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

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December 16, 2024

2024/ED-4 (MAK)

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

Dear Director Evans:

SUBJECT:	Revised Ordinances of Honolulu Chapter 25 Final Environmental Assessment (EA)
Project:	Kahena Wai Estates
Applicant:	Multiple Landowners (Point of Contact - Charles Hew-Lew)
Agent:	Hawaiʻi Engineering Group, Inc. (Roy Irei)
Address:	53-424, 53-428, 53-432, 53-437, 53-438, 53-440, 53-450, 53-452, and 53-458 Kamehameha Highway - Hauʻula
Tax Map Key:	5-3-005: 070
Determination:	Finding of No Significant Impact (FONSI)

With this letter, the Department of Planning and Permitting (DPP) hereby transmits the Final EA and FONSI for the above-referenced Project, which is located in the Special Management Area in the Koʻolauloa District, on the island of Oʻahu. Please publish this finding in the next edition of *The Environmental Notice*.

Based on the significant criteria outlined in Hawaiʻi Administrative Rules, Title 11, Chapter 200.1, the DPP has determined that the preparation of an Environmental Impact Statement is not required. The Final EA adequately discloses and describes relevant environmental impacts and responds to comments received during the required public comment period for the Draft EA.

We have uploaded an electronic copy of this letter and the Final EA to your online submittal site.

Should you or the public have any questions, please contact Michael Kat, of our Zoning Regulations and Permits Branch, at (808) 768-8013 or via email at michael.kat@honolulu.gov.

Very truly yours,

Dawn Takeuchi Apuna
Director

cc: Hawai'i Engineering Group, Inc. (Roy Irei)

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Monday, December 16, 2024 8:45:54 AM

Action Name

Kahena Wai Estates

Type of Document/Determination

ROH Ch 25 Final EA and FONSI

Judicial district

Koʻolauloa, Oʻahu

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

(1) 5-3-005:070

Action type

Applicant

Other required permits and approvals

Special Management Area Major Permit, IWS Permit, Building Permits, etc. [see document]

Discretionary consent required

Special Management Area Major Permit

Agency jurisdiction

City and County of Honolulu

Approving agency

Department of Planning and Permitting

Agency contact name

Michael Kat

Agency contact email (for info about the action)

michael.kat@honolulu.gov

Email address for receiving comments

michael.kat@honolulu.gov

Agency contact phone

(808) 768-8013

Agency address

650 South King Street
Honolulu, Hawaii 96813
United States
Map It

Applicant

Kahena Wai Estates

Applicant contact name

Charles Hew-Lew

Applicant contact email

roy@hawaiiengineering.net

Applicant contact phone

(808) 533-2092

Applicant address

53-452 Unit 2 Kamehameha Highway
Hauula, Hawaii 96717
United States
Map It

Is there a consultant for this action?

Yes

Consultant

Hawaii Engineering Group, Inc.

Consultant contact name

Roy Irei

Consultant contact email

roy@hawaiiengineering.net

Consultant contact phone

(808) 533-2092

Consultant address

1088 Bishop Street
Suite 2506
Honolulu, Hawaii 96813
United States
Map It

Action summary

The Applicant seeks a Special Management Area (SMA) Major Permit to allow a programmatic 10-year development plan
that includes the construction of new single-family dwellings for the 11 condominium property regime units, which comprise
the subject site, that are located within the SMA in Hauʻula, Oʻahu. The site is split zoned between the R-5 Residential District
(R-5) and AG-2 General Agricultural (AG-2). The Proposed Action can be divided into three general programmatic efforts: (1)
construction of new single-family dwellings and their respective individual wastewater systems on vacant R-5 lots; (2) permitting
of existing dwellings for cesspool conversion, additions, AG-2 waiver, and future minor improvements; and (3) the potential
options for development and permitted use of the units associated with the AG-2 and wetland setback areas.

Attached documents (signed agency letter & EA/EIS)

- FEA-SMA-PROG-EA_KWE_TMK-5-3-0050070_Dec10-5Ks_RI.pdf
- FEA-SMA-EA_Appendices_TMK-5-3-005-070-Binder.pdf
- ALL-FIGURES_FEA-KWE-SMA-EA_TMK-5-3-005-0701.pdf
- FONSI-Letter.pdf

Action location map

- Kahena-Wai-Estate.zip

Authorized individual

Michael Kat

Authorization

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

Final
Environmental Assessment

Environmental Assessment of Programmatic 10-year development plan for the 11 CPR unit, which includes the construction of new single-family dwellings and various site improvements, and are located within the Special Management Area

TMK: (1) 5-3-005:070
53-452 Kamehameha Highway
Kamehameha Highway Hau'ula, O'ahu, Hawaii

12/11/2024

5Ks ENV - Island Resource Solutions LLC
1717 Mott-Smith Laniloa
Honolulu HI 96822

HAWAII ENGINEERING GROUP

1088 Bishop Street, Suite 2506
Honolulu HI 96813

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Final Environmental Assessment of Programmatic 10-year development plan for the 11 CPR unit, which includes the construction of new single-family dwellings and various site improvements, and are located within the Special Management Area

TMK: (1) 5-3-005:070
53-424 to 53-458 Kamehameha Highway
Hau‘ula, O‘ahu, Hawaii

Prepared for:

Kahena Wai Estates
Charles Hew-Len
53-452 Unit 2 Kamehameha Hwy
Hau‘ula, HI 96717

And Kahena Wai Estates
Units 1-11 Owners

Prepared by:

5Ks ENV - Island Resource Solutions LLC
1717 Mott-Smith Laniloa
Honolulu HI 96822

Hawaii Engineering Group, Inc.
1088 Bishop Street, Suite 2506
Honolulu HI 96813

In consultation with Kahena Wai Estates
Units 1-11 Owners

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PROJECT SUMMARY

Project Name:	Final Environmental Assessment of Programmatic 10-year development plan for the 11 CPR unit, which includes the construction of new single-family dwellings and various site improvements, and are located within the Special Management Area
Applicant/Fee Owner:	Point of Contact: Charles Hew-Len 53-452 Unit 2 Kamehameha Hwy Hauʻula, Oʻahu, HI 96717
Approving Agency:	City and County of Honolulu Department of Planning and Permitting 650 South King Street, 7th Floor Honolulu, Hawaii 96813
Tax Map Key Parcel(s):	(1)5-3-005:070 (Kahena Wai Estates), Acres = 4.76
Address:	53-452 to 53-458 Kamehameha Highway, Hauʻula
State Land Use District:	Urban and Agricultural Districts
County Zoning:	R-5 Residential District and AG-2 General Agricultural District
Development Plan:	Koʻolau Loa Sustainable Communities Plan
Flood Insurance Rate	AE / VE / X
Determination:	Finding of No Significant Impact [FONSI]

Summary: Programmatic 10-year development plan for the 11 CPR units, which includes the construction of new single-family dwellings and various site improvements and are located within the SMA Districts.

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EXECUTIVE SUMMARY

Final Environmental Assessment – Kahena Wai Estates

This Environmental Assessment (EA) analyzes the environmental consequences of the programmatic Proposed Action and reasonable alternatives in accordance with Chapter 25, Revised Ordinances of Honolulu (ROH), Chapter 205A, Hawaii Revised Statutes (HRS). This EA demonstrates that the Proposed Action would not result in any significant effects to the following resource areas: air quality, noise, infrastructure, climate, visual resources, recreational resources, land use, geological and soil resources, and socioeconomic resources. With the implementation of Best Management Practices (BMPs) and mitigation measures the Proposed Action would not result in significant impacts on the following resource areas: historic and cultural resources, biological and water resources. Mitigation measures include a wetland delineation performed in December of 2023, and any requests for Archeological Monitoring and/or Archeological Inventory Survey (AIS) by the State Historic Preservation Divisions (SHPD) prior to groundbreaking. The Proposed Action is not anticipated to adversely affect cultural and historic properties, with an archeological observer on-site during subsurface preparation activities, however an AIS will be performed for each CPR Unit, as requested by SHPD through comments on the DEA.

Based on the analysis of information in this EA, it has been determined that the Proposed Action will have no significant impacts to the natural, built, or social environment. The Proposed Action potential effects are expected to be short-term and temporary in nature, related to construction activities (e.g., stormwater, noise, dust, and traffic), no long-term impacts are anticipated. Efforts to minimize any effects from the Proposed Action on resources include, but are not limited to, the following:

- A wetlands delineation performed for USACE determination and concurrence, so the wetland location can accurately be visualized and assessed for potential effects. **Figure I-2**, depicts the wetland's boundary relative to the KWE Units and Proposed Action. Chapter 25-2.1 Special Management Area (SMA), applies to all development that would affect wetlands within the SMA, i.e. "that area that is a wetland and the area within 50-feet of a wetland," regardless of the size of the wetland, which will be incorporated into future development and construction plans. This statement, per communication with DPP during the Draft EA, is referencing areas included in establishing the SMA boundary and does not necessarily pertain to a 50-ft setback from wetlands for development. However, any proposed structure should be setback as far as possible from any identified wetlands as a mitigation strategy[1].
- An archeological observer will be present during any subsurface site preparation work (i.e. grubbing & grading, trenching, or drilling activities, etc.), and/or an AIS will be performed, if recommended by SHPD, prior to groundbreaking activities.
- Properly permitted projects, including CPR Unit Individual Wastewater System (IWS), and
- The implementation of construction Best Management Practices (BMPs), to the maximum extent

[1] DPP Comments on Draft EA, June 18, 2024

practicable (MEP).

Therefore, 5Ks ENV has determined that the Proposed Action would not result in cumulative impacts to any environmental resources and would not have any reasonably foreseeable direct or indirect effects on any coastal use or resource of the State's coastal zone. Pursuant to Chapter 25, ROH, Title 11, Chapter 200:1, and Chapter 343, HRS, should an anticipated Finding of No Significant Impact (FONSI) be determined, an Environmental Impact Statement would not be required.

The results of the EA were compared with the significance criteria established by the State under HRS 343 (HAR Chapter 11- 200.1-13). It is concluded that the construction of the Proposed Action does not meet any of the thirteen criteria, therefore, by not meeting these criteria, it is appropriate that the Proposed Action be issued a Finding of No Significant Impacts (FONSI) and that an EIS will not be required.

PURPOSE AND NEED OF THE PROPOSED ACTION

Proposed Action and Location: The scope of this EA is to provide a programmatic evaluation of the Kahena Wai Estates (KWE) 10-year development plan, which is summarized in the Conceptual Master Site Plan (CMSP). **Table I-1** describes the existing conditions and the Proposed Action and should be used with **Figure I-1 and Figure I-2**, which show the existing and proposed plot plan, respectively. **.** The CMSP includes potential development and improvement options for the eleven (11) CPR Units/Lots within the Ko'olau Loa District and Special Management Area (SMA) of the KWE from address 53-428 to 53-458 Kamehameha Hwy, Hau'ula, HI 96717, TMK: (1) 5-3-005:070.

The CSMP (**Table I-1 and Figure I-1 and Figure I-2**) describe the Proposed Action, which can be summarized into three (3) general efforts taking place within the TMK, and is listed below:

(1) Permitted construction of four (4) new single-family dwellings and IWS installation on vacant R-5 District lots at unit 4, 5, 7, and 9.
(2) Permitting of existing R-5 District dwellings cesspools and future additions at unit 1, 2, 3, and 8, along with other minor improvements (rock walls/fencing, plantings, walking paths, etc.) on the TMK; and
(3) Proposed permitted options for the AG-2 District and wetland setback associated units, and whether these areas will be developed with permitted uses.

Purpose and Need: The owners of CPR Units 1-11 wish to perform permitted improvements to their split R-5 District / AG-2 District zoned properties. The owners of CPR Units 4, 5, 7, and 9 desires to build new single-family dwellings on their vacant lots, while the owners of CPR Units 9, 10 and 11 require an understanding of what permitted uses and options they have for additions or development on AG-2 District lots and/or near boundaries of adjacent wetland areas. The existing structures (CPR Units 1, 2, 3, 6, and

8) wish to permit existing structures perform cesspool conversions, as needed, whereas all KWE owners want the option for future new additions and/or other minor improvements on their property, which will be covered by the EA and SMA Major Use Permit.

As discussed, the Proposed Action takes place within the SMA district (**Figure 2a**), and since construction costs exceed $500,000, it is agreed that a SMA Major Use Permit will be submitted separately after DPP concurs to a Finding of No Significant Impacts (FONSI) and issues a file number for Final EA (FEA) filing for the *Environmental Notice*. **Figure I-3, Shoreline Plot Plan** depicts the certified shoreline, and 40- and 60-foot shoreline setback lines, showing where it is now and the future (1JUL2024) setback line of 60-ft. under the new regulations. Although the new 60-ft. shoreline setback may touch the Kahena Wai Estates TMK, it doesn't appear that any of the structures are encroaching in the shoreline setback, and even if they were as long as they were legally established the encroach would just be nonconforming, so the shoreline setback variance would not be necessary under the current scope "Proposed Action" [2]. The 2011 Certified Shoreline Survey for the area can be viewed in **Appendix A-1**.

As part of the required pre-consulting process, a Pre-Consulting Package (**Appendix C)** was provided for review and comment to interested and affected parties, including state, city and federal agencies and organizations, abutting properties, and the Hauʻula Community Association (HCA) and Koʻolau Loa Neighborhood Board (KNB), for which an April and May 2023 meeting was attended. Over Twenty Federal, State, City and County (CCH) agencies and community organizations were notified during the preconsulting process and have been notified with a request for comments on the DEA. The distribution section of this DEA will contain the records of agency mailings as well as answers to the few responses received. The SMA Major process requires a public hearing. Both HCA and KNB will receive notice of the public hearing, which will be scheduled by DPP after acceptance of the SMA application. DPP will make recommendations to the Honolulu City Council.

Alternatives Analyzed: To accomplish the KWE Proposed Action and address comments provided by DPP on the Pre-Draft EA, the EA has taken a programmatic look at the effort, considered other possible improvement options, adding options for existing dwelling new additions, and discussing AG-2 District permitted use opportunities. The Pre-Draft EA expanded the Proposed Action and evaluated the environmental consequences of the action at a programmatic level.

Analysis of the alternatives action is a key aspect of the Hawaii EIS Law (also known as HEPA [Hawaiʻi's environmental policy act]) process. This analysis begins with establishing a set of possible alternatives and then separating those into the ones that were considered but dismissed from further analysis and the ones that were considered and brought forward for analysis. The no-action alternative represents the baseline and is addressed throughout the HEPA process. This section summarizes the alternatives that have been considered to accomplish the Proposed Action.

[2] Communication with DPP Planner, Zoning Regulations & Permits Branch, e-mail dated April, 24, 2024.

Alternatives Considered and Dismissed: Since the Proposed Action is an analysis of all reasonable potential programmatic improvements, and because the CPR Units are already constricted by the size of the lots and adjacent properties, the new dwelling designs are already significantly limited in their possibilities for reasonable alternative. Additionally, improvements options on the entire TMK are restricted due to an SMA classification, floodplain limitations, wetlands, and agricultural zoned lands.

The four (4) alternatives were assessed against the following Evaluation Criteria:
Criterion A: Schedule Relative to Project Costs and Permitting Efforts
Criterion B: Owners' Planned Improvements Relative to Potential Programmatic Improvements, Relative to Timeline, Permitting Challenges, and Project Cost, and
Criterion C: Field Conditions/Location of Improvements Near Sensitive Environments Relative to Space Available and Design Challenges associated with Permitting Restrictions and Notice of Violations (NOV's).

Based on the alternatives analysis below, only Alternative 3 – Considering Owner-Planned Improvements and a Programmatic Level of Potential Improvements Options met all the Proposed Action objectives, and therefore was retained, along with the No-Action Alternative for impact analysis in the DEA.

Alternative 1 – Proposed Action Considering New Dwelling Construction and Potential Future Minor Improvements:
This alternative was previously the preferred alternative. It considered new dwelling design and construction for Units 4, 5, 7, and 9 and their permitted IWS, and existing units permitting of existing cesspools, and potential future minor improvements to the TMK (i.e., walking paths, fencing/rock walls, and plantings, etc.). The cost of the project included professional architect and engineering (A/E) efforts (survey, permitting, EA, and other site-specific design and construction costs), and was divided accordingly between the 11 owners. The respective owners did not identify any specific additions for existing dwellings nor where there any plans or desire to build on the agriculture-zone lands.

This preferred alternative was based on the KWE 10-year plan, as it met their project expedited timelines for construction, anticipated project costs, and their near-term goals for their property (**Evaluation Criterion A**). During DEA review, the approving agency (DPP) requested a broader approach, identifying that the DEA should take a programmatic look at site improvements and incorporate any potential existing dwelling additions, along with AG-2 District lot permitted uses. Therefore, **Alternative 1** was considered and subsequently rejected by the approving agency (**Appendix C**) with concurrence from 5Ks ENV and the KWE Owners. Because it didn't meet the objectives of Evaluation **Criteria B** by not considering programmatic improvement options at the site, and **Evaluation Criterion C**, by not developing an accurate boundary for the wetland area that may be impacted by the Proposed Action.

Alternative 2 – Proposed Action Considering New Construction and Limited Potential Future Additions for

Existing Dwellings and Permitted Use Options for Agricultural Lots:
For the revised DEA, **this Alternative 2 considered** everything proposed under Alternative 1 and added several expanded owner identified existing unit improvements and additions, along with general potential additions over the next 10-years. All existing dwellings, especially Units 1, 2, and 3 fronting Kamehameha Highway, will likely process building permits to raise their existing dwellings, which may vary from 10 feet plus, depending upon permitting approvals. The design and methodology used will depend upon owners' preference, site conditions and permit allowances. Other existing dwelling permitted improvement requests may include but are not limited to (as identified by Unit 3 owners), small room additions, and underneath garage for two cars, and/or storage areas sided with breakaway walls, and removal of walls facing ocean. Additionally, the conversion of their cesspools will take place before the 2030 deadlines established by the Hawaii Cesspool Working Group, Priority 1 zones[3], and will conform with State of Hawaii Department of Health (HDOH) and/or City and County of Honolulu (CCH) recommendations for alternative IWS for nearshore environments. The only agriculture zone consideration under this Alternative identified by the owner was potentially leasing out the wetland / AG-2 District portion of Unit 11 (100,531 SF) for *Kalo* or taro farming on approximately 86,000 SF (0.6 acre) of wetland area. The native Hawaiian's built lo'i (wetland kalo fields) in this region using loose rock walls around them near the freshwater source, so that water could flow around them, ensuring the kalo corms do not rot, but constantly replenish nutrients. A one-acre lo'i can produce 3 to 5 tons of *kalo* per year and during harvesting process, the *huli* (cuttings) are replanted by plunging them back down into the muddy water[4].

The Alternative 2 options included the scoping of a wetland delineation as did Alternative 3. Considering this added scope, Evaluation Criterion A's project schedule and increased cost and effort relative to permitting requirements were shifted to accommodate these studies, therefore Evaluation Criterion A was met for Alternative 2. For Evaluation Criterion B, Alternative 2 took a preliminary look at possible permitted options for additions within the R-5 District and uses of the AG-2 District zone / wetlands area. Possible options were identified for existing dwelling additions, including possible IWS issues with sea level rise, and a kalo lo'i as an option for the joint AG-2 District/wetland property, which would likely entail Army Corp permitting for proper lo'i development to aerate the kalo corm. See Section 2.3.3 for further details on potential Corps requirements. **Alternative 2** was considered, but subsequently rejected for not meeting the full programmatic intentions of **Criterion B**. Under Alternative 2, **Evaluation Criterion C**, which considered field conditions and location of improvements near sensitive areas (i.e. the wetland in this case) and current NOV's at the site, the wetland delineation produced a more refined setback overlay of the TMK Units 9, 10, and ll. Although the wetland setback constricted the usable portion of the lots even more than anticipated, offering design challenges for single-family dwellings construction. So, although a portion of **Criterion C** was met, the NOV's at the site were not addressed.

[3] Cesspool Conversion Working Group, Final Report to the 2023 Regular Session Legislature, Prepared by the State Department of Health In response to Act 170 Session Laws of 2019, November 2022.
[4] Hawaii Ulu Cooperative https://hawaii-ulu-coop.

Alternative 3 – Proposed Action Considering New Dwelling Construction Along with A Programmatic Level Assessment of Existing Dwelling Additions and Agricultural Permitted Use Options:
For the revised DEA, Alternative 3 considered everything proposed under Alternative 2, with an expanded look at alternatives, potential impacts, and improvement opportunities at the site. This included new dwelling design alternatives for dwellings associated with wetlands and AG-2 District lots, existing dwelling addition options to be considered from more existing owners, and agricultural development alternatives.

The dwelling design for Unit 7 and 9 included a decrease in their footprint due constricted buildable space (i.e., Unit 7 was spilt R-5 District and AG-2 District and Unit 9 is near a wetland area, respectively). The existing conditions and new designs are summarized in **Table I-1** and depicted in **Figure I-1** and **Figure I-2**, as well as in **Appendix B** as part of the Kahena Wai Estates (KWE) Comprehensive Master Site Plan (CMSP). **Alternative 3** will discuss existing dwelling room additions as described in Alternative 2, and the AG-2 District permitted uses to be explored include the following, which may be considered in combination of each other, as allowed by permitting, at the site:

Option A - Self-Managed and/or Leased Land Agricultural Activities: Agricultural zone land (AG-2 District) to be utilized as Orchard, Crop and/or Pastoral Farming (i.e., Fruits, Nuts, *Kalo* [taro], etc.) or other agriculturally related activities to be managed by the KWE Association. Terms and Conditions (T&C), for sale of Unit 10 or 11 would apply accordingly. Terms and Conditions (T&C), for sale of Unit 10 or 11 would apply accordingly for leased land agricultural activities managed by other farmers.
Option B – Leased Land Agricultural Activities: AG-2 District land to be utilized for Orchard, Crop, and/or other agriculturally related activities to be managed by other farmers. T&C for sales of Unit 10 and 11 would apply accordingly.
Option C – Community Garden or Wildlife Preserve: AG-2 District lands will be divided appropriately into a KWE community garden or wetland wildlife preserve to be managed by the KWE Association and/or Unit owner.
Option D – Combination of A-C above: AG-2 District lands maybe managed and permitted for a combination of Options A-C. For example, the KWE owners may create a community garden (Option C) for a portion of the Unit 11 lot, lease the wetlands portion of for pastoral and/or wetland kala farming, or perform these activities themselves.
Option E – No Action: The AG-2 District lands will remain open with no development or agricultural activities, and maybe maintained through mowing within the CPR unit to maintain a boundary.

