her the interpretation of the sign: "You will bear another daughter, for you have given me your left hand with the palm upward."

When the priest said this, the heart of Malaekahana was heavy, for she sorrowed over the slaying of the children by her husband; then Malaekahana besought the priest to devise something to help the mother and save the child.

Then the priest counseled Malaekahana, " Go back to the house ; when the child is about to be born, then have a craving for the manini spawn, and tell Kahauokapaka that he must himself go fishing, get the fish you desire with his own hand, for your husband is very fond of the young manini afloat in the membrane, and while he is out fishing he will not know about the birth ; and when the child is born, then give it to me to take care of; when he comes back, the child will be in my charge, and if he asks, tell him it was an abortion, nothing more."

At the end of this talk, Malaekahana went back to the house, and when the pains came upon her, almost at the moment of birth, then Malaekahana remembered the priest's counsel to her.

When the pain had quieted, Malaekahana said to her husband, “Listen, Kahauokapaka! the spawn of the manini come before my eyes; go after them, therefore, while they are yet afloat in the membrane; possibly when you bring the manini spawn, I shall be eased of the child; this is the first time my labor has been hard, and that I have craved the young of the manini; go quickly, therefore, to the fishing."

Then Kahauokapaka went out of the house at once and set out. While they were gone the child was born, a girl, and she was given to Waka, and they named her Laieikawai. As they were attending to the first child, a second was born, also a girl, and they named her Laielohelohe.

After the girls had been carried away in the arms of Waka and Kapukaihaoa, Kahauokapaka came back from the fishing, and asked his wife, “How are you?"

Said the woman, “I have born an abortion and have thrown it into the ocean."

Kahauokapaka already knew of the birth while he was on the ocean, for there came two claps of thunder; then he thought that the wife had given birth. At this time of Laieikawai and Laielohelohe's birth thunder first sounded in October, according to the legend.

When Waka and Kapukaihaoa had taken their foster children away, Waka said to Kapukaihaoa, “How shall we hide our foster children from Kahauokapaka?”

Said the priest, "You had better hide your foster child in the water hole of Waiapuka; a cave is there which no one knows about, and it will be my business to seek a place of protection for my foster child."

Waka took Laieikawai where Kapukaihaoa had directed, and there she kept Laieikawai hidden until she was come to maturity.

Now, Kapukaihaoa took Laielohelohe to the uplands of Wahiawa, to the place called Kukaniloko.

All the days that Laieikawai was at Waiapuka a rainbow arch was there constantly, in rain or calm, yet no one understood the nature of this rainbow, but such signs as attend a chief were always present wherever the twins were guarded.

Just at this time Hulumaniani was making a tour of Kauai in his character as the great seer of Kauai, and when he reached the summit of Kalalea he beheld the rainbow arching over Oahu; there he remained 20 days in order to be sure of the nature of the sign which he saw. By that time the seer saw clearly that it was the sign of a great chief — this rainbow arch and the two ends of a rainbow encircled in dark clouds.

Then the seer made up his mind to go to Oahu to make sure about the sign which he saw. He left the place and went to Anahola to bargain for a boat to go to Oahu, but he could not hire a boat to go to Oahu. Again the seer made a tour of Kauai ; again he ascended Kalalea and saw again the same sign as before, just the same as at first ; then he came back to Anahola.

While the seer was there he heard that Poloula owned a canoe at Wailua, for he was chief of that place, and he desired to meet Poloula to ask the chief for a canoe

to go to Oahu.

When Hulumaniani met Poloula he begged of him a canoe to go to Oahu. Then the canoe and men were given to him. That night when the canoe star rose they left Kauai, 15 strong, and came first to Kamaile in Waianae.

Before the seer sailed, he first got ready a black pig, a white fowl, and a red fish.

On the day when they reached Waianae the seer ordered the rowers to wait there until he returned from making the circuit of the island. (Beckwith 1919:344-350)

In the Hiʻiaka Legends, Emerson (1915) describes the events that occurred at Waiʻanae and its coastal waters as such:

According to this version of the narrative, which is the preferable one, Hiiaka now took passage in the canoe and from Mana the reunited party sailed away for Oahu. By this happy reunion the otherwise dissevered narrative is brought into harmony and conflicting versions no longer pull away from each other like two ill-trained steers.

The voyage was not without enlivening incident. When the canoe had reached a point where the surges began to roll in the direction of Oahu Hiiaka saw two monster sharks disporting themselves in the waves whom she recognized as relatives on the side of her paternal grand-father, their names being Kua and Kahole-a-Kane. This was her second encounter with these sea- monsters; the first was on her recent voyage to Kauai, an encounter which had threatened serious results, if not disaster, to Hiiaka's expedition. As the story goes, when Kua and Kahole had become aware that Hiiaka's going was for the purpose of bringing Lohiau to the bed of Pele, they were moved to great disapproval of her enterprise : "A mere man," said they. "The idea of mating him with Pele is atrocious; and he is a dead man at that."

After taking counsel with the sea-goddess Moana-nui-ka-lehua, who had her boudoir in the deep waters of Ieie-waena, with her aid they raised a commotion in the sea and Hiiaka barely escaped being swamped by a mighty water-spout. For her part Hiiaka was quite ready to overlook this rough play of her old kinsfolk and to do the agreeable with them and she accordingly addressed them kindly: "How lucky for me is this meeting again with you out here in the ocean! It will enable me to relieve my hardships by a smack of real comfort."

The two sea-monsters felt unable to respond to Hiiaka's advances in a like spirit with her's [sic]. Their consciences plead guilty. "Look here," said Kua to his fellow, "this is our grandchild."

"Yes," his companion replied, "and she will put us to death. We'd better hide ourselves, you in your patch of surf, I in mine."

"That sort of a ruse won't avail us in the least." objected Kua.

"What then? Where shall we flee for safety?"

"To the mountains back of Waianae, to be sure," asserted Kua.

This suggestion meeting with the approval of his companion, they hastened to land and, having divested themselves of their shark-bodies and resumed human

form, they made for the mountains and hid themselves in the palaa fern. Hiiaka was greatly disappointed that these two old people should have so utterly misconceived her attitude of mind toward them as to rob her of their interesting company. She expressed her observations in song:

A makani Kai-a-ulu lalo o Waianae,
E wehe aku ana i ka lau o ka niu.
Ha'i ka nalu o Kua a ala i ka po ;
I hiki aku, i moe aku iuka ka luhi o ke kai :
Moe no a huli ke alo i ka paia.
Hiki ka alele a kou ipo
A koena lau ka ula e:
He ula aloha, e ! —
Makani pahele-hala o Kamaile-huna,
Ke wahi mai la e naha lalo o Malamalama-iki.
Ike'a Wai-lua — ke kino o ka laau,
Pau pu no me ke kino o ka Lehua wehe'a:
Wehe'a iho nei loko o ka moe,
Malamalama oko'a no olalo me he ahi lele la !
He'e, e-e !

TRANSLATION

A cat's paw ruffles the Waianae sea.
Lifting the fronds of the coco-palm;
The waves of Kua rise in time
And haste to repose neath the cliff.
To sleep secure with face to the wall.
Then comes my herald of peace, with
Its ear-tingling message of love,
Offering bounty and pardon as free
As the wind that shakes the hala tree.
Drawn is the bolt and open the door
Of the secret chamber under the sea,
Revealing the tricks of the merfolk twain,
Their bodies dead as the corpse of King Log,
And with them that of the Mermaid Queen ;
For a ray has pierced to their resting place,
As a lightning flash illumines the deep.
You're caught, my fellows, you're caught !

Neither Kua nor Kahole-a-Kane were relieved of their guilty fears by Hiiaka's soft words. They continued their flight along the same path which was soon afterwards followed by Hiiaka in her climb to Poha-kea. The only penalty inflicted by Hiiaka, when at last she came up with them and found them penitent, cowering in the brush, was their retirement from the ocean: not a light stroke, however, being almost the equivalent of taking away a mariner's commission, thus separating him from his chosen element, his native air." (Emerson 1915:161-162)

Hence, Waiʻanae, as a district has played a significant role in the overall legendary background of the island of Oʻahu.

3.1.8 Power and Warfare in Pre-European Contact Waiʻanae District

Oʻahu's political centers varied over time since the initial settlement of the island. In the early expansion of settlement on Oʻahu, Waiʻanae was not likely its own district, but a territory of ʻEwa District along with Waialua (Cordy 2002:22). During this early period of Oʻahu's political districting, the three major autonomous districts were ʻEwa, Kona, and Koʻolaupoko.

Yet, Līhuʻe, in Waiʻanae Uka near Kūkaniloko, has been the ruling seat of Oʻahu at times as well as the origin of several important chiefly lineages (Cordy 2002:31-35). In the 15th and 16th Centuries, the island of Oʻahu, as a sovereignty, was at its peak of political power. Waiʻanae District continued to be the birthing place and intermittent refuge for Oʻahu's *aliʻi*. Further, Waiʻanae was a place of refuge during ancient times where condemned persons of Oʻahu were granted amnesty during the time of war (Thrum 1910: 152).

According to Cordy (2002), several legendary rulers had maintained Oʻahu's autonomy, including: Kalaʻmanuia (1600-1620), Kākuihihewa (1640-1660), Kūaliʻi (1720-1740) and Peleiōhōlani (1740-1779).

Fornander (1916:408) maintains the following, "Oahu had four kings just prior to the time of Kakuhihewa; Lonohulimoku was the king of Koolaupoko; Lonohulilani was the king of Koolauloa and Waialua; Lonokukaelekoa was the king of Waianae and Ewa: and Lonoikaika was the king of Kona, from Moanalua to Maunalua. "

In The Legend of Kalanimanuia, the illegitimate son of Ku, the "king of Līhuʻe," which was one of the ruling seats of Oʻahu prior to Kamehameha's overthrow, was made ruler of Waiʻanae for capturing the heart of Ku's daughter and Kalanimanuia's half-sister, Ihiawaawa (Fornander 1916:548-552).

According to ancient *mo'olelo* (lore), rulership of Waiʻanae has been obtained in a variety of interesting ways. The story of Kalelealuaka is one example. Kalelealuaka, the son-in-law of Oʻahu's high Chief Kakuhihewa, was a clever and formidable warrior. In an attempt to gain the favor of his father-in-law and rulership of Oʻahu, he posed as a warrior from various Oʻahu districts, including Waiʻanae, fighting valiantly during numerous wars between Kakuhihewa and Kualiʻi. During each battle, the disguised Kalelealuaka took trophies as proof of his involvement and helped the crippled marshal, Maliuhaaino, avoid harm. Maliuhaaino sang his praises, though he never knew Kalelealuaka's true identity until the end of the final battle. Kalelealuaka was from that point on, Kakuhihewa's chosen heir. A portion of the story where Kalelealuaka poses as a warrior from Waiʻanae and is granted rulership over Waiʻanae is as follows:

> …On the morning of the day of battle, Kalelealuaka said to his wives that he had a great hankering for some shrimps and moss, which must be gathered in a particular way, and that nothing else would please his appetite. Thereupon, they dutifully set out to obtain these things for him. As soon as they had gone from the house Kalelealuaka flew to Waianae and arrayed himself with wreaths of the fine-leaved maile (Maile lauliʻi), which is peculiar to that region. Thence he flew to Napeha, where the lame marshal, Maliuhaaino, was painfully climbing the hill on his way to battle. Kalelealuaka cheerily greeted him, and the following dialogue occurred:
>
> > K. "Whither are you trudging, Maliuhaaino?"
> > M. "What! don't you know about the war?"
> > K. "Let me carry you."
> > M. "How fast you travel! Where are you from?"
> > K. "From Waianae."
> > M. "So I see from your wreaths. Yes, carry me, and Waianae shall be yours."
>
> At the word Kalelealuaka picked up the cripple and set him down on an eminence mauka of the battle field, saying, "Remain you here and watch me. If I am killed in the fight, you return by the same way we came and report to the King."
>
> Kalelealuaka then addressed himself to the battle, but before attacking the enemy he revenged himself on those who had mocked and jeered at him for not joining the forces of Kakuhihewa. This done, he turned his hand against the enemy, who at the time were advancing and inflicting severe loss in the King's army.
>
> To what shall we compare the prowess of our hero? A man was plucked and torn in his hand as if he were but a leaf. The commotion in the ranks of the enemy was as when a powerful waterfowl lashes the water with his wings (*O haehae ka manu, Ke ale nei ka wai*). Kalelealuaka moved forward in his work of destruction until he had slain the captain who stood beside the rebel chief, Kualii. From the fallen captain he took his feather cloak and helmet and cut off his right ear and the little finger of his right hand. Thus ended the slaughter that day.

> he enthusiasm of the cripple was roused to the highest pitch on witnessing the achievements of Kalelealuaka, and he determined to return and report that he had never seen his equal on the battlefield. Kalelealuaka returned to Puuloa and hid the feather cloak and helmet under the mats of his bed, and having fastened the dead captain's ear and little finger to the side of the house, lay down and slept.
>
> After a while, when the two women, his wives, returned with the moss and shrimps, he complained that the moss was not gathered as he had directed, and that they had been gone such a long time that his appetite had entirely left him, and he would not eat of what they had brought. At this the elder sister said nothing, but the younger one muttered a few words to herself; and as they were all very tired they soon went to sleep.
>
> They had slept a long while when the tramp of the soldiers of Kakuhihewa was heard, returning from the battle. The King immediately asked how the battle had gone. The soldiers answered that the battle had gone well, but that Keinohoomanawanui ["Sloven one"] alone had greatly distinguished himself. To this the King replied he did not believe that the Sloven was a great warrior, but when the cripple returned he would learn the truth
>
> About midnight the footsteps of the lame marshal were heard outside of the King's house. Kakuhihewa called to him, "Come, how went the battle?"
>
> "Can't you have patience and let me take breath" said the marshal. Then when he had rested himself he answered, "They fought, but there was one man who excelled all the warriors in the land. He was from Waianae. I gave Waianae to him as a reward for carrying me."
>
> "It shall be his," said the King.
>
> "He tore a man to pieces," said the cripple, "as he would tear a banana-leaf. The champion of Kualii's army he killed, and plundered him of his feather cloak and helmet."
>
> "The soldiers say that Keinohoomanawanui was the hero of the day," said the King.
>
> "What!" said the cripple. "He did nothing. He merely strutted about. But this man--I never saw his equal; he had no spear, his only weapons were his hands; if a spear was hurled at him, he warded it off with his hair. His hair and features, by the way, greatly resemble those of your son-in-law." (Thrum 1907:94-97)

Kualiʻi, one of Oʻahu's most celebrated chiefs, reigned during the 1700s. After becoming *mo'i* (head chief) of Oʻahu, he waged several battles with the independent chiefs of Waialua, Ewa, and Waiʻanae. Kualiʻi's famous *mele* (chant) was composed during one of these wars (Lyons 1893). According to lore, Kualiʻi fought several key battles with very small forces, sometimes as little as three men, ultimately gaining control over all districts on Oʻahu. Several of these battles took place in Waiʻanae. In the battle of Kalena, which is located in Waianae uka, the chief of Waiʻanae and ʻEwa Districts as well as the chief of Koʻolau District planned an ambush for Kualiʻi and his troops at Waiʻanae upon his return from Kauaʻi. The story is as follows:

> On their return from Kauai, Kualii desired to land at Kamaile, Waianae, but upon arrival there he found that the place was already prepared for battle under

> the command of the chief of Waianae and Ewa, the Koolau chief and his army had also arrived there and all were waiting for Kualii's return from Kauai when they would engage him.
>
> While out at sea some distance from land Kualii, by his supernatural powers, knew beforehand that Waianae was surrounded by an army which was waiting for him. So he remarked to Malanaihaehae and Maheleana: "Say, Waianae is surrounded by an army that is ready to fight us as soon as we make a landing." Before Kualii had sailed for Kauai he ordered his men to come and meet him at Waianae upon his return from Kauai, but when Kualii and his fellow travelers arrived outside of Kamaile they saw the place surrounded by an army. Upon seeing this they laid off in their canoes all that day and night. In the morning when Kualii looked he saw the pili grass of Kamaile was completely covered by the people.
>
> While on the canoes that morning Kualii, upon seeing the people, addressed them in the following words: "You no doubt want to fight Kualii, but where will the battle be?" The people from the shore replied: "As soon as the canoes land the fighting will commence." Kualii answered back: "Let us go to Kalena and fight there. If you insist on fighting here the canoes will continue by sea and land at Molokai." Because of this request of Kualii to go to Kalena and there fight, the chiefs of Waianae consented because it was but a reasonable request. Kualii, Maheleana and Malawihaehae therefore came ashore and proceeded by land to Malamanui. All that night both sides took a long rest; but early in the morning the fighting commenced at Kalena on the plains of Haleauau, at Lihue. On the one side there were twelve thousand men, while on Kualii's side there were but three men, and yet the armies of the chiefs of Waianae and Koolauloa were routed. Kualii named this the battle of Kalena. (Fornander 1916:412-414)

After the battle of Kalena, Kualiʻi fought three more battles, which gained him the title of Oʻahu's high chief. In several storied battles, Kualiʻi's title as high chief of Oʻahu was challenged by other district chiefs. Shortly after taking control of Oʻahu, other district chiefs conspired again in Waiʻanae during his conquest at Hilo on the island of Hawaiʻi. The story is told by Fornander (1916) as follows:

> …word was brought to Kualii at Hilo that the chiefs of Oahu had again risen against him and were ready to dispute his title as king of Oahu. Upon hearing this Kualii returned from Hilo to Oahu and found upon his arrival that all the people, together with the rebellious chiefs, had gone to Waianae to hold a council of war with the one set purpose of fighting him. When Kualii heard that all the chiefs were gathered at Waianae, he continued on with his chief warriors for that place. Upon arrival at the seat of war they looked and saw that the rebellious chiefs had indeed a very large army. No time was lost, however, for the battle immediately commenced, and again Kualii was victorious. After the battle Kualii and his chief warriors looked over the battle ground and saw that a very large number of men had been killed, so much so that the waters of Kalapo were dammed and a large number of dead bodies were strewn below Eleu. (Fornander 1916:414-416)

Also in the tale of Oʻahunui, the last of the Lo Aikanaka (man-eating chiefs) had set up an ambush site on a trail connecting the Waianae-kai localities of Lihue and Kalena to Oʻahunui to supply the cannibalistic king with his preferred dish of human flesh. [pg. 139 146]

3.2 Post European Contact Cultural Landscape

Ample accounts of Waiʻanae from varying perspectives spanning from the time of European Contact to the mid-20th Century have been identified during archival research for the proposed Auyong Homestead Road Improvements Project. Nakamura and Pantaleo (1994) provide a well-rounded summary of the area's history. A representative sample of these accounts is provided in this section.

3.2.1 European Contact

While Captain James Cook made the first known European Contact with Hawaiians in 1778, he did not set foot on the island of Oʻahu. In 1785, English Captains Nathaniel Portlock and George Dixon sailing the HMS King George and Queen Charlotte (respectively), arrived at Kealakekua Bay, Hawaiʻi Island, in May of 1786, the location where Captain James Cook met his demise in 1779, without going ashore. Portlock and Dixon anchored in a bay on the south side of Oʻahu in June of 1786 and came ashore the next day to obtain supplies and to hospice the sick. The ships stayed for five days before heading to Kauaʻi. In November of that year, Portlock and Dixon returned to Oʻahu, spending much time with Kahekili (Dixon 1789:101-107). Several visits to Kou (Honolulu) and Waikīkī on were made by Portlock and Dixon between 1786 and 1787, yet, no mention was made of any contact with Oʻahu's west side.

One of the earliest accounts of Waiʻanae region in the post-Contact era was provided in June of 1786 by English Captain Nathaniel Portlock, who made several observations of the Waiʻanae coast, which are as follows:

> The West side of Woahoo [Oʻahu] is very high and uneven, and near the shore there appear to be several small detached islands, within which there is a probability of meeting with good anchorage. From the North West, to the South West points, the land trends North West and South East, and likewise seems to promise well for anchoring ground; but the day being very hazy, we were prevented from examining it definitely. (Portlock 1798: 76-77)

In March of 1793 by Captain George Vancouver, during his sojourn around the Waiʻanae coast before heading to Kauaʻi, made the following observation:

> We found the western side of Woahoo [Oʻahu] lie in a direction from its s.w. point n. 25 w., 6 leagues to the west point of the island, which forms also the s.w. point of Whymea [Waimea] bay. The s.w. side of the island is principally composed of steep craggy mountains, some descending abruptly into the sea, others terminating at a small distance from it, whence a low border of land extends to the sea-shore, formed by sandy beaches, chiefly bounded by rocks, over which the surf breaks with great violence.
>
> From these shores we were visited by some of the natives, in the most wretched canoes I had ever yet seen amongst the South-Sea islanders; they corresponded however with the appearance of the country, which from the commencement of the high land to the westward of Opooroah [Puʻuloa], was composed of one barren rocky waste, nearly destitute of verdure, cultivation, or inhabitants, with little variation all the way to the west point of the island. Not far from the s.w.

> point is a small grove of shabby cocoa- nut trees, and along those shores are a few straggling fishermen's huts. Nearly in the middle of this side of the island is the only village [Waiʻanae Village] we had seen westward from Opooroah [Puʻuloa]. In its neighbourhood the bases of the mountains retire further from the sea-shore, and a narrow valley, presenting a fertile cultivated aspect, seemed to separate, and wind some distance through, the hills. The shore here forms a small sandy bay [Pōkaʻi Bay]. On its southern side, between the two high rocky precipices, in a grove of cocoa-nut and other trees, is situated the village, and, in the center of the bay, about a mile to the north of the village, is a high rock, remarkable for its projecting from a sandy beach. At a distance it appears to be detached from the land. Between this and the high rocky point to the south of the village, is a small bank of soundings that stretches some distance into the sea. On the south side of this bank the soundings were irregular, from 25 to 8 fathoms, rocky bottom; but, to the north of it, near the rock, no ground could be reached with 90 and 100 fathoms of line, though not more than the fourth Of a mile from the shore; this we found to be the cafe also a little to the southward of the bank. - In both these places we were for some time very awkwardly situated, without wind, yet with a swell and current that set us so fast towards the land, that I was under some apprehension for the safety of the ship, as the united force of the current and swell prevented any effect from the assistance of the boats; from this dilemma however we were happily relieved, by a breeze springing up, that enabled us to increase our distance from the land.
>
> The few inhabitants who visited us from the village, earnestly intreated [sic] our anchoring, and told us, that if we would stay until the morning, their chief would be on board with a number of hogs, and a great quantity of vegetables ; but that he could not visit us then because the day was taboo-poory. The face of the country did not however promise an abundant supply; the situation was exposed, and the extent of anchorage was not only very limited, but bad; under these circumstances, having, by eleven at night, got clear of the shores, I deemed it most prudent to make the best of our way, with a light s.e. breeze, towards Attowai [Kauaʻi]. (Vancouver 1798: 217-218)

These observations were entirely made from the ship as it slowly sailed past the coast of Waiʻanae. Further, it appears that the only commentary of the people was based upon the few individuals that canoed out to greet Vancouver's vessel.

As Accountant and Superintendent of Secular Affairs in Hawaiʻi, Levi Chamberlain travelled through Waiʻanae in the early 1830s, he made some observations of the lands of Waianae and its people. Chamberlain writes:

> As soon as we had got on board preparations were made for sailing and it was not long before we were under way & found our-selves receding from the shores of Oahu. We had pleasant breezes from the north and we soon lessened the houses on shore, it was not long before the tops of the highest buildings & the cocoa-nut trees were out of sight and the bold outlines of the mountains and prominent head lands were all that could be seen. Barbour's Point [sic] seemed to recede as we advanced and no longer had the appearance of Lailoa (Long Point) [Kalaeloa] but as the mountains of Waianae with their dark indented sides and lofty summits opened upon us was lost in the spur of a mountain. I had not the slightest feeling of sea sickness and enjoyed the view of the island as it was

> presented from the deck of the vessel while she rode gallantly over the wave in the watery element. I thought of the wide expanse of ocean on which we were embarked, its age- immense depth & power, its innumerable & variously organized [sic] inhabitants - I thought of it as in His hand who poured it out, proportioned it to the solid land and has fixed its everlasting bound. I queried what was below us many fathoms deep- what beds of coral- what shells of various hue- what caves the abode of numerous finny tribes- why not vallies [sic] & mountains over which the proud waters roll and whose deepest agitations trouble not their lofty summits, much less the profound repose of their sloping, indented or precipitous sides. (Chamberlain 1840:4-5)

3.2.2 Early Historic Era

After Cook's death at Kealakekua on the island of Hawaiʻi in 1779, Europeans did not return to the island chain until Portlock and Dixon arrived in 1786. Portlock and Dixon travelled between the islands in 1786 and 1787, spending considerable time at Oʻahu, but did not make any note of Waiʻanae. Westerners flocked to the Hawaiian Islands soon after, forever changing the cultural landscape of Hawaiʻi.

The decimation of the Native Hawaiian population in the early European Contact period appears to have been due mainly to foreign diseases as well as a trend to move closer to the city of Honolulu for more opportunity in an increasingly Western world. According to an 1835 missionary census, 1,654 people resided on the Waiʻanae Coast. However, a census taken in 1855, only 183 tax payers were recorded for the area, which suggests only about 800 people were living there at that time. This decrease in population may have been a result of disease as well as the Great Mahele granting large tracts of lands into the hands of a few landowners (Hammatt et al. 1993:10-11).

Many descriptions of Waiʻanae during this time of great change were found. Listed in this section are the earliest accounts and those that best describe Waiʻanae District and/or Lualualei Ahupuaʻa specifically.

<u>Descriptions of Waiʻanae's Physical Environs & Peoples</u>

From the journal of the American Captain James Frothingham Hunnewell, some of the earliest observations of Waiʻanae were found. In 1817, Hunnewell landed on Oʻahu and remained for nearly a year, recording much of his observations and interactions with Hawaiians. The following March 1818 journal entries describe his accounts of Waiʻanae:

> "Friday, 27th. Pleasant and clear. We went along the seashore as far as Whyany *(Waianae) village, where we found a chief of our acquaintance who treated us well and accommodated us at his house, where we spent the remainder of the day, and the night. […]
>
> "Saturday, 28th. Clear and pleasant ; the weather hot. Spent the day in and about the village, making our home at the house of our friend. Wyany [sic] is a beautiful valley. In the centre is a large grove of cocoanut trees. It was formerly the residence of the king of this island. The ruins of the old morais are hardly visible. […]

"Sunday, 29th. Warm and pleasant. In the morning, going in to bathe I struck my head against a stone and cut it considerably. *[He always retained the mark.] Spent the heat of the day at the house, and in the afternoon walked as far as Koheedeedee *(deedee—liilii), and stopped for the night. (Hunnewell 1909:12-13)

*commentary provided by his son, James F. Hunnewell, who transcribed the journal in 1895.

These journal entries offer the earliest post-European Contact descriptions of Waiʻanae from first hand observations of a Westerner who actually visited the area and interacted with its people and chief.

In 1838-1842, U.S. Naval Commander, Charles Wilkes, led an exploration of the United States and the Hawaiian Islands. During this expedition, Wilkes mistakenly arrived at the village of Waianae instead of Honolulu. His commentary, which is not very complementary, perhaps due to the crew having just missed the chosen port by a sizable distance, is as follows:

On the 23d of September we made the island of Oahu …On approaching the land there was no town to be seen and every one [sic] then knew that a mistake had been made of which no one was willing to assume the blame Instead of being off Honolulu we were under the high land of Mauna Kaala on the west side of Oahu near the small village of Wainai [Waianae].

The appearance of Oahu is by no means inviting it has a greater resemblance to the desert coast of Peru than any other of the Polynesian islands we had visited and has as little appearance of cultivation The country would be termed at first sight barren and rocky The land in places is very much broken and rises into high ridges here and there divided by deep and narrow ravines with little vegetation except on the mountain ranges From the published descriptions of the Hawaiian Islands I was prepared to see them and particularly Oahu a perfect garden I was inclined to impute my disappointment to our approach being made on its lee side which is unusual but I regret to say that any side of it when seen from the sea is very far from having an inviting appearance.

Judging myself still to leeward of our port as our observations on calculating them up proved I made a tack off and by four o clock we saw the town of Honolulu…(Wilkes 1849:372-373)

During this trip, his botanists journeyed to Waiʻanae and shed a more favorable light on its physical environment and people, Wilkes writes of their experience:

Dr. Pickering and Mr. Brackenridge made a tour to Waianae, for the purpose of examining more particularly the Kaala Mountains for plants. Waianae lies on the southwest side of the range, and on the sea shore under it. After stopping a night at Ewa, they took a middle route, and passing through a gap in the mountain, fifteen hundred feet in elevation, reached Waianae in the afternoon, a distance of sixteen miles. Here they were kindly welcomed by the chief, who acts in the capacity of ruler, preacher, and schoolmaster; he is, likewise, a fisherman, and a manufacturer of wooden bowls, in which he showed himself quite expert.

The natives are much occupied in catching and drying fish, which is made a profitable business, by taking them to Oahu, where they command a ready sale.

The population is about fifteen hundred, one thousand of whom belonged to the church under the superintendence of the Rev. Mr. Bishop; but since the establishment of the Catholics, one half have joined in their mode of worship.

While at Waianae, they extended their walks in different directions, along the beach, at the foot and sides of the mountains, meeting with several very interesting plants: at the base of the mountains several half deciduous trees, and bushes of sandalwood (*Santalum freycinetiarum*). It was observed that the stems of the trees and plants were very succulent, which enables them to withstand the severity of the droughts; the quantity of rain that falls here being very small.

They endeavoured [sic] to make an ascent on one of the ridges, but found themselves obliged to give it up, when they had reached half the altitude of the mountain.

Travelling here, they witnessed an economy of time that would have been remarkable in any country. At a house, one of the natives who accompanied them procured a chicken and some hot stones from a fire; he then tied them up together, and carried them along: when they arrived at the next stopping-place, the chicken was produced ready cooked!

On the plain behind the village, they found the *Agati grandiflora* growing in a wild state; the flowers were smaller and of a darker orange than those seen cultivated. They left Waianae after being two days with the chief, who charged them four dollars for their lodging, which will give some idea of native prices. Passing the mountain range by a different route, their collections of plants were but little increased. A new species of Morus, a singular plant belonging to the Violaceae family, a Dracrena of robust growth, and a few ferns, were all that they obtained.

> Mauna Kaala has the appearance of being a flat topped mountain but this is not the case the evenness of the ridge alone giving it that appearance. (Wilkes 1845:81-82)

Other post-Contact observations of Waiʻanae's scenery carried a romantic tone. Another commentary was provided by George Bowser in his 1880 tourist guide article, "An Itinerary of the Hawaiian Islands." His commentary on the area provides a glimpse of the early Western take-over of the land, the early Western settlers, as well as some of the earliest Western observations of Lualualei and Nānākuli, which are as follows:

> Leaving Waianae, a ride of about two miles brought me to the Lualualei Valley, another romantic place opening to the sea and surrounded in every other direction by high mountains. This valley is occupied as a grazing farm by Messrs. Dowsett & Galbraith, who lease some sixteen thousand acres from the Crown. Its dimensions do not differ materially from those of the Waianae Valley, except that it is broader–say, two miles in width by a length of six or seven miles. The hills which inclose [sic] it, however, are not so precipitous as those at Waianae, and have, therefore, more grazing land on their lower slopes, a circumstance which adds greatly to the value of the property as a stock farm. Although only occupied for grazing purposes at present, there is nothing in the nature of the soil to prevent the cultivation of the sugar cane, Indian corn, etc. Arrangements for irrigation, however, will be a necessary preliminary to cultivation.
>
> From the Lualualei Valley to the Nanakuli Valley I had a rather dreary ride of three miles. The intervening country towards the sea is barren, with a little pasturage at the base of the mountains. The track, however, is in very good order, much better than I expected to find it, looking to the mountainous and rocky character of the country through which it passes. At Nanakuli and at Hoaeae, close adjoining, the Messrs. Robinson have cattle ranches. The pasture here cannot be compared with that in the valleys I had just left behind, but inland among the mountain ranges it is much better. This, indeed, is a characteristic of the ranges throughout the island.
>
> During my journey along the western coast of this island, where the road is generally so much more fatiguing to the traveler than that of the windward side, I have often pulled up to give both horse and rider a spell, whilst I entered into a chat with some group of natives whom I have fallen in with, or whose little hamlets I have been passing at the time. More than once, too, I have passed the night at their houses. I have always found them very sociable and thoroughly hospitable. At the same time, I cannot say that I have, up to the present time, acquired a thorough relish for some of the dainties which they are ready to press upon one. I have eaten poi, and should have no objection to do so again. I have, however, not learnt to eat this national food properly–in native fashion, I mean. That dexterous curl of the finger, by which about a wineglassful of poi is transferred from the calabash to the eater's mouth at one stroke, I never attempted to acquire. I suppose I destroyed all the romance of a thing by accepting the use of a tumbler and a teaspoon, but I have to confess that I felt much more ready to dispense with the romance than with the spoon. Another dish I never could properly take to is a great favorite with the natives–I mean raw fish. In this case, it is not the method of eating, but the food itself, which I

> could not bring either mind or palate to relish. A further custom which I abstained from falling in with, is the circulation of an old black pipe, which one native will fill and light, and, after drawing a large mouthful of tobacco smoke for his own share, hand to his next neighbor, who, after indulging in a good "draw," passes it on. When I had occasion to sleep at the houses of natives, they always managed to find a good bed for me to sleep on, but for themselves a mat on the floor and a pulu pillow seemed to be all they desired. (Bowser 1880:493-494)

Writer, Charles Stoddard, composed an article about his visit to Hawaiʻi in the late 19th Century, describing the beauty of the area enlisting a verse from Alfred Calhoun's 1893 historical novel, stating:

> Turning again, we saw the sun-burnt hills beyond Palama, and the crisp cones of the small volcanoes, and more sea, and then the exquisite outline of the Waianae mountains, of a warm, dusty, purple, and with a film of diffused rainbows floating in the middle distance.
>
> Has not the poet sung of Waianae:
>
> "No sound is on the shore
> Save reef-bound breakers roar,
> Or distant boatman's song, or sea birds cry;
> And hushed the inland bay,
> In stillness far away,
>
> Like phantoms rise the hills of Waianae."
> (Stoddard 1897:23)

Although it is uncertain whether the chant was traditional, it supplements the author's recollection of his experiences in Waiʻanae during the late 19th Century.