The **Alternative 3** options included the scoping of a wetland delineation and the revised project schedule and cost relative to permitting efforts were shifted to accommodate these studies, therefore **Evaluation Criterion A** was met for **Alternative 3**. Only the existing owners at Unit 3 had ideas for potential future for their dwelling, so, **Alternative 3** took a programmatic look at the other Unit and developed possible permitted additions as an option within the R-5 District and uses of the AG-2 District zone / wetlands area. Therefore, **Evaluation Criterion B** was met for **Alternative 3,** which considered both existing unit

additions on the R-5 District lots and permitted use options for the AG-2 District lots in the DEA.

Alternative 3 considered field conditions and location of improvements near the wetland areas and AG-2 District lots and addressed the current NOV's at the site. **Alternative 3** studied alternative designs for the units associated with the wetland and AG-2 District zoned lots (i.e., units 7, 9, 10, and 11), therefore, **Criterion C** was met for **Alternative 3**.

Considering **Alternative 3** met all three Evaluation Criteria, it was retained as the Preferred Alternative for further analysis in the EA and will be discussed further as the Proposed Action below.

Alternative 4 - The No-Action Alternative, No Improvements or Additions on the Site

Under **Alternative 4 – The No Action Alternative**, the current residents/existing home owners, and future owners would not benefit from improvements to the general TMK, their personal property, and use of that space that is available for single-family residential development in their R-5 District-zoned site for usage and family expansion. Additionally, the existing dwelling owners would not be able to improve their homes with additions, address their IWS permit issues, or develop the AG-2 District lots with potential permitted uses. Considering that Alternatives 1 – 3 are anticipated to have only minor short-term impacts associated with construction activities, as described below. The environmental consequences of **Alternative 4 – The No Action Alternative** will be evaluated as a baseline for comparison with the environmental consequences of the Proposed Action (Preferred Alternative).

Again, the Proposed Action is summarized in **Table I-1 and Depicted in Figure I-2, Proposed Plot Plan** includes into three (3) general efforts with maximum build potential within the TMK:

- Permitted construction of four (4) new single-family dwellings and IWS installation on vacant R-5 District lots at unit 4, 5, 7, and 9;
- Permitting of existing R-5 District dwellings cesspools and future additions at unit 1, 2, 3, and 8, along with other minor improvements (rock walls/fencing, plantings, walking paths, etc.) on the TMK; and
- Proposed permitted options for the AG-2 District and wetland setback associated units, and whether these areas will be developed with permitted uses.

Environmental Effects. The Proposed Action is anticipated to have minor, short-term, (10 - 18 months) and episodic negative, but less than significant, construction-related effects on localized traffic, and ambient noise. These potential effects, including impacts to the Proposed Action from sea level rise, will be mitigated with construction BMPs implemented to the maximum extent practicable (MEP), proper planning, along with compliance with the rules and regulatory policies of the State and City and County of Honolulu, that provide proven techniques for protection of natural, built, and social environment.

Beneficial socio-economic effects are anticipated by increase housing and property values in the area through development of vacant lots and beautification of those R-5 District lots at Kahena Wai Estates. The AG-2 District lots may have mix permitted agricultural uses (Option A – Option D) as identified in **Table I-1** and **Figure I-2.** No significant adverse impacts are anticipated to natural or human environment. The following resources: biological, water and wetlands, traffic and noise, air quality, geology and soils, land use, socioeconomics, and traditional cultural practices or archaeological, utilities and public services are **not** anticipated to be significantly impacted with adherence to existing laws and regulations. Moreover, this EA demonstrates that the Proposed Action will **not** have reasonably foreseeable direct or indirect effects on any coastal use or resource of the State's coastal zone.

Based on the review of potential environmental resource impacts and significance criteria evaluation (**Table 7-1**), the dwelling construction and owner-occupied minor improvement activities as part of the Proposed Action would **not** result in any significant environmental impacts. Therefore, the Proposed Action is **not** anticipated to contribute to any significant cumulative effects or reasonably foreseeable direct or indirect effects to coastal use or resources of the state's coastal zone.

Determination

This section summarizes the potential impacts of the Proposed Action. The purpose of and need for the Proposed Action was presented in the DEA and it was determined that the Proposed Action would **not** have a significant impact on the environment for the following reasons:

There would be no irrevocable loss or destruction of any natural or cultural resource. The impact on flora and fauna and other natural resources is minimal considering the area is already a cultivated lot with mainly barren grass areas and ornamental plants. The wetland area was delineated to identify boundaries and the designs for unit lots that may impact this area (i.e. unit 9), which will prepare plans to remain as far as possible from the wetland area. All dwellings, especially those to be constructed near sensitive areas, will utilize Construction BMPs (see Section 4.1.3 and Table 4-1) to further reduce any potential for impact to the wetland areas. No native and/or T&E species were encountered during the site visit survey or wetland delineation by biologists or other potential work areas, and T&E or sensitive species are not anticipated in the area. The AG-2 District areas were assessed for permitted uses and will not be impacted by the Proposed Action for similar reasons identified above. Unit 7's design has been revised, so the foot print remains on the R-5 District portion of this AG-2 District/R-5 District split lot. Only AG-2 District permitted uses would take place within the agricultural portions of the TMK.

The range of beneficial uses of the environment would not be curtailed. The current use of the environment for residential and adjacent areas for recreation would remain unchanged by the Proposed Action. The Proposed Action is consistent with State and Federal environmental and planning policies, and the economic and social welfare of nearby communities, and the State of Hawaii would not be

adversely affected. It is anticipated that the Proposed Action at KWE and would improve the current housing market, and therefore, the social welfare of Hau‘ula and consequently the State of Hawaii. The action is consistent with long-term planning policies and objectives of the General Plan and the Ko‘olauloa Sustainable Communities Plan (SCP).

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* National Weather Service, Sea, Lake, and Overland Surges from Hurricanes, Maximum of the Maximum

APPENDICES (separate stand-alone number)

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AAQS	Ambient Air Quality Standards
ac	acre(s)
amsl	above mean sea level
BFE	base flood elevation
bgs	below ground surface
BOD	Biochemical Oxygen Demand
BMPs	Best Management Practices
CAA	Clean Air Act
CCH	City and County of Honolulu
CFR	Code of Federal Regulations
Corps	U.S. Army Corp of Engineers (USACE or Corps)
CPR	Condominium Property Regime
CWB	Clean Water Branch
CZM	Coastal Zone Management
dBA	A-weighted decibel
DLNR	Department of Land and Natural Resources, State of Hawaii
DPP	Department of Planning and Permitting
EA	Environmental Assessment
EIS	Environmental Impact Statement
ERP	Environmental Review Program (of OPSD)
ESA	Endangered Species Act
°F	degrees Fahrenheit
FHAT	Flood Hazard Assessment Tool
FONSI	Finding of No Significant Impact
ft	feet/foot
GIS	Geographic Information System
gpd	gallons per day
HAR	Hawaii Administrative Rules
HCA	Hau‘ula Community Association
HDOH	Hawaii Department of Health
HECO	Hawaiian Electric Company
HRS	Hawaii Revised Statutes
HSP	Hawaii State Plan
IPCC	Intergovernmental Panel on Climate Change
KLSCP	Ko‘olau Loa Sustainable Communities Plan

KNB	Ko‘olau Loa Neighborhood Board
KWE	Kahena Wai Estates
LBSP	Land-Based Source of Pollution
LSB	Land Study Bureau (of the University of Hawaii at Manao)
LUO	Land Use Ordinance
MEP	Maximum Extent Practicable
mg/L	milligrams per liter
MOM	Maximum of the Maximum (in relation to SLOSH model
MS4	Municipal Separate Storm Sewer System
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Registry of Historic Places
NWS	National Weather Service
OEQC	Office of Environmental Quality Control
OGP	Oahu General Plan
OPSD	Office of Planning and Sustainable Development
PacIOOS	Pacific Islands Ocean Observing System
ROH	Revised Ordinances of Honolulu SAAQS State Ambient Air Quality Standards
SDWB	Safe Drinking Water Branch
§	Section
SF	square foot
SFHA	Special Flood Hazard Area
SHPD	State Historic Preservation Division
SLOSH	Sea, Leak, and Overland Surges (from hurricanes model)
SLR	Sea Level Rise
SMA	Special Management Area
TMK	Tax Map Key
TSS	Total Suspended Solids
UIC	Underground Injection Control
U.S.	United States
USACE	U.S. Army Corp of Engineer
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

The EA was prepared on behalf of Charles Hew-Len, Manager for Kahena Wai Estates, existing and future owners, and their representative Hawaii Engineering Group, Inc. (HEG) for submission of an SMA Major Permit Application. The Kahena Wai Estates resides is located on the windward side of O'ahu (**Figure 1 and 1b**) and is located within the Hawaii Special Management Area (SMA) and FEMA flood zone (**Figure 2a, b**). The State of Hawaii Flood Hazard Assessment Report (FHAR) (**Figure 2c**) identifies the larger Tax Map Key (TMK) and the Special Flood Hazard Areas (SFHAs) that are subject to inundation by the 1% annual change of flood. **Figure 3** shows the CCH Property Assessment Division as TMK No. (1) 5-3-005:070 and describes the fee owners and CPR addresses and TMK details. The CCH Land Use Ordinance (LUO), has identified the TMK as zoned residential (R5), and Agriculture (Ag) and a portion of the Ag land is designated as wetlands, (Office of Planning, 2023) (**Figure 4**).

The purpose of this EA is not only to evaluate the the impacts of the individual unit owners improvements as the Proposed Action, but because the Proposed Action is considered part of a larger development for purposes of the SMA Ordinance, Revised Ordinances of Honolulu (ROH) Chapter 25. The ownership having been submitted to a Condominium Property Regime (CPR) does not change the development potential for the Subject parcel and that any development on-site within the larger TMK, remains connected amongst each individual CPR unit. The EA is necessary because any future development or action taken by one owner will influence the others and therefore, the Final EA should addresses the potential cumulative impacts for the next 10 years, so that as development occurs incrementally the environmental impacts from those projects will have already been evaluated.[5]

The purpose and intent of the LUO is to (a) regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the city's general plan, and development and sustainable communities' plans, and, as may be appropriate, adopted neighborhood plans, and to promote and protect the public health, safety and welfare, and (b) the intention of the council that the provisions of the LUO provide reasonable development and design standards for the location, height, bulk and size of structures, yard areas, off-street parking facilities, and open spaces, and the use of structures and land for agriculture, industry, business, residences or other purposes[6].

The Proposed Action entails programmatic improvements to the 4.76-acre lot, located at Kahena Wai Estates (**Appendix A – Site Photos**). The existing conditions and Proposed Action is summarized in **Table I-1 and Depicted in Figure I-1 and Figure I-2,** and can be summarized into three (3) general efforts taken place within the TMK:

(1) Permitted construction of four (4) new single-family dwellings and IWS installation on vacant R-5

[5] DPP Comment No.1 on Draft EA, June 18, 2024.
[6] Revised Ordinances of Honolulu, Chapter 21-1.20 Purpose and Intent. (a), (b), (Added by Ord. 99-12; Am. Ord. 17-40)

District lots at unit 4, 5, 7, and 9.

(2) Permitting of existing R-5 District dwellings cesspools and future additions at unit 1, 2, 3, and 8, along with other minor improvements (rock walls/fencing, plantings, walking paths, etc.) on the TMK; and

(3) Proposed permitted options for the AG-2 District and wetland setback associated units, and whether these areas will be developed with permitted uses.

The EA addresses potential impacts associated with the 10-year plan for the Kahena Wai Estates property improvements (**Table I-1 and Figure I-1 and I-2**). The *Declaration of Condominium Property Regime (CPR) of Kahena Wai Estates (KWE) (KWE Condo Docs.) is provided in (**Appendix E**)*, pursuant to the Condominium Property Act, Chapter 514B, HRS[7]**.**

The EA analyzes the environmental consequences of the Proposed Action and reasonable alternatives in accordance with Chapter 25, Revised Ordinances of Honolulu (ROH), Title 11, Chapter 200.1, and Chapters 11-55 and 11-54 Hawaii Administrative Rules (HAR) and Chapter 343 and 205A, Hawaii Revised Statues (HRS).

The applicant for construction of the development is Charles Hew-Len, Manager for the Kahena Wai Estates. The approving agency for the proposed activity is the CCH Department of Planning (DPP) and Permitting Land Use Permits Division, which is responsible for administering the Land Use Ordinance and other regulations pertaining to land use within the City and County of Honolulu. The EA is necessary because the project is within the SMA (**Figure 2a**) and requires an SMA Use Permit. In accordance with ROH Chapter 25, an EA and FONSI are required prior to applying for the SMA Use Permit. The TMK is zoned as Urban by the State and as R-5 District Residential and Agriculture by the County, and is located within a rural, mixed-use area in the Koʻolau Loa District of Oʻahu. The area is developed with condominiums, single-family residences, small businesses, and agricultural farms. The Property is identified as uic_code: 1 (Hawaii Statewide GIS Program)[8] and is located approximately 1000 feet northeast of and below the UIC line, at a surface elevation of approximately 7 feet above mean sea level (amsl). The TMK is adjacent Kamehameha Hwy and Pacific Ocean on its eastern boundary. Locally, the topographic surface gradient is relatively flat.

1.1 PURPOSE

This EA was undertaken to determine whether the Proposed Action has the potential to cause significant environmental impacts. The EA was conducted in accordance with the requirements of the Hawaii

[7] Declaration of Condominium Property Regime of Kahena Wai Estates, 13 June 2018, by Kahena Wai Estates, LLC, a Hawaii limited liability company, whose address is 87-070 Farrington Highway, Suite 303, Waianae, Hawaii 96717. (Appendix E)

[8] Underground Injection Control Lines (UIC) Hawaii Statewide GIS Program, Hawaii State Department of Health, Safe Drinking Water Branch https://geoportal.hawaii.gov/datasets/HiStateGIS::underground-injection-control-lines-uic/explore?location=21.581270%2C-157.896076%2C14.79

Environmental Impact Statement (EIS) Law, which are contained in Hawaii Revised Statutes (HRS) Chapter 343 (HRS 343; State of Hawaii Department of Health (HDOH), 1974a) and in Hawaii Administrative Rules [HAR] Title 11, Chapter 200.1 (HAR 11-200.1; DOH, 2019b).

1.2 GENERAL INFORMATION

The approving agency for the EA is the CCH DPP Land Use Permits Division, which is responsible for administering the LUO and other regulations pertaining to land use within the City and County of Honolulu. The EA is necessary because the project is located within the SMA and requires an SMA Use Permit. An EA and Finding of No Significant Impact (FONSI) are required prior to applying for the SMA Use Permit.

1.3 PROPERTY DESCRIPTION (LOCATION AND SETTING)

The Property (main TMK (1) 5-3-005-070) occupies 4.85 acres of land on the windward side of Oʻahu and lies within the SMA (**Figure 2a**). The TMK is bordered by residential property to the north, Kamehameha Highway and the Pacific Ocean adjacent to the east, Punaluʻu Steam to the south, and Agriculture land and wetland areas to the west (**Figures 1a/1b, 4a, 6a/6b, and Appendix A, Figure 1**). A site plan depicting the layout of the TMK, identifying Unit locations, is provided in **Figures 5a and 5b**. The TMK extends approximately 2,200 feet along Kamehameha Highway, from below Punaluʻu Stream at the south to roughly 500-ft from Haleaha Road to the north (**Figure 1a and 1b**). There are open grassed areas, trees and landscaped areas throughout the Property. Photographs depicting the current site conditions (February 2023) are provided in **Appendix A, Site Photographs**. The Kahena Wai Estates TMK is located off Kamehameha Highway in the town of Hauʻula on the northeast coast of Oʻahu (Figure 1a), and identified as Kapano & Puheemiki Koʻolau Loa, First Taxation Division, Zone 5, Section 3, PLAT 005, Parcel 007 or (1) 5-3-005:070) (**Figure 5a**) The TMK is located within a rural, mixed-use area in the Koʻolau Loa District of Oʻahu. The area is developed with condominiums, single-family residences, small businesses, and agricultural farms. The Property is approximately 800 feet northeast of and below the underground injection control [UIC] line (**Figure 6a**), on the east coast of Oʻahu, at a surface elevation of approximately 4-6 feet above mean sea level [amsl]. The TMK is adjacent to Kamehameha Highway and Pacific Ocean on its eastern boundary. Locally, the topographic surface gradient is relatively flat (**Figure 1b, 2b**).

The KWE TMK is current located outside the shoreline setback, however under the new regulations (7/1/2024) may touch the site, but it appears that no structures are encroaching (**Figure I-3**). The TMK is located in the Special Flood Hazard Area (SFHA) Zone VE / AE / X[9] (**Figure 2b FEMA and 2c FHAT**). This area is subject to inundation by the 1% annual chance flood event. Mandatory flood insurance purchase applies in this zone. More information on the flood hazard zone is provided in **Section 4.6.2.2**.

[9] Office of Planning, 2023; Pacific Islands Ocean Observing System (PacIOOS) Map data, 2023, Flood Hazard Assessment Tool [FHAT]) Report

1.4 PROJECT BACKGROUND

The design plans and conceptual drawings for all the CPR Units are included in **Appendix B**. **Appendix E** includes the *KWE CPR Docs. that i*dentifies information for the property, including description of the potential future projects, the 11 units and adjacent areas, the common area elements and easements, a land survey, and dwelling plans. The revised KWE CPR Docs. to align with the EA will be included in the Final EA and FONSI**.**

1.5 PARTIES CONSULTED DURING EA PROCESS

1.5.1 Pre-Assessment Consultation

During preparation of the Draft EA, a pre-consultation package was e-mailed to agencies listed below in April 2023 to request initial comments on the proposed project. Agencies with an asterisk responded with comments and are included in Appendix C with a response to their comment. USACE provided feedback regarding USACE delineation concurrence regarding wetlands and activities triggering Section 401 and 404 (See Section 2.3.3 for details). The Corp reviewed the wetland delineation performed and concurrence was received on . Additionally, SMA EA projects in the Koʻolau Loa Region, focusing on the Hauʻula / Punaluʻu area, were reviewed. Agency comments (pre-consulting and Draft EA) that were applicable to this Proposed Action, were addressed in the Kahena Wai Draft EA and included below, and in the footnotes and/or reference section.

City and County of Honolulu

- Department of Planning and Permitting (accepting agency) *
- Board of Water Supply*
- Department of Environmental Services
- Office of Climate Change, Sustainability and Resiliency
- Honolulu Fire Department
- Honolulu Police Department
- Department of Emergency Management
- Department of Transportation Services

State of Hawaii

- DOH, Environmental Management Division
  - Clean Water Branch
  - Safe Drinking Water Branch
  - Wastewater Branch
- Department of Land and Natural Resources
  - Division of Aquatic Resources

    - Engineering Division
    - Land Division
    - Division of Forestry and Wildlife
    - Office of Conservation and Coastal Lands
    - State Historic Preservation Division (SHPD)
    - Commission on Water Resources Management
- Office of Hawaiian Affairs
- Office of Planning & Sustainable Development "
- Department of Transportation, Highways Division *

Federal Agencies

- United States Fish and Wildlife Service (USFWS) *
- U.S. Army Corps of Engineers (USACE) *
- National Oceanic and Atmospheric Administration (NOAA)
- National Marine Fisheries Service (NMFS)

Community Organizations

- Koʻolau Loa Neighborhood Board No. 28 *
- Punaluʻu Community Association *
- Hauʻula Community Association *

The agencies marked with an asterisk (*) provided comments (or responded with no comments). Copies of the comments received from the agencies and community groups and the follow-up responses are included in **Appendix C**. Comments received from the agencies were addressed during preparation of the Draft EA.

1.5.2 Draft EA Review

Copies of the Draft EA (or notices of availability of the Draft EA) will be distributed to the following agencies and organizations to provide an opportunity for their review and comment:

City and County of Honolulu

- DPP *
- Department of Design and Construction
- Board of Water Supply *
- Department of Environmental Services
- Office of Climate Change, Sustainability and Resiliency
- Honolulu Police Department *
- Honolulu Fire Department *
- Office of the Mayor

- Councilmembers Office

State of Hawaii

- DOH
  - Clean Water Branch
  - Clean Air Branch
  - Environmental Planning Office
  - Wastewater Branch
- DEBT OPSD Environmental Review Program *
- Department of Land and Natural Resources
  - Division of Aquatic Resources
  - Engineering Division
  - Land Division – O‘ahu District
  - Division of Forestry and Wildlife
  - Commission on Water Resource Management
  - SHPD
- DOT, Highways Division *
- Office of Hawaiian Affairs
- Hawaii State Library
- Kahuku Library

Federal Agencies

- USFWS *
- USACE * (wetland delineation and JD concurrence)

Community Organizations

- Ko‘olau Loa Neighborhood Board No. 28
- Punalu‘u Community Association
- Hau‘ula Community Association

2.0 PROPOSED ACTION DESCRIPTION

As described in the Executive Summary, the Proposed Action is taking place within the Koʻolau Loa Residential District and Special Management Area, Kahena Wai Estates (KWE) from 53-424 to 53-458 Kamehameha Hwy, Hauʻula, HI 96717, TMK: (1) 5-3-005:070. According to LUO Data this TMK has a Lot Area 211,397 SF with zoning R-5 District / AG-2 District, **(**58,353 SF / 139,494 SF, respectively. See **Table I-1** and **Figure I-1** and I-2 for Summary and Conceptual Master Site Plan.

The Proposed Action includes three general actions: (1) the construction of four new single-family dwellings and IWS installation on vacant R-5 District lots at unit 4, 5, 7, and 9 (see Section 2.1 below), (2) the permitting of existing R-5 District dwellings (Unit 1, 2, 3, and 8) cesspools and additions at these units (see Section 2.2 below), along with other minor improvements (rock walls/fencing, plantings, walking paths, etc.) on the TMK; and (3) proposed permitted options for the AG-2 District- and wetland-associated units, and whether they will developed with permitted uses (see Section 2.3 below).

2.1 DESCRIPTION OF VACANT UNITS AND NEW DWELLING CONSTRUCTION

All CPR existing dwellings, vacant lots, etc. are described in the KWE Condo Docs (**Appendix E**).

2.1.1 Unit 4 (Lot Size 4,171 SF, R-5 District)

Project Data as described on design plans included in Appendix B:

53-424 Kamehameha Hwy, Unit 4
TMK 5-3-005:0700:004
Building Area: 2072 SF two story dwelling, three bedrooms and two bath (max allowed per Bill 57 / ORD 20-43) 4 baths/unit) with 3 decks. Total Floor Area of 2,125 SF.
Parking: Three (3) covered parking stalls (2 required),
Total Paved Area: 2,971 (3,128 SF Max = 75% of LOT Size).

An IWS in the form of an aerobic treatment unit (ATU) will service the house (**Appendix B**) and be located on the eastern side of the structure, including:

- New Fuji Clean NSF 245 Aerobic Treatment System (Sheet 1/C002)
- Norweco AT-1500 UV Disinfection System
- Distribution Box (Sheet 6/C002), which is connected to a
- New H20 High-Capacity Chambers Leach Field (Non-Traffic Rated) (Sheet 2/C002) with

Inspection Port (Sheet 3/C002)

2.1.2 Unit 5 (Lot Size 4,099 SF, R-5 District)

Project Data as described on design plans included in Appendix B:

53-424 Kamehameha Hwy, Unit 5
TMK 5-3-005:0700:005
Building Area: new one-story house, with one bath and a storage container (560 SF)
Open Deck: 120 SF
Parking: 1-uncovered parking stalls (1 required),
Total paved area of 945
An IWS in the form of an aerobic treatment unit (ATU) will service the house. A septic drainfield is located in the NE portion of the lot adjacent to the driveway (**Appendix B**)

2.1.3 Unit 7 (Lot Size 8,408 SF, R-5 District / AG-2 District)

Project Data as described on design plans included in Appendix B:

53-424 Kamehameha Hwy, Unit 7
TMK 5-3-005:0700:007
Building Area: Two story house, 3 ½ Bath (2,540 SF)
First Floor: Family Room, Master Bedroom #2, (2,500 SF),
Second Floor: Master Bedroom #1 (829 SF) and Covered Deck
Total Floor Area: 3,329 SF
Total Parking: 3-uncovered parking stalls (2 required)

An IWS in the form of an aerobic treatment unit (ATU) will service the house, letter from HDOH Wastewater Branch for conformance with HAR Title, 62. (**Appendix B**)

2.1.4 Unit 9 (10,333 SF, R-5 District)

The original Unit 9 design plans (data included below) encroach on the wetland 50-foot setback area required by **Section** 25-2.1, which applies to all development that would affect wetlands within the special management area, defined as special wetland area "that area that is a wetland and the area within 50-feet of a wetland," regardless of the size of the wetland. DPP, in their response to the EA, identified that ROH *section 25-2.1 is referencing areas included in establishing the SMA boundary* and does not necessarily pertain to a 50-ft. setback from wetlands. However, any proposed structure should be setback as far as possible from any identified wetlands and including it in the Final EA as a mitigation strategy is recommended.

Project Data as described on design plans is included in **Appendix B**:

53-424 Kamehameha Hwy, Unit 9
TMK 5-3-005:0700:009
Building Area: Two story house, 4 ½ Bath (3,821 SF)
First Floor: Family Room, Living Room, 3 Bedrooms, (3,053 SF),
Second Floor: Master Bedroom #1 (1,020 SF) and Covered Deck
Total: 5,018 SF
Total Parking: 5-uncovered parking stalls (2 required)

2.2 DESCRIPTION OF EXISTING UNIT DWELLINGS AND THEIR PROJECTS

In addition to the site-specific proposed plans below, existing dwelling owners that do not have plans, may wish to perform permitted additions and improvements to their property in the future and may include those identified by other unit owners, but not limited to, raising their respective structures, adding open or covered parking, permitting a cesspool conversion, additional rooms, including bathrooms, covered or uncovered deck or lanai's, rock walls/fencing, plantings, walk paths, storage sheds, etc.

2.2.1. Unit 1 (4,481 SF, R-5 District)

The following assumptions are reasonable for future additions at Unit 1:

TMK: 530050700001
Lot Size: 4,481
Building Area: There is no current dwelling plan proposed, however Unit 1 may perform similar efforts identified by Unit 2 and 3, including the following future permitted additions:

The future cesspool conversion will be permitted based on recommendations from the Cesspool Conversion Working Group[10]. Cesspool conversion alternatives generally incorporate three options that include collection, treatment, and disposal. The Unit 1 owners will work with their consultant, HDOH and City entities to identify an IWS or possibly joint collection, treatment and disposal system (shared by Units 1-3 or more) that will conform with HDOH recommended alternative technologies that are more environmentally responsible waste treatment systems or a connection to sewer systems due to future sea level rise issues.

Raising the dwelling may also be included in future permitted design additions, which may include adding parking stalls beneath the dwelling, additional rooms, bathrooms, and/or lanai/deck areas. These

[10] Cesspool Conversion Working Group, Final Report to the 2023 Regular Session Legislature, State of Hawaii Department of Health. In response to Act 170 Sessions Laws of 2019, November 2022.

additions may increase the living areas (3,389 maximum permissible) and/or footprint within the allowable percentages.

2.2.2. Unit 2 (4,820 SF, R-5 District)

Project Data as described on design plans included in Appendix B:

TMK: 530050700002
Lot Size: 4,820
Building Area: Max Allowable footprint (2,410 SF)
Existing: Living Area (552 SF), Exterior Stairs (26 SF),
New: Exterior stairs (22 SF), Combined Covered Lanai (595 SF),
Total Footprint Area: 1,147 SF (0.006%).
Floor Area: Max Allowable (3,374 SF or 70% of Total R-5 Lot Size)
Existing/Proposed: 552 SF/595 SF
Total Floor Area: 1,195 SF or 0.005%
Parking: 2 stalls (2 stalls required)

The future cesspool conversion will be permitted based on recommendations from the Cesspool Conversion Working Group[11]. Cesspool conversion alternatives general include three options that include collection, treatment, and disposal. The Unit 2 owners will work with their consultant, HDOH and City entities to identify an IWS or possibly joint collection, treatment and disposal system shared by Units 1-3 that will conform with HDOH recommended alternative technologies that are more environmentally responsible waste treatment systems or connected to sewer systems future sea level rise issues. Raising the dwelling may also be included in future permitted design additions.

2.2.3. Unit 3 (3,997 SF, R-5 District)

Project Data: Described by the owner on draft design layout and bullet list, provided in Appendix B:

TMK: 530050700003
Lot Size: 3,997
Building Area: 1336 SF with proposed 200 SF sunroom addition, with 24 SF bathroom, and 80 SF lanai.
Dwelling to be raised by approximately 8-ft. based on permitting allowances and adding a space for two parking areas below with no walls.
Total Living Area: Space would increase by 308 SF with a total of approximately 1,336 SF.
Cesspool Conversion: Permitted based on recommendations from the Cesspool Conversion Working

[11] Cesspool Conversion Working Group, Final Report to the 2023 Regular Session Legislature, State of Hawaii Department of Health. In response to Act 170 Sessions Laws of 2019, November 2022.

Group[12].
Cesspool conversion alternatives general include three options that include collection, treatment, and disposal. The Unit 2 owners will work with their consultant, HDOH and City entities to identify an IWS or possibly joint collection, treatment and disposal system shared by Units 1-3 that will conform with HDOH recommended alternative technologies that are more environmentally responsible waste treatment systems or connected to sewer systems to address future sea level rise issues.
Plantings: Include, but not limited to, ti leaves, papaya, orchids, palm trees, ginger, sweet potatoes, tomatoes, small (lime, grapefruit, and pomegranate), onions, other small vegetables, and flowers.

2.2.4. Unit 6 (10,000 SF, AG-2 District)

Project Data: Unit 6 is an existing structure within the AG-2 District lot. The owner of Unit 6, located within the AG-2 District, operates a small nursery growing specialized plants which are potted for a non-profit organization. As stated per the CPR document, Unit 6 is not permitted to be used for building a farm dwelling unit or any livable structures. The space can only be replaced by an accessory farm structure, and all structures within Unit 6 are non-livable. The mobile structure is an accessory to the nursery operation that is unpermitted. The owner is working towards "after-the-fact". As described and submitted by the Unit 6 owner, she will be declaring compliance with HRS Section (§) 46-88, relating to exempted agricultural structures and completing CCH DPP Documents #1 and #4, included within Appendix B:
Project: Agriculture Use 1
Owner: Janet Clark
Company: Ohana Yurts
TMK: 5-3-005-070-006 of the larger 5-3-005-070
Lot Size: 10,000

Existing Structures: Planting Shed (open air), Temp. Wheeled Workshop, Shed (x2), Solar Panels, and Canvas Yurt
Document # 1: Exemption No. 7 selected, Floor Area of 113.1 SF and Aggregate floor area of exempted structure of 497.1 SF.

HRS §46-88: Agricultural buildings and structures; exemptions from building permit and building code requirements. (a) Notwithstanding any law to the contrary, the following agricultural buildings, structures, and appurtenances thereto that are not used as dwellings or lodging units are exempt from building permit and building code requirements where they are no more than one thousand square feet in floor area:

(7) One-story masonry or wood-framed buildings or structures with a structural span of less than twenty-five feet and a total square footage of no more than one thousand square feet, including farm buildings

[12] Cesspool Conversion Working Group, Final Report to the 2023 Regular Session Legislature, State of Hawaii Department of Health. In response to Act 170 Sessions Laws of 2019, November 2022.

used as: A. Barns; B. Greenhouses; C., Farm production buildings including aquaculture hatcheries and plant nurseries; D. Storage buildings for farm equipment or plant or animal supplies or feed; or E. Storage or processing buildings for crops; provided that the height of any stored items shall not collectively exceed twelve feet in height;

Document No. 4: CCH DPP "certifying that the building/structure meets the requirements of item No. 12 and has been constructed in accordance with applicable standards."

2.2.5. Unit 8 (7,684 SF, R-5 District)

The following assumptions are reasonable for future additions at Unit 8:

TMK: 5-3-005-070-008
Lot Size: 7,684
Building Area: There is no current dwelling plan proposed, however Unit 1 may perform similar efforts identified by Unit 2 and 3, including the following future permitted additions:

The future cesspool conversion will be permitted based on recommendations from the Cesspool Conversion Working Group[13]. Cesspool conversion alternatives generally incorporate three options that include collection, treatment, and disposal. The Unit 8 owners will work with their consultant, HDOH and City entities to identify an IWS or possibly joint collection, treatment and disposal system (shared by Units 1-3 or more) that will conform with HDOH recommended alternative technologies that are more environmentally responsible waste treatment systems or a connection to sewer systems due to future sea level rise issues.

Raising the dwelling may also be included in future permitted design additions, which may include adding parking stalls beneath the dwelling, additional rooms, bathrooms, and/or lanai/deck areas. These additions may increase the living areas and/or footprint within the allowable percentages. There is a potential for Unit 8 to expand the building footprint to 3,842 SF and Living Area to 5,379 SF in future.

2.3 DESCRIPTION OF AG-2 DISTRICT AND WETLAND LOTS AND POTENTIALLY PROGRAMMATIC PERMITTED USES WITHIN SMA

HRS Chapter 205A is the regulations and procedures that apply to all lands within the special management area of the city. As stated in 25-1.2, it is the city's policy to preserve, protect, and whenever possible, restore the natural resources of the coastal zone. Special controls on development within an area in proximity to the shoreline are necessary to avoid permanent loss of valuable resources and foreclosure of management options, and to ensure that adequate public access is provided to beaches,

[13] Cesspool Conversion Working Group, Final Report to the 2023 Regular Session Legislature, State of Hawaii Department of Health. In response to Act 170 Sessions Laws of 2019, November 2022.

recreation areas, and natural reserves, by dedication or other means. It is also the policy of the city to avoid or minimize damage to wetlands whenever prudent or feasible; to require that activities not dependent upon a wetland location be located at upland sites; and to allow losses of wetlands only when all practicable measures have been applied to reduce those losses that are unavoidable and in the public interest. To ensure this policy is adequately implemented, no development, as defined in this chapter, may be undertaken within the special management area without special management area permit approval. Special management area permit approval is required prior to obtaining any other permits or approvals other than State land use district boundary amendments, zone changes, and amendments to the general plan and development plans, including the development plans entitled "sustainable communities plans".

Section 25-2.1 applies to all development that would affect wetlands within the special management area, defined as special wetland area "that area that is a wetland and the area within 50-feet of a wetland," regardless of the size of the wetland.

A wetland delineation was performed in December of 2023 and a wetland overlay was prepared (Figure 5c), which shows the 50-ft wetland setback impacting original design plans for Units 9 and limiting Unit 10 and 11 development options, which are discussed below. The wetland delineation report, which is being reviewed by USACE for concurrence at this writing, and can be found in Appendix F.

Sections 2.3.1 and 2.3.2 describe only general development options that could be permitted and pursued by owner of these lots. Development within the SMA should promote the protection, use, and development of marine and coastal resources to ensure that these resources are ecologically and environmentally sound and economically beneficial. Impacts on water resources, beaches, coastal dunes, and scenic or recreational amenities resulting from the construction of structures must be minimized.

Note: The driveway No. 2 circle area within the 50-ft wetland setback will remain an unfinished, dirt road.

2.3.1. Unit 10 (38,963 SF, R-5 District)

TMK: 53005070000010
Lot Size: 38,963 SF

As of this writing, no structures are present within the Unit 10 lot. The special wetland area is centered within Unit 10 and occupies approximately 90% of the R-5 District lot; therefore, since development options are significantly limited, the owner does not have plans for development. Any development within wetland area should be limited to activities that are dependent on or enhance wetlands or are otherwise approved by appropriate State and federal agencies.[14] Development examples include traditional

[14] Chapter 25, Special Management Areas, Article 3: Objectives, Policies, and Guidelines, § 25-3.1(i) Marine and coastal resources.

Hawaiian agricultural uses such as wetland taro production, aquaculture, and fishpond management, as well as activities that clean and restore traditional wetland areas or create new wetlands in appropriate areas.

2.3.2. Unit 11 (100,532 SF)

Unit 11 is Split R-5 District and AG-2 District zoned with the special wetland area occupying approximately 50% of the lot located in the western portion of the unit. Unit 11 may potentially support the construction of a farm dwelling unit, provided it is located outside the delineated wetland boundaries. This complies with legal requirements, which allow for farm dwellings as long as they do not impact protected areas that are critical for ecological functions such as water filtration, wildlife habitat, and flood control.

TMK:	5300507000011
Lot Size:	100,531
AG-2 / R-5 Districts:	78,067.71 / 22,463.35 SF

KWE has an option to build one more single-family dwelling unit adjacent to the Driveway 2 (Figure I-2).

Table 2-1 below is a modification of the DPP, CCH LUO, Table 21-3 Master Use Table (Revised February 6, 2023).[15] Table 2-1 identifies only those permitted agriculture activities within the AG-2 District and Agricultural lots from Table 21-3 Master Use Table that might apply to the KWE owners, otherwise they were omitted from inclusion within **Table 2-1**. These include four (4) options:

Option A – Self-Managed Agricultural Activities: (Orchard, Crop and/or Pastoral Farming (i.e., fruits, nuts, *kalo* [taro], etc.) or other agriculturally-related activities to be managed by the Kahena Wai Estate (KWE) Association. Terms and Conditions (T&C), for sale of Unit 10 or 11 would apply accordingly for leased land agricultural activities managed by other farmers.

Option B – Community Garden: The AG-2 District lands will be divided appropriately into individual plots where each gardener is responsible for their own plot. The gardener owns the production from their plot and pays a lease fee. If there is not enough interest among the KWE unit owners, then the community will be engaged, and provided the established rules in writing for the garden.

Option C –Wildlife Preserve: **(**Appropriate areas of the AG-2 District lands will be set up a wildlife preserve by KWE Association to remain as vacant land at first, but explore the possibilities for improvements by engaging experts in this area to research permits necessary for activities involving state or federal protected species, such as migratory birds, threatened and endangered species (TES), developing a

[15] Department of Planning and Permitting, City and County of Honolulu, Land Use Ordinance, December 2020, Revised February 6, 2024. Table 21-3 Master Use Table, Page 40-59 (Revised February 6, 2023)

voluntary Habitat Conservation Plan (HCP) to help identify improvements and conserve TES on state and private land, describing how impacts of the proposed action will be minimized and mitigated, and how the HCP will be funded, and establish a community membership program.

Option D – No Action**:** The AG-2 District lands will remain open with no development or agricultural activities, and maybe maintained through mowing within the CPR unit to maintain a boundary.

AGRICUTURAL USES	AG-2 District
Crop Production	
Aquaculture	P
Composting (Minor / Major)	P*/C*
Community Garden	P*
Crop Raising	P
Forestry	P
Plant Nursery	P
Vertical Farm	P*
Accessory Agricultural	
Beekeeping	P*
Farm Dwelling	P*
Farm Stand	P*
Farm Worker Housing, Farmer's Market	Cm*
Residential Uses	
Household Living	
Single Unit Dwelling	- -
Duplex-Unit or Two-Unit Dwelling	- -
Group Living (Small / Large)	Eu*
Accessory Residential (dwelling unit, family childcare home, home occupation, *ohana* unit	P*
Poultry Raising and Rooming	P*
P = Permitted, C* = Major Conditional Use (CU), Cm = Minor CU, Eu = Existing Use Only, * Use Standards Apply. Note: Table 2-1 is a modification of Table 21-3 Master Use Table, CH, DPP LUO	

Any development within wetland areas should be limited to activities that are dependent on or enhance wetlands or are otherwise approved by appropriate State and federal agencies. Examples include traditional Hawaiian agricultural uses such as wetland taro production, aquaculture, and fishpond management, as well as activities that clean and restore traditional wetland areas or create new wetlands in appropriate areas.[16] The Conceptual Master Site Plan **(i.e. Table I-1 and Figure I-1)** identifies potential locations for these permitted activities, including wetland taro production within the wetland area under leased land Option A. Based on initial consultation with the U.S. Army Corps of Engineers (USACE) or Corps[17], clearing of vegetation above ground level is not regulated by the Corps. Therefore, mowing the California grass or other vegetation from the wetland above ground level would not require a Corps permit. However, removal of any roots such as root balls from trees or grubbing would require a Section 404 Corps permit. For the creation of a lo'i, initial determination is that it may require a Corps permit if it requires a discharge of fill (i.e. loose rock walls constructed around them as described above) or grubbing and root disturbance. There is an agricultural exemption, but only applies to on-going farming practices. The text for 33 CFR 323.4(a)(1)(ii) regarding agricultural exemptions is referenced below:

(ii) To fall under this exemption, the activities specified in paragraph (a)(1)(i) of this section must be part of an established (i.e., on-going) farming, or silviculture, and must be in accordance with definitions in § 323.4(a)(1)(iii). Activities on areas lying fallow as part of a conventional rotational cycle are part of an established operation. Activities which bring an area into farming, or silviculture use are not part of an established operation. An operation ceases to be established when the area on which it was conducted has been converted to another use or has lain idle so long that modifications to the hydrological regime are necessary to resume operations. If an activity takes place outside the waters of the United States, or if it does not involve a discharge, it does not need a section 404 permit, whether or not it is part of an established farming, or silviculture operation.

An argument could be made, if the hydrological regime is still intact, and that operations could be reestablished, that since the general Punalu'u area (which includes Hau'ula), had extensive *loi kalo* and irrigation systems in the past, and that significant amounts of kalo were cultivated, considered the bread baskets of Ko'olau Loa, to grant this Corps waiver. The currently named Punalu'u Ditch system was originally constructed to irrigate sugarcane lands in Punalu'u around 1905, and concrete-lined irrigation channels were added to the ditch system in 1922 to transport water. Sugarcane was cultivated in Punalu'u until the 1970's, and there are still isolated farming taking place.

2.4 ESTIMATED COST AND TIMING PHASE OF CONSTRUCTION

[16] Chapter 25, Special Management Areas, Article 3: Objectives, Policies, and Guidelines, Section 25-3.1(i) Marine and coastal resources.
[17] E-mail correspondence with Jeremy Morgan, Biologist, Regulatory Office U.S. Army Corps of Engineers Honolulu District, Building 252 Fort Shafter, HI 96858-5440 (Jeremy.k.morgan@usace.mil), 28FEB2024 1502 hrs.

The estimated cost of the Proposed Action is over $1,600,000 (**Table I-1**), including professional services. The source of funding for the project will be exclusively provided by the Kahena Wai Estates unit owners. Each of the individual projects within the Proposed Action will take approximately 4 to 6 months for existing dwellings and 6- 10 months for vacant units, after completion of the EA and receipt of the SMA Use Permit and all agency approvals. The Kahena Wai Estates unit members will coordinate with the CCH DPP for phase construction schedules, so as not to have significant cumulative impacts to the community.

2.5 ALTERNATIVES TO THE PROPOSED ACTION

This EA analyzes the environmental consequences of the programmatic Proposed Action and reasonable alternatives in accordance with Chapter 25, Revised Ordinances of Honolulu (ROH), Title 11, Chapter 200:1, and Chapters 11-55 and 11-54 Hawaii Administrative Rules (HAR) and Chapter 343 and 205A, Hawaii Revised Statutes (HRS).

2.5.1 Alternatives Considered and Dismissed

Since the Proposed Action is an analysis of all reasonable potential programmatic improvements, and because most of the CPR Units are already constricted by the size of the lots and adjacent properties, the new dwelling designs are already significantly limited in their possibilities for reasonable alternative. Additionally, improvement options on the entire TMK are restricted due to an SMA classification, floodplain limitations, wetlands, and agricultural zoned lands.

Four alternatives were assessed against the following three evaluation criteria:

Criterion A: Schedule Relative to Project Costs and Permitting Efforts
Criterion B: Owners' Planned Improvements Relative to Potential Programmatic Improvements, Relative to Timeline, Permitting Challenges, and Project Cost, and
Criterion C: Field Conditions/Location of Improvements Near Sensitive Environments Relative to Space Available and Design Challenges associated with Permitting Restrictions and Notice of Violations (NOV's).