In 1902, two female American researchers studying seaweed and algae in Hawaiʻi spent a considerable amount of time in Waiʻanae, providing an objective description of Waiʻanae during the turn-of-the Century. Josephine E. Tilden and Caroline M. Crosby set up a lab for their studies at Waiʻanae Plantation, where the coasts provided the miles of pristine coastline. Tilden writes of her experiences in Waiʻanae as follows:

> Having made a round trip journey over the Oahu Railway and Land Co. line, the only railroad on the Island of Oahu, we decided to locate our camp at the Waianae plantation, thirty-three miles west of Honolulu. The third day found us comfortably established in pleasant rooms. A large unused, well-lighted back room in the railway station building was given us for a laboratory. We made tables extending around three sides of the room out of trunks and packing boxes. In front of one window the microscope was set up for Miss Crosby, and at the other were my quarters where I could attend to my mounting and pressing. Certainly no more could be asked. It all seemed like a fairy tale. Our

surroundings were perfect. Our new friends overwhelmed us with kindness. If only the algae were forthcoming.

There was low tide early the next morning, and down to the beach we hurried. With a feeling of despair we scanned the rocks, for disappointment stared us in the face. To one accustomed to mammoth seaweeds of the Straits of Fuca, which aggressively compel attention, the Waianae beach seemed absolutely barren. But, finally, a little, odd-appearing plant was discovered, and then a second, and down under a ledge of rock a bed of queer red bags, and, in a word, it was six weeks before we were able to stop collecting algae on the shores of Waianae.

There was found to be very little difference between low and high tide, about three feet in reality, but the low tides were generally accompanied by high waves, so that it was always difficult to collect.

We used to rise at five, awakened by the horribly discordant lay of a clock with a Chinese alarm. After breakfast of rice, sweet potatoes, stewed mangoes or fresh cocoanut we hastened to the laboratory for our collecting aprons, pails and knives, and then were off for a two or three mile trip up or down the beach. Among the more conspicuous and common forms growing on the rocks here were the following: *Microdictyon umbilicatum*, with its curious net-like frond; the somewhat remarkable *Dictyosphoeria favulosa*; *Halimeda tuna*; *Caulerpa taxifolia*, looking like a *Lycopodium* prostrate and half buried in the sand; two interesting varieties of *Cladophora* which have recently been pronounced new by Herr Brand — *C. composita contracta* Brand and *C montagnei waianeana* Brand. Incoming waves generally brought a supply of *Codium adherens* and *Codium tomentosum* both of which are known as *aalaula* by the Hawaiians and used, uncooked, as food. In certain places were beds of the well-known *Padina pavonia*. *Hydroclathrus cancellatus* was a stiff, brown, perforated cushion. *Turbinaria ornata*, one of the most highly specialized types of the Fucacae, bearing its fruit on short, stiff, umbrella-like branches, grew always just where the waves were so strong that no one could possibly reach it. Two species of *Sargassum*, growing together, extended over a wide area and were not seen again on the islands. The fronds of these, ground up into bits and mixed with raw fish torn into small shreds, formed a sort of salad very highly prized by the natives. Boiled with squid, they also regarded it as a great delicacy. The native name was *limu kala*. The red algae were most common. *Asparagopsis sanfordiana* had the appearance of a little pink or flesh-colored pine tree, and, though most frail to the touch, it stood with ease the onslaught of the waves, *Wrangelia penicillata*, a pretty, brownish-green, filmy, fern-like plant, grew in tide pools which were constantly replenished by dashing waves. Deep, shaded crevices in the reefs were lined with growths of the dark red rosettes of *Amonsia glomerata*. Several species of *Galaxaura*, and *Liagora* were common. […]

Sometimes we would all three of us go off for a stay of several days at a more distant place. We spent four days at Waikiki beach, where numerous new marine forms were picked up from the "wash." Both here and at Waianae we had many opportunities of seeing surf-riding, by native men and boys. The surf board is shaped like an ironing board, about two feet wide and nine feet long. The man swims out to smooth water, selects a wave of the right kind and mounts his board. It receives the momentum of the surf and he rides in on the surface of the water and is landed safely on the beach. (Tilden 1904:133-135)

Tilden's observations provide a hint of what life was like in Wai'anae at around the turn-of the-Century and the hospitality of its people. Additionally, she describes Traditional uses of *limu* and local cuisine of Wai'anae as well as the art of surfing.

3.2.3 Christianity in Wai'anae District

Letters and reports written by missionaries and religious officials were additional sources to obtain early descriptions of Wai'anae and its people. Ephraim W. Clark and John S. Emerson were some of the first missionaries to spread Christianity to Hawaiians on O'ahu in the early 19th Century. Upon deciding to create a new missionary station in Waialua, Clark and Emerson (1832) describe the populations of several localities of O'ahu, including Wai'anae. "The number of inhabitants according to a late census is as follows: -- Waianae 1,868 Waialua 2,640 Kalauloa 2,891 total 7,399"(Clark and Emerson 1832:365). In the 1830s, the missionaries considered Wai'anae an outpost in the district of 'Ewa. Reverend Emerson and Reverend Lowell Smith were then the head pastors of 'Ewa and Wai'anae, and describe the evolution of Christian conversion in these parishes as such:

> According to the recent census, there were about five thousand people in the district, including Waianae as an out station. The people were scattered along in thirteen small villages or ahupuaa upon the coast from Halawa to Honouliuli — and thence on to Waianae, some twenty miles. Formerly, under the mandate of the chiefs ; if notice was previously given that Brother Clark, or some other missionary would come and preach on the Sabbath, a thousand people, more or less, would assemble together.
>
> But a *revolution backward* had just taken place; and the moral aspect was quite dark and discouraging.
>
> The young Prince, Kauikeouli, subsequently Kamehameha III; whose headquarters for dissipation were at Waipio — had recently plunged into a debauch of intemperance and licentiousness; and the hula was in full blast all through the district; the great majority of the people had forsaken the pono, and were following in the wake of the Prince. It was several months before I could get more than one hundred and fifty people together on the Sabbath.[…]
>
> In January, 1835, I made a tour to Waianae, in company with Punahaole, a good man, where we met Brother Emerson and Kuokoa, his right hand man. But the *revolution backward* at Waianae was worse if possible than it had been -at Ewa. We found it very difficult to get more than twenty- five or thirty persons together to a religious meeting. We spent one night there talking with Madam Boki and Kaapuiki and a few others, trying to persuade them to forsake their evil ways and accept of salvation as it is offered in the Gospel. People who have been partially Christianized, and then turn back again to folly and heathenism, are apparently far worse than ever.
>
> On our way to Waianae, we saw a heathen God by the side of the road. It was a stone dressed with tapa, standing upon a pile of stones. Its worshipers offerred [sic] it a piece of tapa every time they passed by it. Alas for those whose gods are naught but wood and stone. […]
>
> On Saturday, the I5th of August, I made another visit to Waianae, and spent the Sabbath there; accompanied by some of the Hawaiian brethren from Ewa; and

> we were very kindly and hospitably entertained by Kaapuiki, the head man of the district. This time he not only gave us enough to eat and drink, but he presented us a new house, well furnished with mats and sleeping tapa, which he said was for the use of the teacher and his attendants whenever he came to Waianae.
>
> At the blowing of the horn Saturday evening, 127 natives came to our meeting. At sunrise, Sabbath morning, 150 came; and at 10 a. m., we had an audience of 257. At the prayer meeting, Monday morning, 150 came; and at the close, seven couple [sic] presented themselves to be married!! This was obviously turning over a new leaf. We returned to Ewa that day, quite encouraged for the district of Waianae. (Hawaiian Mission Children's Society 1887:79-86)

Thus, Christianity was reluctantly, but eventually embraced by the people of Waiʻanae. Later, early Hawaiian missionary, Artemas Bishop, wrote a report in 1841 on the status of ʻEwa and Waiʻanae conversions, stating:

> The hopeful conversions within the districts of Ewa and Waianae have not been numerous during the past year. Thirteen have been admitted to the church in Ewa, and six at Waianae, on profession. Eight persons under discipline for various offences have been restored on repentance. But the greater part of those who are disciplined do not return to give glory to God; they either pass over to the Romanists, or, more commonly, return to their former state of unbelief, and live in apostasy. Here we find our greatest trials; and the frequent instances of defection tend greatly to weaken our confidence in the general sincerity of converts from heathenism. But we have always counted upon such reverses in prospect, as the probable fruits of their former heathenism, and, therefore, do not feel discouraged, so long as a goodly number walk worthily, and adorn the character which they bear before the world. These are our comfort and crown of rejoicing.
>
> Our congregation at Ewa, on the Sabbath, numbers about one thousand; and on occasions of special interest it is much greater. That at Waianae is between four and five hundred. (Bishop 1841:199)

However, during the early European contact period, the district or village appears to have been a "safe haven" for Kamehameha III's royal court to escape the harsh judgment of missionaries. Chamberlain states:

> Thursday Septr. 19th 1833. Reed [sic], a letter this day from Mr. Emerson at Waialua. He states that the King set out yesterday morning for Waianae. He writes "The King has abandoned drinking rum, they say, and takes wine & .gin in its stead. His company acted like harpies. They located themselves on one side of the river & Hoapili ma on the other. The King did not come to meeting; took tea with us once, but afterwards showed a desire to keep away. His company kept up the hula every night & stole just what they could lay their hands on, turned their horses into a large field of potatoes of Laanui's and nearly destroyed them. I should think there were near 150 barrels then. The king has added to his train all that please to follow him, who for drinking rum & have been [turned] off their lands, at Kahuku & at this place & at other lands so that they go now like a company of locusts, eat all before them and leave the land behind them

> pilau loa. It is trying to republican nerves to see such conduct & say nothing..." (Chamberlain MS:V18;1)

Chamberlain later writes of a similar event where King Kamehameha III fled to Waiʻanae to be with his half-sister, Kīnaʻu, writing:

> July 22 1834. A letter from Auhea to Kinau gives the distressing notice that the Princess has been guilty of Cohabiting [sic] with her brother. Last night at 3 o'ck the shameful & criminal act was done in the house of Paki. The King & his sister propose to go to Waianae to get as far away from their teacher as possible and to put him to all the trouble they are able to get to them. They do not consent that Auhea & Hoapili shall accompany them. This is indeed wickedness in high places. The Lord look upon it & overrule it for the good of his church in these islands. The Lord reigneth let the earth rejoice. He can lift up a standard when the enemy breaks in like a flood & overrule evil & brig the greatest good of it. May this be the case now. (Chamberlain Ms.:V18;18)

In the early 20th Century, the problem of maintaining Waiʻanae parishioners persisted. Missionary and son of Artemas Bishop, Serano Edwards Bishop, commented in 1916 on what he held were unfavorable "Moral Conditions in Ewa and Waianae," stating:

> I was in Ewa three and a half years, being then sent "home" to the States, after the custom of missionaries' children. During that time I witnessed a constant and arduous devotion of my parents to spiritual and educational labor for the native people. My father's parish was a large one extending from Salt Lake to Kaena Point, including the districts of Ewa and Waianae, with a population of seven or eight thousand, exclusively Hawaiians. Owing to their contiguity to a large sea port, the moral condition of the people was more corrupt than at Kailua. In Ewa, a considerable body of hopeful Christians had been gathered into the church. Most of the people gave a friendly attention to religious teaching. The proprietary chief of Ewa was the pious Premier Kinau, whose influence secured the general adherence of the people to the missionary. It was otherwise in Waianae whose proprietary chief was Liliha, or "Madam Bobie," [Boki] who had long been hostile to the Protestant missionaries. The Waianae people were accordingly averse. (Bishop 1916:43)

Later, S.E. Bishop wrote article titled the "Persecution of the Catholics," in which he describes his father's displeasure with the King for his punishment of Hawaiian Catholic parishioners of Waiʻanae for worshipping images of the old gods in 1836. S.E. Bishop writes:

> My father was of habitually even temper. One of the very few occasions when I ever saw him betray angry excitement, was in 1836, when we saw passing opposite our house at Ewa on the public road one morning, a company of perhaps forty Catholic natives, who were being led over from Waianae to Honolulu under guard to receive at the capital sentence to labor on the roads for their crime of worshipping images, contrary to the royal statutes. The good missionary was grieved to the heart, and deeply roused, to see men and women in his parish suffering ignominious punishment for the practise [sic] of their religion, even though he believed them to be sadly misguided. He immediately mounted his horse and rode to Honolulu to expostulate with Kinau and Kekuanaoa. His remonstrances [sic], however, were ineffectual. The native rulers had adopted a determined policy of suppressing by force what they deemed to

> be real idol-worship, forbidden in the second Commandment. I cannot personally testify that all the Protestant missionaries were equally opposed to that persecuting policy, although I suppose that they were so. This arbitrary course of the chiefs was put to an end in the following year by the visit of a French warship. (Bishop 1916:51)

Hence, in Waiʻanae, the acceptance of Christianity was met with challenges from as early as the early 19th Century up until the early 20th Century.

3.2.4 Land Ownership & Land Commission Awards

Private land ownership was introduced into Hawaiʻi during the 1848 Māhele ʻĀina (land division) of 1848. Crown and *aliʻi* lands were awarded in 1848 and *kuleana* titles were awarded to the general populace in 1850 (Chinen 1958). The awarded lands are called Land Commission Awards (LCAs). A review was made of the LCAs located in the vicinity of the current project areas. The review of the LCAs was conducted to determine previous documented land use (both Pre-Contact and Historic), which may indicate the types of sites present in the area. According to Hammatt et al. (1985:23-27), during the Great Mahele, Waianae Ahupuaʻa, which then included Lualualei and Nānākuli, became Crown lands as part of King Kamehameha III's claim.

In Lualualei Ahupuaʻa, a total of twelve land claims were made, however, only six were awarded. Of the six Lualualei awards, all were located in the *ʻili* of Pūhāwai, which is located approximately 5.5 miles (ca. 9 kilometers) northeast of the current project area. According to Cruz and Hammatt (2010:19), "From the claims, it can be determined that at least eight families were living in Pūhāwai at the time of the Māhele in 1848. Together, they cultivated a minimum of 163 *loʻi* (wetland agriculture) … In addition, dry land crops were grown on the *kula* (plains), *wauke* was being cultivated, and one claimant was making salt." Cordy et al. (1998:36) provides an estimate of the coastal Lualualei Ahupuaʻa population, despite lack of land titles, as being up to 90 individuals at around this time period.

A letter written by Hawaiian-American Speaker of the House who also hailed from Waiʻanae District, F.W. Beckley, to the Territorial government of Hawaiʻi provides an interesting commentary land ownership and conveyances issues in Waiʻanae District, focusing on Māʻili, which is in Lualualei Ahupuaʻa. His letter reads as follows:

> Gentlemen: Upon request of some of my fellow Hawaiian-American citizens from Waianae, I ask leave to file with this committee a copy of a statement I would like to make with reference to the policy the Territorial government has followed in the disposition of public lands in the Waianae district on this island of Oahu.
>
> About the latter part of last year the lease of the government Ahupuaa of Waianae to the Waianae plantation expired.
>
> The plantation applied for renewal of the lease for the portion ready partly cultivated by them and presumably the most fertile in t whole Ahupuaa, known as Upper Waianae, comprising an area of 332 acres.

> A company of 10 Hawaiians then made application for right-of-purchase lease, in lots of 100 acres each, of the sandy plain to the seaward is makai of the tract wanted by the plantation.
>
> The plantation's application was entertained, and the area of 3,332 acres put up as a whole, thus excluding possible competitors, as the plantation under the circumstances could afford to give a higher rental than anyone else, by the compulsion to take this large area in a lump.
>
> The native Hawaiians' application was refused by the executive council (an illegal body) on the ground that the government contemplated at some future time laying out house lots on the beach below the railroad, and thus below the tract applied for by these people.
>
> The tract applied for is known as Maili and so marked on government survey map accompanying this memorial.
>
> It is also marked "Sandstone Plain," and is a sandy plain now over-gown by algaroba trees, which thrive under such conditions. Land of that kind without irrigation will grow very little of anything else except in the rainy season, when a somewhat uncertain crop of sweet potatoes and pumpkins might be raised in a few favored spots.
>
> Brackish water only could be obtained from wells, not very good cultivation.
>
> This company or association of Hawaiians stated in their application that the land was to be used as homesteads, with hog and chicken raising as a main industry. Algaroba beans or pods are very fattening for either; also for stock of all kinds.
>
> The price of both hogs and chickens are very high here and practically prohibitive to people of small means.
>
> By drying and saving the kiawe or algaroba beans as the main reliance for their stock, to be supplemented in winter with quick-growing greens and at other times by purchasing wheat, corn, and rice bran, they expected to be able to make a comfortable living. They were given no chance.

About the same time a large tract of land called Lualualei and adjoining land leased to plantation and the plains of Maili applied for by the Hawaiians were surveyed by order of the government and cut up into six large lots of over 1,000 acres each, which were to have been put up at auction outright.

Taking $5 per acre as the average that could have been obtained at an open sale, you can see how such action would practically throw all lands into the hands of the wealthy.

It is understood the sale did not take place because the commissioner of Public lands refused to agree to it. But he makes this concession to the promoters of that scheme and advertised in the local papers to effect that "the government is desirous of disposing of about a half dozen lots of 500 or 600 acres, by special time payment agreements of sale, requiring conditions of residence or improvements or both. In order to be informed of the demand for such lands under the said conditions I (E.S. Boyd) should like to receive communications from those interested, inclosing any question they may wish to ask on the subject."

It is understood applications to suit have been already placed by the favored parties, and the lands are about to be awarded to the lucky ones, but what of the 10 poor Hawaiians who were seeking to obtain homes capable of giving them an independent living and not eventually be obliged to accept the position of plantation laborers who are quite equal to that of the forced Mexican peon?

If Maili was to be preserved from contamination of hog raising the remote possibility of turning the seabeach [sic] below the railroad to a fashionable watering place, why not offer one or more of the subdivided originally into 1,000 acre holdings and situated from a quarter to a mile away from this future Newport or Bar Harbor.

The policy of the present government has been to make possible the general Hawaiian homesteaders only some out of the way where it would be an endless struggle to make enough to keep and soul together.

Wherever there is a favorable opening to make a self supported homestead the native Hawaiian need not apply.

This and other similar acts showing a settled policy to discount and deprive natives of any chance to better themselves are the rest of the feeling of intense dislike and opposition toward the present government officials shown by the majority of the native Hawaiian.

FW Beckley (Beckley 1903:170-171)

This letter voices Mr. Beckley's displeasure with the Territorial Government of Hawai'i for favoring a large corporation over this group of Native Hawaiians to purchase lands in Lualualei Ahupua'a. This letter also provides an interesting perspective on Historic relationships between Native Hawaiians and the Territorial Government as well as the Territorial Government and large corporations. Further, this letter offers a glimpse of the plight of Wai'anae's Native Hawaiians in the early 20th Century and how they depended on subsistence and supplemental agriculture for survival.

3.2.5 Agricultural History

During the post-Contact era, agriculture took on many forms in Wai'anae. The first Western land exploits in Wai'anae were in the harvesting of sandalwood. Kamehameha I became involved in the sandalwood trade in the early 1800s, according to Kuykendall (1938), holding that:

> When [Kamehameha] needed a quantity of the wood to pay for some purchase, he simply issued orders to have it cut and transported to the waterside. In 1817 the ship *Columbia* was purchased, to be paid for in sandalwood to the amount of `twice the full of the vessel.' The wood for this purchase was furnished by Kaumualii of Kauai and the chiefs who controlled the Waimea and Wai'anae districts of Oahu. (Kuykendall 1938: 90)

Unfortunately, traditional customs and diet were adversely impacted by the sandalwood trade. Due to the number of commoners that were ordered to participate in the sandalwood harvest, Traditional crops were neglected and a great famine ensued, where the people were forced to live off of herbs and fern roots (McGrath et al. 1973:18).

In the early 1790s, Vancouver brought range animals including goats, sheep, and cattle to the Hawaiian Islands, which were allowed to graze freely about. Eventually, cattle ranching became the leading trade along the Waianae Coast in the mid- to late 1800s (Hammatt et al. 1985). As previously mentioned, Bowser (1880) observed that Lualualei was being used as cattle grazing land by Dowsett and Galbraith, who leased 16,000 acres from the crown.

However, the most significant agricultural endeavor of Historic era Wai'anae was the sugar plantation. In 1878, Judge Herman Widemann founded the Waianae Sugar Company, which was a large sugar plantation situated on leased lands that spanned several *ahupua'a* in Wai'anae District, including Lualualei. Hammatt et al. (1991:14) write, "With the hiring of 20 local Hawaiians, 15 haole technicians and almost 60 Chinese laborers, Widemann essentially created a town at Wai'anae to support the cultivation and processing of sugarcane."

The Waianae Sugar Company was a dynamic player in the agriculture trade and the Westernization of the Wai'anae District. An article in the publication, Planter and Sugar Manufacturer, describes the plantation as such:

Waianae Sugar Company

> Waianae is situated between Ewa and Waialua plantations, on the island of Oahu on its southern shore. The plateau on which this estate is situated is surrounded on three sides by the mountains; on the fourth by the circling bay. This company holds 7,000 acres in fee simple, of which a little less than 2,000 under cane cultivation. Five or six hundred head of cattle pasture on the remainder these lands. The area runs into two valleys, the highest elevation being some eight hundred feet.
>
> Judge Widemann originated this company, in 1878. The company has flourished, in spite of difficulties, notably the rough and rolling nature of its cane lands which are also rocky. Irrigation here is imperative, as the annual rainfall on the lower lands does not exceed a very few inches. Most of the used comes from a central pumping station, having a capacity of 11,000,000 gallons in 24 hours. The

> water is conveyed to various portions of the plantation through a nine-mile system of galvanized steel flumes. One or other pumps are located at several points on the lands. Added to this is about 2,000,000 gallons of water brought daily to the plantation from mountain streams a distance of nine miles in an open ditch. Water driven turbines generate power for the dynamos that actuate the pumps. This water comes through a 12-inch pipe from the mountains. Two hundred and fifty horsepower electrical energy is transmitted over a wire three miles in length, to the pumping stations. The use of electricity in this work effects a saving of 75 per cent [sic].
>
> Six hundred laborers, with a considerable mixture of nationalities, are employed on Waianae plantation. Most of them work under the day labor system. The mill is the 9-roller type, and is thoroughly modern. It has three vacuum pans, quadruple effect of 120,000 daily capacity in gallons, eight centrifugals, four mud presses, and 12 settling tanks. (Planter and Sugar Manufacturer 1910:401)

Waianae Sugar Company was one of the first plantations to produce hydroelectricity. In 1897, John Dowsett, son-in law of Waianae Sugar Company founder, Herman Widemann, created a reservoir to power his hydroelectric plant. This plant could generate up to 300 kilowatts of electricity, which powered the plantation's pumps, mill generators, and lighting of the manager's house (Wilcox 1997:167). A report to the Territorial Governor in 1906 describes the hydroelectric system as follows:

> Waianae plantation was the first in the islands to develop electric power from water Power is taken from the water at the head of the valley and the water is then used for irrigating the upper lands. The pumps and wells located at the mouth of the valley are operated by electricity and furnish the water for the lower fields near the sea… There are also five alternating-current generating plants installed for supplying current to motors driving pumps for irrigating purposes. The earliest pumping installation was at Waianae plantation on the, island of Oahu. Here water is delivered to Pelton water wheels under a static head of 400 feet, driving two 200-kilowatt, 3- phase generators. The power is transmitted a distance of 5 miles and utilized in operating one y-wheel pump belted to a 75-horsepower motor, lifting 1,500,000 gallons of water every twenty-four hours to a height 0 150 feet. Another pump belted to two motors of 150—horsepower each delivers 5,000,000 gallons of water to a height of 280 feet. The entire plant is a general electric plant, with the exception of the 75-horsepower motor, which was built by the Westinghouse Company." (Office of the Governor 1906:48)

With the advent of sugar plantations in Hawai'i, the rail road industry followed closely after. The Oahu Railroad and Land Company (OR&L) expanded their rail ways quickly in the late 19th Century, and by 1898 had extended to Wai'anae from Honouliuli in 'Ewa District (Musik 1898:420) (Figure 6). Trains quickly became the main mode of transportation for many who lived on the Wai'anae Plantation. Author, Charles Morris, described the OR&L railroad as follows:

> [The railroad] has since been extended to Waiannae [sic], a length of line, including sidings, of 38.5 miles. This is a well-built, single-track road, supplied with rolling stock of American manufacture, and kept in good running order. The equipment consists of five locomotives, fourteen passenger and one hundred

> and thirty-two freight cars, and its business has steadily grown. In 1897 it carried 85,596 passengers and 66,430 tons of freight. Mr. B. F. Dillingham, the projector of the road, expects eventually to carry it around the entire island of Oahu. (Morris 1904:273)

The railroad was eventually extended from to Kahuku in 1898, before shutting down in the late 1940s.

Shortly after the Waianae Sugar Company ended its plantation operations, Lualualei was divided into numerous homestead lots. Much of the inland homestead lots were used for ranching (Haun and Kelly 1984; Hammatt et al. 1991). Coastal lots became Lualualei Homestead (2nd Series) lots, with the project are approximately located in lots 18 or 19 (Figure 6).

3.2.6 Military Presence in Lualualei

In the early 1940s, the U.S. Military presence in Hawai'i was well involved in WWII. The U.S. Military acquired large tracts of Lualualei Ahupua'a. According to Haun and Kelly (1984:41), over 8,184 acres of the McCandless Cattle Ranch land was purchased by the U.S. Military, becoming the U.S. Naval reservation that is now Lualualei Naval Magazine (NAVMAG) and Very Low Frequency (VLF) Range (Figure 7). The coastline of Wai'anae was also utilized for training purposes, mainly for amphibious vehicle landing. This military reservation was reassigned after WWII to act as a military recreational facility to aid in the recuperation of war veterans, becoming the Waianae Army Recreation Center.

3.2.7 Chinese Heritage in Lualualei

As is apparent in the report title, retired Chinese Plantation workers made a stake in Lualualei Ahupua'a as well. Few are aware that Chinese owned firm, A. Loo, K. Dow, and Company, planted 122 acres of sugar cane in Wai'anae using "eight pairs of work oxen and twenty head of bullocks" as well as "thirty Chinese not employed by Waianae Sugar Company…"(Char 1988:165). Another small sugar plantation was A. Loo and K. Dow, who raised sugar cane somewhere on the Wai'anae Coast (ibid.). Rice cultivation was another livelihood that Chinese in Wai'anae District were involved in. Utilizing fallow taro lands leased from Kimo Holt, Sing Hop Kee Company successfully planted rice (ibid.). In addition, ranching was another agricultural endeavor that Wai'anae's Chinese participated in. Tongg Ranch was in operation in Nānākuli until the 1970s.

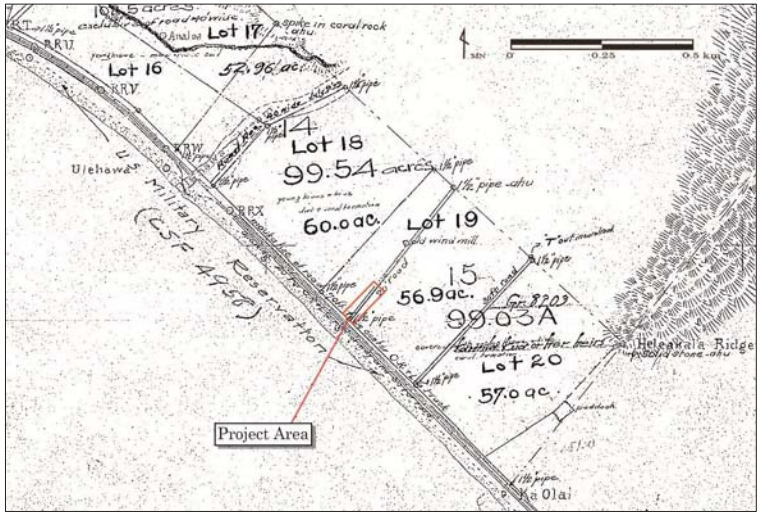

Figure 8. Portion of 1901 Lualualei Survey Map with Historic features and infrastructure near the project area (adapted from Emerson 1901; Reg. Map No. 2040).

Figure 9. Lualualei NAVMAG in 1933 "Overall View of Antenna Towers S-109, S-110 and S-111 Facing North" (courtesy of Survey HABS HI-152, Library of Congress website).

Chinese were also employed in a number of non-agricultural activities in the Wai'anae District. Char (1988) reports that a man named, C.K. Ai, stated that in 1891 he was allowed by James Dowsett to cut wood on his land for up to three dollars a cord. Further, Ai hired a Chinese wood cutter to drive a two-wheeled cart of the wood into Nānākuli (as cited in Char 1988:166).

Ai wrote "Charlie Wilson, father of our ex-mayor John H. Wilson, built us a special dray for hauling the wood – the dray would haul wood down to the beach and a schooner would ring them to Honolulu" (as cited in Char 1988:166). Chinese merchants were also present in the area during the late Historic era. The following business were listed in the 1950 Chinese Business Directory:

- A.K. CHONG, Waianae, general merchandise
- K. S. HO, Waianae, restaurant
- Choy's Market, Nanakuli, groceries and meats, Gilbert K.C. CHOY, proprietor
- Freddie's Chop Suey, Maile, owner Fred LEE
- Harold Tyau's Poultry Farm, Maile
- Maile Cash and Carry, NG Chong Kwai
- LAU Tang Co., Waianae, general merchandise and liquor, managed by W. C. CHU. (as cited by Char 1988:167)

Little has been found about the namesake of Auyong Homestead Road, Ruth Pamalia Bell Auyong, who was granted the 26.3 acre Lualualei Homestead lot (No. 18 B; Grant 9481) on which the project area is located (Figure 8). The road bearing her surname or married name may simply have been due to it being located on this Homestead lot.

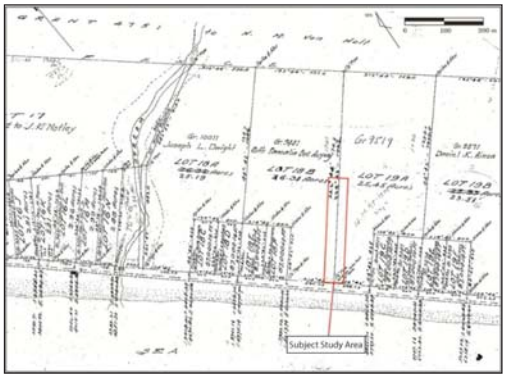

Figure 10. Portion of 1924 Lualualei Homesteads map, Series 2, showing Land Grant 9481 to R. Auyong and approximate project area (adapted from Howland 1924 – Reg. Map No. 2717).