Based on the alternatives analysis below, only Alternative 3 – Considering Owner-Planned Improvements and a Programmatic Level of Potential Improvements Options met all the Proposed Action objectives, and therefore was retained, along with the No-Action Alternative for impact analysis in the DEA.

Alternative 1 – Proposed Action Considering New Dwelling Construction and Potential Future Minor Improvements:
This alternative was previously the preferred alternative. It considered new dwelling design and construction for Units 4, 5, 7, and 9 and their permitted IWS, and existing units permitting of existing cesspools, and potential future minor improvements to the TMK (i.e., walking paths, fencing/rock walls,

and plantings, etc.). The cost of the project included professional architect and engineering (A/E) efforts (survey, permitting, EA, and other site-specific design and construction costs), and was divided accordingly between the 11 owners. The respective owners did not identify any specific additions for existing dwellings nor where there any plans or desire to build on the agriculture-zone lands.

This preferred alternative was based on the Kahena Wai Estates 10-year plan, as it met their project expedited timelines for construction, anticipated project costs, and their near-term goals for their property (**Evaluation Criterion A**). During DEA review, the approving agency (DPP) requested a broader approach, identifying that the DEA should take a programmatic look at site improvements and incorporate any potential existing dwelling additions, along with AG-2 District lot permitted uses. Therefore, **Alternative 1** was considered and subsequently rejected by the approving agency (**Appendix C**) with concurrence from 5Ks ENV and the Kahena Wai Estate Owners. Because it didn't meet the objectives of Evaluation **Criteria B** by not considering programmatic improvement options at the site, and **Evaluation Criterion C**, by not developing an accurate boundary for the wetland area that may be impacted by the Proposed Action.

Alternative 2 – Proposed Action Considering New Construction and Limited Potential Future Additions for Existing Dwellings and Permitted Use Options for Agricultural Lots:

For the revised DEA, this Alternative 2 considered everything proposed under Alternative 1 and added several expanded owner-identified existing unit improvements and additions, along with general potential additions over the next 10-years. All existing dwellings, especially Units 1, 2, and 3 fronting Kamehameha Highway, will likely process building permits to raise their existing dwellings, which may vary from 10 feet plus, depending upon permitting approvals. The design and methodology used will depend upon owners' preference, site conditions and permit allowances. Other existing dwelling permitted improvement requests may include but are not limited to (as identified by Unit 3 owners), small room additions, and underneath garage for two cars, and/or storage areas sided with breakaway walls, and removal of walls facing ocean. Additionally, the conversion of their cesspools will take place before the 2030 deadlines established by the Hawaii Cesspool Working Group, Priority 1 zones[18], and will conform with State of Hawaii Department of Health (HDOH) and/or City and County of Honolulu (CCH) recommendations for alternative IWS for nearshore environments. The only agriculture zone consideration under this Alternative identified by the owner was potentially leasing out the wetland / AG-2 District portion of Unit 11 (100,531 SF) for *Kalo* or taro farming on approximately 86,000 SF (0.6 acre) of wetland area. The native Hawaiian's built lo'i (wetland kalo fields) in this region using loose rock walls around them near the freshwater source, so that water could flow around them, ensuring the kalo corms do not rot, but constantly replenish nutrients. A one-acre lo'i can produce 3 to 5 tons of *kalo* per year and during harvesting process, the *huli*

[18] Cesspool Conversion Working Group, Final Report to the 2023 Regular Session Legislature, Prepared by the State Department of Health In response to Act 170 Session Laws of 2019, November 2022.

(cuttings) are replanted by plunging them back down into the muddy water[19].

The Alternative 2 options included the scoping of a wetland delineation as did Alternative 3. Considering this added scope, Evaluation Criterion A's project schedule and increased cost and effort relative to permitting requirements were shifted to accommodate these studies, therefore Evaluation Criterion A was met for Alternative 2. For Evaluation Criterion B, Alternative 2 took a preliminary look at possible permitted options for additions within the R-5 District and uses of the AG-2 District zone / wetlands area. Possible options were identified for existing dwelling additions, including possible IWS issues with sea level rise, and a kalo lo'i as an option for the joint AG-2 District/wetland property, which would likely entail Army Corp permitting for proper lo'i development to aerate the kalo corm. See §2.3.3 for further details on potential Corps requirements. **Alternative 2** was considered, but subsequently rejected for not meeting the full programmatic intentions of **Criterion B**. Under Alternative 2, **Evaluation Criterion C**, which considered field conditions and location of improvements near sensitive areas (i.e. the wetland in this case) and current NOV's at the site, the wetland delineation produced a more refined 50-foot wetland setback overlay of the TMK Units 9, 10, and ll. Although the wetland setback constricted the usable portion of the lots even more than anticipated, offering design challenges for single-family dwellings construction. So, although a portion of **Criterion C** was met, the NOV's at the site were not addressed.

Alternative 3 – Proposed Action Considering New Dwelling Construction Along with A Programmatic Level Assessment of Existing Dwelling Additions and Agricultural Permitted Use Options:
For the revised DEA, Alternative 3 considered everything proposed under Alternative 2, with an expanded look at alternatives, potential impacts, and improvement opportunities at the site. This included new dwelling design alternatives for dwellings associated with wetlands and AG-2 District lots, existing dwelling addition options to be considered from more existing owners, and agricultural development alternatives.

The new dwelling design for Unit 7 and 9 included a decrease in their footprint due constricted buildable space (i.e., Unit 7 was spilt R-5 District and AG-2 District and Unit 9 within the 50-foot wetland setback, respectively). The new design for unit 7 outside the AG-2 District lot is summarized in **Table I-1** and depicted in **Figure I-1** and I-2 as part of the Kahena Wai Estates (KWE) Comprehensive Master Site Plan (KWE CMSP). The unit 9 designs will remain as far from the wetland area demarcated on **Figure I-1** and I-2. Alternative 3 will discuss existing dwelling room additions as described in Alternative 2, and the AG-2 District permitted uses to be explored include the following, which may be considered in combination of each other, as allowed by permitting, at the site:

Option A – Self-Managed Agricultural Activities: (Orchard, Crop and/or Pastoral Farming (i.e., fruits, nuts, *kalo* [taro], etc.) or other agriculturally-related activities to be managed by the Kahena Wai Estate (KWE) Association. Terms and Conditions (T&C), for sale of Unit 10 or 11 would apply accordingly for leased

[19] Hawaii Ulu Cooperative https://hawaii-ulu-coop.

land agricultural activities managed by other farmers.

Option B – Community Garden: The AG-2 District lands will be divided appropriately into individual plots where each gardener is responsible for their own plot. The gardener owns the production from their plot and pays a lease fee. If there is not enough interest among the KWE unit owners, then the community will be engaged, and provided the established rules in writing for the garden (lease fee's, what can be grown, etc.).

Option C –Wildlife Preserve: (Appropriate areas of the AG-2 District lands will be set up a wildlife preserve by KWE Association to remain as vacant land at first, but explore the possibilities for improvements by engaging experts in this area to research permits necessary for activities involving state or federal protected species, such as migratory birds, threatened and endangered species (TES), developing a voluntary Habitat Conservation Plan (HCP) to help identify improvements and conserve TES on state and private land, describing how impacts of the proposed action will be minimized and mitigated, and how the HCP will be funded, and establish a community membership program.

Option D – No Action: The AG-2 District lands will remain open with no development or agricultural activities, and maybe maintained through mowing within the CPR unit to maintain a boundary. This is the preferred option.

The Alternative 3 options included the scoping of a wetland delineation and the revised project schedule and cost relative to permitting efforts were shifted to accommodate these studies, therefore Evaluation Criterion A was met for Alternative 3. Only the existing owners at Unit 3 had ideas for potential future for their dwelling, so, Alternative 3 took a programmatic look at the other Unit and developed possible permitted additions as an option within the R-5 District and uses of the AG-2 District zone / wetlands area. Therefore, Evaluation Criterion B was met for Alternative 3, which considered both existing unit additions on the R-5 District lots and permitted use options for the AG-2 District lots in the DEA.

Alternative 3 considered field conditions and location of improvements near the wetland areas and AG-2 District lots and addressed the current NOV's at the site. Alternative 3 studied alternative designs for the units associated with the wetland 50-foot setback and AG-2 District zoned lots (i.e., units 7, 9, 10, and 11), therefore, Criterion C was met for Alternative 3.

Alternative 3 met all three Evaluation Criteria, therefore it was retained as the Preferred Alternative for further analysis in the EA and will be discussed further as the Proposed Action moving forward.

Alternative 4 - The No-Action Alternative, No Improvements or Additions on the Site

Under Alternative 4 – The No Action Alternative, the current residents/existing homeowners, and future owners would not benefit from improvements to the general TMK, their personal property, and use of that

space that is available for single-family residential development in their R-5 District-zoned site for usage and family expansion. Additionally, the existing dwelling owners would not be able to improve their homes with additions, address their IWS permit issues, or develop the AG-2 District lots with potential permitted uses. Considering that Alternatives 1 – 3 are anticipated to have only minor short-term impacts associated with construction activities, as described below.

The environmental consequences of Alternative 4 – The No Action Alternative will be evaluated as a baseline for comparison with the environmental consequences of the Proposed Action (Preferred Alternative) in the EA.

Again, the Proposed Action is summarized in **Table I-1 and Depicted in Figure I-1** and I-2, and includes *three (3) general efforts within the TMK:*

- Permitting of 4 new single-family dwellings and IWS on vacant R-5 District lots at unit 4, 5, 7, and 9;
- Permitting of existing R-5 District dwellings cesspools and future additions at unit 1, 2, 3, and 8, and minor future improvements (rock walls/fencing, plantings, walking paths, etc.) on the TMK; and
- Proposed permitted options for the AG-2 District and wetland setback associated units, and whether these areas will be developed with permitted uses.

3.0 PERMITS, PLANS, POLICIES, AND CONTROLS

The Proposed Action is in compliance with required government and community plans, permits, policies, and controls. These are described below.

Potential permits and/or approvals required for the Proposed Action to move forward are listed below:

Permit and/or Approvals	Approving Agency
Special Management Area Permit, Major	DPP
Building Permit	DPP
IWS Variance Application Approvals	HDOH, Wastewater Branch (Appendix B)
Cesspool Conversion Permit	HDOH, Wastewater Branch
Shoreline Setback Variance	DPP
Certified Shoreline Survey	DAGs (2011)
Noise Permit	DOH, Indoor and Radiological Health Branch
Sewage Connection Permit	DPP
Water Use Permit	BWS
Wetland Delineation and Jurisdiction Determination	USACE (No Permit Required – Appendix F)

As described in Section 3.1.4, an NPDES Permit for stormwater discharges will not be required from DOH, CWB for sites of less than one acre. Additionally, the USACE has determined that the property does not contain waters of the U.S., and therefore a Department of Army Permit (DA) per Section 404 of the Clean Water Act, and a HDOH, CWB per Section 401 Water Quality Permit is not required. A grading permit is not anticipated based on plans reviewed, since less than 3-feet in height and 50 CY of excavation or fill, will be required. The building permit, which each unit will acquire, authorizes for excavation & backfill within the structures footprint.

3.1 ENVIRONMENTAL PERMITS, POLICIES, PLANS AND CONTROLS

3.1.1 Environmental Review Policy

The requirements for performing an EA are contained within the Hawaii EIS Law, which is set forth in HRS 343 (DOH, 1974a) and HAR Chapter 11-200.1 (DOH, 2019b). According to HRS 343, the purpose of the Hawaii EIS Law (also known as HEPA [Hawai'i's environmental policy act]) is to establish a system of environmental review to ensure that environmental concerns are considered in decisions made by the State of Hawaii. HEPA foundation was created based on requirements of the federal National Environmental Policy Act (NEPA).

HEPA is administered and regulated by the State of Hawaii, OPSD ERP, formerly the Office of

Environmental Quality Control (OEQC). The ERP oversees the implementation of these regulations in order to assess the environmental, social, and economic consequences of a proposed development project prior to allowing construction to begin. The Hawaii EIS Law ensures the public the right to participate in planning projects that may affect their communities. The OEQC issued guidelines for the environmental review process (OEQC, 2012), which is still in effect.

An Action is subject to the environmental review process as established in HRS Chapter 343 if it triggers one of thirteen (13) triggers, as enumerated within § 343-5 HRS. The triggers for an EA are [20]:

1) The use of State or county lands or funds.
2) Any proposed use of land within the conservation state land use district.
3) Any proposed use or development within the shoreline area as defined in § 205A-41, HRS.
4) Any proposed use within any historic site as designation in the National Register or Hawaii Register, as provided for in the Historic Preservation Act of 1966, Public Law 89-665, or Chapter 6E, HRS.
5) Any proposed use within the Waikiki Special District as established in Chapter 21, the LUO, ROH.
6) Any proposed amendments to the existing county general plan where the amendment would result in designations other than agriculture, conservation, or preservation, except Actions proposing any new county general plan or amendments to the existing county general plan initiated by the county.
7) Any proposed reclassification of any land classified as a conservation district by the state land use commission under Chapter 205, HRS
8) Any proposed new, or the modification of exiting, helicopter facilities within the state that may, by way of their activities, affect:
    i. Any land classified as a conservation district by the state land use commission under Chapter 205, HRS;
    ii. A shoreline area as defined in Section 205A-41 HR; or
    iii. Any historic site as designated in the National Register (NR) or Hawaii Register (HR), as provided for in the Historic Preservation Act (HPA) of 1966, Public Law 89-665, of Chapter 6E HRS; or until the statewide historic places inventory is completed, any historic site that is found by filed reconnaissance of the area affected by the helicopter facility and is under consideration for placement on the NR or the HR of Historic Places; and
9) Any proposed wastewater treatment unit, except an individual wastewater system (IWS) or a wastewater treatment unit servicing fewer than fifty single-family dwellings or the equivalent.
10) Any proposed waste4-to-energy facility,
11) Any proposed landfill;
12) Any oil refinery; or

[20] City and County of Honolulu, Department of Planning and Permitting (DPP) Instructions for Preparing and Submitting an Environmental Assessment, *when the DPP is the Approving Agency, II Triggers and Exemptions, Page 3, Revised June 7, 2022.*

13) Any proposed power-generative facility.

This Proposed Action does not trigger any of those enumerated within § 343-5 HRS. However, the Proposed Action's development is within the SMA, therefore the EA is being prepared pursuant to the regulations of Chapter 25, Revised Ordinances of Honolulu (ROH), related to the SMA. In accordance with §25-3.3(c)(1), "any proposed development within the special management area requiring a special management area use permit shall be subject to an assessment by the agency in accordance with the procedural steps set forth in HRS Chapter 343" (CCH, 2018a). The IWS, since it serves less than 50 single family dwellings, is exempt from HEPA per §343-5(a)(9A), however requires an SMA Use Permit; therefore, the project is subject to the requirements of the Hawaii EIS Law.

Table 3-1 shows the project compliance between the existing and proposed dwellings. The proposed dwelling follows the current building codes including the flood elevation requirements. The existing dwellings are below the required 10-foot and 8-foot amsl base flood elevation for R-5 District and AG-2 District, respectively, however the proposed dwellings will be at or above those required amsl compliance standards. Additionally, new dwellings and new additions meet the lot minimum area, maximum lot width/depth, building area maximum and height along with the other project compliance standards.

3.1.2 Project Consistency with CCH Department of Planning and Permitting Land Use Ordinance

The following discussion includes an analysis of the Proposed Action consistency with the applicable CCH LUO included in Chapter 21, ROH: Land Use Ordinance for the R-5 District Residential District (~120,357 SF) and the "split-zoned" R-5 District / AG-2 District General Agricultural District (~91,040 SF), associated with Unit 6, 7, and 11.

Article 3: Establishment of Zoning Districts and Zoning District Regulations

§21-3.70 of the ROH establishes the purpose and intent of the Residential Districts. The Property is zoned for R-5 District: district for urban residential development and will be applied extensively throughout the city (ROH 21-3.70(c). The proposed residential construction would not affect the existing residential unit density or land use at the Property, or within the surrounding area. Therefore, the Proposed Action would be consistent with ROH § 21-3.70(c).

§21-3.50 of the ROH establishes the purpose and intent of the Agricultural Districts. The larger TMK is split-zoned R-5 District / AG-2 District. Per § 21-3.50(a) "The purpose of the agricultural districts is to maintain a strong agricultural economic base, to prevent unnecessary conflicts among incompatible uses, to minimize the cost of providing public improvements and services, and to manage the rate and location of physical development consistent with the city's adopted land use policies. To promote the viability and economic feasibility of an existing agricultural operation, accessory agribusiness activities may be

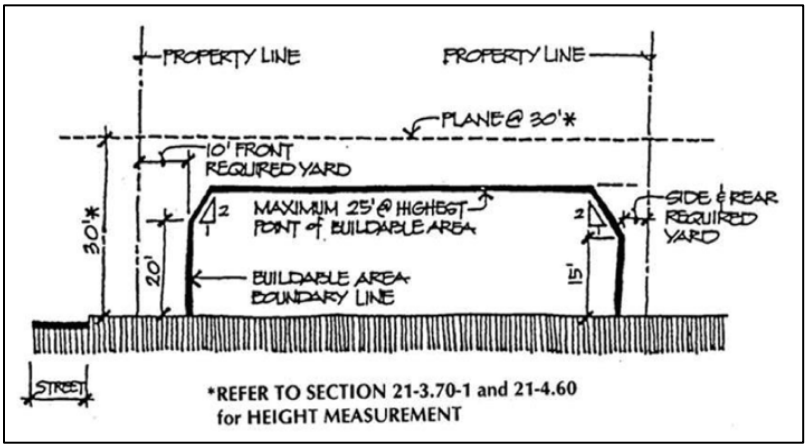
permitted on the same site as an adjunct to agricultural uses. These accessory activities must be compatible with the onsite agricultural operation and surrounding land uses."

Table 3-1 Project Compliance with Development Standards					
Project Compliance Standards		Compliance Standards		Proposed Project Compliance	
Parcel 070		R-5	AG-2	R - 5	AG - 2
Minimum Lot Area (SF)	One-family dwelling, detached, and other uses	5000 SF	2 Acres	106,494.81 SF	91,352.25 SF
Minimum Lot Width/ Depth (FT)		65 Ft	150 FT	Width: 526.38 FT Depth: 232.81 FT	Width: 439.18 Depth: 221 FT
Setback Yards (FT):	Front	10 FT	15 FT	10 FT	15 FT
	Side and rear	5 FT	10 FT	Side: 5 FT	10 FT
		5 FT	10 FT	Rear: 5 FT	10 FT
Maximum Building Area		50%	10%	» 14%	» 1%
Maximum Height (FT)1		25 FT 30 FT in VE	15 FT	28 FT	12 FT
Maximum Floor Area Ratio (FAR)		0.7	N/A	0.14 FAR	
Maximum Floor Area (SF) Per §21-3.70-1(c)(3)(H)		106,494.81 SF	91,352.25	53,247.41 SF	9135.23 SF
Shoreline Setback encroachment		60 FT	60 FT	0	0
Base Flood Elevation (AMSL)		10 FT	8 FT	10 FT AMSL	8 FT AMSL

the Property, or within the surrounding area. Therefore, the Proposed Action would be consistent with ROH § 21-3.70(c).

The intent of the AG-2 District general agricultural district is to conserve and protect agricultural activities on smaller parcels of land (§ 21-3.50 (d)).

The proposed residential construction would not affect the existing residential unit density or land use at



Source: ROH LUO, § 21-3.70—1, Figure 21-3.10

§21-3.70-1 of the ROH establishes residential uses and development standards. Table 21-3 of this ROH, establishes the residential district, permitted uses and structures enumerations. The proposed project(s) are allotted four (4) bathrooms/one dwelling unit on zoned lot or two (2) bathrooms/two or more dwelling units on zoning lot. Table 21-3.2 enumerates the development standards within the R-5 District districts. The Proposed Action would not include any changes to the existing lot area, lot width or depth, and would not include any changes to the existing yard sizes. Additionally, the project would not include additional improvements that would result in a total building area greater than the maximum allowed building area for R-5 District zoning included in Table 21-3.2 of ROH 21-3.70.-1. The Proposed Action would not exceed the allowable maximum height, height setbacks, or maximum floor area ratio density established for R-5 District zoning[21]

Article 4. General Development Standards

The Proposed Action would comply with applicable sections of ROH 21-4: General Development Standards. The Proposed Action components are planned to be sited within each respective unit property boundaries, and would not encroach into yard or street setbacks, or conflict with any landscaping/screening requirements. All proposed structures would comply with the maximum height allowed under R-5 District zoning. **Appendix B** shows how the proposed development components would comply with the provisions of the ROH §21-4 standards, and the *KWE CPR Condo Docs.* (**Appendix E, Exhibit L)** show the existing unit plans. Additionally, Section 3, of the KWE CPR Condo Docs, describes the existing Project, Units and Adjacent Areas. BFE in VE is 10 feet, see attached FHAT report (**Figure 2c**).

[21] § 21-3.70-1 Residential Uses and Development Standards, ROH LUO.

Articles 5 through 8 of the ROH are not applicable to the Proposed Action.

Article 9. Special District Regulations

The Property is located in the SFHA (SMA and Zone VE/AE/X), subject to inundation by the 1% annual chance flood. The 1% annual chance event, also known as the base flood (100-year) has a 1% chance of being equaled or exceeded in any given year. Mandatory flood insurance purchase applies in this zone. More information on the flood hazard zone is provided in **Section 4.6.2.2**. The permit application for the Proposed Action would be submitted to DPP and reviewed for compliance with the flood hazard areas ordinance in accordance with ROH 21-9.10: Developments in Flood Hazard Areas.

3.1.3 Special Management Area

The SMA is administered and regulated by the CCH DPP. The requirements and regulations can be found in HRS 205A and Chapter 25, ROH. The purpose of these requirements is to regulate development along shorelines to avoid permanent losses of valuable resources and to ensure that access to publicly owned and publicly used beaches, recreational areas, and natural reserves is provided. As noted above, projects within the SMA must undergo the procedural steps set forth in HRS 343 prior to an SMA Use Permit being issued.

Kahena Wai Estates Unit owners and their consultant (Hawaii Engineering Group) are in the process of preparing an SMA major permit application for the Proposed Action described in Section 2. The permit application will be submitted following acceptance of the Final EA and issuance of a FONSI.