4.0 PREVIOUS ARCHAEOLOGY

A total of 11 archaeological studies have been conducted in various locations within a 1 mile radius around the proposed Auyong Homestead Road Improvements Project. Cordy (2002), in *An Ancient History of Wai'anae*, summarizes and interprets the archaeological record for all of Wai'anae District, providing a synthesis of Cultural Resource Management (CRM) and academic works. Presented in the following section is a summary of the findings for coastal Lualualei and Nānākuli Ahupua'a CRM reports. A list of the reports and their locations in chronological order is provided in Table 1 and map of the project area with all of the study areas and known archaeological sites is provided in Figure 9.

4.1 Early Archaeological Studies

The earliest systematic archaeological study performed in the vicinity of the Auyong Homestead Road Improvements Project is the 1930 island-wide survey conducted by Gilbert McAllister (1933). In *Archaeology of Oahu*, McAllister identifies two pre-Contact archaeological sites – Site 149, Nioula Heiau and Site 151, Kakioe Heiau (see Section 3.1.6). Site No. 148, roughly 0.5 miles (ca. 900 meters) west the project area, was described by McAllister as a "Large Rock said to be named Maui…the Hawaiian Hero…This stone at the time was surrounded by water, and it was here that Maui reposed and sunned himself…" (in Sterling and Summers 1978:64). McAllister (1933) goes on to describe the location of the rock as, "Northeast of the road on the property of E.P. Fogarty" (ibid). The Lualualei Homesteads Series 2 map (Howland 1924) illustrates the exact location of the site, which is provided in Figure 10. The fate of the site is unknown, but the area, which is located somewhere between Princess Kahanu Avenue and Lualei Place in east Lualualei Ahupua'a, has been built upon, suggesting that it no longer exists or has been disturbed to some extent.

McAllister (1933) surveyed the approximate location of Site No. 147, Ilihune Heiau, and reported that it was destroyed and no remains were identified. The approximate location is ca 0.6 miles (ca. 965 meters) east of the project area (as cited in Sterling and Summers 1978:62).

4.2 Recent Archaeological Investigations

In 1991, Paul Cleghorn, performed a reconnaissance survey in the southeastern portion of Lualualei Ahupua'a less than 1 kilometer *mauka* of the project area, on a property that straddled Lualualei Naval Road. No sites were located and the area was found to be heavily disturbed by the existing quarry. Subsequently, Cleghorn and Anderson (1992) performed an inventory survey in the same area with no sites or subsurface finds.

Sinoto and Pantaleo (1994) conducted an archaeological assessment on six potential sites for the Nānākuli III Elementary School. These sites were located in lower Lualualei Ahupua'a, all located within 0.5 to 1 kilometer of the project area. For this assessment, archival research and on-site field inspections were conducted. No archaeological sites were found in any of the building sites.

Table 1. Previous Archaeological Investigations in the Vicinity of Auyong Homestead Road Improvements Project

Authors	Year	Report Title and Publisher	Project Location	Findings
McAllister	1933	*Archaeology of Oahu.* Bishop Museum: Honolulu.	Island-wide survey.	Site 148, boulder named after Maui, the demi-god. Site 149, Nioula Heiau. Site 151, Kakioe Heiau.
Cleghorn	1991	*Results of a Reconnaissance Survey in Lower Lualualei Valley, Oʻahu. Prepared for Kyowa Nanakuli Land Co., Ltd.*	Lualualei Naval Road	No sites recorded.
Cleghorn & Anderson	1992	*Inventory Level Survey Report of Specified Lands in Lualualei, Oʻahu*. Prepared for PVT Development, Inc.	Lualualei Naval Road	No sites recorded.
Sinoto & Pantaleo	1994	*An Archaeological Assessment of Six Candidate Site Areas for the Nanakuli III Elementary School.* Aki Sinoto Consulting.	Lower Lualualei Ahupuaʻa, various locations	No sites recorded
McDermott & Hammatt	1999	*Archaeological Inventory Survey of the proposed Nānākuli Reservoir Site, with Archaeological Assessment of the Proposed 20" Transmission Main Along Nānākuli Avenue, Nānākuli, Waiʻanae District, Island of Oʻahu.* Cultural Surveys Hawaii.	Southwest Nānākuli Ahupuaʻa, on Nānākuli Ave.	No sites recorded
Hammatt et al.	1999	*Archaeological Assessment of an Approximately 15-Acre Parcel, Ahupuaʻa of Nānākuli, Waiʻanae District, Island of Oʻahu.* Cultural Surveys Hawaii.	Lower Nānākuli Ahupuaʻa, just *mauka* of Farrington Hwy.	No Traditional sites; 2 Historic Military Camp Andrews features found (bunker & structural remnants; 50-80-07-5946 and 5947) found
McDermott & Hammatt	2000	*Archaeological Inventory Survey of the 57.65 Acre Ulehawa Beach Park Parcel, Ahupuaʻa of Lualualei, Waiʻanae District, Island of Oʻahu.* Cultural Surveys Hawaii.	Coastal Lualualei Ahupuaʻa	Four Historic properties were identified: OR&L Railroad (50-80-07-9714), 3 WWII bunkers & 2 concrete foundations (50-80-07-5761), 2 subsurface cultural layers (50-80-07-5762 and -5763)
Berdy et al.	2002	*An Archaeological Inventory Survey with Subsurface Testing Report for the Property Located at TMK: 8-9-002:001, in Nanakuli Ahupuaʻa, Waiʻanae District, Island of Oʻahu.* Archaeological Consultants of the Pacific, Inc.	West Nānākuli Ahupuaʻa, *mauka* of Farrington Hwy	Expansion of previously recorded Historic site (No. 5946), Camp Andrews remnants; Excavations revealed cultural materials at pre-Contact site (No. 5947)
Ostroff & Desilets	2005	*Archaeological Monitoring Results for the Installation of a Waterline along Farrington Highway between Hakimo Road and Haleakala Avenue Intersections, Nanakuli and Lualualei Ahupuaʻa, District of Waiʻanae, Oʻahu Island, Hawaiʻi.* Garcia and Associates, Inc.	Coastal Lualualei Ahupuaʻa	Five "charcoal-enriched" sand deposits (AD 1150-1410) (Temp. No. BWS-4)
Stein & Hammatt	2006	*Archaeological Monitoring Report for the Nānākuli Beach Park Sewer Connection for the Recreation Center Project, Nānākuli Ahupuaʻa, Waiʻanae District, Oʻahu Island.* Cultural Surveys Hawaii.	West Nānākuli Ahupuaʻa, *makai* of Farrington Hwy	No sites recorded

Authors	Year	Report Title and Publisher	Project Location	Findings
Altizer et al.	2010	*Archaeological Field Inspection and Literature Review for the Farrington Highway Intersection Improvements at Nānākuli Avenue and Heleakalā Avenue, Nānākuli and Lualualei Ahupuaʻa, Waiʻanae District, Oʻahu Island.* Cultural Surveys Hawaiʻi	Coastal west Nānākuli Ahupuaʻa and east Lualualei Ahupuaʻa	Three historic properties identified: Traditional deposit (BWS-4) OR&L Railroad (50-80-07-9714) Farrington Highway (50-80-07-6824)
Hawkins & Desilets	2010	*Archaeological Monitoring Plan for Construction activities at TMK (1) 8-7-33:11 and 22, Lualualei Ahupuaʻa, Waiʻanae District, Oʻahu, Hawaiʻi.*	Coastal Lualualei Ahupuaʻa, *mauka* of Farrington Highway	Monitoring Plan, No sites recorded

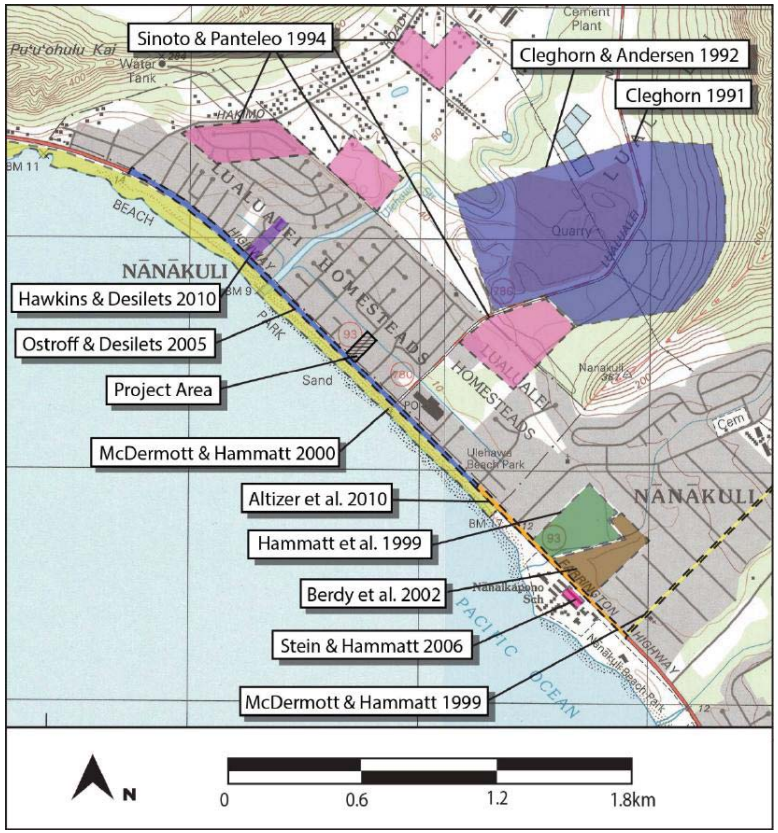

Figure 11. Previous archaeological studies within 1 mile (ca. 1.6 km.) of the project area (adapted from USGS Waianae and Schofield Barracks Quadrangle Maps).

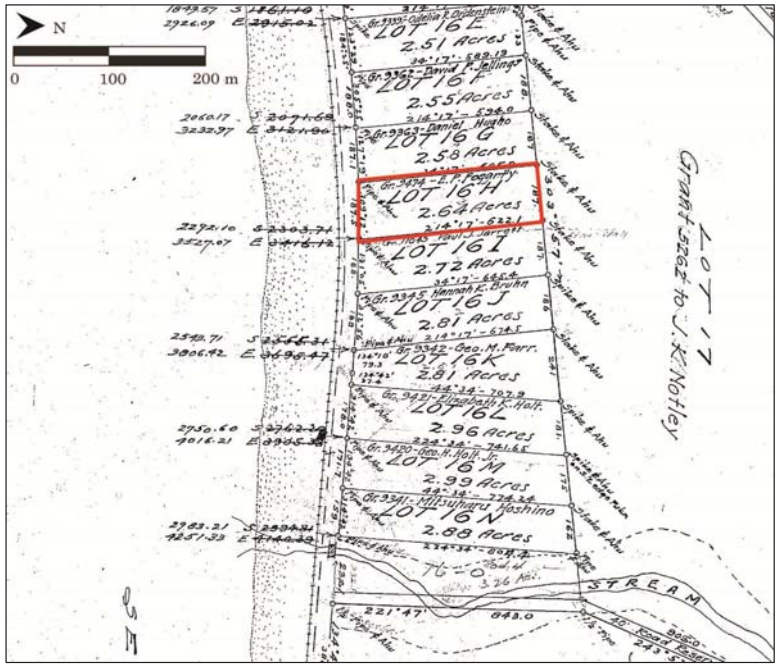

Figure 12. Portion of Lualualei Homesteads Series 2 map (Howland 1924) showing E.P. Fogarty's property (Registered Map No. 2717).

An Archaeological Assessment of an approximately 15-acre parcel in west coastal Nānākuli was performed by Hammatt et al. (1999). This study produced two Historic Military Camp Andrews features, including a concrete bunker and structural remnants were found (Sites No. 50-80-07-5946 & 50-80-07-5947).

In 1999, McDermott and Hammatt performed an inventory level survey of the proposed Nānākuli Reservoir Site as well as an archaeological assessment of the proposed 20" Transmission main, which was to be installed in the Nānākuli Avenue corridor. The current project area is located approximately 1 mile northwest of this study area. No sites were observed.

McDermott and Hammatt (2000) conducted an Archaeological Inventory Survey (AIS) of 57.65 acres, a 4.85 kilometer stretch, of Ulehawa Beach Park. A portion of this project area is located directly across Farrington Highway from the current project area. In this study, four Historic properties were identified, including OR&L railroad tracks (Site No. 50-80-07-9714), three concrete WWII bunkers and two concrete foundations (Site No. 50-80-07-5761), as well as two distinct subsurface cultural layers (Site No. 50-80-07-5762 and -5763). Site 5762 contained charcoal and sparse midden, but no artifacts. Two radiocarbon date indicate a late pre-Contact or early post-Contact occupation beginning possible as early as AD 1460. Site 5763, another buried cultural layer contained much more cultural material including pit features, artifacts and madden. Thi ssite was also probably occupied in the late pre-Contact and early post-Contact periods, possibly as early as AD 1470.

In 2002, Berdy et al. performed an AIS with subsurface testing on a property in western Nānākuli Ahupuaʻa, which is located approximately 1.25 kilometers southeast of the project area. For this study, Berdy et al. (2002) excavated four test units, which produced three artifacts, including a coral file, limestone abrader, and basalt core, as well as shell midden. This pre-Contact site (No. 5947) provided significant insight on the Traditional Hawaiian usage of sinkholes in the area. In addition, Berdy et al. (2002) expanded a previously recorded Historic site (No. 5946), which consists of Camp Andrews' structural remnants that were initially discovered by Hammatt et al. (1999) in the adjacent parcel.

Ostroff and Desilets (2005) performed archaeological monitoring for the installation of a waterline along Farrington Highway between Hakimo Road and Haleakalā Avenue Intersections, in Nānākuli and Lualualei Ahupuaʻa. A portion of this project area abuts the *makai* end of the current study area. Excavations related to the waterline installation revealed five charcoal-enriched sand deposits, given the name BWS-4, that did not yield any other cultural materials. However, radiometric dating was performed on charcoal samples that indicate "2-sigma calibrated date range of AD 1150-1410, while AMS dating indicates a 2-sigma date range of AD 1270 to 1410" (Ostroff and Desilets 2005:32).

Archaeological monitoring was performed for the Nānākuli Beach Park Sewer Connection for the Recreation Center Project by Stein and Hammatt (2006) in west Nānākuli Ahupuaʻa, which is located roughly 1.5 kilometers east of the project area. No surface or subsurface sites were encountered.

More recently, Altizer et al. (2010) performed an archaeological field inspection and literature review for the Farrington Highway Intersection Improvements at Nānākuli and Heleakalā Avenue intersections, which are in coastal Nānākuli and Lualualei Ahupuaʻa less than a kilometer east of the project area. In this investigation, three cultural resources/historic properties were identified, including a section of the OR&L Railroad, Farrington Highway itself (SIHP # 50-80-07-6824), and a portion of what has been previously recorded as a subsurface charcoal-enriched sand deposit (BWS-4) by Ostroff and Desilets (2005). In addition, Hawkins and Desilets (2010) created an archaeological monitoring plan for a small segment of Lualualei *Ahupuaʻa* running *mauka* from Farrington highway. No results were found.

4.3 Historic Properties Anticipated

A review of archival resources, including previous archaeological investigations in the vicinity of the project area provides an informational base to predict what types of archaeological resources may be encountered during the archaeological monitoring of construction activities. These are enumerated below:

1. Buried cultural deposits representing pre-Contact living areas have been found in the vicinity of the project area. It is possible that buried cultural deposits consisting of fire pits, artifacts scatters and shell and bone midden deposits may be encountered.
2. While no human burials have been found in the vicinity, shoreline sandy areas always have the possibility of containing human burials, so it must be recognized that the discovery of human remains is possible.

5.0 PROPOSED CONSTRUCTION ACTIVITIES

The project consists of constructing a drain inlet and an underground drainage system that will convey runoff into Ulehawa U-3 Channel. The channel then discharges to Ulehawa Beach Park. The underground drainage system will be located beneath the current Auyong Homestead Road. The entire pavement width of Auyong Homestead Road between Farrington Highway and the bridge will be re-paved as part of the project. The area to be disturbed during construction is expected to be less than 18,000 square feet. While the upper portions of the subsurface deposits beneath the roadway are probably quite disturbed and contain fill and base course layers, the soils and sediments below this disturbed zone may be intact and may contain cultural materials.

6.0 ARCHAEOLOGICAL MONITORING PLAN COMPONENTS

To ensure that the proposed construction activities do not adversely affect any possible subsurface cultural features, the following measures will be implemented.

6.1 Pre-Construction Briefing

Prior to the initiation of construction activities, the archaeological monitor will meet with the construction crew on site to discuss the archaeological monitoring procedures. This pre-construction briefing will be conducted for all personnel involved in ground-disturbing activities. It will be explained to the construction crew that the archaeological monitor has the authority to halt construction activities in the immediate vicinity of the finding of any cultural material (including human remains). In such cases, construction activities can be shifted to other areas. The construction crew will also be notified that under Hawaiʻi state law all encountered cultural material, including historic glass bottles, are the property of the landowner. Such objects may not be collected by anyone other than the archaeological monitor. The pre-construction archaeological awareness briefing will cover the following topics:

1.) If a backhoe operator or other construction personnel discovers or exposes a subsurface

deposit of cultural materials they should stop work in the area and allow the archaeological monitor to inspect the find.

2.) If a backhoe operator or other construction personnel discovers, exposes or disturbs a human burial they must immediately stop work, move away from the burial site, and the archaeological monitor will inspect and secure the find, and make the necessary notifications.

3.) If an isolated artifact is found, especially one believed to be in danger from construction activities, its location should be reported to the archaeological monitor.

4.) Construction personnel should not pick up artifacts or remove them from the work site.

5.) All cultural materials found during construction activities, including Hawaiian artifacts and historic glass bottles, are the property of the landowner and may not be collected by anyone other than the archaeological monitor.

6.2 Protective Barriers

No protective barriers are needed during construction. However, if a potential significant find is made during construction, a protective barrier of bright orange plastic construction fencing will be erected around the find with an adequate buffer to protect the find.

6.3 Archaeological Monitoring

The possibility that subsurface cultural deposits may be present within the project area will necessitate the presence of an archaeological monitor on-site during trenching and other ground disturbing activities. Trenching and ground disturbing activities will be considered to include any ground disturbance extending deeper than 12 inches in depth. If any subsurface cultural deposits or human remains are encountered all work will be halted in the area and the archaeological monitor will be contacted immediately.

The purpose of archaeological monitoring will be to ensure that:

1) Any cultural features exposed by ground disturbing activities will be recorded.

   a. Recording will include, but not be limited to, profile documentation of cultural layers' stratigraphy, drawings, photographs, excavation of exposed features. In addition, profile recording of natural deposits will be included.

2) Any artifacts encountered are documented and/or collected.

3) Any human remains encountered are treated appropriately.

A daily Archaeological Monitoring Log (AML) will be completed every day that archaeological work is conducted on site (an example of such a form is included in Appendix A). The AML will form the official record of archaeological activities performed and shall specify who was working on site, times of work, and what was done. In addition, data will be recorded regarding all subsurface features encountered.

6.4 Intact Cultural Deposits and Features

Should any subsurface cultural deposits or features be discovered during construction, the archaeological monitor will have the authority to halt construction in the immediate vicinity of the find. Construction can be shifted to other areas. If such a finding is made, the Hawai'i State Historic Preservation Division (SHPD) archaeological staff will be notified and briefed as to the extent, content, and associations of the discovery. The potential significance of the discovery will be agreed upon and mitigation needs, as appropriate for non-burial sites, will be discussed and resolved with the SHPD archaeological staff. The finds will be fully documented. This documentation may include recording of the cultural layer's stratigraphy and contents, scaled profile drawings, photographs, and (if deemed necessary) the excavation or sampling of exposed features. The stratigraphic context of subsurface deposits or features will be determined, and any important associations with other natural or cultural strata will be noted. Where appropriate, samples will be collected for further analyses.

The data recorded in the field, combined with documentary data will be used to assess the significance of the finding as per Hawai'i Administrative Rules Title 13, Chapter 284: Rules Governing Procedures for Historic Preservation Review to Comment on Chapter 6E-42 Projects, Section 6 Evaluation of Significance. These significance assessments will be presented in the Archaeological Monitoring Report.

6.5 Artifacts

Any traditional Hawaiian artifacts that are encountered during construction will be collected for further analysis. Diagnostic historic artifacts that are more than 50 years old will also be collected for further analysis. Non-diagnostic and recent artifacts will be documented in the field. The provenience of the finds will be plotted on a project map of the area, and any observed associations with cultural or natural strata will be noted.

6.6 Human Skeletal Remains

If human remains are inadvertently encountered during trenching or any other construction related activity, all work in the immediate vicinity will cease and the State Historic Preservation Division will be notified. Burial finds will be treated according to Hawai'i Revised Statutes 6E (Inadvertent Discovery of Burial Sites, HRS. § 6E-43.6) and Hawai'i Administrative Rules Title 13, Chapter 300 (Rules of Practice and Procedure Relating to Burial Sites and Human Remains, HAR. § 13-300) and SHPD directives. The SHPD staff will be consulted regarding the context of the discovery and its significance. Utmost care will be taken to ensure that any associated items or stratigraphic context are not further disturbed. No remains will be removed without SHPD direction. Any materials associated with the inadvertently discovered human burial will be treated according to SHPD direction. SHPD will assume the lead in consulting with recognized descendents and the O'ahu Island Burial Council.

6.7 Treatment of Recovered Cultural Remains

All collected artifactual remains and associated samples will be transported to archaeological consultant's offices for processing. Laboratory processing will consist of cleaning, sorting, identifying, and documenting the materials collected. A project catalogue shall be generated and presented in the final report.

Artifacts collected will be identified and recorded by measuring, photographing and/or sketching. Midden material shall be identified minimally by major class and recorded on standard laboratory forms by weight. This material will be presented in table format in the final report. All samples (soil, charcoal, etc.) will be initially processed and catalogued in Pacific Legacy's laboratory before being sent to specialist laboratories for detailed analyses.

6.8 Curation

Suitable temporary curation facilities for archaeological samples collected during field investigations will be provided by archaeological consultant. Final curation of recovered materials shall be determined after consultation with SHPD.

6.9 Reporting

Brief verbal or email progress reports shall be provided to the SHPD and the client upon the discovery of any significant findings, on completion of on-site monitoring activities, laboratory analyses, and report preparation. The following written reports shall also be submitted:

- Letter Report at the completion of on-site monitoring.
- Draft Archaeological Monitoring Report within 90 days of completion of monitoring fieldwork.
- Final Archaeological Monitoring Report within 30 days of receipt of SHPD reviews comments.

The Archaeological Monitoring Report will be prepared upon the completion of all archaeological monitoring activities. The components of this report will conform to the specifications outlined in Hawai'i Administrative Rules (HAR) §13-279 (Rules Governing Standards for Archaeological Monitoring Studies and Reports).

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APPENDIX A

ARCHAEOLOGICAL MONITORING LOG

PACIFIC LEGACY
DAILY MONITORING LOG

Project Name and Number:_____ **Monitor**_____ **Date:**_____

Location of Monitoring:

_____

_____

Activities Monitored:

_____

_____

Times of Monitoring (include breaks):

_____

_____

Findings:

_____

_____

_____

_____

_____

_____

_____

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Photographs taken (roll and exp. nos.): _____

Materials collected (Bag Nos.): _____

(continue on back if necessary)

APPENDIX E

Draft Cultural Impact Assessment for the Auyong Homestead Road Improvements Project, Lualualei Ahupua'a, Wai'anae District, Island of O'ahu TMK (1) 8-7-026:002-023

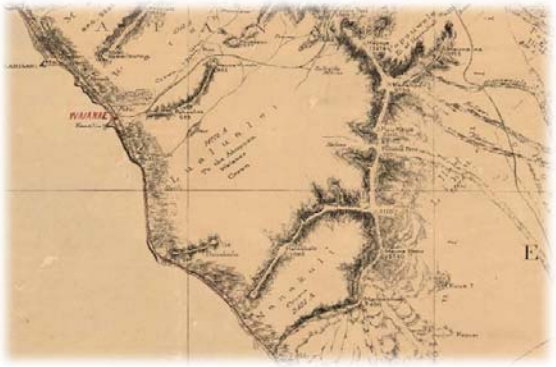
Pacific Legacy

Historic Preservation

DRAFT

CULTURAL IMPACT ASSESSMENT FOR THE AUYONG HOMESTEAD ROAD IMPROVEMENTS PROJECT, LUALUALEI AHUPUA'A, WAI'ANAE DISTRICT, ISLAND OF O'AHU

[TMK (1) 8-7-026:002-023]



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DRAFT

CULTURAL IMPACT ASSESSMENT FOR THE AUYONG HOMESTEAD ROAD IMPROVEMENTS PROJECT, LUALUALEI AHUPUA'A, WAI'ANAE DISTRICT, ISLAND OF O'AHU

[TMK (1) 8-7-026:002-023]

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November 2015

ABSTRACT

As part of the Environmental Assessment process, Gray Hong Nojima & Associates, Inc. has requested a Cultural Impact Assessment (CIA) for the proposed Auyong Homestead Road Improvements Project, Lualualei Ahupuaʻa, Waiʻanae District, Island of Oʻahu, [TMK (1) 8-7-026:002-023]. This assessment is based upon archival research, earlier writings of the history and culture of Waiʻanae District, as well as previously recorded ethnographic interviews from projects near to the subject area. Under Act 50, the Hawaiʻi State Department of Health "Guidelines for Cultural Impact Assessments" mandate that the subject property be studied as well as surrounding areas where construction or development have impact potential. These guidelines also recommend personal interviews with traditional cultural practitioners and knowledgeable informants on cultural practices. No willing cultural informants were found for ethnographic interviews regarding the subject area.

The results of archival research indicate that Lualualei and Nānākuli Ahupuaʻa have a rich cultural and legendary history. However, little is mentioned of the specific property in which the Auyong Homestead Road Improvements Project is located. It is reportedly a common belief that the area in general has a mystical past and retains some supernatural qualities. To respect the spiritual connections that people have with the *ʻāina*, as the general area is known as a *wahi pana* (legendary place), it is recommended that any major event or construction related activity be preceded with a traditional Hawaiian Blessing ceremony performed by a *kahuna* (priest or priestess) or *kahu pule* (minister/preacher).

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1.0 INTRODUCTION

Pacific Legacy, Inc., under contract to Gray Hong Nojima & Associates, Inc., conducted a Cultural Impact Assessment (CIA) as part of the Environmental Assessment (EA) for the proposed Auyong Homestead Road Improvements Project in Lualualei Ahupuaʻa, Waiʻanae District, Island Of Oʻahu. The subject study area is situated on approximately 2 acres of land within *ko kaha kai* (land by the sea, or coastal region) portion of Lualualei Ahupuaʻa [TMK (1) 8-7-026:002-023] (Figure 1). The project consists of constructing a drain inlet and an underground drainage system that will convey runoff into Ulehawa U-3 Channel. The channel then discharges to Ulehawa Beach Park. (Figures 1-3). The entire pavement width of Auyong Homestead Road between Farrington Highway and the bridge will also be repaved as part of the project. The actual area to be disturbed during construction is expected to be less than 18,000 square feet. The main objective of a CIA is to promote and protect cultural beliefs, practices, and resources of Native Hawaiians, other ethnic groups, as well as other collective groups associated with the subject area and surrounding areas (OEQC 2011:3-4).

1.1 PURPOSE

In keeping with Articles IX and XII of the state constitution, the goal of a CIA is to promote and protect cultural beliefs, practices, and resources of Native Hawaiians as well as other ethnic groups and collective groups (OEQC 2011: 3-4). The general purpose of this CIA is to protect and preserve all cultural practices and resources within the project area and surrounding areas that may be impacted by the proposed project. To do so, cultural practices, features, and practitioners must be identified and assessed for potential impacts by the Proposed Action and alternative options. Finally, recommendations are provided to mitigate the potential impacts.

In the State of Hawaiʻi, under Chapter 343 HRS, and Act 50, SLH 2000, a CIA is required as part of the EIS process, and has the stated purpose to:

1. require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and
2. amend the definition of "significant effect" to include adverse effects on cultural practices.

According to these guidelines, types of cultural practices and beliefs may include those relating to subsistence, commercial, residential, agricultural, access-related, recreational, as well as religion and spirituality. The guidelines further state that cultural resources subject to a CIA may include: "traditional cultural properties or other types of historic sites, both manmade and natural, including submerged cultural resources, which support such cultural practices and beliefs" (OEQC 2011:4). To determine the effects of the proposed development on cultural practices, resources, and beliefs, the following tasks are undertaken:

1. identify and consult with individuals and organizations knowledgeable about cultural practices that may have taken place in the area;

2. conduct archival research about traditional practices that may have been conducted in the area;
3. describe the cultural practices that took place within the potentially affected area;
4. assess the impact of the proposed development on the cultural practices that may have taken place within the potentially affected area; and
5. prepare a report on the findings resulting from the above investigations.

Appendix A provides a copy of the Guidelines for Assessing Cultural Impacts, adopted by the State of Hawaiʻi Environmental Council in 1997 and amended in 2000 (OEQC 2011).

1.2 METHODS

According to the Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts (OEQC 2011), it is recommended that preparers of CIA implement the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupuaʻa;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

While no identified cultural informants were willing to participate in an interview, all other methods were strictly adhered to in this assessment. A rigorous effort was made to identify and locate persons knowledgeable about traditional practices that took place in the past or that are currently taking place in project area and broader geographical area that could potentially be impacted by the expansion project. In addition to prior CIA reports written about the Nānākuli and Lualualei areas, the State Office of Environmental Quality Control (OEQC) and Office of Hawaiian Affairs (OHA) were consulted for a listing of Cultural Assessment Providers. Various Neighborhood Boards and civic clubs, were also contacted to obtain cultural informants. Appendix B provides a listing of potential cultural informants and their detailed contact history. Contact information was found for eight individuals and one non-profit organization, all of which were solicited for participation. Individuals contacted were comprised of culturally knowledgeable Waiʻanae *kūpuna*, representatives of OHA and the Waiʻanae Hawaiian Civic Club, and elected officials of the Waianae Coast Neighborhood Board (No. 24). Koa Ike, a 501 (c)3 Foundation based out of Waiʻanae that is centered on preservation of Hawaiian traditions and cultural resources, was also solicited for help finding cultural practitioners willing to participate in interviews regarding the project area. No response was

received from any of neither these individuals nor the non-profit organization.

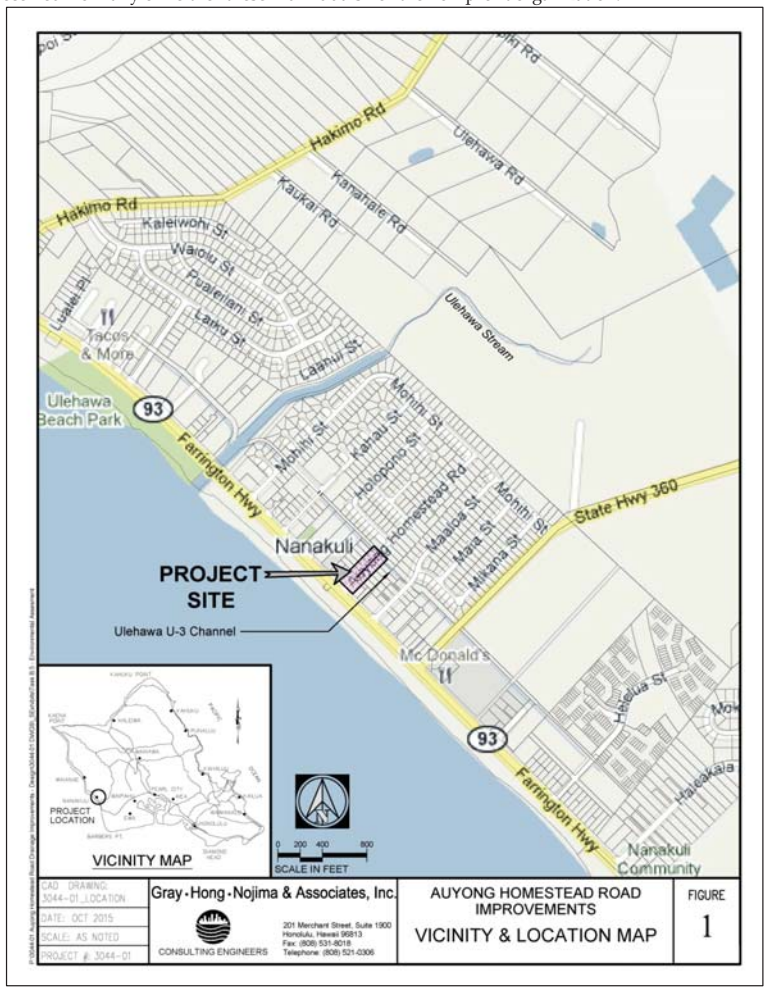

Figure 1.Project Area (courtesy of Gray, Hong, Nojima, & Associates, Inc.).

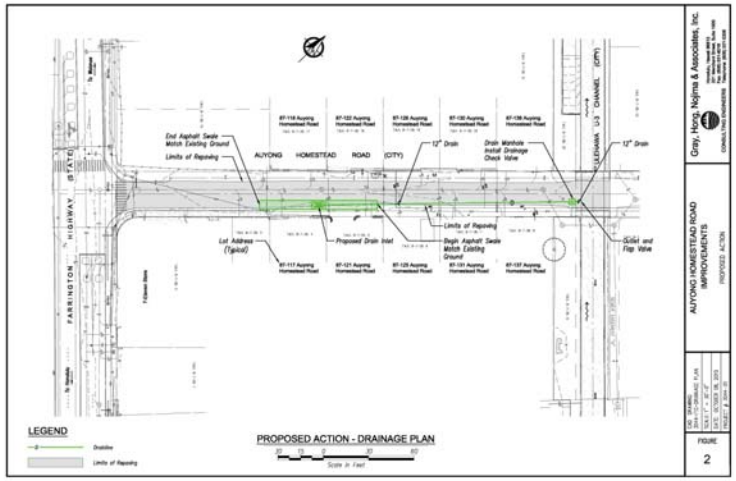

Figure 2. Construction Plan for the Auyong Homestead Road Improvements Project (courtesy of Gray, Hong, Nojima, & Associates, Inc.).

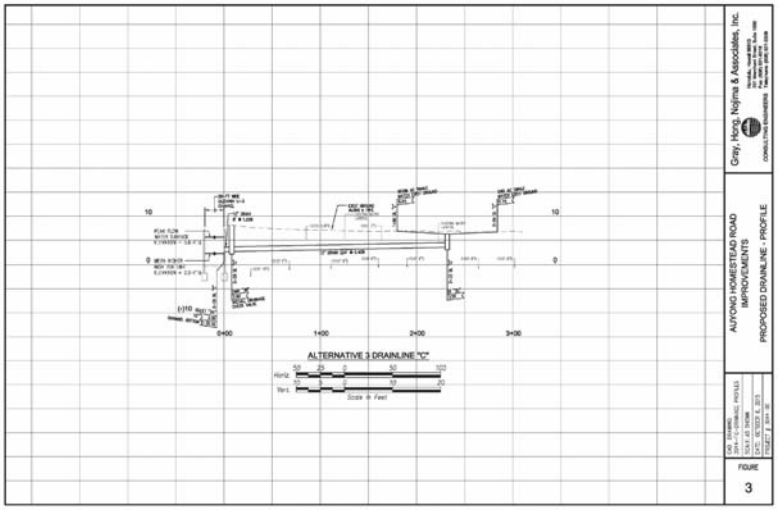

Figure 3. Auyong Homestead Road Improvements Project profile plan (courtesy of Gray, Hong, Nojima, & Associates, Inc.).

2.0 PROJECT AREA DESCRIPTIONS

The OEQC Guidelines recommend that the "broader geographical area" be the subject unit (OEQC 2011), thus this assessment will not be limited to the project area, but areas adjacent to it as well. The proposed Auyong Homestead Road Improvements project is located in the *ahupua'a* of Lualualei in the Wai'anae District, between the *ahupua'a* Nānākuli and Wai'anae [TMK (1) 8-7-026:002-023]. This project study area is comprised of the segment of Auyong Homestead Road that stretches from Farrington Highway to the Ulehawa Channel (U-3) tributary, which is predominantly an active public roadway including associated sidewalks and shoulders. Across Farrington Highway of the project area is a 10 ft. wide easement for the highway and immediately *makai* (seaward) is a stretch of Ulehawa Beach Park. On the *mauka* (mountain-ward) end of the project area is the Ulehawa Channel (U-3) that cross-cuts Auyong Homestead Road from northwest to southeast, over which a small concrete bridge has been constructed. The project area is bound to the northwest and southeast by residential lots with the exception of the two lots fronting Farrington Highway, which are commercial. Currently, the project area is largely used as a thoroughfare for local residents and as access/egress to the 7-Eleven convenience store located on the corner of Auyong Homestead Road and Farrington Highway.

2.1 Geology, Sediments, Hydrology, Climate, and Vegetation

Several geological processes including shield-building volcanism, subsidence, weathering, erosion, sedimentation, followed by rejuvenated volcanism created the island of O'ahu. Generally, the island is made up of heavily eroded remnants of the Pliocene era Wai'anae and Ko'olau shield volcanoes. The project area is located west of the Wai'anae Mountain range on the leeward coast of O'ahu in the *ahupua'a* of Lualualei roughly 50 meters inland of the Pacific Ocean at ca. 10-13 ft. amsl. The project area is in the coastal flat between the ridges of Pu'u O Hulu and Pu'u Heleakala. Manmade Ulehawa Canal, which is in the former location of the natural stream and marsh traditionally named Ulehawa, is located less than 500 meters northwest of the project area. A tributary canal connecting to Ulehawa Canal abuts the project area to the northeast, or *mauka*, of the project area.

Soils within a 300 meter radius of the project area are generally described by the National Cooperative Soil Survey (operated by the USDA's Natural Resources Conservation Service), as beaches (BS), coral outcrop (CR), and Pulehu very stony clay loam, 0 to12 percent slopes (PvC). Substrate within the project area are classified as coral outcrop (CR) (Figure 4).

For the general area, the area receives less than 20 inches of rain per year (Juvik and Juvik 1998:56). According to *Atlas of Hawaii*, the area only receives 10 to 15 inches of rain per year (Armstrong 1973:58). While seasonal variability is relatively mild, the climate of the Hawaiian Islands exhibits warm temperatures, dry conditions, and persistent trade winds that originate from the northeast during the summer season (May through September). Hawai'i's winter season (October through April) is typically characterized by cooler temperatures, elevated precipitation, and variable winds, including Kona (southerly) winds and storms (Juvik and Juvik 1998).

The vegetation of the project area prior to European Contact would have been coastal lowland shrubs and grassland. Currently, the area is developed with residential homes and vacant lots with a variety of exotic landscaping plants and weeds.

Figure 4. Custom Soil Resource Report map showing project area (courtesy of USDA NRCS 2015).

3.0 ARCHIVAL RESEARCH SUMMARY

This section is a synthesis of records documenting traditional and mythological accounts associated with Auyong Homestead Road Improvements Project lands and surrounding areas as well as Historical documentation and archaeological record.

3.1 Pre-European Contact Cultural Landscape

In general, traditional and mythological accounts from pre-European contact Hawai'i represent a belief system explaining all aspects of the physical universe and spirit realm, the origin and nature of mankind, and the history of the community, as well as collectively remembering the heroic adventures, exceptional feats, and cautionary tales of their ancestors. These traditional accounts are contained in the hearts and minds of cultural practitioners and customarily passed on through oration. Throughout the passage of time, figures transcend earthly legends into the cosmic, divine, and fearsome realm of the gods that is only separated from the mundane world by a thin veil and has the power to interact with and cast influence on the mundane. To this day, a sense of respect, reverence, and fear is still held on to by cultural practitioners and those indoctrinated in these traditions, as it is believed that the very landscape is imbued with the *mana* (life force or supernatural energy) of the divine.

3.1.1 The Natural World

The mundane, or lifeways and land use, of pre-European contact Hawaiians are also part of the cultural landscape and are interpreted through archaeological research in conjunction with oral histories and recorded traditional accounts. Traditionally in Hawai'i, environmental zones were perceived and determined by various natural features and resource criteria (Handy and Handy 1991:54-56). The following is a summary of Handy and Handy (1991:54-56) description of Hawai'i's general terrestrial environmental zones:

1. *Ko Kaha Kai*: Land by the sea, or coastal region providing marine resources (fish and other marine animals, seaweed and salt). "Kaha was a special term applied to areas facing the shore but not favorable for planting.
2. *Kula*: The plains or sloping lands (without trees) above the coastal region.
   a) *Kula kai:* Seaward plains.
   b) *Kula uka*: Inland or upland slopes (towards the mountains).
3. *Kahawai:* The place (having) water. The area beyond or intersecting the *kula* lands. This upland zone provided suitable agricultural sites and abundant naturally occurring resources which were used for religious, domestic, and economic purposes.
4. *Wao:* Wilderness
   a) *Wao kanaka:* Region of man. Lower forest, providing hard wood (*koa*) for spears, utensils, and logs for canoes; *lau hala* (pandanus leaves) for thatch and mats; *māmaki* for bark cloth (*tapa*); *kukui* (candlenut) for oil; wild yams, roots, and sandalwood.
   b) *Wao akua*: Region of deities. …remote, awesome, seldom penetrated, source of supernatural influences, both evil and beneficent.

c) *Wao ma'ukele*: Rain forest. Here grew giant trees and tree ferns (*'ama'u*) under almost perpetual cloud and rain.

The Auyong Homestead Road Improvements Project lands are located in the *ko koha kai*. Handy and Handy (1991) maintain that marine resources represent the main source of protein in the traditional Hawaiian diet. Thus, the project area, being located in the *ko koha kai and kula kai,* would have been a valuable marine resource access point for Lualualei Ahupua'a, especially in terms of sustenance. Also, this area would have been somewhat marshy, due to its close proximity to where Ulehawa Stream naturally met the Pacific Ocean. Some traditional aquatic resources were found in wetlands such as this, including *'o'opu* (gobies) and *'opae* (shrimp), according to Titcomb in *Native Use of Fish in Hawaii* (1972:4).

Traditionally in ancient Hawaiian culture, marine zones were also distinguished by various natural features and resource criteria. The following describes the marine environmental zones (Handy and Handy 1991:56-57):

1. Neritic zone: Near-shore waters, extending from the upper reaches of the tidal edge to about 200m in depth. Contains the most resources for human use. Corresponding to the Hawaiian marine habitats of:
   a) *Kai pu'e one*: (heaps [of] sand) the sandy edge of the sea, inshore dunes, or outer sand bar;
   b) *Kai po'i*: (sea-breaking) out to where the wave breaks;
   c) *Kai kohola*: the lagoon, the shallow sea inside the reef;
   d) *Kai pualena*: the yellowish sea, where the streams flow in and roil the waters;
   e) *Kai 'ele*: the dark sea; and
   f) *Kai uli*: the deep blue-sea.
2. Pelagic zone: the open ocean, waters lying beyond or exceeding the depth of 200 meters.
   a) *Kai-pōpolohua-mea-a-Kāne*: the far reaches of the open sea (Jeffery Clark 1986:34).

Marine environments were subject to the traditional resource management system as well, supported by the *kapu* (religious law) system in ancient Hawai'i, which preserved *lōkahi* (balance) on many levels between humans and these resources. Various marine resources were key to pre-Contact era Hawaiian lifeways for various uses, such as *i'a* (fish), *he i'a mea iwi mawaho* (shellfish), *he'e* (squid/octopus), *limu* (seaweed), *pa'akai* (salt), *'āko'ako'a* (coral), *pōhaku* (stones), *manu* (bird), and *honu* (turtle). These resources were used for sustenance, tool making, medicine, trade, architecture, and ceremony. *Pa'akai* was one of the most important marine resource for its many applications, including food preservation, seasoning, medicine, and ceremonial use (Brigham 1908; Westervelt 1915).

Immediately *makai* of the Auyong Homestead Road Improvements Project area is the Neritic Zone, with white sandy beaches of the *kai pu'e one*, playful waters of the *kai po'i*, and the *kai 'ele* of the Wai'anae coast that was notoriously abundant in a variety of marine life (Maly and Maly 2003:972,1413). In *Native Use of Fish in Hawaii*, Titcomb (1972) recited an old proverb, "Ewa was the land dearly loved by Kakuhihewa, as was also the warmth of Waianae and Waialua, the

tenacious poi of Waianae, the delicious poi of Kamaile, and the tender mullet of Lualualei" (Titcomb 1972:31).

3.1.2 Life in the Ahupua'a

With great variations of geological features, each *ahupua'a* had its own dynamic resource management system that was based on traditional customs upheld by the *kapu* system, or ancient religious law. The *ahupua'a* typically extended form the coast to the nearest mountain top or ridge and resources from the land and sea were equally distributed within the *ahupua'a*. Lyons (1875) describes the geographic nature of the *ahupua'a* as well as the movement of resources from mountain to sea and vice versa, stating:

> The Ahupuaa ran from the sea to the mountain, theoretically. That is to say the central idea of the Hawaiian division of land was emphatically central, or rather radial. Hawaiian life vibrated from *uka,* mountain, whence came wood, kapa, for clothing, olona, for fish line, ti-leaf for wrapping paper, *ie* for rattan lashing, wild birds for food, to the *kai,* sea, whence came *ia,* fish, and all connected therewith. Mauka and makai therefore fundamental ideas to the native of an island (Lyons 1875: 104).

The *ahupua'a* was also an important socio-political unit in the pre-Contact era, each unit with its own hierarchy. Kirch (1985) holds that *moku* were independent chiefdoms, divided into a number of radial land divisions, referred to as *ahupua'a,* with subdivisions of *'ili* and *mo'o* within. According to Kirch (1985),

> Each ahupua'a was controlled by a lesser chief, who in turn appointed one or more stewards to oversee production, organize work parties, collect tribute, and in other ways represent the chief. Ahupua'a were economically self-sufficient to some degree, although differences in the local resource base (agricultural land, water resources, stone for tools, and so on) resulted in differences in the production patterns of individual land sections. Within the ahupua'a, there were yet smaller sections and divisions, especially the 'ili and mo'o, which were held and worked by extended households or groups of commoners.

According to Handy and Handy (1991), for the purpose of taxation, the chief political subdivision of the pre-Contact era was the *ahupua'a,* which was generally under the management of the *konohiki* (steward or caretaker). The term *ahupua'a* itself is derived from the fact that each coastal *ahupua'a* boundary was marked with an altar (*ahu*) which held a carved wooden effigy of a pig (*pua'a*) head during the Makahiki festival, when harvest tributes (taxes) were offered to the god of rain. Handy and Handy (1991) refer to the lower chief who represented the *ahupua'a* as *ali'i 'ai ahupua'a*, which translates to English as "chief who eats the ahupua'a" (1991:48). Yet, according to Malo (1951:142) the *konohiki* was tasked with collecting levies from the *maka'āinana* (commoners; literally "people that attend the land") of the *ahupua'a* for the king and of the *ali'i 'ai ahupua'a*. The word *konohiki* is defined by Pukui and Elbert (1986) as the, "Headman of an ahupua'a land division under the chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights" (1986:166). Thrum (1924) wrote that the *konohiki* was a local representative or steward of the landlord owner whose privileges and duties were, "…practically those which go with that position in any land and in common with his brethren

today in Russia or Ireland he had his failings and was not always popular among his fellows…" (1924:60).

Handy and Handy (1991) liken the *ahupuaʻa* tenure system to western share cropping, where "sharing between the chief and tenant was comprehensive and reciprocal in benefits" (1991:48). Kirch and Sahlins (1992) delve further into the social dynamics of the *ahupuaʻa* in their historical ethnography, *Anahulu: The Anthropology of History in the Kingdom of Hawaiʻi, Volume One*. Kirch and Sahlins (1992:17) state the following about variations in land use in the ancient *ahupuaʻa*:

> Economically more highly valued, the coastal areas were also generally preferred for chiefly residence. Here were the most extensive wet taro lands, offshore and onshore fish ponds, as well as access to the sea and the fishing and surfing that in Hawaii were sports of kings. Still, the uplands were also necessary for the Hawaiian existence. In addition, to things mentioned by Lyons, people were specifically dependent on the uplands for the timber and thatching of their houses; the materials for their canoes, bowls, weapons, images, agricultural tools, and other objects using hardwoods; rope, line, fishnetting; lighting (from candlenuts); pasture for domestic animals (in the nineteenth century); various fruit trees; and more (Kirch and Sahlins 1992:19).

Thus, resources needed for daily life were best grown in or collected from the habitats that they were best suited for and likely distributed, through trade, gifting, or taxes, from *mauka* to *makai* or vice versa within the *ahupuaʻa*.

3.1.3 Traditional Hawaiian Land Divisions

The pre-Contact economy of the Hawaiian Islands was based upon agricultural production that worked within a tiered system of land divisions (Lyons 1875; Malo 1951; Handy and Handy 1991; Kirch 1985; AKAC 2010). In 1875, Curtis J. Lyons, the distinguished surveyor published an article in *The Islander* on land issues, which identified the *ahupuaʻa* as the principal subdivision in a *moku* (district). In this article, he states:

> ...Its name is derived from the *Ahu* or altar; (literally, pile, *kuahu* being the specific term for altar) which was erected at the point where the boundary of the land was intersected by the main road, *alaloa,* which circumferenced each of the islands. Upon this altar at the annual progress of the *akua makahiki* (year god) was deposited the tax paid by the land whose boundary it marked, and also an image of a hog, *puaa,* carved out of kukui wood and stained with red ochre. How long this was left on the altar, I do not know, but from this came the name, *ahupuaʻa,* of the pile of stones, which title was also given to the division of land marked thereby… (Lyons 1875:103-104).

The islands are divided into several sections called *moku* (districts), in which are particular subdivisions referred to as *ʻokana* (a portion) or *kalana* (a division) (Lyons 1868:67-68; Malo 1951:16-17). According to Curtis J. Lyons (1868) in *Nūpepa Kuakoa*, these units are further divided into *ahupuaʻa*, which are the main units of traditional Hawaiian land division. Within *ahupuaʻa* are *ʻili*, followed by *ʻili paʻa, ʻili kūpono, ʻili lele, lele, moʻo, moʻo ʻāina, paukū, kīhāpai, kōʻele,* and *kuleana* (Pukui and Elbert 1986). However, in some cases, the *ʻili kūpono* or *kū* were a type of sovereign *ʻili* within an *ahupuaʻa* that were not made to pay tribute to the chief (Thrum 1890:106).

Within the *paukū* are dry land patches, referred to as *kōʻele*, *hakuone*, and *kuakua* (cultivated specifically for the chief; listed from smallest to largest). In general, high elevations or mountains are called *mauna,* but mountains or mountain summits located centrally on the island are termed *kuahiwi*, while the peaks or ridges on top of the *kuahiwi* are called *kualono*. In 1868, Lyons continues to describe the geography of the typical *ahupuaʻa* as well as the Hawaiian names for these geological features, stating:

> The place where trees are small below the fern belt is termed kuahea (hillock section); below it is the wao (wild place), also called waonahele (wilderness) and wao eiwa (ninth wilderness). The place where trees grew taller below the wao eiwa is the wao maukele, and a little below it again is the waoakua (spirit region); next below that is where voices increase and, hence, called wao kanaka (people's sphere), because there the people cultivate food. Below that is apaa, and next is ilima (where this plant of the Sida genus is found), and below it is pahu (stake or land mark). Below pahu is kula (open country) adjoining habitations, and seaward of the village is the shore, where it joins the sea. Such was the island divisions by the ancient people of Hawaii.
>
> …Places that stand high up in this and that locality are called puu (mounds or peaks) ; if they stand in a row they are a lalani puu, or pae puu (a line or range of peaks or hills)…High places of the earth lying narrow is a lapa (ridge), or kua lapa (shoulder ridge). If the ridges are many they are called olapalapa (rough protuberances). Deep places lying lengthwise are called kahawai, awawa, or owawa (streams, valleys or ditches). Lengthy, solitary places are called alanui (roads), and kuamoo (paths), and if it continues circuiting the island it is a highway. In places where the path is steep it is called piina or hoopiina (ascending path), kooku (hill slope), and auku (up hill road). Descending paths are termed ihona, alu, kalua, and hooihona, and the place where men would rest is oioina (a resting place). Places where water flows continually are streams (kahawai). Inland places are kumu (source) and seaward places are called nuku (point or outlet). Where water is led to places of cultivation, that is called an auwai (watercourse); where the water joins the sea is a muliwai (river) ; waters borne within the land are lokos (lakes or ponds) (C.J. Lyons 1868 as cited in Thrum 1921:67-68).

Perhaps the ancient Hawaiians created names for an array of topographical features and slight variations within the *ahupuaʻa* as a way to help keep the dynamic *mauka-makai* economic structure organized.

The *ahupuaʻa* of Lualualei as the largest in Waiʻanae District, stretching from Kāneʻilio Point on its coastal boundary with Waiʻanae and southward to the *makai* point of Puʻu Heleakalā.

3.1.4 Traditional Names of Localities

The project area is located in the southeast coastal portion of Lualualei Ahupuaʻa and is less than a mile from Nānākuli Ahupuaʻa in the District of Waiʻanae (Figure 5). The district, or *moku*, of Waiʻanae extends from the west edge of Honouliuli Ahupuaʻa in ʻEwa District to Kaena Point, which is the furthest west point of the Island of Oʻahu and creates the southwestern border of Waialua District.

Many traditional stories and mythologies exist for Wai‘anae in general, some of which are difficult to discern if they were speaking of the *moku* or the *ahupua‘a*. Wai‘anae, which translates to English as “mullet water,” is the name of the entire *moku* (district) as well as *ahupua‘a* immediately to the northwest of Lualualei Ahupua‘a (Pukui et al. 1974:220). Wai‘anae Ahupua‘a is centrally located within the district, or *moku*, of Wai‘anae. However, it is unclear of whether or not Wai‘anae was its own district in the pre-Contact era or a locality under the district of ‘Ewa; or conversely, whether ‘Ewa was a locality in Wai‘anae District. Early to mid-20th Century author, John Wesley Coulter, holds that in a 1909 map of O‘ahu the boundary for ‘Ewa and Wai‘anae districts had been separated and that the 1859 version illustrated them as a single district (neither maps were cited). He writes:

> In reviewing the changes made in 1909 and comparing the districts with those of 1859, we find only one change in the island of Hawaii…
>
> On Oahu, the boundaries of Honolulu district remain the same; Ewa and Waianae are separated and formed into two districts, excluding the ahupua‘a of Waianae Uka which is added to the Waialua district… (Coulter 1935:220-221 as cited in Sterling and Summers 1971:60)

An ancient proverb that describes Wai‘anae, simply states: “*Ka la kapakahi ma Waianae*.” This is loosely translated to English by Thrum (1887:81) as “Waianae with its precipitous mountain side on the east has only “the one-sided” afternoon sun.” Handy and Handy (1991) describe Wai‘anae as contrasting with the “rich district of ‘Ewa,” stating that “…Wai‘anae is a dry coastal strip with poor soil and only four rather insignificant streams reaching the sea from rocky mountain gulches or valleys” (Handy and Handy 1991:467). However, they write “[Wai‘anae’s] compensatory feature was the exceptionally rich deep-sea fishing available of and beyond Ka‘ena Point, where the great current pressed by the northeast trade winds flows in a westerly direction along these shores” (Ibid.)

Pukui et al. 1974, provided no English translation for Lualualei. In the *Hawaiian Dictionary*, Pukui and Elbert (1986:213) translate *lualua* as “Uneven, full of holes, rough, bumpy, as a road” and *lei* as “…garland, wreath; necklace of flowers, leaves, shells, ivory, feathers, or paper, given as a symbol of affection…” (ibid.:200). Pukui, as cited in Sterling and Summers (1978:63), explained that Lualua translates as “relaxed, let down,” and Lei translates as “beloved one, wreath.” She holds that the meaning could be interpreted two ways: “beloved one spared” or flexible wreath,” and believes that the latter is more likely the meaning. Andrews (1865:656) translates Lualualei as “flexible wreath” as well and describes it as a land section in Wai‘anae.

John Papa Ii (Ms.), found in Sterling and Summers (1978:63), provides another explanation for the name Lualualei, which is told as follows:

> Near the end of that year, it was suspected that the son of Papa, named Kalakua, had worn the loin cloth of the king. Kalakua fetched and carried the king’s possessions, such as his kahili, mat or spittoon wherever he went in the court or any place he wished to go. In going together constantly the loin cloths they wore had a similar pattern. When they returned to the king’s house, Kalakua was taken

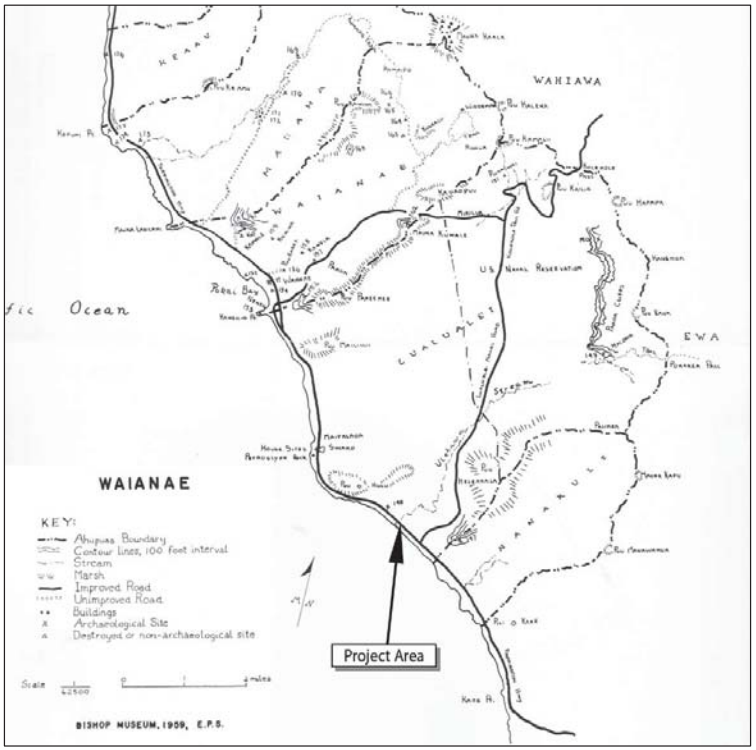

Figure 5. Map of Lualualei Ahupua‘a portion of Wai‘anae District, showing approximate location of project area (adapted from Sterling and Summers 1978).

> at once and kept in solitude. They tried very hard to verify the suspicion they had for a long time.
>
> At that time the king, chiefs and members of the court left Honolulu and sailed by canoe to Waianae. The heir of the kingdom went overland with Papa and others from Honolulu and spent the night with Kumelewai in Ewa…
>
> The coming of this retinue was announced in Waiʻanae and it was told that the family, parents and children included, would be set on fire for the wrong committed by Kalakua.
>
> The company, somewhat in the nature of prisoners spent a night at Lualualei. There was a fish pond there on the plain and that was where the night was spent. The next day they reached the southern side of Kane-punio and there they encamped for eight days to wait for another announcement telling of the death and burning of the wrong doers. Only one committed the deed but the whole family was held guilty.
>
> After several days had passed, the proclamation from the king was given by Kulaʻinamoku, that there was no death and that Kalakua did not wear the king's loin cloth. Thus was the family of Luluka spared a cruel death. For that reason, a child born in the family later was named Lualualei. (The beloved or spared.) (Ii Ms.as cited in Sterling and Summers 1978:63-64)

The neighboring *ahupuaʻa*, Nānākuli, is translated to English by Pukui et al. (1974:162) as "look at knee." Pukui and Elbert (1986:260) translate *nānā* as a verb meaning, "To look at, observe, see, notice, inspect; to care for, pay attention to, take care of," and *kuli* as "knee" or "deafness" depending on the context it's used (ibid.:180). Pukui et al. (1974:162) maintain that the name Nānākuli was given to the *ahupuaʻa* in honor of a local chief and is explained as follows,

> … [Nānākuli] said to be named in honor of the tattooed knee of Kaʻopulupulu, a priest whose chief, Ka-hahana, turned a deaf ear to his advice, and, when asked about his knee, told of his relationship with the chief, thus rebuking him… (ibid.:162).

Thrum (1921:87) holds that "Nana-kuli" means "knee examination," but explains the story behind the name differently, stating the incident occurred during Kualiʻiʻs travels "…when his attendants wished to see and press his knees, to relieve the king's fatigue after the journey." Conversely, Pukui et al. (1974:162), hold that the meaning of Nānākuli could also translate as "look deaf," due to the scarceness of food in the area, which would cause its people to pretend to be deaf to passersby to avoid sharing food. In an oral tradition as told by Simeona Nawaa to Pukui in 1945, the name stands for "deaf mutes who just look," due to the shame from their "inability to be hospitable" (as cited in Sterling and Summers 1978:61-62).

3.1.5 Traditional names for Topographical Features in Lualualei

Numerous Traditional place names of various topographical features within the lowland half of Lualualei Ahupuaʻa have been identified near the Auyong Homestead Road Improvements Project area.

Kapuhawai

According to a Nānākuli Homestead resident as reiterated by Handy (1940), somewhere up in the Lualualei military reservation was a sacred spring called, Kapuhawai. In this location, ancient agricultural terraces were still producing feral taro. She maintained that people continued to access the terraces to gather the kalo, which was regarded as "fine eating" (Handy 1940:83).

Māʻili

The plain located roughly two miles (ca. 3 kilometers) north-northwest of the project area is Traditionally named, Māʻili. Pukui and Elbert (1974:139) translate it to English as "pebbly." Within Māʻili plain is a swamp named Maʻipalaoa, after a chiefess (Sterling and Summers 1978:67). Maʻipalaoa is not listed in Pukui and Elbert (1974), yet Cruz and Hammatt (2010) offer several translations and explanation of its meaning:

> Palaoa translates as "sperm whale" or "ivory," especially whale tusks as used for the highly prized lei palaoa, a necklace made of beads of whale teeth. Maʻi translates as "sickness, illness or disease." … The literal translation for Maʻipalaoa is "sickened whale tooth." …In Hawaiian Street Names (Budnick and Wise 1989:129), Maʻipalaoa is translated as "whale genitals." (Cruz and Hammatt 2010:13)

Puʻu Heleakalā or Haleakala

Puʻu Heleakalā, also referred to as Puʻu O Heleakalā and Puʻu Haleakalā, is seen as the most prominent ridge in northwest Nānākuli, near the border of Nānākuli and Lualualei Ahupuaʻa. It is located less than a mile (ca. 1300 meters) east of the project area. According to Pukui and Elbert (1974:44), Heleakalā is a hill in Nānākuli and its name is translated as "snare by the sun (the hill blocks the rays of the setting sun)." Pukui's translation in 1953 is "…where the sun is snared. This hill faces right into the setting sun and reference is made as to this place being "where the sun's rays are broken" (in Sterling and Summers 1978:62). She adds that the name Haleakalā is likely wrong (ibid.). One example of this misnomer is provided in Sterling and Summers (1978), which was taken from the Hawaiian newspaper, *Ka Nūpepa Kuakoa*, in an article titled, "Haleiwa Hotele, About Leilono," which states:

> …It wasn't long when we arrived at Nanakuli and then to a place which bears a peculiar name. Then we turned to look at Haleakala hill the place said to be the one on which the rays of the sun was broken. This is a barren hill as though plants hated all of its sides. I saw the cave in which Hina made tapa cloths on the slope of a hill facing a stream whose mouth was at a place with a peculiar name. (*Ka Nūpepa Kuakoa* 1899 as cited in Sterling and Summers 1978:62).

Andrews (1865:118) offers an alternative translation for Heleakala (given without the macron), which is "moving of the sun." He adds two interesting interpretations, which are as follows:

> 1. The apparent path of the sun in its imaginary daily journey between the summer and winter solstices.
>
> 2. The point in the ecliptic where the sun apparently turns in its path; the path of the sun.

Pu‘u o Hulu
Located less than a mile (ca. 1500 meters) north of the project area is Pu‘u o Hulu, translated as Hulu’s hill. Pukui and Elbert (1986:203) maintain that this hill was named after the chief who fell in love with Mā‘ili‘ili, who was one of twin sisters. When the chief was unable to tell the sisters apart, a *mo‘o* (mystical lizard or water spirit) changed the twins into mountains. It is said that chief Hulu would admire them from this spot.

Pu‘u Mā‘ili‘ili
Pu‘u Mā‘ili‘ili is located roughly 3 miles (5 kilometers) northwest of the project area and is translated to English as, “pebbly hill” (Pukui and Elbert 1986:201). This hill may be the counterpart of Pu‘u o Hulu in the afore mentioned story, representing the twin sisters. Mā‘ili‘ili is also the name of the stream at the foot of Pu‘u Mā‘ili‘ili.

Ulehawa Stream
Ulehawa is the Traditional name of a stream in Lualualei Ahupua‘a that drains into the Pacific Ocean less than a quarter mile (ca. 450 meters) northwest of the project area. The name, which translates to English as, “filthy penis,” has been given to the entire beachfront area stretching from Nānāikapono Elementary School to Mā‘ili Point (Pukui and Elbert 1986:214-215). The name is speculated to have belonged to a local chief (ibid.).