Special Requirements Applicable to Shoreline Lots

Construction or activity on land within the shoreline area is subject to the regulations of Chapter 26, ROH, related to Shoreline Setbacks. In accordance with §26-1.2 (a)(1)-(5), (1) increase the resilience of the community toward reduce exposure to coastal hazards; (2) protect and preserve the natural shoreline, coastal zone environments, and associated ecosystems, especially sandy beaches, coastal dunes, wetlands, and reefs; (3) protect and preserve public access laterally to the shoreline and sea; (4) maintain, protect and preserve open spaces and costal scenic resources; and (5) prohibit shoreline hardening unless necessary for coastal restoration or where it would result in a clear public benefit. A shoreline lot is defined under Chapter 26, ROH, §26-1.3 as a "zoning lot of record, any portion of which lies within the shoreline setback are, or if no certified shoreline survey exists, any portion of which lies within 130 feet of the natural vegetation line or debris line. Chapter 26, ROH, §26-1.4 defined the shoreline setback line as 40 feet mauka from the certified shoreline (See Appendix A-1) until July 1, 2024, after which the shoreline setback line will be established at the following distances mauka from the certified shoreline: (1) Sixty feet plus 70 times the annual coastal erosion rate, up to a maximum setback of 130 feet, except … (2) sixty fee on zoning lots with the Primary Urban Center Development Plan area, or sixty fee on zoning lots where historical erosion data has not been collected … The Property was subject to a 40-foot shoreline setback as a result of the approval of Subdivision File No. 2015/SUB-132. The Proposed Action will be approximately 430 feet from the shoreline (see Figures 5b). The Proposed Action is not within 130 feet of the maximum setback distance, and therefore meets the shoreline setback requirements. The property and the shoreline are separated by Kamehameha Highway and utility right of way.

In accordance with ROH §25-6.3(a), "All exterior lighting on a shoreline lot shall be shielded to reduce the possibility that seabirds and other marine life forms may become disoriented and harmed by the lighting. Shielded exterior lighting shall be implemented both during and after any construction work on a shoreline lot. Any wall-mounted exterior lighting on buildings on a shoreline lot shall be shielded by wall directors or other acceptable shielding, and all shielding shall be specified on building permit plans. Artificial light from exterior lighting fixtures, including, but not necessarily limited to floodlights, uplights, or spotlights used for decorative or aesthetic purposes on a shoreline lot shall be prohibited if the light directly illuminates or is directed to project across property boundaries toward the shoreline and/or ocean waters, except as may otherwise be permitted by HRS §205A-71(b)" (CCH, 2018a). The project may include small lights around dwelling. All exterior lighting associated with the project will be shielded and will be indicated on building permit plans. No artificial light will be directed to travel across the property boundary toward the shoreline and ocean waters.

In accordance with ROH §25-6.3(b), "All landscaped areas, landscaping, and irrigation on or for any shoreline lot shall be contained and maintained within the property boundaries of the shoreline lot of origin, and shall under no circumstances extend: (1) seaward of the shoreline as depicted on the current shoreline survey for the shoreline lot; or, in the event there is no current shoreline survey for the lot,

seaward of the presumed shoreline; and (2) into any adjoining beach access right-of-way, public or private" (CCH, 2018a). The project does not include landscaping near the shoreline or a beach access right-of-way.

3.1.4 Water Pollution Control

Water pollution control requirements and regulations governing the Property are administered and regulated by the DOH Clean Water Branch (CWB). The requirements and regulations are contained in HAR, Title 11, Chapters 11-54, 11-55, and 11-56 (DOH, 2014b, 2019a, 2021. The purpose of these regulations is to prevent the discharge of contaminated water into the waters of the U.S. (WOTUS) or adjoining shorelines. The Property and the planned construction activities meet the State's Antidegradation Policy (HAR §11-54-1.1), which states that "existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." By "existing uses," the policy refers to the existing uses of the receiving State water. In addition, the Proposed Action, including planned construction activities comply with the State's water quality standards[22] (HAR Chapter 11-54), and the planned construction activities will not adversely impact water quality. The project does not require a Section 401 Water Quality Certification (Title 40 CFR §122.2; HAR Chapter 11-54).

In addition to State water pollution control requirements and regulations, the City and County of Honolulu Rules Relating to Water Quality (Rules) apply to all Development and Land Disturbing Activities within the CCH and establish minimum requirements for the selection, design, implementation and maintenance of Best Management Practices (BMPs) to protect the Municipal Separate Storm Sewer System (MS4) and Receiving Waters from Pollutants that are associated with land disturbance, surface hardening, and land use activities. Since the Proposed Action involves noncontiguous, but related work, the project is deemed a Priority Project, subject to the requirements of §20-3-48 or the Rules.[23]

DPP Rules Relating to Water Quality

Priority Projects must include or provide permanent poste-construction structural BMPs, in addition to those typical temporary BMPs during construction, to effectively prevent the Discharges of Pollutants to the MS4 and State Waters by implementing Low Impact Development (LID) Site Design Strategies, Source Control BMPs and Treatment Control BMPs which retain and /or treat stormwater on Site. There are no storm drain inlets on site nor on Kamehameha Hwy that are associated with an MS4.

[22] HAR, Title 11, DOH Chapter 11-54 Water Quality Standards (OCT 22, 2021), 11-55 Water Pollution Control JUN 26, 2023, and 11-56 Nonpoint Source Pollution Control (JUN 25, 2021). HAR-Title 11

[23] Rules Relating to Water Quality, Department of Planning and Permitting, City and County of Honolulu, Amended July 14, 2017.

The project will comply with the CCH DPP prevailing Rules Relating to Water Quality. Appropriate BMPs will be used during construction to prevent the discharge of land-based sediment and pollutants (LBSP) from the site and into receiving waters. Specific mitigation measures to prevent pollution and protect water quality are discussed in Section 4.2.2. The pollutants of concern addressed by these Rules include, but are not limited to, sediment, nutrients, trash, pathogens, pesticides, oil, grease, hazardous waste, toxic waste, metals, and organic compounds (CCH, 2018b). Temporary construction BMPs measures will include multiple methods as discussed to prevent erosion and minimize sediments and pollutant transport off-site, including cleaning of vehicles tires before leaving the site, and having proper sediment control devices including silt fences and socks and/or dust screens. Driveway 2 will have a an approved gravel construction entrance to eliminate tracking on to Kamehameha Hwy.

The construction contractor will perform the following activities before, during and after construction per Rules §20-3-48. A link to the New Rules Water Flyer below will assist construction contractors with establishing a water quality program for the KWE construction projects. Water Quality Flyer

OVERVIEW OF POST-CONSTRUCTION BMP REQUIREMENTS:	
BEFORE CONSTRUCTION	• Submit a Storm Water Quality Report or a Storm Water Quality Checklist prepared by a Certified Water Pollution Plan Preparer (CWPPP) who has a current certificate • Submit a Post-Construction BMP (PCBMP) Plan • Submit an Operations & Maintenance (O&M) Plan
DURING CONSTRUCTION	• Retain a CWPPP to perform at least two (2) site observations of the installation of Post-Construction BMPs
AFTER CONSTRUCTION (For Permit Closure)	• Submit a Certificate of Completion Form • Record approved PCBMP Plan & accepted O&M Plan with the State of Hawaii Land Court or Bureau of Conveyances as appropriate

For more information contact:

Building Permits 808-768-8230 or Building Permits

Grading & Trenching Permits 808-768-8216 or 768-8217

Online Information and Training Resources can be found at: http://q-r.to/DPP-SWQ

Water Quality

Water quality in the State of Hawaii is under the oversight of the HDOH CWB. According to the CWB (http://health.hawaii.gov/cwb), its mission is as follows.

"The mission of the CWB is to protect the public health of residents and tourists who recreate in and on Hawaii's coastal and inland water resources, and to also protect and restore inland and coastal waters for marine life and wildlife. The mission is to be accomplished through statewide coastal water surveillance and watershed-based environmental management through a combination of permit issuance, monitoring,

enforcement, sponsorship of polluted runoff control projects, and public education."

The objectives of the CWB are as follows.

1. Control point source discharges by issuing the appropriate National Pollutant Discharge Elimination System [NPDES] permits to maintain the designated uses of State receiving waters.
2. Ensure that permitted activities under Section 404 of the Clean Water Act will not adversely impact the designated uses of the State receiving waters.
3. Identify impaired water bodies and restore them to their designated uses.
4. Ensure expeditious compliance with the State water pollution rules.
5. Control LBSP runoff through public and private partnerships.
6. Improve water quality in priority watersheds.
7. Develop appropriate Water Quality Standards.

The CWB is particularly concerned with the beneficial uses of State waters. Some examples include the capturing and re-use of stormwater runoff so that (1) important groundwater resources can be replenished, rather than having stormwater discharge directly to the ocean, and (2) landscaping and crops can be irrigated, rather than using potable water resources for irrigation. Other examples include the re-use of greywater and the protection of coastal waters from contamination caused by non-point source runoff.

The Proposed Action will be in accordance with state and federal water quality regulations, therefore will not cause an increase in runoff quantities.

Stormwater Associated with Construction Activity

The Proposed Action will disturb less than an acre of land, (approximately 10,406 SF, including staging areas) and, therefore, does not require an NPDES permit for discharges of stormwater associated with construction activity or need to follow the CCH DPP Storm Water BMP Guidelines as the Proposed Action does not meet Priority A (> 1 acre disturbed) or Priority B (project that may have significant water quality impacts due location or land use activities).[24] However, as identified above, DPP considers the Proposed Action a Priority Project and therefore subject to the requirements of §20-3-48 or the Rules.[25]

[24] Storm Water BMP Guide for New and Redevelopment for the CCH DPP, Permit No. HI S000002, July 2017. CCH_DPP_BMP-Guide,July_2017.pdf

[25] Rules Relating to Water Quality, Department of Planning and Permitting, City and County of Honolulu, Amended July 14, 2017.

Additionally, although this EA considers the Proposed Action as one development, the individual project schedule will be staggered and non-contiguous from unit to unit, so less than 5,000 SF is anticipated to be disturbed at any given time.

Drinking Water Sources

The protection of Hawaii's drinking water sources is under the oversight of the HDOH SDWB. According to the SDWB (DOH_SDWB_Website) its mission is as follows.

"The mission of the SDWB is to safeguard public health by protecting Hawaii's drinking water sources (surface water and groundwater) from contamination and assure that owners and operators of public water systems provide safe drinking water to the community. This mission is accomplished through the administration of the Safe Drinking Water Program, UIC Program, Groundwater Protection Program, and the Drinking Water State Revolving Fund."

The UIC program serves to protect the quality of Hawaii's underground sources of drinking water from chemical, physical, radioactive, and biological contamination that could originate from injection well activity. Underground injection wells are wells used for injecting water or other fluids into a groundwater aquifer. HAR Chapter 11-23 (DOH, 1992) provides conditions governing the location, construction, and operation of injection wells so that injected fluids do not migrate and pollute underground sources of drinking water.

The TMK is located below (*makai*) of the UIC line, indicating that the underlying aquifer is not considered a drinking water source. Approval from the SDWB's UIC program was obtained for installation and operation of the nine existing injection wells associated with the Proposed Action (UIC permit No. UO-1342).

As identified by early consultation with the CCH Board of Water Supply (BWS) (Appendix C), the existing water system is adequate to accommodate the proposed development. This information was based upon current data, and therefore, the BWS reserves the right to change any position or information stated until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval. When water is made available, the applicant will be required to pay the BWS water system facilities charges for resource development, transmission, and daily storage.

Water conservation measures are required for all proposed developments and include utilization of nonpotable water for irrigation using gray water, rain catchment, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors, and the use of

"Water Sense" labeled ultra-low flow water fixtures and toilets.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. There is an existing fire hydrant (W751) fronting the property on Kamehameha Highway.

3.1.5 Wastewater System

Wastewater system requirements and regulations are administered and regulated by the HDOH Wastewater Branch. The requirements and regulations can be found in HAR Chapter 11-62 (DOH, 2016a). The purpose of these regulations is to ensure that the use and disposal of wastewater and wastewater sludge do not contaminate or pollute valuable water resources, do not give rise to public nuisance, and do not become a hazard or potential hazard to public health, safety, and welfare. The proposed IWS design plans and specifications must be reviewed and approved by the DOH Wastewater Branch prior to construction and must conform to applicable provisions of HAR Chapter 11-62.

The DOH granted the request for: Variance Application No. WW 736, Docket No. 22-VWW-23, Final Decision Regarding Individual Wastewater System for Mr. Nishal Brahmbhatt, 53-424 Kamehameha Highway Hau'ula, Hawaii 96717 TMK (1) 5-3-005-070:004 per a Decision and Order dated October 28, 2022, for five (5) years. Other units scheduled for development have also received state and local permitting or waivers for their individual project. The HDOH also included the Department's Findings of Fact and Conclusions of the Law; letters and Plans are included in **Appendix B.**

3.1.6 Air Quality Standards

Air quality standards are administered and regulated by the HDOH Clean Air Branch. The requirements and rules can be found in HAR Chapters 11-59 (DOH, 2001) and 11-60.1 (DOH, 2014a). The purpose of these standards is to protect public health and welfare and to prevent significant deterioration of air quality.

The Proposed Action is not anticipated to be a significant source of air pollution. Construction of the residential homes will be required to comply with all applicable air quality standards during construction, implementing BMPs as needed. The potential impacts to air quality are addressed in **Section 4.4.**

3.1.7 Coastal Zone Management

The purpose of the Hawaii Coastal Zone Management (CZM) Program (HRS 205A; Office of Planning, 1977) is to provide for the effective management, beneficial use, protection, and development of the coastal zone. The CZM area encompasses all lands of the State and the offshore area out to the limit of the State's police power and management authority. The CZM Program's objectives and policies include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, development management, public participation, beach protection, and

marine resources.

The Proposed Action is within the CZM area, and therefore the unit design plans are required to conform to CZM Program objectives and policies, thus no significant impacts or conflict with the resources and activities associated with the CZM program are anticipated, as described below.

Recreational Resources

The Proposed Action will not generate additional demands on existing public parks or beaches. It will not restrict access to or adversely affect the existing coastal recreational resources or their uses by the public. Thus, the Proposed Action is not in conflict with the State's objective of providing coastal recreational opportunities that are accessible to the public. The potential impacts to recreational resources are addressed in **Section 5.5**.

Historic, Archaeological and Cultural Resources

The Proposed Action is not located in an area where there is a significant potential for the presence of man-made or natural historic resources. As described in Section 5.3, although such resources have been identified within a mile and of the Proposed Action, these locations were across Kamehameha Hwy in sandy soils near the beach. During mapping efforts, only small areas of Jaucas soils were identified, i.e. "small areas of very deep, well-drained soils in drainageways[26], which were preferred for burials. Nevertheless, the SHPD will provide guidance and suggest mitigation recommendations, as needed, during construction activities within the Proposed Actions Area of Potential Effect (APE). This may include recommendations for an archeological Inventory Surveys (AIS) prior to groundbreaking or have an archeologist performing on-site monitoring during ground disturbing activities (i.e. trenching and excavation, etc.). Therefore, any potential adverse effects the Proposed Acton may have on this resource will be mitigated to no adverse effects, hence the Proposed Action is not anticipated to be in conflict with the State's objective of protecting, preserving, and restoring historic and prehistoric resources that are significant in Hawaiian and American history and culture. The potential impacts to historical and cultural resources are addressed in **Section 5.3**.

Scenic and Open Space Resources

The Proposed Action is not located along the coastline where there are intermittent open views to the ocean. Therefore, the Proposed Action will not interrupt the intermittent visual continuity and rural character of the area. The Proposed Acton is not in conflict with the State's objective of protecting, preserving, restoring, or improving the quality of coastal scenic and open space resources. The potential impacts to visual and aesthetic appeal and mitigation measures are addressed in **Section 5.4**.

[26] Soil Survey of State of Hawaii. August 1972. U. S. Department of Agriculture, Soil Conservation Service in cooperation with University of Hawaii Agricultural Experiment Station, General Soils Map. See also Reference Section Foote, D.E., … and University of Hawaii, 1972.

Coastal and Wetland Ecosystems

The majority of the Proposed Action (Units 1-8) are not located in an area where there are sensitive ecosystems that could be impacted by new or existing dwelling construction activities, which include the wetland areas to the southwest, west, or coastal areas to the east due to topography and distance. However, the Proposed Action associated with Units 9, 10, and 11, which are located near the wetland area to the southwest (Unit 9 and 10), and west (unit 11) have the potential to affect the wetland areas. Chapter 25-2.1 Special Management Area, applies to all development that would affect wetlands within the special management area, defined as special wetland area "that area that is a wetland and the area within 50-feet of a wetland," regardless of the size of the wetland. The unit 9 lot is adjacent to a wetland area and the 50-foot wetland setback area bisects the lot. The unit owners are working with their architect and consultant to come up with design options that will work, or they may opt to apply for waiver consideration with CCH DPP.

All development activities will be properly permitted and include the implementation of construction BMPs, reducing the potential effects to natural resources or water quality to less than significant, acceptable levels. Thus, the Proposed Action is not in conflict with the State's objective of protecting valuable coastal ecosystems from disruption and minimizing adverse impacts to coastal ecosystems. The potential impacts to coastal and wetland ecosystems are addressed in **Section 4.3**.

Economic Uses

The Proposed Action is not located in an area where there are significant economic uses that could be threatened. Thus, the Proposed Action is not in conflict with the State's objective of providing public or private facilities and improvements important to the State's economy in suitable locations. Land use and economic issues are addressed in **Sections 5.1 and 5.2**.

Coastal Hazards

The Proposed Action is in an area where there are coastal hazards nearby, and therefore could be potentially threatened by tsunamis or by potential hazards related to climate change, such as sea level rise (SLR). The Proposed Acton may become increasing affected by storm surges/waves, flooding, erosion, subsidence, and/or pollution from coastal sources in the future because of SLR. Design alternatives to address these hazards have been incorporated into the plans as required by CCH DPP and building permits, including raised structures, retaining walls, and properly permitted IWS, among others.

The Proposed Acton is not in conflict with the State's objective of reducing the hazards to life and property posed by tsunami, storm waves, stream flooding, erosion, subsidence, and pollution. The potential

impacts posed by coastal hazards, including sea level rise, are addressed in **Section 4.6.**

Managing Development

The Proposed Action is located in an area where there is little ongoing development, and is not defined as a significant coastal development, and is not in conflict with the State's objective of improving the development review process, communication, and public participation in the management of coastal resources and hazards.

Public Participation

State and CCH permits and approvals required by the Proposed Acton include provisions for public participation and ensure protection of coastal resources. The public was provided the opportunity to participate in the review of the Pre-Consulting Package regarding the Proposed Action and was provided an opportunity to review and comment on the Draft EA. Thus, the Proposed Acton is not in conflict with the State's objective of stimulating public awareness, education, and participation in coastal management. A list of the recipients who were provided a copy of the Pre-Consulting Package and planned for DEA distribution is provided in **Section 1.7**. **Appendix C** includes comments received public agencies and community groups, and the respective responses from pre-consulting and community outreach efforts.

Beach Protection

The Proposed Action is *mauka* of Kamehameha Hwy, therefore will not adversely impact beaches for public use and recreation. Thus, the Proposed Acton is not in conflict with the State's objective of protecting beaches for public use and recreation. The potential impacts to coastal waters and recreational resources are addressed in **Sections 4.2 and 5.5.**

Marine Resources

The Proposed Action is *mauka* of Kamehameha Hwy, therefore is not anticipated to affect marine resources, thus, is not in conflict with the State's objective of promoting the protection, use, and development of marine and coastal resources to ensure their sustainability. The potential impacts to these resources are addressed in Sections 4.2 and 4.3.

3.1.8 State Environmental Policy

The State Environmental Policy was developed to establish a policy that will encourage productive and enjoyable harmony between people and their environment, promote efforts to prevent or eliminate damage to the environment and the biosphere, stimulate the health and welfare of humanity, and enrich the

understanding of the ecological systems and natural resources important to the people of Hawaii (HRS 344; DOH, 1974b). One of the mandates of the policy is to conserve natural resources so that natural resources, such as land, water, mineral, visual, and air, are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's natural environmental characteristics.

The Proposed Action does not conflict with the State Environmental Policy. The environmental resources identified in the area and the potential impacts to these resources are addressed in **Section 4**.

3.1.9 Flood Hazard Areas

Because the Proposed Action is located in an SFHA (Zone VE / AE / X), it is subject to the provisions of Chapter 21A, ROH (Flood Hazard Areas), which imposes restrictions on construction in areas subject to flood hazards in order to protect life and property and reduce public costs for flood control, rescue, and relief efforts. The Proposed Action will comply with the applicable provisions and development standards of Chapter 21A, ROH. Specific mitigation measures to minimize damage from flood hazards are discussed in **Section 4.6.2.3**.

3.2 SOCIAL AND ECONOMIC POLICIES, PLANS, AND CONTROLS

3.2.1 Hawaii State Plan

The Hawaii State Plan (HSP), which is set forth in the *Hawaii State Planning Act* (HRS 226; Office of Planning, 1978), is a comprehensive, long-term plan that identifies the goals, objectives, policies, and priorities for the State of Hawaii. It provides guidelines for growth, development, and the allocation of State resources. The plan contains diverse policies and objectives on topics of State interest, including the population, the economy (e.g., agriculture, the visitor industry), the physical environment (e.g., natural resources, historic resources, quality of the environment), facility systems (e.g., solid and liquid wastes, water, energy), socio-cultural advancement (e.g., housing, health, culture), and sustainability.

The Proposed Action is consistent with the goals, objectives, policies, and priority guidelines listed in the HSP, and directly supports multiple objectives and policies of the HSP by decreasing the risk of wastewater spills and protecting environmental resources. The most relevant sections of the HSP in relationship to the Proposed Action include the following: land-based, shoreline, and marine resources (HRS 226-11); land, air, and water quality (HRS 226-13); and facility systems – solid and liquid wastes (HRS 226-15). These sections are described below.

Land-Based, Shoreline, and Marine Resources

The Proposed Action is not in conflict with the State's two objectives.