According to Samuel Kamakau (1961), Ulehawa Stream, was the birthplace of the demi-god Maui and his brothers. In this vicinity, Kamakau holds that Maui obtained the secret of fire-making, made adzes and other tools, and perfected his renowned fishing skills. Additionally, he holds that a cave existed in the area where Maui’s mother, Hina (the moon goddess), crafted her tapa, the snare for catching the sun, and the famed fishhook Manaiakalani (ibid.). The Ulehawa Stream area was where several other legends involving Maui occurred. According to Beckwith (1970), one Maui legend is summarized as follows:

> Maui-kupua, his mother and brothers live at Ulehawa, Maui and his mother in a cave called Kane-ana, in Waianae district. Maui wishes to unite the islands. His mother sends him to Ka-alae-nui-a-hina, who tells him he must hook Uniho-kahi at the fishing station of Ponaha-ke-one off Ulehawa. Maui and his brothers paddle out to the fishing ground with the hook Manai-a-ka-lani. He tells his brothers to catch the bailer (kaliu) they will see floating by, and himself takes it into the canoe. When they reach the fishing station the bailer has become transformed into a beautiful woman. She accompanies Maui’s hook into the sea and bids Uniho-kahi open his mouth, as she and Maui have been disputing about the number of his teeth. When he obeys she hooks him fast. The brothers paddle. Maui bids them not look back; but they disobey, the hook comes loose, and the islands separate again. (Beckwith 1970:233)

Thrum, in *More Hawaiian Folk Tales* (1923), refers to a nearby body of water as “the sea of Ulehawa” in his synopsis of “Maui’s Flying Expedition” (as cited in Sterling and Summers 1978:65). His rendition begins as follows:

> One day Maui and his brothers went fishing again in the sea of Ulehawa. They each let down their hooks but caught only sharks. Maui then let down his

> famous hook ma-nai-aka-lani and caught a moi and ulua. Maui then gave the order to paddle to shore where he took the fishing tackle gourd and hokeo (his paddle) to his mother Hina. The fish he took to the heiau Luaehu because he had to eat it there. (Thrum 1923 as cited by Sterling and Summers 1978:65)

As Maui ate his catch, his wife, Kumu-lama, was abducted by the chief Pea-pea-maka-walu. Subsequently, Maui leaves for his mystical quest to find his wife, which comprises the rest of the story. Thrum (1923) also refers to a fishing station, named Po-naha-ke-one, as being at the sea of Ulehawa in the tale of “Maui and Manai-a-ka-lani.” He retells the story as follows:

> Maui-ku-pua lived with his mother Hina. He often wondered why the islands were separated and decided to try and join them. He consulted his mother who sent to Kaa-lai-nui-ahina (k). Kaa-lae told him the power to do so belonged to Uni-ho-kahi who is found at Po-naha-ke-one (a fishing station at Ule-hawa).
>
> Maui returned home and next day told his mother he was going fishing. Maui asked his brothers to go with him and they made ready their fishing gear. Maui got ready his famous hook ma-nai-a-ka-lani. Maui told his brothers to watch for kaliu (bailer) floating at the bow of the canoe and to catch it. They sailed to the middle of the sea of Ulehawa and Maui took bearings from Hina’s place of drying her kapas. There they saw the kaliu and Maui told his brother Maui-mua to catch it. His brother thinking there was no need for one as the canoe already had one did not do so, so Maui caught it as it floated by him. The name of this bailer was Hina-ake-ka.
>
> When the brothers turned around they saw a beautiful woman in back of the canoe. They all sailed on to Ponahakeone and anchored but when the brothers looked around again the woman was gone. Maui knew the bailer (the woman) had dropped into the sea. He called to his brothers to drop a hook to the bottom of the ocean but each time they caught only a fish. Maui then dropped Manaiakalani and told his brothers to prepare to paddle. The hook was grasped by Hina-a-ke-ka who took it to Unihokahi. She asked him to open his mouth so she could see if he had one tooth or many. When he did so, she hooked in Manaiakalani and jerked the line so Maui would know.
>
> Maui then commanded his brothers to paddle hard but not to look back. Finally becoming exhausted and thinking that it was not a fish they had hooked, they gave up and looked back. They saw the chain of islands following and were surprised. Maui was angry because they didn’t reach shore and the islands were never joined. The hook was loosened from Unihokahi’s mouth and the islands separated and drifted back to their original positions. (Thrum 1923 as cited by Sterling and Summers 1978:65-66)

These stories depict the marine waters of Ulehawa as being legendary fishing grounds as well as the backdrop of significant oral Traditions. They also suggest that the inland areas surrounding Ulehawa Stream were important ancient settlements in the early period of Hawaiian colonization.

3.1.6 Heiau of Lualualei Ahupuaʻa

Several Heiau were discovered in the mountainous areas of Lualualei, which were recorded by McAllister during his 1930s island-wide survey.

Kakioe Heiau (Site 151)

Located more than 5.75 miles (ca. 9.3 kilometers) northeast of the project area is the area Traditionally referred to as Pūhāwai, where Kakioe Heiau is said to have stood. According to McAllister (1933), this was a "…small heiau of which nothing now remains but its sacred spring, and the sound of its drums and conchs on the nights of Kane" (as cited by Sterling and Summers 1978:66).

Nioiula Heiau (Site 149)

Nioiula Heiau is located on Halona ridge near the trail to Pokahea Pass, which is nearly 4.5 miles (ca. 7.3 kilometers) northeast of the project area. This heiau was reported by McAllister (1933) to have been of poʻo kanaka (human head) class. He described the heiau as "paved and walled," though partially destroyed by the time he discovered it (ibid.). McAllister provides further description and possible function as follows:

> A paved and walled heiau said to have been of pookanaka class. The northern portion has been almost completely destroyed, the stone having been used for a cattle pen on the McCandless property. Since the cattle put into the pen sickened and died, it was seldom used and is now abandoned. The heiau probably had three inclosures and three platforms open the west side, but so little remains of the northern part of the heiau that it is difficult to discern inclosures or terraces. This is probably the heiau on which was placed the body of the boxer killed by Kewalo and offered as sacrifice to the gods. The temple is said to have been very ancient, belonging to chief, Kakuihewa. (McAllister 1933 as cited in Sterling and Summers 1978:66)

3.1.7 Waiʻanae District: a *Wahi Pana*

According to Pukui and Elbert (1986), "*wahi*" translates to English as "place" and "*pana*" translates to "celebrated," "legendary," or "noted." When the words are combined, "*wahi pana*" can be interpreted in English as "a place of legends." Waiʻanae, as both an *ahupuaʻa* and *moku* (district), is associated with several gods and demi-gods and has been the backdrop of numerous events in ancient legends.

Many legends, or *moʻolelo,* have taken place or have partially taken place within the District of Waiʻanae, several of which are the famous exploits of the demi-god, Maui. According to Fornander (1916:370), Maui was born in Waiʻanae District. Kamakau (1870) holds that Maui and his brothers were born in the south side of Waiʻanae District, which would have been in either Lualualei or Nānākuli Ahupuaʻa (as cited by Sterling and Summers 1978:64). Numerous Traditional accounts of Maui, are centered around the Ulehawa Stream area, which is in the *ahupuaʻa* of Lualualei, including it being his birthplace as well as the location of many of his trials tribulations (Thrum 1923; Kamakau 1961). According to McAllister (1933), a large rock approximately 1.1 mile northwest of Nānākuli on E. P. Fogarty's property, was given the name "Maui," after the demi-god, "…who is said to have landed here when he first came to the

Hawaiian islands from the south…"(as cited by Sterling and Summers 1978:64). He explains the stone as follows:

> This stone at the time was surrounded by water, and it was here that Maui reposed and sunned himself. In the bluff just northeast of the rock is a shelter in which he lived, and in the vicinity was a spring where he obtained water. The large rock is now split in half and adorned with many small, oddly shaped rocks. It is said to be bad fortune to build one's house across a line drawn directly from the rock to the shore. J.J. Mathews is said to have collected detailed information in regard to this site. (Ibid.)

Pukui et al. (1974:220) associates the story of a *moʻo* (lizard) goddess, named Pūhāwai (water hollow), to the Waiʻanae area, stating that she "… once lived inland at a place called Pūhā; she stole a woman's husband; the wind god, Makani-ke-oe, restored him to her."

Beckwith (1919) offers the following lines from one version of the chant of Kualiʻi, which describes the view as interisland seafarers approach Waiʻanae from the island of Kauaʻi:

> O Kauai,
> Great Kauai, inherited from ancestors,
> Sitting in the calm of Waianae,
> A cape is Kaena,
> Beyond, Kahuku,
> A misty mountain back, where the winds meet, Kaala,
> There below sits Waialua,
> Waialua there,
> Kahala is a dish for Makulela,
> A fishpond for the shark roasted in ti-leaf,
> The tall of the shark is Kaena,
> The shark that goes along below Kauai,
> Below Kauai, thy land,
> Kauai O!
> (Beckwith 1919:31)

In "The Hawaiian Romance of Laieikawai," Beckwith (1919) holds that a popular form of this folk tale is told in Waiʻanae, where a Kahuku chief, Kahoʻalii, instructed his son, "Fly about Oahu while I chew the awa; before I have emptied it into the cup return to me and rehearse to me all that you have seen." (Beckwith 1919: 31). The remaining lines of the tale describe the numerous places he passed through on his journey.

In "Ke-ao-mele-mele, The Maid of the Golden Cloud," Westervelt's 1915 version mentions Waiʻanae numerous times. This story tells of a young woman, named Paliula, who was the daughter of the gods, Ku and Hina. Paliula was betrothed to her brother Kahanai, who was raised apart from her by the gods at Waolani. After their marriage they settled in Hilo, but shortly after, Kahanai left Paliula for his male lover, Waiola. Forsaken by her husband, she decided to venture across the islands. During her journey, Paliula stayed in Waiʻanae uka for some time in several locations with several women of noted status, including a *kumu hula*, Hii-

lani-wai, and a chiefess named Kalena, which may have been the namesake for the locality of Kalena in Waiʻanae uka. Her sojourn in Waiʻanae occurred thusly:

> …Waka then took her [Paliula] from island to island until they were near Oahu. When they came to the beach Paliula leaped ashore and went up to Manoa Valley. There she rushed into the forest and climbed the ridges and precipices. She wandered through the rough places, her clothes torn and ragged.
>
> Kane and Kanaloa saw her sitting on the mountain-side. Kane sent servants to find her and bring her to live with them at Waolani. When she came to the home of the gods in Nuuanu Valley she thought longingly of her husband and sang this mele:
>
> > "Lo, at Waolani is my lei of the blood-red rain,
> > The lei of the misty rain gathered and put together,
> > Put together in my thought with tears.
> > Spoiled is the body by love,
> > Dear in the eyes of the lover.
> > My brother, the first born,
> > Return, oh, return my brother."
>
> Paliula, chanting this, turned away from Waolani to Waianae and dwelt for a time with the chiefess Kalena.
>
> While Paliula was living with the people of the cold winds of Waianae she wore leis of mokihana berries and fragrant grass, and was greatly loved by the family. She went up the mountain to a great gulch. She lay down to sleep, but heard a sweet voice saying, "You cannot sleep on the edge of that gulch." She was frequently awakened by that voice. She went on up the mountain-ridges above Waianae. At night when she rested she heard the voices again and again. This was the voice of Hii-lani-wai who was teaching the hula dance to the girls of Waianae. Paliula wanted to see the one who had such a sweet voice, so went along the pali and came to a hula house, but the house was closed tight and she could not look in.
>
> She sat down outside. Soon Hii-lani-wai opened the door and saw Paliula and asked her to come in. It was the first time Paliula had seen this kind of dancing. Her delight in the dance took control of her mind, and she forgot her husband and took Hii-lani-wai as her aikane, dwelling with her for a time… (Westervelt 1915:135-137)

Westervelt also tells the story of the "Chief Man-Eater" in *Legends of Old Honolulu,* in which a *cannibalistic* chief and his cohorts from a far off land terrorized the people of Waiʻanae. The chief was eventually pushed up into the Waiʻanae Mountains when the people of Oʻahu fought back. The story is as follows:

> One of the legends of Ke-alii-ai Kanaka (The chief eating men) tells of the sudden appearance on the island of Kauai, in the indefinite past, of a stranger chief from a foreign land, with a small band of followers. The king of Kauai made them welcome. Feasts and games were enjoyed, then came the discovery that secret

> feasts of a horrible nature were eaten by the strangers. They were driven from the island. They crossed the channel to Oahu. They knew their reputation would soon follow them, so they went inland to the lofty range of the Waianae Mountains. Here they established their home, cultivated food and captured human victims, until finally driven out. Then they launched their boats and sailed away toward Kahiki, a foreign land…
>
> Ke alii ai Kanaka was a powerful man. He described as a champion boxer and wrestler. In some way he learned to love the taste of flesh. When his awful appetite became he was driven from his home. As he through the village the women who had his playmates and companions fled from him. His former friends the young warriors called out "Man-eater!" "Man-eater!" and openly despised him. In bitter anger he called the few servants who would follow him, and fled to the royal Waianae Mountains. Driven from his kindred and friends he buried himself and his brutal appetite in the mountain forests.
>
> It is possible that soon after this he visited the island Kauai, and there passed himself off as a chief from a foreign land. But "his hand was against every man" and therefore "every man's hand was against him." Finally he made his permanent home among the Waianae Mountains, in the range that borders Waialua. (Westervelt 1915:193-194)

Kamapuaʻa, the half man, half pig demi-god, had also terrorized the people of Waiʻanae, according to Westervelt's "Kamapuaa Legends":

> Leading his band of rough robbers down through the sandalwood forests of the Wahiawa region he crossed over the plains to the Waianae Mountains. Here they settled for a time, living in caves. Other lawless spirits joined them, and they passed along the Ewa side of the island, ravaging the land like a herd of swine. A part of the island they conquered, making the inhabitants their serfs.
>
> Here on a spur of the Waianae Mountains they built a residence for Kama-unu-aniho, and established her as their priestess, or kahuna, sorceress. They levied on the neighboring farmers for whatever taro, sweet potatoes and bananas they needed. They compelled the fishermen to bring tribute from the sea. They surrounded their homes with pigs and chickens, and in mere wantonness terrorized that part of Oahu. (Westervelt 1915:257-8)

Fornander (1916) retells the story of Nihooleki, the legendary fisherman from Keauhou on the island of Hawaiʻi who settled, married, and became King of Waiʻanae. Kiahaikiaholeha was his name before he died and magically came back to life as Nihooleki. His story is told by Fornander as follows:

> Keauhou in Kona, Hawaii, was the birthplace of Nihooleki and it was from this place that he moved to Kuukuua, in Puuokapolei at Waianae, where he took unto himself a wife. The name Nihooleki was given to his spirit body; his name during his life time was Keahaikiaholeha, a chief, and was the greatest fisher man over all the whole country of Waianae. It was he that owned the mother-of-pearl fish-hook called Pahuhu that could catch so much aku. He was at one time king of Waianae and had fished from all the head lands round about that

country. He knew all the fish and fishing grounds in the ocean around that region. After a time he left his parents and young sister in Waianae and set sail for Waimea, Kauai, where he settled; for this was where his wife had come from, being her birthplace.

When Keahaikiaholeha arrived at Waimea he became the king of the whole of Kauai as his wife was its high chiefess. It was his custom to go out fishing every day. This mother-of-pearl fish-hook, Pahuhu, was a great hook; every time it was let down into the sea and pulled up the aku would follow it into the canoe until the canoe was filled with them. The canoe in which he used to go fishing was a double canoe ten fathoms in length, and was manned by twenty paddlers who were its complement to steady the canoe while he fished for aku.

At the death of Keahaikiaholeha, his body was brought back to Kuukuua, Waianae, where it was placed in a tomb. The parents then proceeded to worship the spirit, as was the custom in those days of Hawaii, until it became so strong that it could go about in the form of a live person. After the spirit of Keahaikiaholeha had waxed strong, it returned to Waimea, Kauai, and again took his former wife and lived with her as her husband. The wife was not aware that this was her husband's spirit, fully believing that it was her husband in real flesh. It was while in this spirit form, that he was named Nihooleki. All he did during the day time was to sleep, not even taking food; the wife being the only one that took food. When the wife got hungry she would go to her brothers for food and meat. On one of her calls for food and meat the brothers asked her: "Where is your husband?" The sister replied: "He is at home asleep." "You have a queer husband. All he does is to sleep at home. How is he to satisfy his wife's hunger? Except we help you, you will not be able to live." While this conversation was going on between them, the husband heard all that was being said and when the wife arrived home Nihooleki asked his wife: "Have your brothers any mother-of-pearl fish-hooks?" "They have some." "Go and bring one." When the sister arrived at her brothers' they asked her: "What have you come for?" "I have come for a mother-of-pearl fish-hook for your brother-in-law." "That is right, that will get you something to live on. Here is a hook for the use of which we will charge ten aku. Here is another one for twenty aku," etc. The wife took one of the hooks and returned. When she entered the house and approached where her husband was sleeping she called out:

Wake up Nihooleki,
Wake up Nihooleki,
The night comes and goes,
The day comes and goes;
The fishermen have sleepless eyes.
Wake up, here is our mother-of-pearl fish-hook.

The husband asked: "What kind of a mother-of-pearl fish-hook is it?" "It is one resembling the glitter of a white shark," answered his wife. "It is the one the fish will not bite at."

It will catch but two aku.
One for the male spirit,
One for the female spirit.

The arms of the paddlers would become uselessly lame.
Where is the small pahuhu,
The one partly eaten by Kane?
Hanging there at the gable end
Being watched by a noio.
The current is flowing towards Makaena
Where swarm the aku,
Where the giving would be a pleasure,
When the worthless could have a share,
When the hungry up at Waiahulu could also have a share.

At this the wife again returned to the brothers. "What is it you want?" [they asked] . "My husband says the fish-hook is no good; it will catch but two aku and one cannot at that rate give any away willingly," replied the sister. The brothers again asked: "Where is the fish-hook that would induce the fish to bite more freely?" "My husband said that it is the one hanging up at the gable end of the house being watched by the noio." When they made a search sure enough they found a mother-of-pearl fish-hook that was being watched by the small black bird; it was Pahuhu. The noio was the supernatural bird sister of Nihooleki.

Upon the arrival of the wife at their house, the husband was still asleep. She then called: "Here is the mother-of-pearl fish-hook." "It is a Pahuhu," Nihooleki answered.

That is the mother-of-pearl fish-hook that the fish want,
You can then point with the hand,
You can give with pleasure.
The worthless can share,
The hungry can also have a share
Up at Waiahulu.

The wife then threw the fish-hook in the hand of her husband. He then rose, kissed it and wept over it. The reason why he wept was, because of his death he was thus kept away from his one great pleasure, fishing.

After the fish-hook was secured, Nihooleki said to his wife: "Go and get a canoe from your brothers. Not the one of five fathoms in length, nor the single canoe, but get me the double one that is ten fathoms in length. After you have secured the canoe, ask for twenty paddlers." When the wife arrived in the presence of her brothers, they asked her: "Here you are again, what do you want?" She replied: "I want a canoe." "Yes, you shall have one; take the one that is five fathoms in length." "That is not the one he wants. He wants a double canoe that is ten fathoms in length." "That cannot be. There is no double canoe of that size, nor would he be able to make use of it." The sister replied: "He said there is such a canoe. It is in the canoe shed." When a search was made they found one.

When the canoe was secured the twenty paddlers jumped aboard and took it to Nihooleki. When Nihooleki saw the canoe he knew at once it was the same one that was owned by him when he was alive. He then asked his wife: "Are you a favorite with your brothers?" "Yes." "Go and tell them that I want twenty men to steady the canoe with."

When the paddlers and canoe were ready the canoe was taken and left on the beach near the landing thinking that at the fourth crow of the cock they would make their start, as was the custom with the fishermen of those days; but it was not to be in this case. At the first crow of the cock the men got to the canoe; at the last crowing of the cock they pushed the canoe out. By this time all the other fishermen were out at sea. The men, however, still waited until daylight. When it became light enough to distinguish the features of the men they went back to the house feeling indifferent.

In the meantime Nihooleki was still in bed with his senses, however, all alert. The wife aroused him: "Wake up and make a start; this is the coolest time for the fishermen, when one is not made lazy by the heat of the sun." He answered: "Wait until it is light; at sunrise." Nihooleki then arose, got the bailing cup, reached for the calabash in which were kept all the fishing utensils, affixed his malo, then went out to the canoe and with one hand pushed it out into the sea. The paddlers then came down and jumped aboard. As soon as they got under way Nihooleki took out the fish-hook and began fishing. The aku came in such large numbers that in no time the canoe was loaded. They took this catch and threw it ashore. They went out and got a second canoe load and again it was thrown ashore. This was kept up until six canoe loads had been landed. By this time a large mound of fish had been piled up. The wife proceeded to give away, feed the pigs, give some to the loafers, sell some, and salt some, but a large number were still left over, there being so many. The people from the uplands came down with food, sugar-cane, bananas and everything else good to eat and all went home with fish, even those that came down without anything went home with their share. Those who were still in the uplands when they heard of the fish came down and returned with their share.

Nihooleki and his men then went out to mid-ocean along where his brothers-in-law were fishing, sailing right along by them. When his brothers-in-law saw his well- formed body they called out, "Puipuiakalawaia," making this his third name. Upon their arrival at Makaena, off Waianae, the men looked up and saw that they had reached the island of Oahu. Nihooleki again fished until the canoe was filled with aku. He then ordered his men to eat. After their meal when everyone was satisfied the remaining fish were thrown out until the canoe was bare, when they set off until they landed at Kaunolu, in Lanai, where they again caught some fish and eat till satisfied. Again they set sail until they reached Keauhou, at Kona, Hawaii, when Nihooleki told his men: "You may all go ashore here while I remain with our canoe. When you go ashore, take each of you one aku apiece. There are twenty of you, making twenty aku. When you get to that shed of coconut leaves in front of that house, where women are seated, throw down the fish, but don't look back." The men then went ashore while Nihooleki turned the canoe around. On the return of the men they immediately set sail for Kauai, and the same day reached the Kauai waters where the brothers-in-law were fishing. Nihooleki produced the hook and again the aku came tumbling into the canoe until it was sunk deep in the water with fish. When the brothers-in-law looked up they saw the canoe and the fish; the canoe was so full that the men had to stand up. Upon their return to shore Nihooleki took up two aku for the male and female spirits, took a bath and went home, and told his wife: "Go to

the paddlers and give them that canoe load of fish." He then went in and laid down. The fish from the first catch were beginning to get spoiled.

This was kept up for many days and everybody had fish. One day the news about the great catches was carried to Kamapuaa in the uplands of Waiohulu. Kamapuaa upon hearing the great catches said: "I could get some of that fish if I can only get down to the coast." Kamapuaa was the friend of Nihooleki; he was afflicted with the dropsy and was not able to walk; therefore some people carried him down to the beach; but being very heavy the men could only carry him a little ways at a time. By constant begging he however managed to get to the seashore. Before Nihooleki set out on a certain day to fish he gave his wife the following instruction: "In case a man with the dropsy should come, call him in as he is my friend."

After Nihooleki had started, Kamapuaa arrived and came and looked in at the door. "You filthy man, begone," said the wife of Nihooleki. Kamapuaa with the men that carried him down, went over to the hog pen and there waited for the return of Nihooleki his friend. When Nihooleki returned with the fish, he came and kissed his friend, and then turned to his wife and said: "You are indeed strange. I told you to take good care of my friend, but you have not done so. Never mind, you may stay, but I am going along with my friend." He then told his friend to give some of the fish to the men who brought him down. The men took all they could carry away, but still many fish were left.

When Nihooleki and Kamapuaa were ready to leave Waimea and the wife, Nihooleki addressed his wife saying: "When you give birth to the child within you, call him by my name, Keahaikiaholeha. Here are the tokens by which I shall know him should he search for me, my club and my feather cape." When the wife heard these instructions she wept: by these words the wife knew that this was her own husband, Keahaikiaholeha. When the chiefs and his brothers-in-law heard that this was the king, they came chasing after him. He and his friend then dove into the sea and swam under water until they came up at Kuukuua, at Waianae. One of the Kauai chiefs, however, came following behind them named Pohakuokauai, the same being that rock which is seen at Waianae even to this day. As they drew near to the house where the parents and sister of Nihooleki were living and near to the tomb where his dead body was laid, Nihooleki then turned to his friend and said: "Where are you? When you reach our parents ask them: 'Where is my companion that came along with me?' They will then give you an answer. Then ask them where certain things that belonged to me are. Proceed and take up the threshold where you will find my war helmet; under the place where our sister sleeps you will find a feather cape; at the foot of her sleeping place you will find the lei palaoa; and at the corner in the house is a kahili. Take our sister and make her your wife as she is fair to look upon and is also of proper age."

At the close of his friend's instructions, Kamapuaa continued on his way until he came in the presence of his friend's parents and sister. After proving himself a friend of Nihooleki's by producing the different articles in obedience to the instructions given him by his friend he was married to the sister of Nihooleki. Keahaikiaholeha, who was Nihooleki, entered the tomb and disappeared. Thus ends this story."(Fornander 1916:488-496)

Kamaile in Waiʻanae was one of the settings for the ancient tale of the survival of twin daughters born to Malaekahana and her husband, Kahauokapaka, who was chief of Koʻolauloa and Koʻolaupoko. In this story, Kahauokapaka vowed to kill all daughters born to him and his wife before they bore a son. After the births and brutal executions of four daughters, the distraught Malaekahana asked a priest to help as her womb grew with child. The story is as follows:

> When for the fifth time Malaekahana conceived a child, near the time of its birth, she went to the priest and said, "Here! Where are you? Look upon this womb of mine which is with child, for I can no longer endure my children's death; the husband is overzealous to keep his vow; four children were mine, four are dead. Therefore, look upon this womb of mine, which is with child; if you see it is to be a girl, I will kill it before it takes human shape. But if you see it is to be a boy, I will not do it."
>
> Then the priest said to Malaekahana, "Go home; just before the child is to be born come back to me that I may know what you are carrying."
>
> At the time when the child was to be born, in the month of October, during the taboo season at the temple, Malaekahana remembered the priest's command. When the pains of childbirth were upon her, she came to the priest and said, "I come at the command of the priest, for the pains of childbirth are upon me ; look and see, then, what kind of child I am carrying."
>
> As Malaekahana talked with the priest, he said: "I will show you a sign; anything I ask of you, you must give it."
>
> Then the priest asked Malaekahana to give him one of her hands, according to the sign used by this people, whichever hand she wished to give to the priest.
>
> Now, when the priest asked Malaekahana to give him one of her hands she presented the left, with the palm upward. Then the priest told her the interpretation of the sign: "You will bear another daughter, for you have given me your left hand with the palm upward."
>
> When the priest said this, the heart of Malaekahana was heavy, for she sorrowed over the slaying of the children by her husband; then Malaekahana besought the priest to devise something to help the mother and save the child.
>
> Then the priest counseled Malaekahana, " Go back to the house ; when the child is about to be born, then have a craving for the manini spawn, and tell Kahauokapaka that he must himself go fishing, get the fish you desire with his own hand, for your husband is very fond of the young manini afloat in the membrane, and while he is out fishing he will not know about the birth ; and when the child is born, then give it to me to take care of; when he comes back, the child will be in my charge, and if he asks, tell him it was an abortion, nothing more."
>
> At the end of this talk, Malaekahana went back to the house, and when the pains came upon her, almost at the moment of birth, then Malaekahana remembered the priest's counsel to her.
>
> When the pain had quieted, Malaekahana said to her husband, "Listen, Kahauokapaka! the spawn of the manini come before my eyes; go after them,

> therefore, while they are yet afloat in the membrane; possibly when you bring the manini spawn, I shall be eased of the child; this is the first time my labor has been hard, and that I have craved the young of the manini; go quickly, therefore, to the fishing."
>
> Then Kahauokapaka went out of the house at once and set out. While they were gone the child was born, a girl, and she was given to Waka, and they named her Laieikawai. As they were attending to the first child, a second was born, also a girl, and they named her Laielohelohe.
>
> After the girls had been carried away in the arms of Waka and Kapukaihaoa, Kahauokapaka came back from the fishing, and asked his wife, "How are you?"
>
> Said the woman, "I have born an abortion and have thrown it into the ocean."
>
> Kahauokapaka already knew of the birth while he was on the ocean, for there came two claps of thunder; then he thought that the wife had given birth. At this time of Laieikawai and Laielohelohe's birth thunder first sounded in October, according to the legend.
>
> When Waka and Kapukaihaoa had taken their foster children away, Waka said to Kapukaihaoa, "How shall we hide our foster children from Kahauokapaka?"
>
> Said the priest, "You had better hide your foster child in the water hole of Waiapuka; a cave is there which no one knows about, and it will be my business to seek a place of protection for my foster child."
>
> Waka took Laieikawai where Kapukaihaoa had directed, and there she kept Laieikawai hidden until she was come to maturity.
>
> Now, Kapukaihaoa took Laielohelohe to the uplands of Wahiawa, to the place called Kukaniloko.
>
> All the days that Laieikawai was at Waiapuka a rainbow arch was there constantly, in rain or calm, yet no one understood the nature of this rainbow, but such signs as attend a chief were always present wherever the twins were guarded.
>
> Just at this time Hulumaniani was making a tour of Kauai in his character as the great seer of Kauai, and when he reached the summit of Kalalea he beheld the rainbow arching over Oahu; there he remained 20 days in order to be sure of the nature of the sign which he saw. By that time the seer saw clearly that it was the sign of a great chief — this rainbow arch and the two ends of a rainbow encircled in dark clouds.
>
> Then the seer made up his mind to go to Oahu to make sure about the sign which he saw. He left the place and went to Anahola to bargain for a boat to go to Oahu, but he could not hire a boat to go to Oahu. Again the seer made a tour of Kauai ; again he ascended Kalalea and saw again the same sign as before, just the same as at first ; then he came back to Anahola.

While the seer was there he heard that Poloula owned a canoe at Wailua, for he was chief of that place, and he desired to meet Poloula to ask the chief for a canoe to go to Oahu.

When Hulumaniani met Poloula he begged of him a canoe to go to Oahu. Then the canoe and men were given to him. That night when the canoe star rose they left Kauai, 15 strong, and came first to Kamaile in Waianae.

Before the seer sailed, he first got ready a black pig, a white fowl, and a red fish.

On the day when they reached Waianae the seer ordered the rowers to wait there until he returned from making the circuit of the island. (Beckwith 1919:344-350)

In the Hiʻiaka Legends, Emerson (1915) describes the events that occurred at Waiʻanae and its coastal waters as such:

According to this version of the narrative, which is the preferable one, Hiiaka now took passage in the canoe and from Mana the reunited party sailed away for Oahu. By this happy reunion the otherwise dissevered narrative is brought into harmony and conflicting versions no longer pull away from each other like two ill-trained steers.

The voyage was not without enlivening incident. When the canoe had reached a point where the surges began to roll in the direction of Oahu Hiiaka saw two monster sharks disporting themselves in the waves whom she recognized as relatives on the side of her paternal grand-father, their names being Kua and Kahole-a-Kane. This was her second encounter with these sea- monsters; the first was on her recent voyage to Kauai, an encounter which had threatened serious results, if not disaster, to Hiiaka's expedition. As the story goes, when Kua and Kahole had become aware that Hiiaka's going was for the purpose of bringing Lohiau to the bed of Pele, they were moved to great disapproval of her enterprise : "A mere man," said they. "The idea of mating him with Pele is atrocious; and he is a dead man at that."

After taking counsel with the sea-goddess Moana-nui-ka-lehua, who had her boudoir in the deep waters of Ieie-waena, with her aid they raised a commotion in the sea and Hiiaka barely escaped being swamped by a mighty water-spout. For her part Hiiaka was quite ready to overlook this rough play of her old kinsfolk and to do the agreeable with them and she accordingly addressed them kindly: "How lucky for me is this meeting again with you out here in the ocean! It will enable me to relieve my hardships by a smack of real comfort."

The two sea-monsters felt unable to respond to Hiiaka's advances in a like spirit with her's [sic]. Their consciences plead guilty. "Look here," said Kua to his fellow, "this is our grandchild."

"Yes," his companion replied, "and she will put us to death. We'd better hide ourselves, you in your patch of surf, I in mine."

"That sort of a ruse won't avail us in the least." objected Kua.

"What then? Where shall we flee for safety?"

"To the mountains back of Waianae, to be sure," asserted Kua.

This suggestion meeting with the approval of his companion, they hastened to land and, having divested themselves of their shark-bodies and resumed human form, they made for the mountains and hid themselves in the palaa fern. Hiiaka was greatly disappointed that these two old people should have so utterly misconceived her attitude of mind toward them as to rob her of their interesting company. She expressed her observations in song:

A makani Kai-a-ulu lalo o Waianae,
E wehe aku ana i ka lau o ka niu.
Haʻi ka nalu o Kua a ala i ka po ;
I hiki aku, i moe aku iuka ka luhi o ke kai :
Moe no a huli ke alo i ka paia.
Hiki ka alele a kou ipo
A koena lau ka ula e:
He ula aloha, e ! —
Makani pahele-hala o Kamaile-huna,
Ke wahi mai la e naha lalo o Malamalama-iki.
Ikeʻa Wai-lua — ke kino o ka laau,
Pau pu no me ke kino o ka Lehua wheʻa:
Wheʻa iho nei loko o ka moe,
Malamalama okoʻa no olalo me he ahi lele la !
Heʻe, e-e !

TRANSLATION

A cat's paw ruffles the Waianae sea.
Lifting the fronds of the coco-palm;
The waves of Kua rise in time
And haste to repose neath the cliff.
To sleep secure with face to the wall.
Then comes my herald of peace, with
Its ear-tingling message of love,
Offering bounty and pardon as free
As the wind that shakes the hala tree.
Drawn is the bolt and open the door
Of the secret chamber under the sea,
Revealing the tricks of the merfolk twain,
Their bodies dead as the corpse of King Log,
And with them that of the Mermaid Queen ;
For a ray has pierced to their resting place,
As a lightning flash illumines the deep.
You're caught, my fellows, you're caught !

Neither Kua nor Kahole-a-Kane were relieved of their guilty fears by Hiiaka's soft words. They continued their flight along the same path which was soon afterwards followed by Hiiaka in her climb to Poha-kea. The only penalty

> inflicted by Hiiaka, when at last she came up with them and found them penitent, cowering in the brush, was their retirement from the ocean: not a light stroke, however, being almost the equivalent of taking away a mariner's commission, thus separating him from his chosen element, his native air." (Emerson 1915:161-162)

Hence, Waiʻanae, as a district has played a significant role in the overall legendary background of the island of Oʻahu.

3.1.8 Power and Warfare in Pre-European Contact Waiʻanae District

Oʻahu's political centers varied over time since the initial settlement of the island. In the early expansion of settlement on Oʻahu, Waiʻanae was not likely its own district, but a territory of ʻEwa District along with Waialua (Cordy 2002:22). During this early period of Oʻahu's political districting, the three major autonomous districts were ʻEwa, Kona, and Koʻolaupoko.

Yet, Līhuʻe, in Waiʻanae Uka near Kūkaniloko, has been the ruling seat of Oʻahu at times as well as the origin of several important chiefly lineages (Cordy 2002:31-35). In the 15th and 16th Centuries, the island of Oʻahu, as a sovereignty, was at its peak of political power. Waiʻanae District continued to be the birthing place and intermittent refuge for Oʻahu's *aliʻi*. Further, Waiʻanae was a place of refuge during ancient times where condemned persons of Oʻahu were granted amnesty during the time of war (Thrum 1910: 152).

According to Cordy (2002), several legendary rulers had maintained Oʻahu's autonomy, including: Kalaʻmanuia (1600-1620), Kākuihihewa (1640-1660), Kūaliʻi (1720-1740) and Peleiōhōlani (1740-1779).

Fornander (1916:408) maintains the following, "Oahu had four kings just prior to the time of Kakuhihewa; Lonohulimoku was the king of Koolaupoko; Lonohulilani was the king of Koolauloa and Waialua; Lonokukaelekoa was the king of Waianae and Ewa: and Lonoikaika was the king of Kona, from Moanalua to Maunalua. "

In The Legend of Kalanimanuia, the illegitimate son of Ku, the "king of Līhuʻe," which was one of the ruling seats of Oʻahu prior to Kamehameha's overthrow, was made ruler of Waiʻanae for capturing the heart of Ku's daughter and Kalanimanuia's half-sister, Ihiawaawa (Fornander 1916:548-552).

According to ancient *moʻolelo* (lore), rulership of Waiʻanae has been obtained in a variety of interesting ways. The story of Kalelealuaka is one example. Kalelealuaka, the son-in-law of Oʻahu's high Chief Kakuhihewa, was a clever and formidable warrior. In an attempt to gain the favor of his father-in-law and rulership of Oʻahu, he posed as a warrior from various Oʻahu districts, including Waiʻanae, fighting valiantly during numerous wars between Kakuhihewa and Kualiʻi. During each battle, the disguised Kalelealuaka took trophies as proof of his involvement and helped the crippled marshal, Maliuhaaino, avoid harm. Maliuhaaino sang his praises, though he never knew Kalelealuaka's true identity until the end of the final battle. Kalelealuaka was from that point on, Kakuhihewa's chosen heir. A portion of the story where Kalelealuaka poses as a warrior from Waiʻanae and is granted rulership over Waiʻanae is as follows:

…On the morning of the day of battle, Kalelealuaka said to his wives that he had a great hankering for some shrimps and moss, which must be gathered in a particular way, and that nothing else would please his appetite. Thereupon, they dutifully set out to obtain these things for him. As soon as they had gone from the house Kalelealuaka flew to Waianae and arrayed himself with wreaths of the fine-leaved maile (Maile lauliʻi), which is peculiar to that region. Thence he flew to Napeha, where the lame marshal, Maliuhaaino, was painfully climbing the hill on his way to battle. Kalelealuaka cheerily greeted him, and the following dialogue occurred:

> K. "Whither are you trudging, Maliuhaaino?"
> M. "What! don't you know about the war?"
> K. "Let me carry you."
> M. "How fast you travel! Where are you from?"
> K. "From Waianae."
> M. "So I see from your wreaths. Yes, carry me, and Waianae shall be yours."

At the word Kalelealuaka picked up the cripple and set him down on an eminence mauka of the battle field, saying, "Remain you here and watch me. If I am killed in the fight, you return by the same way we came and report to the King."

Kalelealuaka then addressed himself to the battle, but before attacking the enemy he revenged himself on those who had mocked and jeered at him for not joining the forces of Kakuhihewa. This done, he turned his hand against the enemy, who at the time were advancing and inflicting severe loss in the King's army.

To what shall we compare the prowess of our hero? A man was plucked and torn in his hand as if he were but a leaf. The commotion in the ranks of the enemy was as when a powerful waterfowl lashes the water with his wings (*O haehae ka manu, Ke ale nei ka wai*). Kalelealuaka moved forward in his work of destruction until he had slain the captain who stood beside the rebel chief, Kualii. From the fallen captain he took his feather cloak and helmet and cut off his right ear and the little finger of his right hand. Thus ended the slaughter that day.

The enthusiasm of the cripple was roused to the highest pitch on witnessing the achievements of Kalelealuaka, and he determined to return and report that he had never seen his equal on the battlefield. Kalelealuaka returned to Puuloa and hid the feather cloak and helmet under the mats of his bed, and having fastened the dead captain's ear and little finger to the side of the house, lay down and slept.

After a while, when the two women, his wives, returned with the moss and shrimps, he complained that the moss was not gathered as he had directed, and that they had been gone such a long time that his appetite had entirely left him, and he would not eat of what they had brought. At this the elder sister said nothing, but the younger one muttered a few words to herself; and as they were all very tired they soon went to sleep.

> They had slept a long while when the tramp of the soldiers of Kakuhihewa was heard, returning from the battle. The King immediately asked how the battle had gone. The soldiers answered that the battle had gone well, but that Keinohoomanawanui ["Sloven one"] alone had greatly distinguished himself. To this the King replied he did not believe that the Sloven was a great warrior, but when the cripple returned he would learn the truth
>
> About midnight the footsteps of the lame marshal were heard outside of the King's house. Kakuhihewa called to him, "Come, how went the battle?"
>
> "Can't you have patience and let me take breath" said the marshal. Then when he had rested himself he answered, "They fought, but there was one man who excelled all the warriors in the land. He was from Waianae. I gave Waianae to him as a reward for carrying me."
>
> "It shall be his," said the King.
>
> "He tore a man to pieces," said the cripple, "as he would tear a banana-leaf. The champion of Kualii's army he killed, and plundered him of his feather cloak and helmet."
>
> "The soldiers say that Keinohoomanawanui was the hero of the day," said the King.
>
> "What!" said the cripple. "He did nothing. He merely strutted about. But this man--I never saw his equal; he had no spear, his only weapons were his hands; if a spear was hurled at him, he warded it off with his hair. His hair and features, by the way, greatly resemble those of your son-in-law." (Thrum 1907:94-97)

Kualiʻi, one of Oʻahu's most celebrated chiefs, reigned during the 1700s. After becoming *moʻi* (head chief) of Oʻahu, he waged several battles with the independent chiefs of Waialua, Ewa, and Waiʻanae. Kualiʻi's famous *mele* (chant) was composed during one of these wars (Lyons 1893). According to lore, Kualiʻi fought several key battles with very small forces, sometimes as little as three men, ultimately gaining control over all districts on Oʻahu. Several of these battles took place in Waiʻanae. In the battle of Kalena, which is located in Waianae uka, the chief of Waiʻanae and ʻEwa Districts as well as the chief of Koʻolau District planned an ambush for Kualiʻi and his troops at Waiʻanae upon his return from Kauaʻi. The story is as follows:

> On their return from Kauai, Kualii desired to land at Kamaile, Waianae, but upon arrival there he found that the place was already prepared for battle under the command of the chief of Waianae and Ewa, the Koolau chief and his army had also arrived there and all were waiting for Kualii's return from Kauai when they would engage him.
>
> While out at sea some distance from land Kualii, by his supernatural powers, knew beforehand that Waianae was surrounded by an army which was waiting for him. So he remarked to Malanaihaehae and Maheleana: "Say, Waianae is surrounded by an army that is ready to fight us as soon as we make a landing." Before Kualii had sailed for Kauai he ordered his men to come and meet him at

> Waianae upon his return from Kauai, but when Kualii and his fellow travelers arrived outside of Kamaile they saw the place surrounded by an army. Upon seeing this they laid off in their canoes all that day and night. In the morning when Kualii looked he saw the pili grass of Kamaile was completely covered by the people.
>
> While on the canoes that morning Kualii, upon seeing the people, addressed them in the following words: "You no doubt want to fight Kualii, but where will the battle be?" The people from the shore replied: "As soon as the canoes land the fighting will commence." Kualii answered back: "Let us go to Kalena and fight there. If you insist on fighting here the canoes will continue by sea and land at Molokai." Because of this request of Kualii to go to Kalena and there fight, the chiefs of Waianae consented because it was but a reasonable request. Kualii, Maheleana and Malawihaehae therefore came ashore and proceeded by land to Malamanui. All that night both sides took a long rest; but early in the morning the fighting commenced at Kalena on the plains of Haleauau, at Lihue. On the one side there were twelve thousand men, while on Kualii's side there were but three men, and yet the armies of the chiefs of Waianae and Koolauloa were routed. Kualii named this the battle of Kalena. (Fornander 1916:412-414)

After the battle of Kalena, Kualiʻi fought three more battles, which gained him the title of Oʻahu's high chief. In several storied battles, Kualiʻi's title as high chief of Oʻahu was challenged by other district chiefs. Shortly after taking control of Oʻahu, other district chiefs conspired again in Waiʻanae during his conquest at Hilo on the island of Hawaiʻi. The story is told by Fornander (1916) as follows:

> …word was brought to Kualii at Hilo that the chiefs of Oahu had again risen against him and were ready to dispute his title as king of Oahu. Upon hearing this Kualii returned from Hilo to Oahu and found upon his arrival that all the people, together with the rebellious chiefs, had gone to Waianae to hold a council of war with the one set purpose of fighting him. When Kualii heard that all the chiefs were gathered at Waianae, he continued on with his chief warriors for that place. Upon arrival at the seat of war they looked and saw that the rebellious chiefs had indeed a very large army. No time was lost, however, for the battle immediately commenced, and again Kualii was victorious. After the battle Kualii and his chief warriors looked over the battle ground and saw that a very large number of men had been killed, so much so that the waters of Kalapo were dammed and a large number of dead bodies were strewn below Eleu. (Fornander 1916:414-416)

Also in the tale of Oʻahunui, the last of the Lo Aikanaka, or man- eating chiefs, had set up an ambush site on a trail connecting the Waianae-kai localities of Lihue and Kalena to Oʻahunui to supply the cannibalistic king with his preferred dish of human flesh. [pg. 139 146]

3.2 Post European Contact Cultural Landscape

Ample accounts of Waiʻanae from varying perspectives spanning from the time of European Contact to the mid-20th Century have been identified during archival research for the proposed Auyong Homestead Road Improvements Project. Nakamura and Pantaleo (1994) provide a

well-rounded summary of the area's history. A representative sample of these accounts is provided in this section.

3.2.1 European Contact

While Captain James Cook made the first known European Contact with Hawaiians in 1778, he did not set foot on the island of Oʻahu. In 1785, English Captains Portlock and Dixon sailing the HMS King George and Queen Charlotte (respectively), arrived at Kealakekua Bay, Hawaiʻi Island, in May of 1786, the location where Captain James Cook met his demise in 1779, without going ashore. Portlock and Dixon anchored in a bay on the south side of Oʻahu in June of 1786 and came ashore the next day to obtain supplies and to hospice the sick. The ships stayed for five days before heading to Kauaʻi. In November of that year, Portlock and Dixon returned to Oʻahu, spending much time with Kahekili (Dixon 1789:101-107). Several visits to Kou (Honolulu) and Waikīkī on were made by Portlock and Dixon between 1786 and 1787, yet, no mention was made of any contact with Oʻahu's west side.

One of the earliest accounts of Waiʻanae in the post-Contact, or Historic, era was provided in June of 1786 by English Captain Nathaniel Portlock, who made several observations of the Waiʻanae coast, which are as follows:

> The West side of Woahoo [Oʻahu] is very high and uneven, and near the shore there appear to be several small detached islands, within which there is a probability of meeting with good anchorage. From the North West, to the South West points, the land trends North West and South East, and likewise seems to promise well for anchoring ground; but the day being very hazy, we were prevented from examining it definitely. (Portlock 1798: 76-77)

In March of 1793 by Captain George Vancouver, during his sojourn around the Waiʻanae coast before heading to Kauaʻi, made the following observation:

> We found the western side of Woahoo [Oʻahu] lie in a direction from its s.w. point n. 25 w., 6 leagues to the west point of the island, which forms also the s.w. point of Whymea [Waimea] bay. The s.w. side of the island is principally composed of steep craggy mountains, some descending abruptly into the sea, others terminating at a small distance from it, whence a low border of land extends to the sea-shore, formed by sandy beaches, chiefly bounded by rocks, over which the surf breaks with great violence.
>
> From these shores we were visited by some of the natives, in the most wretched canoes I had ever yet seen amongst the South-Sea islanders; they corresponded however with the appearance of the country, which from the commencement of the high land to the westward of Opooroah [Puʻuloa], was composed of one barren rocky waste, nearly destitute of verdure, cultivation, or inhabitants, with little variation all the way to the west point of the island. Not far from the s.w. point is a small grove of shabby cocoa- nut trees, and along those shores are a few straggling fishermen's huts. Nearly in the middle of this side of the island is the only village [Waiʻanae Village] we had seen westward from Opooroah [Puʻuloa]. In its neighbourhood the bases of the mountains retire further from the sea-shore, and a narrow valley, presenting a fertile cultivated aspect, seemed

> to separate, and wind some distance through, the hills. The shore here forms a small sandy bay [Pōkaʻi Bay]. On its southern side, between the two high rocky precipices, in a grove of cocoa-nut and other trees, is situated the village, and, in the center of the bay, about a mile to the north of the village, is a high rock, remarkable for its projecting from a sandy beach. At a distance it appears to be detached from the land. Between this and the high rocky point to the south of the village, is a small bank of soundings that stretches some distance into the sea. On the south side of this bank the soundings were irregular, from 25 to 8 fathoms, rocky bottom; but, to the north of it, near the rock, no ground could be reached with 90 and 100 fathoms of line, though not more than the fourth Of a mile from the shore; this we found to be the cafe also a little to the southward of the bank. - In both these places we were for some time very awkwardly situated, without wind, yet with a swell and current that set us so fast towards the land, that I was under some apprehension for the safety of the ship, as the united force of the current and swell prevented any effect from the assistance of the boats; from this dilemma however we were happily relieved, by a breeze springing up, that enabled us to increase our distance from the land.
>
> The few inhabitants who visited us from the village, earnestly intreated [sic] our anchoring, and told us, that if we would stay until the morning, their chief would be on board with a number of hogs, and a great quantity of vegetables ; but that he could not visit us then because the day was taboo-poory. The face of the country did not however promise an abundant supply; the situation was exposed, and the extent of anchorage was not only very limited, but bad; under these circumstances, having, by eleven at night, got clear of the shores, I deemed it most prudent to make the best of our way, with a light s.e. breeze, towards Attowai [Kauaʻi]. (Vancouver 1798: 217-218)

These observations were entirely made from the ship as it slowly sailed past the coast of Waiʻanae. Further, it appears that the only commentary of the people was based upon the few individuals that canoed out to greet Vancouver's vessel.

As Accountant and Superintendent of Secular Affairs in Hawaiʻi, Levi Chamberlain, travelled through Waiʻanae in the early 1830s, he made some observations of the lands of Waianae and its people. Chamberlain writes:

> As soon as we had got on board preparations were made for sailing and it was not long before we were under way & found our-selves receding from the shores of Oahu. We had pleasant breezes from the north and we soon lessened the houses on shore, it was not long before the tops of the highest buildings & the cocoa-nut trees were out of sight and the bold outlines of the mountains and prominent head lands were all that could be seen. Barbour's Point [sic] seemed to recede as we advanced and no longer had the appearance of Lailoa (Long Point) [Kalaeloa] but as the mountains of Waianae with their dark indented sides and lofty summits opened upon us was lost in the spur of a mountain. I had not the slightest feeling of sea sickness and enjoyed the view of the island as it was presented from the deck of the vessel while she rode gallantly over the wave in the watery element. I thought of the wide expanse of ocean on which we were embarked, its age- immense depth & power, its innumerable & variously organized [sic] inhabitants - I thought of it as in His hand who poured it out,

> proportioned it to the solid land and has fixed its everlasting bound. I queried what was below us many fathoms deep- what beds of coral- what shells of various hue- what caves the abode of numerous finny tribes- why not vallies [sic] & mountains over which the proud waters roll and whose deepest agitations trouble not their lofty summits, much less the profound repose of their sloping, indented or precipitous sides. (Chamberlain 1840:4-5)

3.2.2 Early Historic Era

After Cook's death at Kealakekua on the island of Hawai'i in 1779, Europeans did not return to the island chain until Portlock and Dixon arrived in 1786. Portlock and Dixon travelled between the islands in 1786 and 1787, spending considerable time at O'ahu, but did not make any note of Wai'anae. Westerners flocked to the Hawaiian Islands soon after, forever changing the cultural landscape of Hawai'i.

The decimation of the Native Hawaiian population in the early European Contact period, due mainly to foreign diseases as well as a trend to move closer to the city of Honolulu for more opportunity in an increasingly Western world. According to an 1835 missionary census, 1,654 people resided on the Wai'anae Coast. However, a census taken in 1855, only 183 tax payers were recorded for the area, which suggests only about 800 people were living there at that time. This decrease in population may have been a result of disease as well as the Great Mahele granting large tracts of lands into the hands of a few landowners (Hammatt et al. 1993:10-11).

Many descriptions of Wai'anae during this time of great change were found. Listed in this section are the earliest accounts and those that best describe Wai'anae District and/or Lualualei Ahupua'a specifically.

Descriptions of Wai'anae's Physical Environs & Peoples

From the journal of the American Captain James Frothingham Hunnewell, some of the earliest observations of Wai'anae were found. In 1817, Hunnewell landed on O'ahu and remained for nearly a year, recording much of his observations and interactions with Hawaiians. The following March 1818 journal entries describe his accounts of Wai'anae:

> "Friday, 27th. Pleasant and clear. We went along the seashore as far as Whyany *(Waianae) village, where we found a chief of our acquaintance who treated us well and accommodated us at his house, where we spent the remainder of the day, and the night. […]
>
> "Saturday, 28th. Clear and pleasant ; the weather hot. Spent the day in and about the village, making our home at the house of our friend. Wyany [sic] is a beautiful valley. In the centre is a large grove of cocoanut trees. It was formerly the residence of the king of this island. The ruins of the old morais are hardly visible. […]
>
> "Sunday, 29th. Warm and pleasant. In the morning, going in to bathe I struck my head against a stone and cut it considerably. *[He always retained the mark.] Spent the heat of the day at the house, and in the afternoon walked as far as Koheedeedee *(deedee—liilii), and stopped for the night. (Hunnewell 1909:12-13)

> *commentary provided by his son, James F. Hunnewell, who transcribed the journal in 1895.

These journal entries offer the earliest post-European Contact descriptions of Wai'anae from first hand observations of a Westerner who actually visited the area and interacted with its people and chief.

In 1838-1842, U.S. Naval Commander, Charles Wilkes, led an exploration of the United States and the Hawaiian Islands. During this expedition, Wilkes mistakenly arrived at the village of Waianae instead of Honolulu. His commentary, which is not very complementary, perhaps due to the crew having just missed the chosen port by a sizable distance, is as follows:

> On the 23d of September we made the island of Oahu …On approaching the land there was no town to be seen and every one [sic] then knew that a mistake had been made of which no one was willing to assume the blame Instead of being off Honolulu we were under the high land of Mauna Kaala on the west side of Oahu near the small village of Wainai [Waianae].
>
> The appearance of Oahu is by no means inviting it has a greater resemblance to the desert coast of Peru than any other of the Polynesian islands we had visited and has as little appearance of cultivation The country would be termed at first sight barren and rocky The land in places is very much broken and rises into high ridges here and there divided by deep and narrow ravines with little vegetation except on the mountain ranges From the published descriptions of the Hawaiian Islands I was prepared to see them and particularly Oahu a perfect garden I was inclined to impute my disappointment to our approach being made on its lee side which is unusual but I regret to say that any side of it when seen from the sea is very far from having an inviting appearance.
>
> Judging myself still to leeward of our port as our observations on calculating them up proved I made a tack off and by four o clock we saw the town of Honolulu…(Wilkes 1849:372-373)

During this trip, his botanists journeyed to Wai'anae and shed a more favorable light on its physical environment and people, Wilkes writes of their experience:

> Dr. Pickering and Mr. Brackenridge made a tour to Waianae, for the purpose of examining more particularly the Kaala Mountains for plants. Waianae lies on the southwest side of the range, and on the sea shore under it. After stopping a night at Ewa, they took a middle route, and passing through a gap in the mountain, fifteen hundred feet in elevation, reached Waianae in the afternoon, a distance of sixteen miles. Here they were kindly welcomed by the chief, who acts in the capacity of ruler, preacher, and schoolmaster; he is, likewise, a fisherman, and a manufacturer of wooden bowls, in which he showed himself quite expert.
>
> The natives are much occupied in catching and drying fish, which is made a profitable business, by taking them to Oahu, where they command a ready sale.

The population is about fifteen hundred, one thousand of whom belonged to the church under the superintendence of the Rev. Mr. Bishop; but since the establishment of the Catholics, one half have joined in their mode of worship.

While at Waianae, they extended their walks in different directions, along the beach, at the foot and sides of the mountains, meeting with several very interesting plants: at the base of the mountains several half deciduous trees, and bushes of sandalwood (*Santalum freycinetiarum*). It was observed that the stems of the trees and plants were very succulent, which enables them to withstand the severity of the droughts; the quantity of rain that falls here being very small.

They endeavoured [sic] to make an ascent on one of the ridges, but found themselves obliged to give it up, when they had reached half the altitude of the mountain.

Travelling here, they witnessed an economy of time that would have been remarkable in any country. At a house, one of the natives who accompanied them procured a chicken and some hot stones from a fire; he then tied them up together, and carried them along: when they arrived at the next stopping-place, the chicken was produced ready cooked!

On the plain behind the village, they found the *Agati grandiflora* growing in a wild state; the flowers were smaller and of a darker orange than those seen cultivated. They left Waianae after being two days with the chief, who charged them four dollars for their lodging, which will give some idea of native prices. Passing the mountain range by a different route, their collections of plants were but little increased. A new species of Morus, a singular plant belonging to the Violaceae family, a Dracrena of robust growth, and a few ferns, were all that they obtained.

Mauna Kaala has the appearance of being a flat topped mountain but this is not the case the evenness of the ridge alone giving it that appearance. (Wilkes 1845:81-82)

Other post-Contact observations of Waiʻanae's scenery carried a romantic tone. Another commentary was provided by George Bowser in his 1880 tourist guide article, "An Itinerary of the Hawaiian Islands." His commentary on the area provides a glimpse of the early Western take-over of the land, the early Western settlers, as well as some of the earliest Western observations of Lualualei and Nānākuli, which are as follows:

Leaving Waianae, a ride of about two miles brought me to the Lualualei Valley, another romantic place opening to the sea and surrounded in every other direction by high mountains. This valley is occupied as a grazing farm by Messrs. Dowsett & Galbraith, who lease some sixteen thousand acres from the Crown. Its dimensions do not differ materially from those of the Waianae Valley, except that it is broader–say, two miles in width by a length of six or seven miles. The hills which inclose [sic] it, however, are not so precipitous as those at Waianae, and have, therefore, more grazing land on their lower slopes, a circumstance which adds greatly to the value of the property as a stock farm. Although only occupied for grazing purposes at present, there is nothing in the

nature of the soil to prevent the cultivation of the sugar cane, Indian corn, etc. Arrangements for irrigation, however, will be a necessary preliminary to cultivation.

From the Lualualei Valley to the Nanakuli Valley I had a rather dreary ride of three miles. The intervening country towards the sea is barren, with a little pasturage at the base of the mountains. The track, however, is in very good order, much better than I expected to find it, looking to the mountainous and rocky character of the country through which it passes. At Nanakuli and at Hoaeae, close adjoining, the Messrs. Robinson have cattle ranches. The pasture here cannot be compared with that in the valleys I had just left behind, but inland among the mountain ranges it is much better. This, indeed, is a characteristic of the ranges throughout the island.

During my journey along the western coast of this island, where the road is generally so much more fatiguing to the traveler than that of the windward side, I have often pulled up to give both horse and rider a spell, whilst I entered into a chat with some group of natives whom I have fallen in with, or whose little hamlets I have been passing at the time. More than once, too, I have passed the night at their houses. I have always found them very sociable and thoroughly hospitable. At the same time, I cannot say that I have, up to the present time, acquired a thorough relish for some of the dainties which they are ready to press upon one. I have eaten poi, and should have no objection to do so again. I have, however, not learnt to eat this national food properly–in native fashion, I mean. That dexterous curl of the finger, by which about a wineglassful of poi is transferred from the calabash to the eater's mouth at one stroke, I never attempted to acquire. I suppose I destroyed all the romance of a thing by accepting the use of a tumbler and a teaspoon, but I have to confess that I felt much more ready to dispense with the romance than with the spoon. Another dish I never could properly take to is a great favorite with the natives–I mean raw fish. In this case, it is not the method of eating, but the food itself, which I could not bring either mind or palate to relish. A further custom which I abstained from falling in with, is the circulation of an old black pipe, which one native will fill and light, and, after drawing a large mouthful of tobacco smoke for his own share, hand to his next neighbor, who, after indulging in a good "draw," passes it on. When I had occasion to sleep at the houses of natives, they always managed to find a good bed for me to sleep on, but for themselves a mat on the floor and a pulu pillow seemed to be all they desired. (Bowser 1880:493-494)

Writer, Charles Stoddard, composed an article about his visit to Hawaiʻi in the late 19th Century, describing the beauty of the area enlisting a verse from Alfred Calhoun's 1893 historical novel, stating:

Turning again, we saw the sun-burnt hills beyond Palama, and the crisp cones of the small volcanoes, and more sea, and then the exquisite outline of the Waianae mountains, of a warm, dusty, purple, and with a film of diffused rainbows floating in the middle distance.

Has not the poet sung of Waianae:

"No sound is on the shore
Save reef-bound breakers roar,
Or distant boatman's song, or sea birds cry;
And hushed the inland bay,
In stillness far away,

Like phantoms rise the hills of Waianae."
(Stoddard 1897:23)

Although it is uncertain whether the chant was traditional, it supplements the author's recollection of his experiences in Waiʻanae during the late 19th Century.

In 1902, two female American researchers studying seaweed and algae in Hawaiʻi spent a considerable amount of time in Waiʻanae, providing an objective description of Waiʻanae during the turn-of-the Century. Josephine E. Tilden and Caroline M. Crosby set up a lab for their studies at Waiʻanae Plantation, where the coasts provided the miles of pristine coastline. Tilden writes of her experiences in Waiʻanae as follows:

> Having made a round trip journey over the Oahu Railway and Land Co. line, the only railroad on the Island of Oahu, we decided to locate our camp at the Waianae plantation, thirty-three miles west of Honolulu. The third day found us comfortably established in pleasant rooms. A large unused, well-lighted back room in the railway station building was given us for a laboratory. We made tables extending around three sides of the room out of trunks and packing boxes. In front of one window the microscope was set up for Miss Crosby, and at the other were my quarters where I could attend to my mounting and pressing. Certainly no more could be asked. It all seemed like a fairy tale. Our surroundings were perfect. Our new friends overwhelmed us with kindness. If only the algae were forthcoming.
>
> There was low tide early the next morning, and down to the beach we hurried. With a feeling of despair we scanned the rocks, for disappointment stared us in the face. To one accustomed to mammoth seaweeds of the Straits of Fuca, which aggressively compel attention, the Waianae beach seemed absolutely barren. But, finally, a little, odd-appearing plant was discovered, and then a second, and down under a ledge of rock a bed of queer red bags, and, in a word, it was six weeks before we were able to stop collecting algae on the shores of Waianae.
>
> There was found to be very little difference between low and high tide, about three feet in reality, but the low tides were generally accompanied by high waves, so that it was always difficult to collect.
>
> We used to rise at five, awakened by the horribly discordant lay of a clock with a Chinese alarm. After breakfast of rice, sweet potatoes, stewed mangoes or fresh cocoanut we hastened to the laboratory for our collecting aprons, pails and knives, and then were off for a two or three mile trip up or down the beach. Among the more conspicuous and common forms growing on the rocks here were the following: *Microdictyon umbilicatum*, with its curious net-like frond; the

> somewhat remarkable *Dictyosphoeria favulosa*; *Halimeda tuna*; *Caulerpa taxifolia*, looking like a *Lycopodium* prostrate and half buried in the sand; two interesting varieties of *Cladophora* which have recently been pronounced new by Herr Brand — *C. composita contracta* Brand and *C montagnei waianeana* Brand. Incoming waves generally brought a supply of *Codium adherens* and *Codium tomentosum* both of which are known as *aalaula* by the Hawaiians and used, uncooked, as food. In certain places were beds of the well-known *Padina pavonia*. *Hydroclathrus cancellatus* was a stiff, brown, perforated cushion. *Turbinaria ornata*, one of the most highly specialized types of the Fucacae, bearing its fruit on short, stiff, umbrella-like branches, grew always just where the waves were so strong that no one could possibly reach it. Two species of *Sargassum*, growing together, extended over a wide area and were not seen again on the islands. The fronds of these, ground up into bits and mixed with raw fish torn into small shreds, formed a sort of salad very highly prized by the natives. Boiled with squid, they also regarded it as a great delicacy. The native name was *limu kala*. The red algae were most common. *Asparagopsis sanfordiana* had the appearance of a little pink or flesh-colored pine tree, and, though most frail to the touch, it stood with ease the onslaught of the waves, *Wrangelia penicillata*, a pretty, brownish-green, filmy, fern-like plant, grew in tide pools which were constantly replenished by dashing waves. Deep, shaded crevices in the reefs were lined with growths of the dark red rosettes of *Amonsia glomerata*. Several species of *Galaxaura*, and *Liagora* were common. […]
>
> Sometimes we would all three of us go off for a stay of several days at a more distant place. We spent four days at Waikiki beach, where numerous new marine forms were picked up from the "wash." Both here and at Waianae we had many opportunities of seeing surf-riding, by native men and boys. The surf board is shaped like an ironing board, about two feet wide and nine feet long. The man swims out to smooth water, selects a wave of the right kind and mounts his board. It receives the momentum of the surf and he rides in on the surface of the water and is landed safely on the beach. (Tilden 1904:133-135)

Tilden's observations provide a hint of what life was like in Waiʻanae at around the turn-of the-Century and the hospitality of its people. Additionally, she describes Traditional uses of *limu* and local cuisine of Waiʻanae as well as the art of surfing.