- Prudent use of Hawaii's land-based, shoreline, and marine resources.
- Effective protection of Hawaii's unique and fragile environmental resources.

The Proposed Action will have no long-term negative impact on land-based, shoreline, or marine resources. No unique and fragile environmental resources have been identified in the area. The potential impacts to these resources are addressed in **Section 4**.

Land, Air, and Water Quality

The Proposed Action is not in conflict with the State's two objectives.

- Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.
- Greater public awareness and appreciation of Hawaii's environmental resources.

The Proposed Action will have no negative impact on land, air, or water resources. The potential impacts to these resources are addressed in Section 4.

Facility Systems - Solid and Liquid Wastes

The Proposed Action is not in conflict with the State's two objectives.

- Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.
- Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.

The Proposed Action will utilize an on-site IWS to treat wastewater and disposal of solid and liquid wastes. The IWS has been approved by the DOH and meets the requirements of HAR Chapter 11-62. See **Appendix B** plans, permits and approvals.

3.2.2 Hawaii State Land Use Controls and City and County of Honolulu Zoning Regulations

Land in the State of Hawaii is divided into the following four classifications: (1) urban, (2) agriculture, (3) rural, and (4) conservation. The project location is designated as an urban district. The urban district generally includes lands characterized by "city-like" concentrations of people, structures, and services. This district also includes vacant areas for future development. Generally, lot sizes and uses permitted in the district area are established by the respective county through ordinances or rules. The CCH zoning designation for the project location is mix R-5 District and AG-2 District residential community. According to the CCH LUO (Chapter 21, ROH), the intent, policies and guidelines related to residential communities

are to maintain sufficient inventory of land within the community growth boundary to accommodate existing and future housing needs of residents within the Koʻolau Loa area. It allows for limited expansion of residential areas in Kahuku and Lāʻie to meet existing pent-up demand and anticipated future housing needs related to the expansion of employment opportunities in the region. The existing inventory of residential land for the communities of Kaʻaʻawa, Hauʻula and Punaluʻu will be maintained, and future residential needs in these communities will be met through infill residential development on appropriately-zoned vacant lots within existing neighborhoods. No new housing areas are designated in these areas. The importance of respecting and preserving the natural setting of the Koʻolau Loa region is stressed by requiring development in residential areas to be sensitive to physical constraints and to have minimal impact on the area's rural character. Finally, rural design considerations for zoning and subdivisions approvals are supported, as is affordable housing that meets the need for the region's pent-up demand and overcrowding. The Proposed Action is consistent with the prescribed land use classification and zoning regulations for the area.

3.2.3 Oʻahu General Plan

The Oʻahu General Plan (OGP) is a comprehensive statement of objectives and policies that outline the long- range aspirations of Oʻahu's residents and the strategies to achieve them. It is the first tier of and lays the foundation for a comprehensive planning process that addresses physical, social, cultural, economic, and environmental concerns affecting the City and County of Honolulu. The OGP was adopted in 1977 (CCH, 1977) and has since been amended on numerous occasions (e.g., CCH, 2002). In December 2017, a proposed revised OGP was released (CCH, 2017). In April 2018, a resolution to adopt the 2017 edition of the OGP was submitted to the City Council and the resolution is pending review (CCH, 2018c).

The OGP seeks to protect and enhance Oʻahu's natural beauty and environmental attributes by mitigating the degradation of these assets (CCH, 2002). The Proposed Action is consistent with the goals of the OGP, the Natural Environment subject area (specifically, Objective A, protecting and preserving the natural environment). Similarly, the Proposed Acton is consistent with the goals of the Culture and Recreation subject area (specifically, Objective D, Policy 12, provide for safe and secure use of public parks, beaches, and recreation facilities). The Proposed Acton is not anticipated to impact natural resources of the nearby shoreline and ocean and the scenic vistas enjoyed in this area of Oʻahu's north shore communities.

3.2.4 Koʻolau Loa Stainable Communities Plan

Oʻahu is divided into eight geographic planning areas and each area has developed a Development Plan or Sustainable Communities Plan that has been adopted by City Council ordinance. The Koʻolau Loa Sustainable Communities Plan (SCP) presents the vision for the long-range future of the Koʻolau Loa region, which is to preserve the region's rural character and its natural, cultural, scenic, and agricultural

resources (CCH, 1999). In determining whether a proposed development is consistent with the Koʻolau Loa SCP, the responsible agency shall primarily take into consideration the extent to which the development is consistent with the vision, policies, and guidelines set forth in the Koʻolau Loa SCP; "vison" means *the future outlook for the Koʻolau Loa region extending out to the year 2035 and beyond, which seeks to preserve the region's overall rural character and its natural, cultural and scenic resources. Some growth in housing and related support services is envisioned to support the planned expansion of the Brigham Young University-Hawaii. Nevertheless, the future of the Koʻolau Loa region is to remain country, characterized by small towns and villages with distinctive identities that exist in harmony with the natural settings, defined by mountain ridges and scenic open spaces.*[27] (CCH, 2020).

In context, the vision of the Koʻolau Loa SCP is to maintain and enhance the man-made and natural elements that make Koʻolau Loa's character so unique and special, in contrast to the urbanized areas of Oʻahu. Consistent with the General Plan policies to preserve the region's open space and country atmosphere of the rural areas, the Koʻolau Loa SCP allows for limited growth to accommodate existing and future housing and employment needs, maintaining a population that is consistent with the General Plan.

Based on the Koʻolau Loa SCP, land use policies for existing and new residential communities that are applicable to the Proposed Action include the following (§3.5.1; CCH, 2020):

- Respect and help preserve the natural setting of the Koʻolau Loa region by requiring development in residential areas to be sensitive to physical constraints and have minimal impact on the area's rural character.
- Maintain sufficient inventory of land within the Community Growth Boundary to accommodate existing and future housing needs of residents within the Koʻolau Loa area by supporting limited expansion of residential areas in Kahuku and Lāʻie to meet existing pent-up demand and provide land for affordable work force housing.
- Increase housing affordability to Koʻolau Loa residents.
- Maintain the existing inventory of residential land for the communities of Kaʻaʻawa, Hauʻula and Punaluʻu. Future residential needs in these communities will be met through infill residential development on appropriately zoned vacant lots within existing neighborhoods. No new housing areas are designated in these areas.
- Adopt zoning, subdivision and related project design regulations which foster a rural character in new residential developments and improvements to existing residential areas.
- Encourage and support the development of affordable housing in the region in order to address existing pent-up demand for housing and overcrowded housing conditions.

[27] CCH, 2020, Koʻolau Loa Sustainable Communities Plan, Department of Planning and Permitting, November 2020

The guidelines of the Ko'olau Loa SCP (Section 3.5.2, CCH 2020) place an emphasis on the single-family homes, classified as "rural residential" and the importance of exhibiting the physical characteristics of a rural context, including:

- Small building footprints, less lot coverage, relatively narrow roadway widths, and greater open space than encountered in more urbanized areas;
- Alternative development patterns, such as clustering and traditional compact layouts to preserve open space and minimize infrastructure demands;
- Low-rise structures, general not exceeding two stories with minimal amount of paved driveway surfaces, and a landscaping design that reduces impervious surfaces, such as grassed swales rather than curbs and gutters; and
- Building, landscaping, and fencing design elements that impart an informal, open feeling.

The Proposed Action, is considered a "rural residential" development, intended to consist of single-family homes in a "country" setting from 3,500 SF to just under an acre, with new rural residential development occurring through infill development on exiting residential-zoned parcels. The intent of this rural residential classification is to designate and distinguish it from urban residential development. The Proposed Action would be consistent with the Ko'olau Loa SCP's general policies and guidelines for land use, rural development standards, scale and character, and, since development is on level terrain, the site densities can approach the higher range of rural residential use, however with the shared driveway concept, architectural details providing visual interest and individual identity accentuate the rural setting, which will have beneficial impacts on the area's rural character with an aesthetically pleasing dwelling design.

3.3 BUILDING, GRADING, AND FIRE PERMITS

Prior to construction of the residential dwellings at the TMK, the necessary permits will be obtained from the appropriate State of Hawaii and CCH Agencies. Building permits are required per ROH Sec. 18-3.1. All work completed, whether or not a permit is required, shall comply with all building codes and regulations[28]. A grading permit is required when excavation or filling earth materials (rock, coral, gravel, soil, recycled asphalt pavement) meets the following: (a) greater than 3 feet in height, or (b) greater than 50 CY in volume (excavation or fill, not net), or to re-redirect existing surface run-off patterns with respect to adjacent properties[29]. Effective January 19, 2021, the 2012 National Fire Protection Association 1 Fire Code was adopted as the Fire Code of the CCH to reflect the following permits issued by the Honolulu Fire Department (HFD) and their applicable permit fees. A permit or license shall be obtained from the HFD Fire Prevention Bureau or designated agency prior to engaging in the following activities, operations, practices, or functions: (Section 1.12.8, as amended).[30]

[28] https://www.honolulu.gov/dpp/permitting/builing-permits.html
[29] https://www.honolulu.gov/dpp/permitting/site-development-permits/civil-engineering/grading-permits.html
[30] https://fire.honolulu.gov/fire-code/permits/

4.0 PHYSICAL ENVIRONMENT AND POTENTIAL IMPACTS

This section describes the environmental setting and baseline conditions of the physical environmental resources within the project site(s) associated with the Proposed Action. These include Land (geology and soils), Water Resources, Biological Resources, Air Quality, Noise, Infrastructure and Climate. To analyze how the Proposed Action would potentially impact resources within the Proposed Action APE, the existing conditions of the area must be described and defined.

This section then evaluates the probable consequences on environmental resources of the Proposed Action and any Alternatives carried forward.

Cumulative impacts on environmental resources can result from the incremental effects of development; and other actions when evaluated in conjunction with other past, present, and reasonably foreseeable future actions. No cumulative impacts have been identified for the Proposed Action.

An analysis of a wide range of resources indicated that the Proposed Action is unlikely to affect or be affected by the environmental resources as described in Section 4.1 through 4.6.

4.1 GEOLOGY AND SOILS

Single residential family home construction that follows CCH and State approvals and permits typically has less than significant negative impacts on the natural, built, or social environment in which they are constructed and on the surrounding area. One of the principal objectives of an EA is to assess whether such impacts could be significant. The areas of potential concern that have been identified regarding the R-5 Residential District (R-5 District) and potential AG-2 District Agricultural District (AG-2 District District) construction in the SMA and Flood Zone VE/AE/X are as follows: (1) climate change (flooding and sea-level rise); (2) receiving water/wetland impacts; (3) biological impacts; and (4) construction-related air quality and noise effects.

4.1.1 Definition of Resource

Geology describes the surface and subsurface materials of which a land area is composed, including soils and rocks. The characteristics of soils and underlying rocks include stability, slope, compatibility, shear strength, and productivity. Discussions of this resource area typically identify existing geological conditions and determine how action alternatives would likely affect geological and soil resources.

4.1.2 Affected Environment

The TMK is located on a relatively flat coastal plain, at a surface elevation ranging from approximately 3 to 6 feet amsl. There is no significant elevation change across the Property and no unique topographical

features are located on the Property.
O‘ahu consists of the eroded remnants of three shield volcanoes, Kaena, Waianae, and Ko‘olau. Kaena is the oldest of the three volcanoes and it was predominantly submarine[31]. The TMK is located near the coastline on the eastern side of the Ko‘olau volcanic shield. Lavas erupted during the shield-building phase of the volcano belong to the Ko‘olau Volcanic Series. Following formation of the Ko‘olau shield, a long period of volcanic quiescence occurred, during which the shield was deeply eroded. Following this erosional period, eruptive activity resumed. Lavas and pyroclastic material erupted during this period belong to the Honolulu Volcanic Series[32].

The site-specific information provided below is from the 1972 USDA, SCS Soil Survey[33], unless otherwise indicated.

The general soil associations in the area of the Proposed Action belongs to the Kaena-Waialua association: Deep, mainly nearly level and sloping, poorly drained to excessively drained soils that have a fine- to course-textured subsoil or underlying material; or coastal plains and talus slopes and in drainageways.

The principal lithologic unit underlying the TMK is Mokuleia clay loam (Mt). The Mokuleia series consists of well-drained soils along the coast This series consists of well-drained soils along the coastal plains on the islands of O‘ahu and Kauai. These formed in recent alluvium deposited over coral sand.

They are shallow and nearly level. Elevations range from nearly sea level to 100 feet. The annual rainfall amounts to 15 to 10 inches on O‘ahu and 50 to 100 inches on Kauai. The mean annual soil temperature is 74° F. Mokuleia soils are geographically associated with Hanalei, Jaucas, and Keaau soils. In this survey area a poorly drained variant of the Mokuleia series was mapped. This soil, Mokuleia clay, poorly drained variant, is described in alphabetical order, along with other mapping units of this series. These soils are used for sugarcane, truck crops, and pasture. The natural vegetation consists of kiawe, klu, koa haole, and bermudagrass in the drier areas and napier-grass, guava, and joee in the wetter areas.

Mokuleia clay loam (Mt). This soil occurs as small areas on the coastal plains. It is nearly level, included in mapping were small areas of Jaucas soils; small areas of very deep, well-drained soils in drainageways; and small areas of poorly drained clay soils underlain by reef limestone.

In a representative profile the surface layer is very dark grayish-brown clay loam about 16 inches thick.

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[31] Sinton, John M., Eason, Deborah E. Eason, Tardona, Mary, Pyle, Douglas, van der Zander, Iris, Guillou, Herve, Clague, David A., and Mahoney, John J., 2014, Kaena Volcano – A Precursor Volcano of the Island of Oahu, Hawaii: Geological Society of America Bulletin, May 2, 2014.
[32] Stearns, H. T. and Vaksvik, K. N., 1935, Geology and Groundwater Resources of the Island of Oahu, Hawaii: Hawaii Div. Hydrogr. Bull. 1, 479 p.
[33] Soil Survey of State of Hawaii. August 1972. U. S. Department of Agriculture, Soil Conservation Service in cooperation with University of Hawaii Agricultural Experiment Station, General Soils Map. See also Reference Section Foote, D.E., … and University of Hawaii, 1972.

The next layer, 34 to more than 48 inches thick, is dark-brown and light-gray, single-grain sand and loamy sand. The surface layer is neutral in reaction, and the underlying material is moderately alkaline.

Permeability is moderate in the surface layer and rapid eroded in the subsoil. Runoff is very slow, and the erosion hazard is no more than slight. The available water capacity is about 1.8 inches per foot in the surface layer and about 1.0 inch per foot in the subsoil. In places roots penetrate to a depth of 5 feet or more.

As stated above, this soil is used for sugarcane, truck crops, and pasture, with a capability classification of II if irrigated, and VI if non-irrigated; sugarcane group 1; pasture group 3.

The Land Study Bureau (LSB) of the University of Hawaii at Manoa prepared an inventory and evaluation of the State's land resources during the 1960s and 1970s[34]. Hawaii_Statewide_GIS_LSB

The LSB grouped undeveloped lands in the State into homogeneous units of land types; described their condition and environment; rated the land on its overall quality in terms of agricultural productivity; appraised its performance for selected alternative crops; and delineated the various land types and groupings based on soil properties and productive capabilities. From these criteria, overall ratings of A through E were created; with A having the overall highest soil productivity rating and E having the lowest (University of Hawaii, 1972). The TMK has LSB rated soils of B and C. The Proposed Action would involve localized lot soil disturbances to prepare each site for dwelling construction to appropriate SMA standards, however it is anticipated that soils excavated will be retained on site and utilized, therefore the Proposed Action would not result in permanent loss to LSB rated soils.

A Phase I Environmental Site Assessment is not warranted for the project since there is no reason to suspect hazardous substances listed under the Comprehensive Environmental Response, Compensation, and Liability Act to be present.

4.1.3 Environmental Consequences

Figures 1b (oblique aerial) and 5b (survey plans) show the lot areas of new dwelling construction and where soil disturbance will occur. The only area of subsurface excavation will be drilling and trenching to install poles for dwelling, IWS chamber and piping, and retaining walls. The temporary work area will be prepared so grass can easily take over the bare dirt areas after project completion. Clean soil will be imported, from an engineering design standpoint, to backfill as needed. The Proposed Action will increase impervious surfaces, meeting the criteria identified in the CCH building permit. The Proposed Action is not anticipated to include offsite export of soil.

[34] Hawaii Statewide GIS Program, Land Study Bureau's Detailed Agricultural land productivity ratings for Kauai, Oahu, Maui, Molokai, Lanai and Hawaii, 1965-1972.

Excavation and grading will be required for each lot during construction of the residential homes, so there will be short-term construction related impacts to localized ground topography and soils from the Proposed Action. The Proposed Action would implement standard construction BMPs described in **Table 4-1** and follow the CCH Stormwater Construction Best Management Practice Manual as applicable during construction, in addition to the provisions of the grading permit that will need to be obtained. Adherence to these regulatory guidelines, which would include protecting exposed soils from runoff through the use of silt fences, silt screens, filter bags or socks, silt and dust fences, tarping soil stockpiles, and other appropriate BMPs, would mitigate potential significant impacts of soil erosion and fugitive dust during grading or excavation. Therefore, there is no significant long-term or cumulative adverse effects to site soils, topography or geological resources anticipated from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.1.2**.

Table 4-1. Best Management Practices

BMPs	Purpose	Description
Silt Fencing	Erosion Control	A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site. Silt fences are used for construction sites with relatively small drainage areas.
Filter Socks	Erosion Control	The filter sock is typically a mesh tube filled with composted material that is placed perpendicular to the direction of sheet flow to control erosion and retain sediment in and/or near the disturbed areas. Filter Socks in conjunction with Silt Fencing offer an erosion control treatment train to keep stormwater from transporting materials from the property.
Wind Breaks	Dust Control	Wind breaks are barriers (either natural or constructed) that reduce wind velocity through a site and, therefore, reduce the possibility of suspended particles leaving the site
Sprinkling/Irrigation	Dust Control	Sprinkling the ground surface with water until it is moist controls dust on dirt roads and open spaces.

4.2 WATER RESOURCES

4.2.1 Definition of Resource

Water resources are sources of water available for use by humans, flora, or fauna, including surface

water, groundwater, nearshore waters, and wetlands. Surface water resources, include but are not limited to stormwater, lakes, streams and rivers. Groundwater is classified as any source of water beneath the ground surface and is the primary source of potable water used to support human consumption. Nearshore waters can be directly affected by human activity and are important for human recreation and subsistence. Wetlands are habitats that are subject to permanent or periodic inundation or prolonged soil saturation, and include marshes, swamps, and similar areas. Areas described and mapped as wetland communities may also contain small streams or shallow ponds, or lake edges.

4.2.2 Affected Environment

In general, the TMK is bounded by residential homes, landscaped open-space and farmland to the north, Punalu‘u Beach Park and the Pacific Ocean across Kamehameha Highway to the east. Punalu‘u Stream and an estuarine wetland area is to the south/southwest and to the west towards the mountain (*mauka*) are agricultural lots and non-delineated freshwater emergent wetlands. The “UIC line” (boundary between exempted aquifers and underground sources of drinking water) is located approx. 300-feet *mauka* of the TMK’s western-most boundary (**Figure 1b, 4a, 6a, 6b**).

Surface Water

In the 15th Century, Kalamakua, the ruling chief of O‘ahu is credited with establishing numerous irrigation ditches and agricultural terraces for taro. In Ko‘olau Loa, the development of these irrigation systems sustained a sizeable population for many generations. In Punalu‘u, extensive loi kalo and irrigation systems existed and significant amounts of kalo were cultivated. Kahana and Punalu‘u districts, were known as the bread baskets of Ko‘olau Loa. The currently named Punalu‘u Ditch system was originally constructed to irrigate sugarcane lands in Punalu‘u around 1905, and concrete-lined irrigation channels were added to the ditch system in 1922 to transport water. Sugarcane was cultivated in Punalu‘u until the 1970’s.

The Punalu‘u Stream and *ahupua‘a* has been negatively impacted historically, including water diversions, non-native invasive aquatic, flora and fauna; stream channelization; unprotected stream crossings; land grading and alteration of natural drainage patterns; tillage; aquaculture; and residential development. Currently, over 50-ac. of the lower Punalu‘u Valley have flooded annually, causing economic hardship. The flooding in 2005 and heavy flooding on July 19, 2014, damaged roads, properties, fields and crops. Kamehameha Schools had identified the lower Punalu‘u Stream Valley as an opportunity to implement a restoration project, incorporating it’s *ahupua‘a* management strategies to provide flood mitigation and restore natural ecological form and process, and initially reached out to the community in 2007 presenting concepts for a Punalu‘u Ahupua‘a Plan, including stream stewardship and flood mitigation planning. The primary objective of the Punalu‘u Stream Restoration Project is to develop sustainable flood protection and restore hydrologic processes in the Punalu‘u Watershed with an anticipated completion date of late

2023 to early 2024[35].

Punalu‘u Stream or Punalu‘u Ditch Intake (USGS 16301050) Latitude 21°33’23.0”, Longitude 157°53’56.0” NAD83 Honolulu County, Hawaii, Hydrologic Unit 20060000, has a drainage area of 2.77 square miles and the datum of gage is 212 feet above LMSL. The USGS period of record is from October 1, 1953, to current year. No field or laboratory sampling data is available, however extremes for that period include maximum discharge of 6,900 ft^3/sec (51,615 gallons/sec) on March 20, 1991, with a corresponding gage height of approximately 10 ft[36].

The area of the Proposed Action associated with dwelling construction includes Units 4, 5, 7, and 9 on their respective vacant grassed lots (4171 SF, 4099 SF, 8408 SF, and 10333 SF, respectively), and Units 1-3, and 8 for potential new additions. Any stormwater associated with construction activities are anticipated to be contained and infiltrate into the surrounding grassy areas due to a slight topographic depression and neighboring CMU retaining walls. There is no storm drains located in the area and with minimal impervious surfaces, most of the stormwater on-site percolates due to natural topography and soils. Construction BMPs, including the installation of sediment fences, silt screens, bags or filter socks, shall be implemented during construction to prevent any runoff, sediment, and erosion from potentially impacting adjacent wetlands, nearshore water, and the State waters as specified in Hawaii Administrative Rules Chapter 11-54. These BMPs would be implemented at all locations, especially at units 7 and 9, which are closer to wetland general boundaries. The unit 9 owner obtained a delineation concurrence (DC) as an alternative to a jurisdictional determination (JD), which can be used for planning purposes for the new dwellings permit applications and approvals for construction as far from the wetland boundary as delineated in Figure I-2, Proposed Plot Plan and Appendix B, as feasible.