3.2.3 Christianity in Waiʻanae District

Letters and reports written by missionaries and religious officials were additional sources to obtain early descriptions of Waiʻanae and its people. Ephraim W. Clark and John S. Emerson were some of the first missionaries to spread Christianity to Hawaiians on Oʻahu in the early 19th Century. Upon deciding to create a new missionary station in Waialua, Clark and Emerson (1832) describe the populations of several localities of Oʻahu, including Waiʻanae. "The number of inhabitants according to a late census is as follows: -- Waianae 1,868 Waialua 2,640 Kalauloa 2,891 total 7,399"(Clark and Emerson 1832:365). In the 1830s, the missionaries considered Waiʻanae an outpost in the district of ʻEwa. Reverend Emerson and Reverend Lowell Smith were then the head pastors of ʻEwa and Waiʻanae, and describe the evolution of Christian conversion in these parishes as such:

According to the recent census, there were about five thousand people in the district, including Waianae as an out station. The people were scattered along in thirteen small villages or ahupuaa upon the coast from Halawa to Honouliuli — and thence on to Waianae, some twenty miles. Formerly, under the mandate of the chiefs ; if notice was previously given that Brother Clark, or some other missionary would come and preach on the Sabbath, a thousand people, more or less, would assemble together.

But a *revolution backward* had just taken place; and the moral aspect was quite dark and discouraging.

The young Prince, Kauikeouli, subsequently Kamehameha III; whose headquarters for dissipation were at Waipio — had recently plunged into a debauch of intemperance and licentiousness; and the hula was in full blast all through the district; the great majority of the people had forsaken the pono, and were following in the wake of the Prince. It was several months before I could get more than one hundred and fifty people together on the Sabbath.[…]

In January, 1835, I made a tour to Waianae, in company with Punahaole, a good man, where we met Brother Emerson and Kuokoa, his right hand man. But the *revolution backward* at Waianae was worse if possible than it had been -at Ewa. We found it very difficult to get more than twenty- five or thirty persons together to a religious meeting. We spent one night there talking with Madam Boki and Kaapuiki and a few others, trying to persuade them to forsake their evil ways and accept of salvation as it is offered in the Gospel. People who have been partially Christianized, and then turn back again to folly and heathenism, are apparently far worse than ever.

On our way to Waianae, we saw a heathen God by the side of the road. It was a stone dressed with tapa, standing upon a pile of stones. Its worshipers offerred [sic] it a piece of tapa every time they passed by it. Alas for those whose gods are naught but wood and stone. […]

On Saturday, the I5th of August, I made another visit to Waianae, and spent the Sabbath there; accompanied by some of the Hawaiian brethren from Ewa; and we were very kindly and hospitably entertained by Kaapuiki, the head man of the district. This time he not only gave us enough to eat and drink, but he presented us a new house, well furnished with mats and sleeping tapa, which he said was for the use of the teacher and his attendants whenever he came to Waianae.

At the blowing of the horn Saturday evening, 127 natives came to our meeting. At sunrise, Sabbath morning, 150 came; and at 10 a. m., we had an audience of 257. At the prayer meeting, Monday morning, 150 came; and at the close, seven couple [sic] presented themselves to be married!! This was obviously turning over a new leaf. We returned to Ewa that day, quite encouraged for the district of Waianae. (Hawaiian Mission Children's Society 1887:79-86)

Thus, Christianity was reluctantly, but eventually embraced by the people of Wai'anae. Later, early Hawaiian missionary, Artemas Bishop, wrote a report in 1841 on the status of 'Ewa and Wai'anae conversions, stating:

> The hopeful conversions within the districts of Ewa and Waianae have not been numerous during the past year. Thirteen have been admitted to the church in Ewa, and six at Waianae, on profession. Eight persons under discipline for various offences have been restored on repentance. But the greater part of those who are disciplined do not return to give glory to God; they either pass over to the Romanists, or, more commonly, return to their former state of unbelief, and live in apostasy. Here we find our greatest trials; and the frequent instances of defection tend greatly to weaken our confidence in the general sincerity of converts from heathenism. But we have always counted upon such reverses in prospect, as the probable fruits of their former heathenism, and, therefore, do not feel discouraged, so long as a goodly number walk worthily, and adorn the character which they bear before the world. These are our comfort and crown of rejoicing.
>
> Our congregation at Ewa, on the Sabbath, numbers about one thousand; and on occasions of special interest it is much greater. That at Waianae is between four and five hundred. (Bishop 1841:199)

However, during the early European contact period, the district or village appears to have been a "safe haven" for Kamehameha III's royal court to escape the harsh judgment of missionaries. Chamberlain states:

> Thursday Septr. 19th 1833. Reed [sic], a letter this day from Mr. Emerson at Waialua. He states that the King set out yesterday morning for Waianae. He writes "The King has abandoned drinking rum, they say, and takes wine & .gin in its stead. His company acted like harpies. They located themselves on one side of the river & Hoapili ma on the other. The King did not come to meeting; took tea with us once, but afterwards showed a desire to keep away. His company kept up the hula every night & stole just what they could lay their hands on, turned their horses into a large field of potatoes of Laanui's and nearly destroyed them. I should think there were near 150 barrels then. The king has added to his train all that please to follow him, who for drinking rum & have been [turned] off their lands, at Kahuku & at this place & at other lands so that they go now like a company of locusts, eat all before them and leave the land behind them pilau loa. It is trying to republican nerves to see such conduct & say nothing..." (Chamberlain MS:V18;1)

Chamberlain later writes of a similar event where King Kamehameha III fled to Wai'anae to be with his half-sister, Kīna'u, writing:

> July 22 1834. A letter from Auhea to Kinau gives the distressing notice that the Princess has been guilty of Cohabiting [sic] with her brother. Last night at 3 o'ck the shameful & criminal act was done in the house of Paki. The King & his sister propose to go to Waianae to get as far away from their teacher as possible and to put him to all the trouble they are able to get to them. They do not consent that

> Auhea & Hoapili shall accompany them. This is indeed wickedness in high places. The Lord look upon it & overrule it for the good of his church in these islands. The Lord reigneth let the earth rejoice. He can lift up a standard when the enemy breaks in like a flood & overrule evil & brig the greatest good of it. May this be the case now. (Chamberlain Ms.:V18;18)

In the early 20th Century, the problem of maintaining Waiʻanae parishioners persisted. Missionary and son of Artemas Bishop, Serano Edwards Bishop, commented in 1916 on what he held were unfavorable "Moral Conditions in Ewa and Waianae," stating:

> I was in Ewa three and a half years, being then sent "home" to the States, after the custom of missionaries' children. During that time I witnessed a constant and arduous devotion of my parents to spiritual and educational labor for the native people. My father's parish was a large one extending from Salt Lake to Kaena Point, including the districts of Ewa and Waianae, with a population of seven or eight thousand, exclusively Hawaiians. Owing to their contiguity to a large sea port, the moral condition of the people was more corrupt than at Kailua. In Ewa, a considerable body of hopeful Christians had been gathered into the church. Most of the people gave a friendly attention to religious teaching. The proprietary chief of Ewa was the pious Premier Kinau, whose influence secured the general adherence of the people to the missionary. It was otherwise in Waianae whose proprietary chief was Liliha, or "Madam Bobie," [Boki] who had long been hostile to the Protestant missionaries. The Waianae people were accordingly averse. (Bishop 1916:43)

Later, S.E. Bishop wrote article titled the "Persecution of the Catholics," in which he describes his father's displeasure with the King for his punishment of Hawaiian Catholic parishioners of Waiʻanae for worshipping images of the old gods in 1836. S.E. Bishop writes:

> My father was of habitually even temper. One of the very few occasions when I ever saw him betray angry excitement, was in 1836, when we saw passing opposite our house at Ewa on the public road one morning, a company of perhaps forty Catholic natives, who were being led over from Waianae to Honolulu under guard to receive at the capital sentence to labor on the roads for their crime of worshipping images, contrary to the royal statutes. The good missionary was grieved to the heart, and deeply roused, to see men and women in his parish suffering ignominious punishment for the practise [sic] of their religion, even though he believed them to be sadly misguided. He immediately mounted his horse and rode to Honolulu to expostulate with Kinau and Kekuanaoa. His remonstrances [sic], however, were ineffectual. The native rulers had adopted a determined policy of suppressing by force what they deemed to be real idol-worship, forbidden in the second Commandment. I cannot personally testify that all the Protestant missionaries were equally opposed to that persecuting policy, although I suppose that they were so. This arbitrary course of the chiefs was put to an end in the following year by the visit of a French warship. (Bishop 1916:51)

Hence, in Waiʻanae, the acceptance of Christianity was met with challenges from as early as the early 19th Century up until the early 20th Century.

3.2.4 Land Ownership & Land Commission Awards

Private land ownership was introduced into Hawaiʻi during the 1848 Māhele ʻĀina (land division) of 1848. Crown and *aliʻi* lands were awarded in 1848 and *kuleana* titles were awarded to the general populace in 1850 (Chinen 1958). The awarded lands are called Land Commission Awards (LCAs). A review was made of the LCAs located in the vicinity of the current project areas. The review of the LCAs was conducted to determine previous documented land use (both Pre-Contact and Historic), which may indicate the types of sites present in the area. According to Hammatt et al. (1985:23-27), during the Great Mahele, Waianae Ahupuaʻa, which then included Lualualei and Nānākuli, became Crown lands as part of King Kamehameha III's claim.

In Lualualei Ahupuaʻa, a total of twelve land claims were made, however, only six were awarded. Of the six Lualualei awards, all were located in the *ʻili* of Pūhāwai, which is located approximately 5.5 miles (ca. 9 kilometers) northeast of the current project area. According to Cruz and Hammatt (2010:19), "From the claims, it can be determined that at least eight families were living in Pūhāwai at the time of the Māhele in 1848. Together, they cultivated a minimum of 163 *loʻi* (wetland agriculture) … In addition, dry land crops were grown on the *kula* (plains), *wauke* was being cultivated, and one claimant was making salt." Cordy et al. (1998:36) provides an estimate of the coastal Lualualei Ahupuaʻa population, despite lack of land titles, as being up to 90 individuals at around this time period.

A letter written by Hawaiian-American Speaker of the House who also hailed from Waiʻanae District, F.W. Beckley, to the Territorial government of Hawaiʻi provides an interesting commentary land ownership and conveyances issues in Waiʻanae District, focusing on Māʻili, which is in Lualualei Ahupuaʻa. His letter reads as follows:

> Gentlemen: Upon request of some of my fellow Hawaiian-American citizens from Waianae, I ask leave to file with this committee a copy of a statement I would like to make with reference to the policy the Territorial government has followed in the disposition of public lands in the Waianae district on this island of Oahu.
>
> About the latter part of last year the lease of the government Ahupuaa of Waianae to the Waianae plantation expired.
>
> The plantation applied for renewal of the lease for the portion ready partly cultivated by them and presumably the most fertile in t whole Ahupuaa, known as Upper Waianae, comprising an area of 332 acres.
>
> A company of 10 Hawaiians then made application for right-of-purchase lease, in lots of 100 acres each, of the sandy plain to the seaward is makai of the tract wanted by the plantation.
>
> The plantation's application was entertained, and the area of 3,332 acres put up as a whole, thus excluding possible competitors, as the plantation under the circumstances could afford to give a higher rental than anyone else, by the compulsion to take this large area in a lump.

The native Hawaiians' application was refused by the executive council (an illegal body) on the ground that the government contemplated at some future time laying out house lots on the beach below the railroad, and thus below the tract applied for by these people.

The tract applied for is known as Maili and so marked on government survey map accompanying this memorial.

It is also marked "Sandstone Plain," and is a sandy plain now over-gown by algaroba trees, which thrive under such conditions. Land of that kind without irrigation will grow very little of anything else except in the rainy season, when a somewhat uncertain crop of sweet potatoes and pumpkins might be raised in a few favored spots.

Brackish water only could be obtained from wells, not very good cultivation.

This company or association of Hawaiians stated in their application that the land was to be used as homesteads, with hog and chicken raising as a main industry. Algaroba beans or pods are very fattening for either; also for stock of all kinds.

The price of both hogs and chickens are very high here and practically prohibitive to people of small means.

By drying and saving the kiawe or algaroba beans as the main reliance for their stock, to be supplemented in winter with quick-growing greens and at other times by purchasing wheat, corn, and rice bran, they expected to be able to make a comfortable living. They were given no chance.

About the same time a large tract of land called Lualualei and adjoining land leased to plantation and the plains of Maili applied for by the Hawaiians were surveyed by order of the government and cut up into six large lots of over 1,000 acres each, which were to have been put up at auction outright.

Taking $5 per acre as the average that could have been obtained at an open sale, you can see how such action would practically throw all lands into the hands of the wealthy.

It is understood the sale did not take place because the commissioner of Public lands refused to agree to it. But he makes this concession to the promoters of that scheme and advertised in the local papers to effect that "the government is desirous of disposing of about a half dozen lots of 500 or 600 acres, by special time payment agreements of sale, requiring conditions of residence or improvements or both. In order to be informed of the demand for such lands under the said conditions I (E.S. Boyd) should like to receive communications from those interested, inclosing any question they may wish to ask on the subject."

It is understood applications to suit have been already placed by the favored parties, and the lands are about to be awarded to the lucky ones, but what of the

10 poor Hawaiians who were seeking to obtain homes capable of giving them an independent living and not eventually be obliged to accept the position of plantation laborers who are quite equal to that of the forced Mexican peon?

If Maili was to be preserved from contamination of hog raising the remote possibility of turning the seabeach [sic] below the railroad to a fashionable watering place, why not offer one or more of the subdivided originally into 1,000 acre holdings and situated from a quarter to a mile away from this future Newport or Bar Harbor.

The policy of the present government has been to make possible the general Hawaiian homesteaders only some out of the way where it would be an endless struggle to make enough to keep and soul together.

Wherever there is a favorable opening to make a self supported homestead the native Hawaiian need not apply.

This and other similar acts showing a settled policy to discount and deprive natives of any chance to better themselves are the rest of the feeling of intense dislike and opposition toward the present government officials shown by the majority of the native Hawaiian.

FW Beckley (Beckley 1903:170-171)

This letter voices Mr. Beckley's displeasure with the Territorial Government of Hawai'i for favoring a large corporation over this group of Native Hawaiians to purchase lands in Lualualei Ahupua'a. This letter also provides an interesting perspective on Historic relationships between Native Hawaiians and the Territorial Government as well as the Territorial Government and large corporations. Further, this letter offers a glimpse of the plight of Wai'anae's Native Hawaiians in the early 20th Century and how they depended on subsistence and supplemental agriculture for survival.

3.2.5 Agricultural History

During the post-Contact era, agriculture took on many forms in Wai'anae. The first Western land exploits in Wai'anae were in the harvesting of sandalwood. Kamehameha I became involved in the sandalwood trade in the early 1800s, according to Kuykendall (1938), holding that:

When [Kamehameha] needed a quantity of the wood to pay for some purchase, he simply issued orders to have it cut and transported to the waterside. In 1817 the ship *Columbia* was purchased, to be paid for in sandalwood to the amount of `twice the full of the vessel.' The wood for this purchase was furnished by Kaumualii of Kauai and the chiefs who controlled the Waimea and Wai'anae districts of Oahu. (Kuykendall 1938: 90)

Unfortunately, traditional customs and diet were adversely impacted by the sandalwood trade. Due to the number of commoners that were ordered to participate in the sandalwood harvest, Traditional crops were neglected and a great famine ensued, where the people were forced to live off of herbs and fern roots (McGrath et al. 1973:18).

In the early 1790s, Vancouver brought range animals including goats, sheep, and cattle to the Hawaiian Islands, which were allowed to graze freely about. Eventually, cattle ranching became the leading trade along the Waianae Coast in the mid- to late 1800s (Hammatt et al. 1985). As previously mentioned, Bowser (1880) observed that Lualualei was being used as cattle grazing land by Dowsett and Galbraith, who leased 16,000 acres from the crown.

However, the most significant agricultural endeavor of Historic era Wai'anae was the sugar plantation. In 1878, Judge Herman Widemann founded the Waianae Sugar Company, which was a large sugar plantation situated on leased lands that spanned several *ahupua'a* in Wai'anae District, including Lualualei. Hammatt et al. (1991:14) write, "With the hiring of 20 local Hawaiians, 15 haole technicians and almost 60 Chinese laborers, Widemann essentially created a town at Wai'anae to support the cultivation and processing of sugarcane."

The Waianae Sugar Company was a dynamic player in the agriculture trade and the Westernization of the Wai'anae District. An article in the publication, Planter and Sugar Manufacturer, describes the plantation as such:

> Waianae Sugar Company
>
> Waianae is situated between Ewa and Waialua plantations, on the island of Oahu on its southern shore. The plateau on which this estate is situated is surrounded on three sides by the mountains; on the fourth by the circling bay. This company holds 7,000 acres in fee simple, of which a little less than 2,000 under cane cultivation. Five or six hundred head of cattle pasture on the remainder these lands. The area runs into two valleys, the highest elevation being some eight hundred feet.
>
> Judge Widemann originated this company, in 1878. The company has flourished, in spite of difficulties, notably the rough and rolling nature of its cane lands which are also rocky. Irrigation here is imperative, as the annual rainfall on the lower lands does not exceed a very few inches. Most of the used comes from a central pumping station, having a capacity of 11,000,000 gallons in 24 hours. The water is conveyed to various portions of the plantation through a nine-mile system of galvanized steel flumes. One or other pumps are located at several points on the lands. Added to this is about 2,000,000 gallons of water brought daily to the plantation from mountain streams a distance of nine miles in an open ditch. Water driven turbines generate power for the dynamos that actuate the pumps. This water comes through a 12-inch pipe from the mountains. Two hundred and fifty horsepower electrical energy is transmitted over a wire three miles in length, to the pumping stations. The use of electricity in this work effects a saving of 75 per cent [sic].
>
> Six hundred laborers, with a considerable mixture of nationalities, are employed on Waianae plantation. Most of them work under the day labor system. The mill is the 9-roller type, and is thoroughly modern. It has three vacuum pans, quadruple effect of 120,000 daily capacity in gallons, eight centrifugals, four mud presses, and 12 settling tanks. (Planter and Sugar Manufacturer 1910:401)

Waianae Sugar Company was one of the first plantations to produce hydroelectricity. In 1897, John Dowsett, son-in law of Waianae Sugar Company founder, Herman Widemann, created a reservoir to power his hydroelectric plant. This plant could generate up to 300 kilowatts of electricity, which powered the plantation's pumps, mill generators, and lighting of the manager's house (Wilcox 1997:167). A report to the Territorial Governor in 1906 describes the hydroelectric system as follows:

> Waianae plantation was the first in the islands to develop electric power from water Power is taken from the water at the head of the valley and the water is then used for irrigating the upper lands. The pumps and wells located at the mouth of the valley are operated by electricity and furnish the water for the lower fields near the sea… There are also five alternating-current generating plants installed for supplying current to motors driving pumps for irrigating purposes. The earliest pumping installation was at Waianae plantation on the, island of Oahu. Here water is delivered to Pelton water wheels under a static head of 400 feet, driving two 200-kilowatt, 3- phase generators. The power is transmitted a distance of 5 miles and utilized in operating one y-wheel pump belted to a 75-horsepower motor, lifting 1,500,000 gallons of water every twenty-four hours to a height 0 150 feet. Another pump belted to two motors of 150—horsepower each delivers 5,000,000 gallons of water to a height of 280 feet. The entire plant is a general electric plant, with the exception of the 75-horsepower motor, which was built by the Westinghouse Company." (Office of the Governor 1906:48)

With the advent of sugar plantations in Hawai'i, the rail road industry followed closely after. The Oahu Railroad and Land Company (OR&L) expanded their rail ways quickly in the late 19th Century, and by 1898 had extended to Wai'anae from Honouliuli in 'Ewa District (Musik 1898:420) (Figure 6). Trains quickly became the main mode of transportation for many who lived on the Wai'anae Plantation. Author, Charles Morris, described the OR&L railroad as follows:

> [The railroad] has since been extended to Waiannae [sic], a length of line, including sidings, of 38.5 miles. This is a well-built, single-track road, supplied with rolling stock of American manufacture, and kept in good running order. The equipment consists of five locomotives, fourteen passenger and one hundred and thirty-two freight cars, and its business has steadily grown. In 1897 it carried 85,596 passengers and 66,430 tons of freight. Mr. B. F. Dillingham, the projector of the road, expects eventually to carry it around the entire island of Oahu. (Morris 1904:273)

The railroad was eventually extended from to Kahuku in 1898, before shutting down in the late 1940s.

Shortly after the Waianae Sugar Company ended its plantation operations, Lualualei was divided into numerous homestead lots. Much of the inland homestead lots were used for ranching (Haun and Kelly 1984; Hammatt et al. 1991). Coastal lots became Lualualei Homestead (2nd Series) lots, with the project are approximately located in lots 18 or 19 (Figure 6).

3.2.6 Military Presence in Lualualei

In the early 1940s, the U.S. Military presence in Hawai‘i was well involved in WWII. The U.S. Military acquired large tracts of Lualualei Ahupua‘a. According to Haun and Kelly (1984:41), over 8,184 acres of the McCandless Cattle Ranch land was purchased by the U.S. Military, becoming the U.S. Naval reservation that is now Lualualei Naval Magazine (NAVMAG) and Very Low Frequency (VLF) Range (Figure 7). The coastline of Wai‘anae was also utilized for training purposes, mainly for amphibious vehicle landing. This military reservation was reassigned after WWII to act as a military recreational facility to aid in the recuperation of war veterans, becoming the Waianae Army Recreation Center.

3.2.7 Chinese Heritage in Lualualei

As is apparent in the report title, retired Chinese Plantation workers made a stake in Lualualei Ahupua‘a as well. Few are aware that Chinese owned firm, A. Loo, K. Dow, and Company, planted 122 acres of sugar cane in Wai‘anae using “eight pairs of work oxen and twenty head of bullocks” as well as “thirty Chinese not employed by Waianae Sugar Company…”(Char 1988:165). Another small sugar plantation was A. Loo and K. Dow, who raised sugar cane somewhere on the Wai‘anae Coast (ibid.). Rice cultivation was another livelihood that Chinese in Wai‘anae District were involved in. Utilizing fallow taro lands leased from Kimo Holt, Sing Hop Kee Company successfully planted rice (ibid.). In addition, ranching was another agricultural endeavor that Wai‘anae’s Chinese participated in. Tongg Ranch was in operation in Nānākuli until the 1970s.

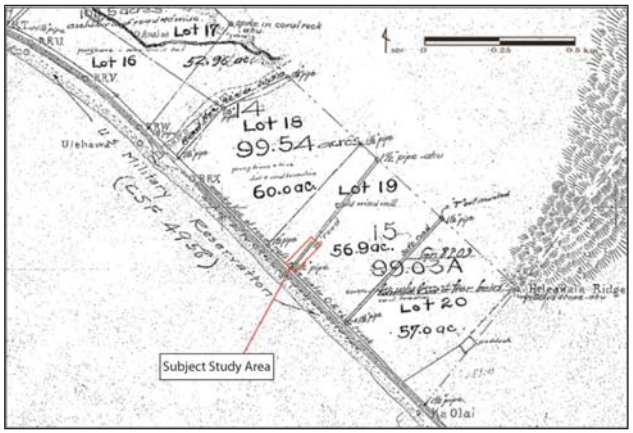

Figure 6. Portion of 1901 Lualualei Survey Map with Historic features and infrastructure near the project area (adapted from Emerson 1901; Reg. Map No. 2040).

Figure 7. Lualualei NAVMAG in 1933 “Overall View of Antenna Towers S-109, S-110 and S-111 Facing North” (courtesy of Survey HABS HI-152, Library of Congress website).

Chinese were also employed in a number of non-agricultural activities in the Wai‘anae District. Char (1988) reports that a man named, C.K. Ai, stated that in 1891 he was allowed by James Dowsett to cut wood on his land for up to three dollars a cord. Further, Ai hired a Chinese wood cutter to drive a two-wheeled cart of the wood into Nānākuli (as cited in Char 1988:166).

Ai wrote “Charlie Wilson, father of our ex-mayor John H. Wilson, built us a special dray for hauling the wood – the dray would haul wood down to the beach and a schooner would ring them to Honolulu” (as cited in Char 1988:166). Chinese merchants were also present in the area during the late Historic era. The following business were listed in the 1950 Chinese Business Directory:

- A.K. CHONG, Waianae, general merchandise
- K. S. HO, Waianae, restaurant
- Choy's Market, Nanakuli, groceries and meats, Gilbert K.C. CHOY, proprietor
- Freddie's Chop Suey, Maile, owner Fred LEE
- Harold Tyau's Poultry Farm, Maile
- Maile Cash and Carry, NG Chong Kwai
- LAU Tang Co., Waianae, general merchandise and liquor, managed by W. C. CHU. (as cited by Char 1988:167)

Little has been found about the namesake of Auyong Homestead Road, Ruth Pamalia Bell Auyong, who was granted the 26.3 acre Lualualei Homestead lot (No. 18 B; Grant 9481) on which the project area is located (Figure 8). The road bearing her surname or married name may simply have been due to it being located on this Homestead lot.

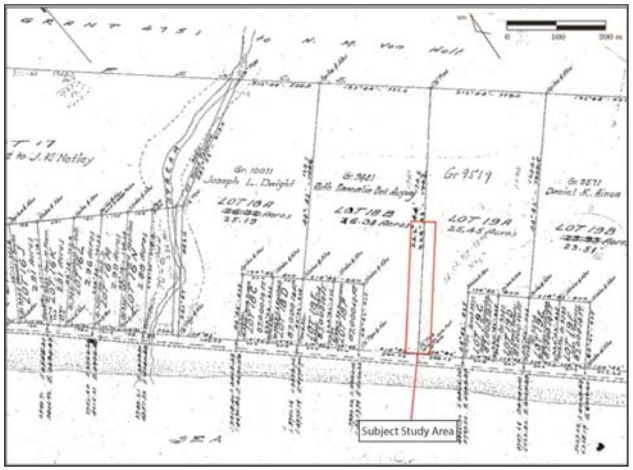

Figure 8. Portion of 1924 Lualualei Homesteads map, Series 2, showing Land Grant 9481 to R. Auyong and approximate project area (adapted from Howland 1924 – Reg. Map No. 2717).

4.0 PREVIOUS ARCHAEOLOGY

A total of 11 archaeological studies have been conducted in various locations within a 1 mile radius around the proposed Auyong Homestead Road Improvements Project. Cordy (2002), in *An Ancient History of Wai'anae*, summarizes and interprets the archaeological record for all of Wai'anae District, providing a synthesis of Cultural Resource Management (CRM) and academic works. Presented in the following section is a summary of the findings for coastal Lualualei and Nānākuli Ahupua'a CRM reports. A list of the reports and their locations in chronological order is provided in Table 1 and map of the project area with all of the study areas and known archaeological sites is provided in Figure 9.

4.1 Early Archaeological Studies

The earliest systematic archaeological study performed in the vicinity of the Auyong Homestead Road Improvements Project is the 1930 island-wide survey conducted by Gilbert McAllister (1933). In *Archaeology of Oahu*, McAllister identifies two pre-Contact archaeological sites. Site No.148, roughly 0.5 miles (ca. 900 meters) west the project area, was described by McAllister as a "Large Rock said to be named Maui…the Hawaiian Hero…This stone at the time was surrounded by water, and it was here that Maui reposed and sunned himself…" (in Sterling and Summers 1978:64). McAllister (1933) goes on to describe the location of the rock as, "Northeast of the road on the property of E.P. Fogarty" (ibid). The Lualualei Homesteads Series 2 map (Howland 1924) illustrates the exact location of the site, which is provided in Figure 10. The fate of the site is unknown, but the area, which is located somewhere between Princess Kahanu Avenue and Lualei Place in east Lualualei Ahupua'a, has been built upon, suggesting that it no longer exists or has been disturbed to some extent.

McAllister (1933) surveyed the approximate location of Site No. 147, Ilihune Heiau, and reported that it was destroyed and no remains were identified. The approximate location is ca 0.6 miles (ca. 965 meters) east of the project area (as cited in Sterling and Summers 1978:62).

4.2 Recent Archaeological Investigations

In 1991, Paul Cleghorn, performed a reconnaissance survey in the southeastern portion of Lualualei Ahupua'a less than 1 kilometer *mauka* of the project area, on a property that straddled Lualualei Naval Road. No sites were located and the area was found to be heavily disturbed by the existing quarry. Subsequently, Cleghorn and Andersen (1992) performed an inventory survey in the same area with no sites or subsurface finds.

Sinoto and Pantaleo (1994) conducted an archaeological assessment on six potential sites for the Nānākuli III Elementary School. These sites were located in lower Lualualei Ahupua'a, all located within 0.5 to 1 kilometer of the project area. For this assessment, archival research and on-site field inspections were conducted. No archaeological sites were found in any of the building sites.

Table 1. Previous Archaeological Investigations in the Vicinity of Auyong Homestead Road Improvements Project

Authors	Year	Report Title and Publisher	Project Location	Findings
McAllister	1933	*Archaeology of Oahu.* Bishop Museum: Honolulu.	Island-wide survey.	Site 148, boulder named after Maui, the demi-god.
Cleghorn	1991	*Results of a Reconnaissance Survey in Lower Lualualei Valley, O'ahu. Prepared for Kyowa Nanakuli Land Co., Ltd.*	Lualualei Naval Road	No sites recorded.
Cleghorn & Andersen	1992	*Inventory Level Survey Report of Specified Lands in Lualualei, O'ahu*. Prepared for PVT Development, Inc.	Lualualei Naval Road	No sites recorded.
Sinoto & Pantaleo	1994	*An Archaeological Assessment of Six Candidate Site Areas for the Nanakuli III Elementary School.* Aki Sinoto Consulting.	Lower Lualualei Ahupuaʻa, various locations	No sites recorded
McDermot & Hammatt	1999	*Archaeological Inventory Survey of the proposed Nānākuli Reservoir Site, with Archaeological Assessment of the Proposed 20" Transmission Main Along Nānākuli Avenue, Nānākuli, Waiʻanae District, Island of Oʻahu.* Cultural Surveys Hawaii.	Southwest Nānākuli Ahupuaʻa, on Nānākuli Ave.	No sites recorded
Hammatt et al.	1999	*Archaeological Assessment of an Approximately 15-Acre Parcel, Ahupuaʻa of Nānākuli, Waiʻanae District, Island of Oʻahu.* Cultural Surveys Hawaii.	Lower Nānākuli Ahupuaʻa, just *mauka* of Farrington Hwy.	No Traditional sites; 2 Historic Military Camp Andrews features found (bunker & structural remnants) found
McDermot & Hammatt	2000	*Archaeological Inventory Survey of the 57.65 Acre Ulehawa Beach Park Parcel, Ahupuaʻa of Lualualei, Waiʻanae District, Island of Oʻahu.* Cultural Surveys Hawaii.	Coastal Lualualei Ahupuaʻa	Four Historic properties were identified: OR&L railroad tracks (9714), 3 WWII bunkers & 2 concrete foundations (5761), 2 subsurface cultural layers (5762)
Berdy et al.	2002	*An Archaeological Inventory Survey with Subsurface Testing Report for the Property Located at TMK: 8-9-002:001, in Nanakuli Ahupuaʻa, Waiʻanae District, Island of Oʻahu.* Archaeological Consultants of the Pacific, Inc.	West Nānākuli Ahupuaʻa, *mauka* of Farrington Hwy	Expansion of previously recorded Historic site (No. 5946), Camp Andrews remnants; Excavations revealed cultural materials at pre-Contact site (No. 5947)
Ostroff & Desilets	2005	*Archaeological Monitoring Results for the Installation of a Waterline along Farrington Highway between Hakimo Road and Haleakala Avenue Intersections, Nanakuli and Lualualei Ahupuaʻa, District of Waiʻanae, Oʻahu Island, Hawaiʻi.* Garcia and Associates, Inc.	Coastal Lualualei Ahupuaʻa	Five "charcoal-enriched" sand deposits (no sites)
Stein & Hammatt	2006	*Archaeological Monitoring Report for the Nānākuli Beach Park Sewer Connection for the Recreation Center Project, Nānākuli Ahupuaʻa, Waiʻanae District, Oʻahu Island.* Cultural Surveys Hawaii.	West Nānākuli Ahupuaʻa, *makai* of Farrington Hwy	No sites recorded
Altizer et al.	2010	*Archaeological Field Inspection and Literature Review for the Farrington Highway Intersection Improvements at Nānākuli Avenue and Heleakalā Avenue, Nānākuli and Lualualei Ahupuaʻa, Waiʻanae District, Oʻahu Island.* Cultural Surveys Hawaiʻi	Coastal west Nānākuli Ahupuaʻa and east Lualualei Ahupuaʻa	Three Historic sites relocated and one pre-Contact cultural layer (same as found by Ostroff & Desilets 2005)

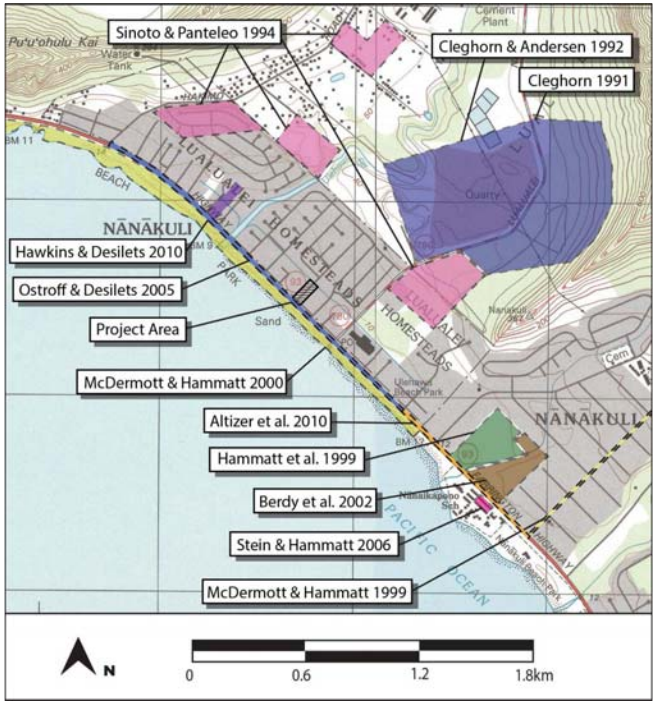

Figure 9. Previous archaeological studies within 1 mile (ca. 1.6 km.) of the project area (adapted from USGS Waianae and Scofield Barracks Quadrangle Maps).

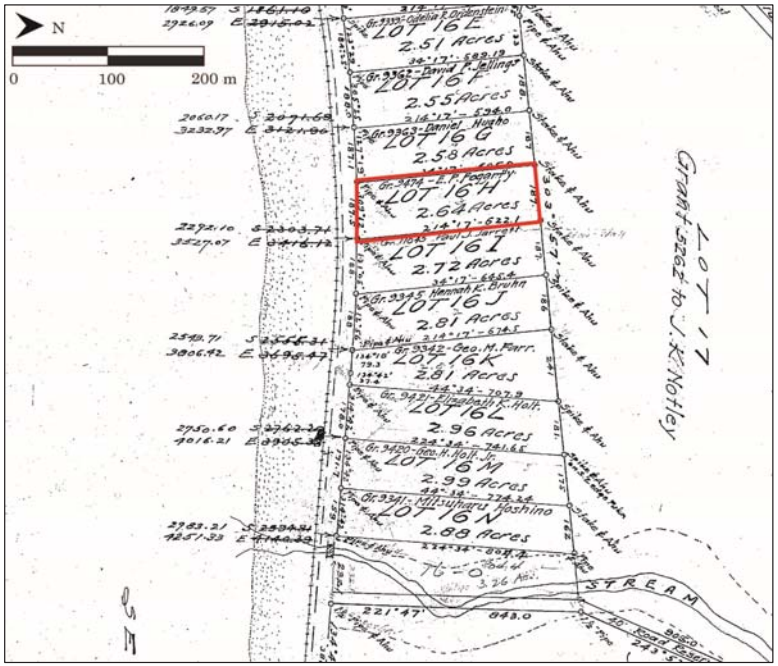

Figure 10. Portion of Lualualei Homesteads Series 2 map (Howland 1924) showing E.P. Fogarty's property (Registered Map No. 2717).

An Archaeological Assessment of an approximately 15-acre parcel in west coastal Nānākuli was performed by Hammatt et al. (1999). This study produced two Historic Military Camp Andrews features, including a concrete bunker and structural remnants were found (Sites No. 5946 & 5947).

In 1999, McDermott and Hammatt performed an inventory level survey of the proposed Nānākuli Reservoir Site as well as an archaeological assessment of the proposed 20" Transmission main, which was to be installed in the Nānākuli Avenue corridor. The current project area is located approximately 1 mile northwest of this study area. No sites were observed.

McDermott and Hammatt (2000) conducted an Archaeological Inventory Survey (AIS) of 57.65 acres, a 4.85 kilometer stretch, of Ulehawa Beach Park. A portion of this project area is located

directly across Farrington Highway from the current project area. In this study, four Historic properties were identified, including OR&L railroad tracks (Site No. 9714), three concrete WWI bunkers and two concrete foundations (Site No. 5761), as well as two distinct subsurface cultural layers (Site No. 5761 & 5762). The material culture of these sites consisted of marine shell and bone midden, charcoal, fish hooks, volcanic glass, and basalt flakes, as well as Historic glass, metal, and concrete fragments.

In 2002, Berdy et al. performed an AIS with subsurface testing on a property in western Nānākuli Ahupua'a, which is located approximately 1.25 kilometers southeast of the project area. For this study, Berdy et al. (2002) excavated four test units, which produced three artifacts, including a coral file, limestone abrader, and basalt core, as well as shell midden. This pre-Contact site (No. 5947), provided significant insight on the Traditional Hawaiian usage of sinkholes in the area. In addition, Berdy et al. (2002) expanded a previously recorded Historic site (No. 5946), which consists of Camp Andrews' structural remnants that were initially discovered by Hammatt et al. (1999) in the adjacent parcel.

Ostroff and Desilets (2005) performed archaeological monitoring for the installation of a waterline along Farrington Highway between Hakimo Road and Haleakalā Avenue Intersections, in Nānākuli and Lualualei Ahupua'a. A portion of this project area abuts the *makai* end of the current study area. Excavations related to the waterline installation revealed five charcoal-enriched sand deposits, given the name BWS-4, that did not yield any other cultural materials. However, radiometric dating was performed on charcoal samples that indicate "2-sigma calibrated date range of AD 1150-1410, while AMS dating indicates a 2-sigma date range of AD 1270 to 1410" (Ostroff and Desilets 2005:32).

Archaeological monitoring was performed for the Nānākuli Beach Park Sewer Connection for the Recreation Center Project by Stein and Hammatt (2006) in west Nānākuli Ahupua'a, which is located roughly 1.5 kilometers east of the project area. No subsurface sites were encountered.

More recently, Altizer et al. (2010) performed an archaeological field inspection and literature review for the Farrington Highway Intersection Improvements at Nānākuli and Heleakalā Avenue intersections, which are in coastal Nānākuli and Lualualei Ahupua'a less than a kilometer east of the project area. In this investigation, three cultural resources/historic properties were identified, including a section of the OR&L Railroad, Farrington Highway itself (SIHP # 50-80-07-6824), and a portion of what has been previously recorded as a subsurface charcoal-enriched sand deposit (BWS-4) by Ostroff and Desilets (2005).

5.0 PREVIOUS ETHNOGRAPHIC INTERVIEWS

A total of two Cultural Impact Assessments (CIA) and one Traditional Practices Assessment (TPA) were found for the Auyong Homestead Road Improvements Project vicinity (McGuire and Hammatt 2000; Elison et al. 2004; Lincoln and Hammatt 2009). These assessments provide additional insights on the cultural significance of nearby properties, which may aid in assessing the cultural significance of the subject property.

5.1 McGuire and Hammatt (2000) TPA

In 2000, McGuire and Hammatt conducted a TPA for the proposed Nānākuli IV Elementary School site, which was comprised of approximately 15 acres in west Nānākuli Ahupuaʻa. This project area is located a little more than one kilometer to the southeast of the Auyong Homestead Road Improvements Project area. McGuire and Hammatt (2000) interviewed three *kūpuna*, or elders, in this assessment, which yielded information on the Native Hawaiian background and history of the area.

During the interview with *kupuna*, Fred Cachola, an alternative meaning for Nānākuli was offered:

> CSH: What have you heard about the meaning of "Nānākuli"?
>
> FC: All the meanings are there in the books. But, when I was a principal at Nānāikapono, I was intrigued with the name, "Nānāikapono". And so I asked my secretary, who was living down there for many, many years. Mrs. Brown. I said, "Mrs. Brown, can you tell me about how this school got its name Nānāikapono?" which inadvertently gave me the meaning of Nānākuli. And she said, "Oh, I'll ask Mrs. Eli to come down and talk to you, because the old timer here and she knows all what happened here." So a couple of days later Mrs. Eli walked into my office. I was just a young principal. I was about 30 years old. I was maybe 32, 33 [years old]. And she came in sort of sheepishly and, very respectful, and she sat down in my office and I asked her. "Can you tell me about Nānāikapono?" And she sort of looked around as if nobody was listening, kind of a thing, you know. I said, "Uh oh, here comes something that I know is going to be a little different from what I heard." So she said that the first principal of that school was a Reverend Awai and that he know that the tradition of that area, Nānākuli, had a Hawaiian hidden meaning which she told me was "Nānā-i-ka-ule". I was kind of smiling. And she said, "Yeah, because that's how in the old days this place was known for its promiscuity. It got this name from ancient times. And it might have something to do with the mountain range." Look at your map. Look at your map. The one that you were showing me. Because you can see the *ule* over there. See" There it is. See the testicles over here, and the penis sticking out there. So it could be [in] reference to that. If you down in here, you always looking at that. I reminds people of that, so it's Nānāikaule, which literally means *looking a man's testicles, looking at his penis*. And so, Reverend Awai was not gonna let his school be named after something like that. No way! And so he said, "This is not gonna be called Nānākuli Elementary, no way!" So he named the school "Nānāikapono". which of course, means *look to the way of righteousness*. As opposed to Nānākuli. So I was pleasantly surprised. But to me, Hawaiian's have this thing about names. You have to look at names. You have to look at names and all of its ramifications and all of its contexts. Of course, the one about looking at the knees, and standing there looking deaf, and all that kind of stuff, which is part of the nice tradition. But all of that might have been camouflage. You know, people don't want to say, "Our place means *looking at the man's penis*. They're not gonna say [that]. They're gonna create other things. And so, I thanked her for that and I shared this with several people too, but I have never seen this written anywhere. I think that's why Mrs. Brown, my secretary, knew what it was going to be. She didn't want to tell me, so she asked Mrs. Eli to come down and tell me (laughs). And so she did. That's one of the interpretations for the name. And, it's very Hawaiian. To me, it's a very Hawaiian thing, very Hawaiian. (McGuire and Hammatt 2000:12-13)

Mr. Cachola also shed light on the Maui Stone, which is McAllister's Site No. 148, during the McGuire and Hammatt (2000) interview. The dialogue is as follows:

> CSH: Tell about your interest in Māui and Māui's connection to Nānākuli?
>
> FC: As part of my research down there, of course, I got to Sites of Oʻahu and McAllister. And in there, I think its Site # 148 for the Waiʻanae district. He cited this Māui Rock – an unusually big boulder of rock. I was really intrigued. I said, "Where is this stone?" There was a little "x" on the map, which nobody could [figure out] because McAllister's map is notorious. It's just a scratch in the map and you wouldn't know where it's at. So I went to my friend Black. It was early in the evening so, as I was coming back my work at Kamehameha, I stopped by his house. I said, "Eh, Black, you know this place – have you ever seen a huge rock that looked so unusual it looks like it doesn't belong there?" He thought for awhile and he says, "Oh yeah, yeah, yeah. Down by the haunted house." And I said, "Where?" And he said, "Well, come, come. Let's go take a look." And so we drove down there. I knew what house he was talking about because there was this old mansion and this big banyan tree and it was choke with weeds. You couldn't even see the stone. Now I know why there was all this underbrush covering it. So, it was early in the evening when we got there. We parked our car and by then it was nightfall already. We started walking to the stone. And there was construction going on. They were building these condos down there. And all this construction equipment, materials, lumber, supplies [were] all over the place. And all of a

sudden we heard this guy [say], "Hey, what are you guys doing here? What are you guys doing?" It was the night watchman. We said, "Oh, you know we just wanna look for this stone. This big rock." And he said, "Oh, you mean Māui Rock." And I looked – eh, how did this guy – he read McAllister or what? And obviously, he was an elderly *kupuna* – Hawaiian man. And he said, "Come, come. I show you guys. I show you guys." So he took out his flashlight and we walked maybe about another twenty to thirty yards from where he was parked. And then he shone it and then we saw it. He put his light on [the rock] and I said, "Oh, my god!" Because it was huge. It was bigger than a car. It was really big. You've seen it. And there were, on the top of the boulder, were all this tiny, tiny rocks. Small little uprights. There were many there. They were kinda like scattered around the place, on the top – which is all gone now. I don't know what happened to 'em. And so we started talking about it and he said, "Oh yeah, you know, over here, all the night watchmen quit from the company because nobody like work over here. I said, "What's the problem?" And he just said one word "Pō Kāne." And I said, "Wow, you mean the night walkers?" He said, "Yeah, yeah. They come right over here." And he pointed to this small little sapling, this little banyan tree. He said, "They come from over here. And then they walk straight down to the beach. And sometimes, I park my truck, whoa, they move [my truck] so much, I spill my coffee." So I just say, "Okay, okay." I no scared 'dem. I swear at them. But I gotta move my truck. (Because he's in the way.) And so he said, "Yeah, they come from over here [and] they go down to the beach." But he said he was hired in the middle of the night because why? The watchman there was the sixth person to quit. And they were desperate. I don't know how they got hold of him, [but] somebody called him. He wasn't afraid of this, but all the other night watchmen, they said, in that area strange things happened. Like you know, things start flying around and things start moving and all this unusual events going on. And they see things too. So nobody wanted to work there. And then he said, "Eh you folks wanna see Māui? You folks saw Māui? You like see Māui?" And we said, "Māui? You cannot see Māui from here." I thought he meant the island of Maui. How can you see Maui from here. But by then, I didn't want to question him. And he said, "You know, come early tomorrow morning. Come just before sunrise when the sun is coming up. I'll show you guys Māui" And I looked at Black, Black looked at me, and [we] said, "Okay." So the next morning, sunrise, I was down at Black's house and we went right back to that site where we met him the night before. And he took us to the rock. There were no buildings there then. You could see the mountain range very clearly. And as the sun was coming up, he said, "There's Māui." And I looked up, and I was stunned! Whoa! It was one of those moments. I said, "Wow!" Here was this magnificent silhouette of a sleeping man. Huge. You know, I was telling your group, people brag about the sleeping giant on Kaua'i. Their sleeping giant is like a menehune compared to this one. This is a giant. This is worthy of Māui. And it's Māui sleeping there. That's

why if you look at McAllister, it says Māui is reposing, this is the rock he reposed on, he rested on this rock. And then I said, maybe not. Maybe from that rock you can see [emphasized] Māui reposing. From that rock, that rock marks the spot where in the morning, early in the morning, you can see that whole Māui sleeping. And so, who knows whether or not the Māui Rock is called Māui because of that or that rock was the place from which you could see most clearly. Because if you go too far to the left or too far to the right, the silhouette changes. You cannot see it. It's right from that rock you can see it most clearly. It's just outstanding. It's a silhouette of a huge sleeping person – Māui. There are all these mountain ranges there. It's a composition of different mountain ranges. But when the sun is coming up in the back of that, it looks like one silhouette. And it's just beautiful. But when the sun rises, then it disappears. You only see it early in the morning when you see that silhouette. You know, we never got that man's name by the way. And Black never met him [again]. I don't know. We just said, "Who was this guy?" We don't know…But, that silhouette is still there. It'll be there for eternity unless somebody levels that whole mountain range. (McGuire and Hammatt 2000:15-17).

Mr. Cochela's commentary provides a fascinating insight into the mystical qualities of this Traditional site, the location of the site, as well as the cultural significance that this site held for the community of Nānākuli and Lualualei from the pre-European contact era and up into the modern era.

A great deal about the greater area's Traditional Hawaiian and Historic background was included in the report. However, no traditional practices were found to be occurring in or around the subject property at the time of the TPA.

5.2 Elison et al. (2004) CIA

A Cultural Impact Assessment was conducted by Elison et al. (2004) for a Community and Commercial development project on a property in the western extent of the *ahupua'a* of Nānākuli. The project area is located a little more than one kilometer southeast of Auyong Homestead Road and is adjacent to the McGuire and Hammatt (2000) project area. Elison et al. (2004) performed a Historic background investigation as well as community consultations. The CIA identified traditional accounts and land use for Nānākuli Ahupua'a and concerns of community members regarding the effects of the proposed construction.

Two *kūpuna* were interviewed for this CIA: Mr. Michael Kahikina and Mr. Kamaki Kanahele. Both interviewees were raised in Nānākuli and active leaders of the community as well as knowledgeable of the project area which was used, and subsequently altered, by the military. The interviewees believed that due to these alterations, neither sites of traditional or cultural importance nor access to these sites would be affected by the proposed construction project.

During his interview, Mr. Kahikina shared that there were many legends for the Nānākuli area, including several legends that described "powerful, fierce and awesome women who fought

battles and inhabited the area, those being the five wives of Pililāʻau whose names currently are honored by the six roads in Nānākuli Valley" (Elison et al. 2004:18). Mr. Kahikina shared

insights about the military use of project location. He did not know of any Traditional cultural practices occurring on the property at the time of the interview.

Mr. Kanahele shared during his interview what life was like growing up in Nānākuli as well as much about Camp Andrews. Being knowledgeable in Traditional healing and coming from a long line of Traditional healers, he maintains that Nānākuli Valley is well known among Traditional Cultural Practitioners for its "herbalists" and the east valley as being choice for growing herbs. He also mentioned sinkholes being in the project area that he recalled containing *ʻiwi* (bones). In regards to any cultural practices occurring on or around the property, Mr. Kanahele was certain that none would be disrupted during project related construction.

5.3 Lincoln and Hammatt (2009) Draft CIA

Lincoln and Hammatt (2009) conducted a Draft CIA for the Farrington Highway Intersection Improvements Project, which was located on Farrington Highway between Helelua Street and the northwestern bank of the Nānākuli Stream. This project, which stretches from the western side of Nānākuli Ahupuaʻa to the eastern edge of Lualualei Ahupuaʻa is less than a kilometer southeast of the Auyong Homestead Road Improvements Project area. According to Lincoln and Hammatt (2009), letters were sent to various organizations, including SHPD, the Koʻolau Hawaiian Civic Club, and the Oʻahu Island Burial Committee, as well as knowledgeable individuals in the area requesting participation. Lincoln and Hammatt (2009) contacted 31 individuals, out of which, nine participants responded in writing. Of these responses, seven individuals participated in three separate interviews.

An in depth study was performed for this CIA on the cultural landscape and history of both Nānākuli and Lualualei Ahupuaʻa. Cultural resources of the project area and its vicinity were found by Lincoln and Hammatt (2009) during the interviewing process as follows:

1. Interviewees mentioned several species of fish:
    a. *menpachi*
    b. *uhu*
    c. *akule*
    d. *ʻāweoweo*
2. Interviewees mentioned several species of *limu* (seaweed & algae):
    a. *līpēpē*
    b. *limu kohu*
    c. *waiwaiʻole*
3. Interviewees mentioned several species of plants:
    a. *kiawe*
    b. *lehua*
    c. *honohono* grass
4. Interviewees mentioned several cultural practices:
    a. fishing
    b. surfing

    c. canoe paddling
    d. *limu* gathering
    e. salt gathering (Keaulana Beach salt pond)
5. Interviewees mentioned potential for *ʻiwi kūpuna* (human remains) being in/near project area
6. Interviewees mentioned concerns over public beach access and parking to perform numerous cultural practices:
    a. fishing
    b. laying-net
    c. diving
    d. surfing
    e. canoe paddling
    f. honoring *kūpuna* laid to rest at sea
7. Interviewees mentioned OR&L train tracks
8. Interviewees mentioned sand dunes as a barrier to flooding
9. Interviewees mentioned public walkways

Concerns were also voiced by some interviewees about public safety and traffic. It is possible that some of these concerns would be similar for the current project area, such as public safety and traffic. However, the Area of Projected Effect (APE) does not appear to extend into Farrington Highway, which significantly reduces the amount of impacts to beach and ocean related activities as identified by Lincoln and Hammatt (2009).

6.0 ETHNOGRAPHIC INTERVIEWS

The purpose of ethnographic interviews is to acquire information from *kūpuna* and local knowledgeable individuals about the background cultural use, if any, of the subject property that could be adversely affected by the proposed Auyong Homestead Road Improvements Project.

Concerted attempts were made to identify and locate persons knowledgeable about traditional practices that took place in the past, or are currently taking place in the project area, that could be potentially impacted by the Auyong Homestead Road Improvements Project. The State Office of Environmental Quality Control (Juvik) and Office of Hawaiian Affairs (OHA) were consulted for a listing of Cultural Assessment Providers. Neighborhood Boards, and civic clubs in Waiʻanae District were also contacted to obtain cultural informants. Appendix B provides a listing of potential cultural informants and their detailed contact history. Contact information was found for eight individuals and one non-profit organization, all of which were solicited for participation. Individuals contacted were comprised of culturally knowledgeable Waiʻanae *kūpuna*, representatives of OHA and the Waiʻanae Hawaiian Civic Club, and elected officials of the Waianae Coast Neighborhood Board (No. 24). Koa Ike, a 501 (c)3 Foundation based out of Waiʻanae that is centered on preservation of Hawaiian traditions and cultural resources, was also solicited for help finding cultural practitioners willing to participate in interviews regarding the project area. No response was received from any of these individuals or the organizations.

It is possible that the lack of interest or concern over the Auyong Homestead Road Improvements project area is due to several factors:

- The APE is relatively diminutive in size;
- The project area is isolated to a busy roadway in a neighborhood that is not immediately near to any public beach access;
- The area has long been developed;
- There are no apparent cultural resources available to the public in the area, as all public areas are paved sidewalks and roadways;
- The tributary channel, Ulehawa-3, which is at the *mauka* terminus of the project area is known to be dirty due to ongoing dumping and run-off, thus not typically fished; and
- The proposed public infrastructure project is not controversial.

7.0 FIELD INSPECTION FINDINGS

Two field inspections were performed at the Auyong Homestead Road Improvements Project area by Kimberly M. Mooney, B.A., of Pacific Legacy, Inc. on 15 May 2015 and 23 July 2015.

Conditions on and adjacent to Auyong Homestead Road were found during each field inspection to be busy with local foot, bicycle, and pedestrian traffic. No signs of Traditional cultural practices nor resources were observed. Photographs taken on 23 July 2015 of the project area are provided in Figures 11-18).

Figure 11. Auyong Homestead Road and Farrington Hwy Intersection, note 7-Eleven convenience store on the southeast corner (view to east).

Figure 12. Portion of Ulehawa Beach that is adjacent to project area (view to southeast).

Figure 13. Vacant lot (fenced) on the northeast corner of Auyong Homestead Road and Farrington Hwy (view to northeast).

Figure 14. Looking onto Auyong Homestead Road from Farrington Hwy (view to the northeast).

Figure 15. Looking down Auyong Homestead Road from Ulehawa-3 Bridge towards Farrington Hwy (view to southwest).

Figure 16. Ulehawa-3 Bridge on east side of Auyong Homestead Road (view to southeast).

Figure 17. Ulehawa-3 tributary canal west of Auyong Homestead Road (view to northwest).

Figure 18. Ulehawa-3 tributary canal with rubbish and debris (view to north).

8.0 CONCLUSIONS AND RECOMMENDATIONS

The results of archival research indicate that the general areas of Lualualei and Nānākuli Ahupuaʻa have a long and rich cultural and legendary past. However, little is mentioned of the specific property in which the Auyong Homestead Road Improvements Project is to take place. The archival research suggests that this area was heavily disturbed during the mid- to late Historic era for infrastructure related to the Lualualei Homesteads, which decreases the likelihood of cultural resources such as intact archaeological subsurface deposits and *iwi kūpuna* to exist. However, sinkholes in the area are still a possibility.

Based upon one previous ethnographic interview (Lincoln and Hammatt 2009), Traditional Hawaiian practices were found to be practiced in coastal areas *makai* of Farrington Highway, including various beach and ocean activities. Also, a variety of cultural resources were found by this assessment to be available along the coast and coastal waters. Yet, the projected APE is over 50 feet (175 meters) inland of Farrington Hwy. Furthermore, lack of interest or concern about the Auyong Homestead Road Improvements Project by the community is suggested by the fact that no responses were rendered by numerous requests to a variety of organizations and knowledgeable individuals. Hence, the proposed Auyong Homestead Road Improvements Project is not seen to significantly impact any ongoing cultural practices. However, as espoused by various *moʻolelo*, the area in general has a mystical past and retains some supernatural qualities, which is reportedly a common belief in the area. To respect the spiritual connections that people have with the *ʻāina*, as the general area is known as a *wahi pana* (legendary place), it is recommended that any major event or construction related activity be preceded with a traditional Hawaiian blessing ceremony performed by a *kahuna* (priest or priestess) or *kahu pule* (minister/preacher).

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APPENDIX A

Guidelines For Assessing Cultural Impacts
Obtained From
Office of Environmental Quality Control Website

Guidelines for Assessing Cultural Impacts

Adopted by the Environmental Council, State of Hawaii
November 19, 1997

1. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

Background

Prior to the arrival of westerners and the ideas of private land ownership, Hawaiians freely accessed and gathered resources of the land and seas to fulfill their community responsibilities. During the Mahele of 1848, large tracts of land were divided and control was given to private individuals. When King Kamehameha the III was forced to set up this new system of land ownership, he reserved the right of access to privately owned lands for Native Hawaiian ahupua'a tenants. However, with the later emergence of the western concept of land ownership, many Hawaiians were denied access to previously available traditional resources.

In 1978, the Hawaii constitution was amended to protect and preserve traditional and customary rights of Native Hawaiians. Then in 1995 the Hawaii Supreme Court confirmed that Native Hawaiians have rights to access undeveloped and under-developed private lands. Recently, state lawmakers clarified that government agencies and private developers must assess the impacts of their development on the traditional practices of Native Hawaiians as well as the cultural resources of all people of Hawaii. These Hawaii laws, and the National Historic Preservation Act, clearly mandate federal agencies in Hawaii, including the military, to evaluate the impacts of their actions on traditional practices and cultural resources.

If you own or control undeveloped or under-developed lands in Hawaii, here are some hints as to whether traditional practices are occurring or may have occurred on your lands. If there is a trail on your property, that may be an indication of traditional practices or customary usage. Other clues include streams, caves and native plants. Another important point to remember is that, although traditional practices may have been interrupted for many years, these customary practices cannot be denied in the future.

These traditional practices of Native Hawaiians were primarily for subsistence, medicinal, religious, and cultural purposes. Examples of traditional subsistence practices include fishing, picking opihi and collecting limu or seaweed. The collection of herbs to cure the sick is an example of a traditional medicinal practice. The underlying purpose for conducting these traditional practices is to fulfill one's community responsibilities, such as feeding people or healing the sick.

As it is the responsibility of Native Hawaiians to conduct these traditional practices, government agencies and private developers also have a responsibility to follow the law and assess the impacts of their actions on traditional and cultural resources.

The State Environmental Council has prepared guidelines for assessing cultural resources and has compiled a directory of cultural consultants who can conduct such studies. The State Historic Preservation Division has drafted guidelines on how to conduct ethnographic inventory surveys. And the Office of Planning has recently completed a case study on traditional gathering rights on Kaua'i.

The most important element of preparing Cultural Impact Assessments is consulting with community groups, especially with expert and responsible cultural records and review of transcripts of previous ethnographic interviews. Once all the information has been collected, and verified by the community experts, the assessment can then be used to protect and preserve these valuable traditional practices.

Native Hawaiians performed these traditional and customary practices out of a sense of responsibility: to feed their families, cure the sick, nurture the land, and honor their ancestors. As stewards of this sacred land, we too have a responsibility to preserve, protect and restore these cultural resources for future generations.

TEXT OF ACT 50, SLH 2000

A BILL FOR AN ACT RELATING TO ENVIRONMENTAL IMPACT STATEMENTS

UNOFFICIAL VERSION

HOUSE OF REPRESENTATIVES H.B. NO, 2895 H.D.1
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

A BILL FOR AN ACT

RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai'i's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit' in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawai'i Revised Statutes, is amended by amending the definitions of "environmental impact statement' or "statement" and "significant effect", to read as follows:

"'Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means 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 [or] welfare, social welfare[.], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000

2. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

3. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.
2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.
3. Ethnographic and oral history interview procedures, including the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.
4. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

5. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.
6. An explanation of confidential information that has been withheld from public disclosure in the assessment.
7. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.
8. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.
9. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

APPENDIX B

Pacific Legacy Communication Log
- Organizations and Individuals Contacted

Auyong Homestead Road - Cultural Impact Assessment - Cultural Informants						
Name	**Affiliation/Association**	**Priority**	**Contact Info**	**Contact Log**	**Interview**	**Comments**
Cachola, Fred	Office of Environmental Quality Control Cultural Assessment Provider List for Wai'anae	High	fredcachola@aol.com	Sent request email 4/22/15; no response	**No**	No response
Crabbe, K.	Office of Hawaiian Affairs	high	Office of Hawaiian Affairs 711 Kapi'olani Blvd., Ste. 500 Honolulu, HI 96813	Sent request letter 3/13/15; letter returned for address correction; resent letter 3/24/15 to new OHA address; no response	**No**	No response
Kaluhiwa, Rocky and Jerry	Office of Environmental Quality Control Cultural Assessment Provider List for Wai'anae	high	rockyfromheeia@aol.com	Sent request email 3/23/15; no response; resent email 4/22/15; no response	**No**	No response
Koa Ike (a 501 (c)3 Foundation)	Koa Ike : Learning center and cultural preservation foundation based out of Wai'anae District	high	84-255 Makaha Valley Road Waianae, Hawaii. 96792 http://koaike.org/AboutUs/about.html	Requested information or volunteer informants via the email request link 3/15/15; no response; resent email 3/23/15; no response	**No**	No response
DeRosa, Rene-Andre	Waianae Coast Neighborhood Board No. 24	medium	530 South King St., Room 406 Honolulu, Hawaii 96813	Sent request letter 3/13/15; no response	**No**	No response
Grant, Robin	Waianae Coast Neighborhood Board No. 24	medium	530 South King St., Room 406 Honolulu, Hawaii 96813	Sent request letter 3/13/15; no response	**No**	No response
McDonald, Craig	Waianae Coast Neighborhood Board No. 24	medium	530 South King St., Room 406 Honolulu, Hawaii 96813	Sent request letter 3/13/15; no response	**No**	No response
Worthington, Mele	Wai'anae Hawaiian Civic Club	medium	PO Box 687 Wai'anae, HI 96813	Sent request letter 3/13/15; no response	**No**	No response

APPENDIX C

Ethnographic Interview Questionnaire

Pacific Legacy, Inc.
Cultural Impact Assessment (CIA)
Ethnographic Interview Form

Job Name/#:_____ Interviewer Name:_____

Location:_____ Date/Time:_____

Permission to Record Audio (Y/N):_____

Interviewee Full Name:	Birth Name:
Birth Date:	Occupation/Title:
Current Residence:	Birth Place & Place of formative years:
Years spent in or near subject area:	Affiliation with subject area:
Parents:	Informants/Mentors:

1) How familiar are you with the subject area?

2) What is this area traditionally called? Can you recall any other names of the area?

3) What stories or mythologies have you heard of this area?

4) How would you describe the physical characteristics of the area from your earliest memory?

5) Are there any significant or special features (i.e. landmarks or unique topography) in this area as it relates to land use and/or its history?

6) How was the area used by people in the past?

Land Use Details:

Activity	Types (specific names)	When	Intensity and Frequency	By Who
7) Hunting/ Fishing				
8) Gathering				
9) Agriculture/ Aquaculture				
10) Habitation				
11) Ceremonial				
12) Burial				
13) Other				

14) Have you observed changes to the land or its resources? Please Explain.

15) What are your thoughts about the project proposal?

16) Additional Comments by the Interviewee:

17) Additional Comments:

Would you like to view the synopsis of the interview prior to CIA report submittal(Y/N)?_____

Time Interview Concludes :_____

Interviewee Signature: _____ Date: _____