Ground Water

Groundwater in Hawaii exists in two principal types of aquifers. The first and most important type, in terms of drinking water resources, is the basal aquifer. The basal aquifer exists as a lens of fresh water floating on and displacing seawater within the pore spaces, fractures, and voids of the basalt that forms the underlying mass of each Hawaiian island. In parts of O‘ahu, including the area of the Proposed Action, groundwater in the basal aquifer is confined by the overlying caprock and is under pressure. Water that flows freely to the surface from wells that tap the basal aquifer is referred to as artesian.

[35] Kamehameha Schools, Punalu‘u Stream Restoration Project, Aina Pauahi website visited 23JUL2023 ksbe.edu

[36] USGS operated in cooperation with State of Hawaii Commission on Water Resource Management (CMRM) https://waterdata.usgs.gov retrieved 23JUL2023.

The second type of aquifer is the caprock aquifer, which consists of various kinds of unconfined and semi-confined groundwater. The nearly impermeable sediments that form the caprock separate the caprock aquifer from the basal aquifer. The impermeable nature of these materials and the artesian nature of the basal aquifer severely restrict the downward migration of groundwater from the upper caprock aquifer. Groundwater in the area of the Proposed Action is part of a basal aquifer within the Koʻolau Loa Aquifer System of the Windward Aquifer Sector. The upper aquifer is classified as an unconfined aquifer that occurs in sedimentary nonvolcanic lithology. It is currently used and is ecologically important but is not used as a drinking water source. It is highly vulnerable to contamination, is irreplaceable, and has low salinity. The lower aquifer is classified as a confined aquifer that occurs in flank lavas. It is currently used and is ecologically important but is not used as a drinking water source. It has low vulnerability to contamination, is irreplaceable, and has low salinity[37].

Based on well logs for deeper wells installed nearby, the caprock extends to 150 feet bgs (SSFM Engineers, Inc., 1993). Therefore, it is assumed that the basal drinking water aquifer in the area of the Proposed Action occurs at a depth of 150 feet or greater. The direction of groundwater flow in the area is most likely to the north-northeast, towards the Pacific Ocean. Shallow groundwater associated with the Proposed Action is likely tidally influenced owing to its proximity to the ocean.

The nearest drinking water supply well 02 is approximately 1,500 ft. west of the TMK across the UIC line within the Kapono Ahupuaʻa. Water well 01 is approximately 2,500 ft. to the south along the coast near Punaluʻu Beach Park (**Figure 6a**). Based on the distance and direction to the nearest drinking water supply wells and the depth to the basal (drinking water) aquifer, it is unlikely that contaminants originating at the Property have impacted or could impact drinking water sources.

The coastal waters adjacent to the Property are classified as Class A, which precludes any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. The specific criteria applicable to marine waters are included in HAR Chapter 11-54 (DOH, 2014b).

Wetlands

As identified by the U.S. Fish and Wildlife Service (USFWS), wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is "nonsoil" and is saturated with water or covered by shallow water at some time during the growing season of each year. Deepwater habitats are permanently flooded lands lying below the deepwater boundary of wetlands and defined as:

[37] Mink, J. F. and Lau, L. S., 1990, Aquifer Identification and Classification for the Island of Oahu, Groundwater Protection Strategy for Hawaii: Water Resources Research Center Technical Report No. 179, February 1990.

Environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live[38].

The USFWS Wetlands Inventory Mapper (USFWS, 2020b) was reviewed to identify the general boundaries and type of the wetland habitat present adjacent to Unit 10 and 11, which includes Punalu'u Stream and an estuarine wetland area to the south, and freshwater emergent wetlands associated with the agricultural areas of the TMK (**Figure 1b, 4a, 6a, 6b**). **Figure 6b** and **Appendix A - Site Photos, Figure 1**, identifies a 6.11-acre Freshwater Emergent Wetland habitat (Classification code [Cc]: PEM1Cd) southwest and adjacent to Unit 11, and a Freshwater Forested / Shrub Wetland System (0.86 acres [Cc: PSS3C] and 0.14 acres [PFO3A]) and the Punalu'u Stream mouth (a 0.13 acre Estuarine and Marine Deepwater habitat (Cc: E1UBLx) to the south of Unit 10. Unit 10 and 11 are part of the larger TMK, however no development is currently planned for these larger Lots, and therefore not part of the Proposed Action. The shoreline areas of the Pacific Ocean are considered Estuarine and Marne Wetland habitat and according to the USFWS Mapper total approximately 19.53 acres [Cc:M2USN]). This habitat is over 300-ft. to the east across Kamehameha Highway from the Proposed Action. The protected marine species associated with this area are discussed in the Biological Resources Section 4.3.1.

A USACE jurisdictional wetland means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation. A Jurisdictional Determination (JD) is a two-step process of 1) identifying and locating aquatic resources (including wetlands) on a property, which is referred to as a Delineation, and 2) determining whether those areas are regulated by the USACE under section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. Receiving a JD is optional and may be used during for planning purposes. A JD may also be used with submittals of Permit Applications**.**

A delineation is the process of identifying and locating aquatic resources (including wetlands) on a property. The Corps now offers "Delineation Concurrences" (DC) for delineations as an alternative to receiving Jurisdictional Determinations. A DC provides concurrence that the delineated boundaries of wetlands and other aquatic resources on a property are a reasonable representation of aquatic resources on-site. A DC does not address the jurisdictional status of the aquatic resources. A DC may be used for planning purposes and may also be used with submittals of Permit Applications. As part of the Proposed Action, and Unit 9 development, a wetlands delineation concurrence from the Corps is anticipated and design plans for the unit will have to take into consideration the 50-foot wetland setback area for this "special wetland" within an SMA or the owner must request a waiver to build within this area. This information has been incorporated into this EA and SMA Major Permitting process and building applications and approvals.

[38] Classification of Wetlands and Deepwater Habitats of the United States, Cowardin, et al. 1979.

4.2.3 Environmental Consequences

Based on the description of potential water resource effects below, it has been determined that the Proposed Action with proper agency permitting and approvals, along with recommended construction BMPs, will not have significant impacts on the environment. The Proposed Action is not anticipated to include offsite export of soil. The Proposed Action would implement standard construction BMPs described in **Table 4-1** and follow the CCH Stormwater Construction Best Management Practice Manual as applicable during construction, in addition to the provisions of the grading permit that will need to be obtained. Adherence to these regulatory guidelines, which would include protecting exposed soils from runoff through the use of filter socks, silt and dust fences, tarping soil stockpiles, and other appropriate BMPs, would mitigate potential significant impacts of soil erosion and fugitive dust during grading or excavation. Therefore, there is no significant long-term or cumulative adverse effects to water resources anticipated from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.2.2**.

Surface Water

Less than significant short-term impacts from stormwater runoff are anticipated during construction. Construction BMPs as identified in **Table 4-1** and others (e.g., silt fencing, sediment socks, wheel/tire wash station, etc. [see Table 4-1]) will be implemented to the MEP to prevent soil generated by construction activities from leaving the project site during rain events (i.e., stormwater runoff) or by vehicle ("tracking"). No additional discharge to of surface water runoff onto the Kamehameha Hwy. ROW is permitted, all runoff from the site will be managed and mitigated on-site. The grassed vegetation should be kept as much as possible to retain and filter the transport of sediment. Upon completion of construction activities, any construction-disturbed areas surrounding the residential home will be restored to its previous condition (e.g., grass).

There will be less than significant impact in the long-term, as stormwater runoff will be contained on-site, like existing conditions. All areas disturbed during construction will be landscaped with vegetation or covered with concrete (e.g., driveway and carport) in accordance with the building permits. The project will slightly increase impervious surfaces on-site, but the run-off will be contained on-site, percolating into the ground. Three parking spaces will be created, and the Proposed Action will comply with the landscaping requirement of a minimum five-foot landscape strip adjacent to any adjoining street right-of-way (§21-4, ROH). There will be no changes to existing surface water drainage patterns.

Ground Water

The Proposed Action is anticipated to have no adverse impacts on shallow groundwater or the basal (drinking water) aquifer. The IWS planned for installation has been approved by the Department of Health (**Appendix B**), must meet the requirements of HAR Chapter 11-62, "Wastewater Systems" (DOH, 2016a).

The proposed IWS is anticipated to have no adverse impacts on groundwater during operation or coastal waters during construction. During construction, barriers (e.g., sediment fences, silt screens, bags, or environmental filter socks) will be used as needed to limit sediment and LBSP from discharging into the coastal waters.

Wetlands

The Proposed Action would implement standard construction BMPs described in Table 1, which would significantly decrease the chance of stormwater associated with construction activities from reaching the wetland areas, especially at the unit 9 lot, which are grassed and relatively flat, but within 50-feet of the of the delineated special wetland area, which bisects the lot. Units 4 and 5 are over 1,000 feet from the wetlands, topographically downgradient and stormwater would be retained on property by topography or the CMU walls. There are currently no plans for Unit 10 to construct, as the wetland area encompasses 90% of the area, and Unit 11, where the wetland consumes the entire western portion of the unit and 50% of the total lot area. Options for development are briefly discussed in Section 2. Therefore, considering the Proposed Action will be following state and CCH rules and regulations, acquiring applicable permits and approvals, and implementing construction BMPs, the special wetland area would not be impacted by the Proposed Action.

4.3 BIOLOGICAL RESOURCES

There are numerous recognized ecosystems in Hawaii. Because so many Hawaiian species are highly specialized, populations are small and many of Hawaii's plants and animals are listed as threatened or endangered species by the USFW. The definition of this resource and the four biological communities within (or near) the Proposed Action are described and evaluated.

4.3.1 Definition of Resource

Biological resources include native or naturalized plant and animal species and the vegetation communities within which they occur. Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socio-economic values to society. This analysis focuses on species or vegetation communities that are important to the functions of biological systems, are of special public importance, or are protected under Federal or State law or stature. For purposes of the EA, these resources are divided into four categories: vegetation (floral) types, wildlife (faunal), marine (flora and fauna), and special-status species. Special-status species include those species listed by the USFWS under the ESA.

4.3.2 Affected Environment

Vegetation

Vegetation types include all existing terrestrial plant communities as well as their individual component species. The area of potential effect for vegetation includes only those areas potentially subject to ground disturbance. The entire TMK was grubbed during development in the mid-1970s. Existing properties have a variety trees and shrubs, including several palm species (i.e., *Cocos* and *Pandus* genus of monocots), Naupaka (*Scaevola sencea*) and other species present, herbaceous Musa banana plants, among others. Abandoned sugar cane (*Saccharum officinarum*) with other mixed Poaceae family grasses Para/Buffalo/California grass (*Brachiaria mutica*) grow in dense mats along the TMK mauka perimeter (i.e., Agricultural lots and non-delineated wetland boundary).

The units planned for home construction are vacant grassed lots, with some recent floral plantings of Hawaiian ti plant (*Cordyline minalis*), and the genus's *Hibiscus* and *Plumeria*, just to name a few of the ornamental flowering yard plantings.

Wildlife

For the purposes of this EA, wildlife includes all animals except for those identified as special-status species, including amphibians, reptiles, birds, and mammals. Wildlife also includes those bird species that are not special-status species but are protected under the 1918 Federal Migratory Bird Treaty Act (MBTA). Wildlife in the area of the Property is limited to mammals and birds which have adapted to the urban environment. Species commonly found in coastal environments on the Windward side of the island include feral cats, rats, house mice, and Indian mongoose. Birds' common to the Property and observed during the site visit include the common mynah, Red-crested Cardinal, Northern Cardinal, Java Sparrow, Spotted Dove, Zebra Dove, and Japanese White-eye.

The Pacific golden plover (kōlea) (*Pluvialis fulva)*, although not seen during the biological survey, is a migratory bird that could potentially forage in the area. The kōlea breeds in Alaska and Siberia (May-July) and migrates to Asia, Australia, and Pacific Islands in August and September, and stays until April or May. The kōlea is a common MBTA species in Hawaii, adapting remarkedly well to human presence and to human alteration of the natural environment, including backyards, parks, cemeteries, rooftops, pastures, and golf courses. Because kōlea are site-faithful, each bird returns to, and defends, the same territory year after year, resulting in people observing the comings and goings with special interest. Some observers name and feed their birds, and some birds become tame around their caretakers. The oldest kōlea recorded lived to be at least 21 years, 3 months; its age was unknown at banding[39]. Kōlea are the subject of a Hawaii Audubon Society's citizen science project called Kōlea Count. The birds' habit of returning to the same territory each year allows scientists in Hawai'i to attach tiny light level geolocator devices to the birds and retrieve them the following year in the same location. Such research showed that

[39] Johnson, Oscar W.; Scott, Susan (2016). Hawai'i's Kōlea: The Amazing Transpacific Life of the Pacific Golden-Plover. Honolulu: University of Hawai'i Press. ISBN 978-0-8248-6696-9.

the birds made the 3,000-mile (4,800 km) nonstop flight between Alaska and Hawai'i in 3-4 days.[40]

The State of Hawaii GIS critical habitat map shows no Federal- or State-listed, or candidate threatened or endangered animal species currently associated with the Proposed Action (Office of Planning, 2023).

Marine (Ocean Floral and Faunal Communities)

The coastal and offshore areas across Kamehameha Highway from the Proposed Action are characterized by expansive coral reefs. According to the State GIS benthic habitat map, just offshore, the benthic waters consist of unconsolidated channel sediment and a large 50-90% turf algae zone offshore. No live coral reefs are present in the shallow reef flat. The reef flats are classified as "Pavement." Live corals in the coastal areas are not documented until approximately 0.25 miles offshore (Office of Planning, 2023). The Proposed Action will not impact Marine Flora or Fauna.

Special-Status Species

Special-status species are defined as those plants and animal species listed as threatened, endangered, or proposed as such, including their associated critical habitat, by the USFWS under the ESA or by the State of Hawaii under the Hawaii ESA.

The biological survey of the project site did not find any plants or animals classified as threatened, endangered or specifically designated by any regulatory agency on the Proposed Action project site; therefore, the Proposed Action will not adversely affect endangered or threatened plant species.

The State of Hawaii Geographic Information System (GIS) "threatened and endangered plants map" and "critical habitat map" show no threatened and endangered species are currently found within the Property (Office of Planning, 2023).

According to the Final EA prepared for the Hauʻula Well Replacement[41], located approximately 2 miles north of the Proposed Action, the USFWS noted that federal data indicate the federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) may forage and roost in the vicinity.

The Hawaiian hoary bat is endemic to the islands of Hawaii and distributed only among the major volcanic islands of Hawaii, making it the only extant and native terrestrial mammal in the state. The Hawaiian hoary bat is nocturnal and can be found roosting in a multitude of forest vegetation, typically less than 15

[40] Johnson, O.W.; Fielding, L.; Fox, J.W.; Gold, R.S.; Goodwill, R.H.; Johnson, P.M. "Tracking the migrations of Pacific Golden-Plovers (Pluvialis fulva) between Hawaii and Alaska: New insight on flight performance, breeding ground destinations, and nesting from birds carrying light level geolocators". Wader Study Group Bulletin. 118 (1): 26–31.

[41] Shimabukuro, Endo & Yoshizaki, Inc., 2016, Hauʻula Well Replacement Final Environmental Assessment, Hauʻula, Oahu, Hawaii, Tax Map Key: 5-04-15:030, June 2016.

feet tall[42]. Unlike some bats the Hawaiian hoary bat is a solitary species, meaning it roosts individually rather than in a colony, and will remember their roosts and foraging locations and return repeatedly. The TMK has potential roosting habitat (i.e. coconut palms [Cocos nucifera] and trees at the edge of the property. According to the Final EA prepared for the Hanohano Hale Wastewater Treatment System Replacement, located approximately 1.5 miles north and on the makai-side of Kamehameha Highway of the Proposed Action[43], the USFWS provided a list of protected species that may occur in the vicinity of that Property. In addition to the Hawaiian hoary bat, the USFWS noted that the federally endangered band-rumped storm-petrel (*Oceanodroma castro*) and Hawaiian petrel (*Pterodroma sandwichensis*), and federally threatened green sea turtle (*Chelonia mydas*) and Newell's shearwater (*Puffinus auricularis newelli*) may occur in the vicinity of that Property. The USFWS letter for the project mentioned above is included in **Appendix C**.

The USFWS Critical Habitat for Threatened and Endangered Species online GIS map was also reviewed. No critical habitats were present at or surrounding the Property (USFWS, 2020a). The USFWS Wetlands Inventory Mapper was also reviewed to identify the general boundaries and type of the wetland habitat present adjacent to Unit 10 and 11. **Figure 6 and Appendix A - Site Photos**, **Figure 1**, identifies a 6.11 acre Freshwater Emergent Wetland habitat (Classification code [Cc]: PEM1Cd) southwest and adjacent to Unit 11, and a Freshwater Forested / Shrub Wetland System (0.86 acres [Cc: PSS3C] and 0.14 acres [PFO3A]) and the Punalu'u Stream mouth (a 0.13 acre Estuarine and Marine Deepwater habitat (Cc: E1UBLx) to the south of Unit 10. Unit 10 and 11 are part of the larger TMK, however no development is currently planned for these larger Lots, and therefore not part of the Proposed Action (USFWS, 2020b). The shoreline areas of the Pacific Ocean are considered Estuarine and Marine Wetland habitat and according to the USFWS Mapper total approximately 19.53 acres [Cc:M2USN]). This habitat is over 300-ft. to the east across Kamehameha Highway from the Proposed Action. The protected marine species associated with this area are discussed below.

A wetland delineation was contracted for the Draft EA to depict wetland boundaries within an SMA. The Wetland delineation report is presented in **Appendix F** and **Figure I-2** shows wetland boundary relative to the Proposed Plot Plan as part of the Conceptual Master Site Plan.

4.3.3 Environmental Consequences

The Proposed Action takes place on previously disturbed and manicured lots, with no observed wildlife or vegetation species or communities that are important to the functions of biological systems, are of special public importance, or are protected under Federal or State law or stature. On-site species (cats, rats, mongoose, and various common birds etc.) will be displaced if on-site, and existing grassed vegetation would be removed during construction of the single-family dwellings, but due to the small lot footprint, staggered scheduling of other actions, and on-site BMPs, there would be no significant direct, indirect or

[42] Hawaiian hoary bat Guidance for Renewable Wind Energy Proponents

[43] ESI, 2019, Final Environmental Assessment, Hanohano Hale Wastewater Treatment System Replacement, 53-549 Kamehameha Highway, Hau'ula, Oahu, Hawaii, TMK No. (1) 5-3-008:001, May 2019.

cumulative impact to biological resources from the Proposed Action.

The special-status species (e.g., Hawaiian Monk Seal, and the Green and Hawksbill Sea Turtles) that have the potential to be present at the marine shoreline community, are unlikely to cross Kamehameha Highway and enter the Proposed Action areas. Additionally, the special-status bird species associated with the marine shoreline community may pass through the Proposed Action area due to the proximity to the coastline but are also unlikely to be impacted by the Proposed Action. The same goes for the kōlea, which has been shown to adapt to human alterations of the environment.

While the larger TMK has potential roosting (and foraging) habitat for the Hawaiian hoary bat, units 4 and 5 of the Proposed Action do not. For the construction efforts at unit 9, mitigation measure will be employed (see below), to reduce any potential impact to less than significant. In addition, the TMK is insignificant with regards to the range of the Hawaiian hoary bat for possible foraging and roosting sites.

Therefore, based on the analysis above, there would be a less than significant impact to biological resources from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.3.2**. The following mitigation measures will be implemented to minimize potential impacts to biological resources:

1) Construction activities will be limited to daylight hours to avoid the use of construction work lights which may attract and disorient migrating seabirds and sea turtles. All exterior lighting associated with the Proposed Action will be shielded (per Section 25-6.3(a), ROH). No artificial light will be directed to travel across the property boundary toward the shoreline and ocean waters (per Section 25-6.3(a), ROH). These mitigation measures will be implemented to avoid potential impacts to migrating seabirds and sea turtles.
2) During construction, barriers (e.g., sediment fences, silt screens, bags, or environmental socks) will be used as needed to limit sediment and land-based sources of pollution from leaving the site (in accordance with the State's water quality standards [HAR Chapter 11-54] and City and County of Honolulu Rules Relating to Water Quality, (CCH, 2018b).
3) To protect Hawaiian hoary bats or birds that may use the trees on the TMK for roosting, (a) avoid trimming or removal of trees taller than 15 feet between June 1 and September 15 (Hawaiian hoary bat's pupping season), when juvenile Hawaiian hoary bat that are not yet capable of flying may be roosting in the trees, and (b) restrict working at night under bright lights to avoid attracting insects that bats and birds feed on.

With these mitigation measures and other construction BMPs in place, the effect of the Proposed Action construction is expected to be short-term, resulting in no significant long-term direct, indirect or cumulative adverse impacts to biological resources.

Therefore, no significant long-term or cumulative adverse effects to biological resources are anticipated from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.3.2**.

4.4 AIR QUALITY

4.4.1 Definition of Resource

Air quality is defined by ambient air concentrations of specific pollutants of concern with respect to the health and welfare of the general public. Air quality can be affected by many different man-made and natural sources, including mobile sources, such as vehicular traffic, aircraft, or non-road equipment used for construction activities, and fixed or immobile facilities, referred to as "stationary sources." Stationary sources can include combustion and industrial stacks and exhaust vents. To determine if emissions generated at the Property would adversely affect air quality conditions, potential air quality impacts were evaluated in accordance with national and state air quality standards.

The United States Environmental Protection Agency (USEPA), under the requirement of the CAA, as amended in 1977 and 1990 has establish National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criterial pollutants (40 Code of Federal Regulations [CFR] 50): carbon monoxide (CO), nitrogen dioxides (NO_2), ozone (O_3) (with nitrogen oxides [NO_x]) and volatile organic compounds [VOCs] as precursors), particulate matter (PM) (PM_{10} – less than 10 microns in particle diameter, $PM_{2.5}$ – less than 2.5 microns in particle diameter), lead (Pb), and sulfur dioxide (SO_2) (**Table 4-2**).

Areas where concentrations levels are below the NAAQS for a criteria pollutant are designated as being in "attainment," while areas that have NAAQS concentrations equal to or exceeding the NAAQS are designated as being in "nonattainment."

In addition to NAAQS, The DOH Clean Air Branch has established the State Ambient Air Quality Standards (SAAQS). The DOH Clean Air Branch regularly samples ambient air quality at monitoring stations throughout the State, and annually publishes this information. On O'ahu, there are four monitoring stations. The closest station to the Property that measures multiple parameters is located in Kapolei in the Kapolei Business Park. This station measures sulfur dioxide, carbon monoxide, nitrogen dioxide, lead, ozone, and particulate matter.

4.4.2 Affected Environment

Air quality in the State of Hawaii continues to be one of the best in the nation, and criteria pollutant levels remain well below SAAQS. According to the *Annual Summary 2021 Hawaii Air Quality Data,* air Present air quality in the vicinity of the Property is primarily affected by emissions from motor vehicles and residential and agricultural sources. Air quality data from the nearest monitoring stations suggest that all National and State air quality standards are currently being met, although occasional exceedances of the more stringent State standards for carbon monoxide may occur near congested roadway intersections.

Table 4-2. Federal and State Ambient Air Quality Standards

Pollutant	Hawaii State Standard	Federal Primary Standard
CO		
1-hr	9 ppm	35 ppm
8-hr	4.4 ppm	9ppm
NO_2		
1-hr	- - -	100 ppb
Annual	0.04 ppm (40 ppb)	53 ppb
O_3		
8-hr	0.08 ppm	0.070 ppm
PM_{10}		
24-hr	150 µg/m^3	150 µg/m^3
Annual	50 µg/m^3	- - -
$PM_{2.5}$		
24-hr	- - -	35 µg/m^3
Annual		12 µg/m^3
Pb		
Calendar Quarter	1.5 µg/m^3	1.5 µg/m^3
SO_2		
1-hr	- - -	75 ppb
3-hr	0.5 ppm	- - -
24-hr	0.14 ppm	- - -
Annual	0.03 ppm	- - -
H_2S		
1-hr	25 ppb	None

Sources: State of Hawaii 2021 Air Quality Data Summary, December 2022; Table 2-1 - State and Federal Ambient Air Quality Standards. State standards HAR §11-59; Federal standards 40 CFR

4.4.3 Environmental Consequences

Impacts on air quality from the Proposed Action are anticipated to be less than significant and short-term during the 4–8-month construction period, due to the use of machinery that generates dust, and construction equipment and vehicles that generate emissions that may impact air quality in the immediate area. The prevailing northeasterly Tradewinds are expected to disperse emissions and prevent elevated concentrations.

The short-term effects on air quality during construction will be mitigated by compliance with the DOH rules on air pollution. Fugitive dust emissions will be controlled by implementing BMPs, such as watering active work areas, keeping adjacent paved roads clean, covering open-bodied trucks, and limiting the

area to be disturbed at any given time.

During the operational lifetime of the Proposed Action, air pollutants will be limited to those mobile sources produced from the operation of any combustion vehicles, which would be deminimis to air quality resource.

Therefore, no significant long-term or cumulative adverse effects to air resources are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.4.2**.

4.5 NOISE

4.5.1 Definition of Resource

Noise is unwanted or annoying sound that is generated by both natural and manmade sources. Typically, human response to noise is annoyance, however noise pollution can have negative effects on physical and psychological health, affect workplace productivity, and degrade quality of life. Loudness is the relative measure of the magnitude of a sound and is typically measured in decibels (dB). Decibels are the ratio of the intensity of the sound to a reference intensity based on atmospheric pressure. The dB is a logarithmic unit of measurement that expresses the magnitude of a physical quantity, like sound, relative to a specified or implied reference level. Since it expresses a ratio of two quantities with the same unit, it is a dimensionless unit.

Noise pollution can result from construction activities and heavy equipment operation. The DOH has set maximum permissible sound levels (specified in HAR §11-46-4), which cannot be exceeded beyond the source's property line. These maximums vary based on zoning district, being the highest for industrially zoned parcels. These noise limits apply to "stationary noise sources; and equipment related to agricultural, construction, and industrial activities". "Construction equipment" means any device designed and intended for use in construction, including but not limited to any air compressor, pile driver, bulldozer, pneumatic hammer, steam shovel, derrick, crane, tractor, grader, loader, power saw, pump, pneumatic drill, compactor, on-site vehicle, and power hand tool (HAR §11-46-4(a)).

To determine if noise generated during the Proposed Action would adversely affect noise quality in the area, potential noise impacts were evaluated in accordance with HAR §11-46 established noise limits for Class A: Area's equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type. The maximum permissible sound level for areas zoned as residential is 55 A-weighted decibels [dBA] during the daytime (7 am to 10 pm) and 45 dBA during the nighttime (10 pm to 7 am) (DOH, 1996). The maximum permissible sound level can be exceeded for short periods but not for more than ten percent of the time within any twenty-minute period. The maximum permissible sound level for impulsive noise is 10 dBA above the maximum permissible sound level. Backup alarm devices on vehicles are exempt from the maximum permissible sound levels, where such devices are required by the

Occupational Safety and Health Administration (DOH, 1996).

4.5.2 Affected Environment

The existing environment is characterized by relatively low noise levels at the TMK, mainly associated with typical residential ambient sounds, including vehicular traffic from Kamehameha Highway, ocean waves, and periodic activity of the neighborhood occupants.

4.5.3 Environmental Consequences

The lots are already relatively level, therefore grading and construction involving the use of excavators, trucks, and other heavy equipment, often done in the first part of residential home construction, will be less involved than usual due to the existing level grade and relatively small size of the lot.

Therefore, construction-related noise from these inherently noisy sources will be short term, anticipated to be less than a month. Later construction noise will be saws, drills, and other common construction equipment and vehicle traffic, related to material deliveries, framing, and building a residential structure. Expected period is about 4-6 months of daytime generation.

There will be less than significant short-term intermittent noise impacts generated during the Proposed Action; and noise levels are not expected to adversely affect residents at or near the project site. All work is anticipated to be done during the daytime hours, between 7:00 am and 6:00 pm. Construction activities must comply with the provisions of HAR Chapter 11-46, “Community Noise Control.” The contractor will be required to obtain a noise permit if the noise levels from construction activities are expected to exceed 55 dBA.

Therefore, no significant long-term or cumulative adverse effects from noise-related construction activities expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.5.2**.

4.6 CLIMATE

4.6.1 Definition of Resource

Climate refers to meteorological conditions, including temperature, precipitation, and wind that characteristically prevail in a particular region. Climate change and sea level rise (SLR) is also addressed in this Section.

4.6.2 Affected Environment

O‘ahu lies just south of the Tropic of Cancer in the belt of the northeast trade winds. Its climate is

generally mild and consistent. The annual average temperature is 76 degrees Fahrenheit (ºF), although temperatures occasionally exceed 88 ºF. With annual rainfall less than 20 inches near Honolulu, and in Kapolei the annual rainfall is approximately 5 inches, also known as the west side of O'ahu which is the dry side of the island. In comparison, average annual rainfall is 45 inches on the North Shore and 400 inches on Waianae Mountain Range on the leeward side of the island. Trade winds prevail about 75 percent of the time and generally blow from the northeast at 5 to 15 miles per hour. Departures from normal trade wind weather, known as kona storms, tend to occur during winter months. Such storms are characterized by several days of variable winds blowing from the *south and west.*

The Proposed Action in Hau'ula is on the Windward-side of O'ahu, which has prevailing northeasterly trade winds, of warm to moderate temperatures and moderate to heavy rainfall. The average high temperature range is from 74.1 degrees Fahrenheit [ºF] in February to September 81.3 ºF in September, with the average low temperature range from 69.1ºF in February to 76.1ºF in September. Annual precipitation in Hau'ula is approximately 60 inches, occurring mainly during the islands rainy season between November and April (Giambelluca et al., 2014). The adjusted mean pan evaporation rate is approximately 60 inches (DLNR, 1985). Although no detailed survey elevation or topographic data is available for the entire TMK, there are portions of the site within the wetland area in the southern portion of the site (unit 10 and the edge of unit 9's western boarder) that will be affected by a relative 2.0-foot SLR according to PacIOOS (Figure 7). At 3.2-foot scenario the relative SLR scenario encompasses most of unit 10 and a portion of unit 9, and just outside the western boarder of the TMK. The TMK gradually increases to roughly 6.05 ft. amsl at the Driveway 1entrance adjacent to Unit 3 and northeast.

As identified by the Hawaii SLR Vulnerability and Adaptation Report[44], While the Earth's climate experiences natural change and variability over geologic time, the changes that have occurred over the last century due to human input of greenhouse gasses (GHGs) into the atmosphere are unprecedented. The rapid build-up of GHGs, including carbon dioxide (CO), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases, from humans, is causing global warming and climate disruption. The concentration of CO in the atmosphere is well outside the range of natural variability and is now approaching 410 ppm (Scripps Institution of Oceanography 2015); about 40% higher than pre-industrial levels shown in **Figure 4.6-1**) below.

[44] Hawai'i Climate Change Mitigation and Adaptation Commission. 2017. Hawai'i Sea Level Rise Vulnerability and Adaptation Report. Prepared by Tetra Tech, Inc. and the State of Hawai'i Department of Land and Natural Resources, Office of Conservation and Coastal Lands, under the State of Hawai'i Department of Land and Natural Resources Contract No: 64064. (HCCMAC, 2017)

Sea level is rising at increasing rates due to global warming of the atmosphere and oceans and melting of the glaciers and ice sheets. Rising sea level and projections of stronger and more frequent El Niño events and tropical cyclones in waters surrounding Hawaii all indicate a growing vulnerability to coastal flooding and erosion. While the Intergovernmental Panel on Climate Change (IPCC's) "business as usual" scenario, where GHG emissions continue at the current rate of increase, predicts up to 3.2 feet of global SLR by year 2100 (IPCC 2014), recent observations and projections suggest that this magnitude of SLR could occur as early as year 2060 under more recently published highest-end scenarios (Sweet et al. 2017). As such, questions remain around the exact timing of that rise due largely to uncertainties around future behavior of Earth's cryosphere and global GHG emission trajectories. For this reason, it is vital that the magnitude and rate of SLR is tracked as new projections emerge, plan for 3.2 feet of SLR now, and be ready to adjust that projection upward. It is also important to recognize that global SLR will not stop at the year 2100 but will likely continue for centuries. (HCCMAC, 2017).

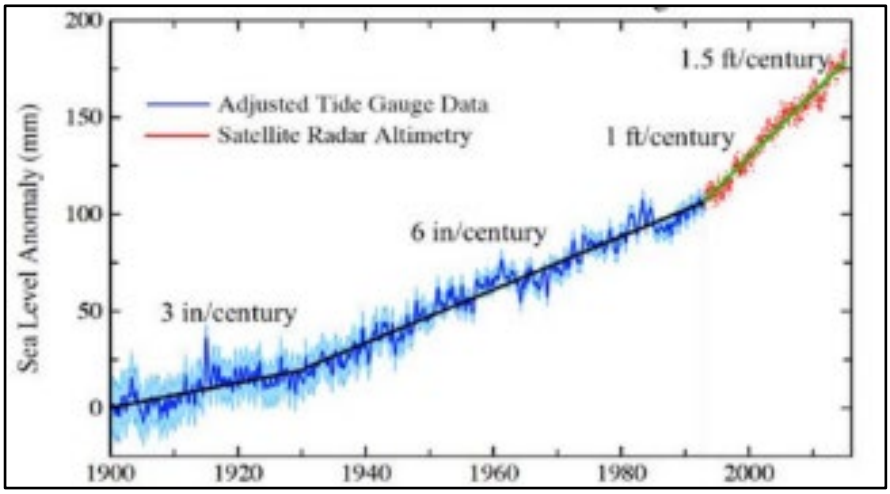


Figure 4.6-1: **Observed global mean sea level change over the last century (Church and White 2001, Nerem et al. 2010, Yi et al. 2015, Hansen et al. 2016, Watson et al. 2015, Fasullo, Nerem, and Hamlington 2016**

The potential impacts of climate change on Hawaii's infrastructure and natural environment have become a significant concern, consequently O'ahu General Plan update (CCH, December 2017) included new policies that emphasize the need to recognize and prepare for long-term impacts of climate change. The General Plan now also contains an objective on climate change and sea level rise. It calls for all public and private organizations to prepare for the future problems caused by rises in sea level, rises in groundwater levels, and more frequent and severe storms, shifts in local rainfall patterns, and higher urban temperatures. The Climate Change Adaptation Policy Guidelines of the Hawaii State Planning Act, HRS §226-109, support planning and preparing for future disruptions and dislocations due to climate change.

4.6.3 Environmental Consequences

Two principal concerns have been identified that pose a potential hazard to the Proposed Action and larger TMK. First, a significant SLR due to climate change, also affects groundwater depth, which may impact coastal structures, infrastructure (e.g. buried powerlines, cesspools, and individual wastewater

systems, etc.), and properties. Second, changing weather patterns in the Pacific Ocean could result in localized severity and intensity storm events, creating larger storm surges, elevated levels of precipitation in shorter timeframes leading to increased localized flooding. Although not directly related to climate change, tsunami hazards and impacts are included below.

Sea Level Rise

Planning for SLR is challenging due to changing and indefinite variables. In December 2013, the U.S. Army Corp of Engineers (USACE) issued Engineering Regulation 1100-2-8162 titled "*Incorporating Sea level Changes in Civil Works Programs*", which provided the "guidance for incorporating the direct and indirect physical effects of projected future sea level change across the project life cycle in managing, planning, engineering, designing, constructing, operating, and maintaining USACE projects and systems of projects". The guidance provided by the regulation can also be used in assessing the relative sea level change (RSLC), which may be experienced at the Property through storm surges or mean high high water.

Potential SLR in the vicinity of the Proposed Action has been predicted using the on-line RSLC Calculator provided by USACE. The graph on the following page, shows NOAA's estimated RSLC from year 2000 to 2100 at the Mokuoloe mean sea level gauge station. Mokuoloe, or Coconut Island, is a 28-acre island in Kaneohe Bay, located approximately 12 miles southeast from the Proposed Action. The graph shows the relative sea level change that can be expected under differing prediction scenarios as determined by U.S. Department of Commerce National Ocean Service Center for Operational Oceanographic Products and Service (NOAA et. al., 2017).

According to USACE RSLC Calculator, the Proposed Action (larger TMK) may be impacted by a high estimated sea level rise by year 2080 at roughly 3.2 feet above LMSL. The graph below (**Figure 4.6-2**), illustrates that under the extreme climate change scenario, sea level rise could inundate the TMK unless effective mitigative measures are implemented at the TMK. The DBET 2011 Shoreline Survey (Appendix A-1) identified the shoreline following the upper reaches of the wash of the waves (debris line) and is immediately adjacent to the pavement of Kamehameha Hwy on the *makai-side* with a 2630 SF erosion area fronting KWE. As described above and below, with climate change and sea level rise this condition will only get worse, including continued erosion. Some erosion BMP's, including armoring with ½ ton stones and rock filled bags, have been implemented to protect section of Kamehameha Hwy. An additional $5 million dollars to protect against rising seas was received in April 2024 that may be use these stone armoring or hybrid concrete barriers made of stone and concrete. HDOT estimates $125 million will be needed to protect the road between Ka‘aawa and Hau‘ula for the next 25 years, but as much as $2 billion to relocate the 10-mile stretch farther inland, not including other electric and water infrastructure.

Additionally, the Hawaii Sea Level Rise Vulnerability and Adaptation Report indicates that recent observations and predictions suggest that a 3.2-foot SLR could occur as early as year 2060 under more recently published highest-end scenarios (Hawaii Climate Change Mitigation and Adaptation Commission, 2017). According to the Pacific Islands Ocean Observing System (PacIOOS), Hawaii Sea Level Rise Viewer, Relative Sea Level Rise Exposure and Coastal Erosion Scenarios (2.0 and 3.2 foot) (**Figure 7**), shows portions of the larger TMK and possibly specific units associated with the Proposed Action, (i.e., unit 9 dwelling).

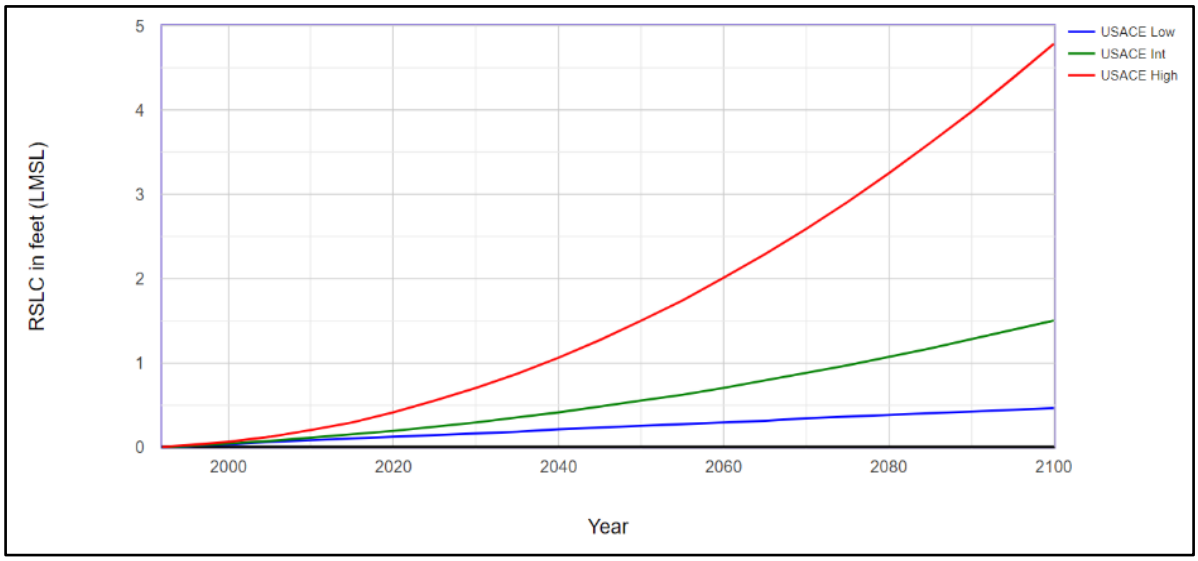


Figure 4.6-2 Estimated Relative Sea Level Change Projections at Gauge 1612480, Mokuoloe, HI

Figure 9 depicts the Hau'ula and Punalu'u area with the Proposed Action's Ahupua'a (Kapano) outlined showing three (3) figure scenarios the PacIOOS Annual High Wave Flooding at 2.0 foot and at 3.2 ft., along with the NOAA Sea Level 6 ft. Scenario. Both the 2.0 ft. and 3.2 ft. annual flooding scenarios show progressively worse conditions with inundation extending across Kamehameha Highway and into the TMK at the 2.0 ft. scenario, and further inundation at the 3.2 ft. scenario. The NOAA 6-ft. scenario depicts the entire TMK inundated with a low to moderate water depth at the 6-foot SLR scenario impacting the TMK.

Flooding and Tsunami Hazards

According to the State GIS Flood Hazard Assessment Report, the TMK is located in flood hazard area Zone VE/A/EX (**Figure 2b and 2c**), which is defined as an area subject to inundation by the 1% annual chance flood event, or the 100-year flood, in any given year which exceeds the defined Base Flood Elevations (BFE) (Office of Planning, 2023), portions of the larger TMK will be located in Zone AE with a BFE of 10 feet amsl.

The following are State of Hawaii Flood Zone definitions.[45]

AE and A1-A30: Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 1% annual chance floodplains that are determined in the Flood Insurance Study by detailed methods of analysis. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

VE: Zone VE is the flood insurance rate zone that corresponds to areas within the 1% annual chance coastal floodplain that have additional hazards associated with storm waves. Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

X: Zone X is the flood insurance rate zones that correspond to areas outside the 1% annual chance floodplain and areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

Tsunamis and inundations of the low-lying coastal areas are natural phenomena that occur infrequently in Hawaii. The location of the Islands in the Pacific Ocean exposes them to waves generated from geologic activity of the Pacific Ocean Ring of Fire, which extends approximately 24,900 miles between several tectonic plates (i.e., Pacific, Juan de Fuca, Cocos, Indian-Australia, Nazca, North American, and Philippine Plates). Seventy-five percent of the Earth's volcanoes – more than 450 in total – and ninety percent of the Earth's earthquakes, including the planets most violent seismic events occur along the Ring of Fire, which extends farther than this map, as volcanoes in Antarctica, including Mount Erebus, the southernmost volcano on Earth, complete the Ring of Fire (Source: USGS)

The Property is located in the County's Tsunami inundation evacuation zone and has experienced several major flood events due to tsunamis resulting in flood waters over the BFE, and up to 12 feet deep.

According to sea level rise predictions, there is potential for a 3.2-foot sea level rise by 2060. The increase in sea level elevation and the potential for increase in monsoonal weather patterns brought by climate change will increase the chance of inundation by floodwaters at portions of the larger TMK (**Figure 7 and 9**)

According to the NOAA National Storm Surge Hazards Map (NOAA, 2020), under a scenario of a 3.2- foot sea level rise, portions of the larger TMK Property could be at risk of storm surges at low category hurricanes. Using the PacIOOS, Sea Level Rise Mapping Tool, **Figure 9** displays the Annual High Wave Flooding at the 2.0- and 3.2-foot scenarios, along with NOAA's Sea Level 6 ft Scenario. The storm surge

[45] Flood Hazard Areas-State of Hawaii: https://files.hawaii.gov/dbedt/op/gis/data/s_fld_haz_ar_state.pdf

model, Sea, Lake, and Overland Surges from Hurricanes (SLOSH) is used by the National Weather Service (NWS in producing storm surge guidance and real-time storm surge data when a hurricane is threatening by calculating the Maximum of the Maximum (MOM) of the High Water. **Figure 10** display's the near worst case storm surge (i.e. MOMs) under Category 1 – 4 hurricane conditions produced by SLOSH model. Under Category 1 and 2 the SLOSH MOMs storm surge would affect the entire TMK with surge "up to 3 feet of above ground with some areas affected by greater than 3 feet above ground", respectively. Under Category 3 and 4 hurricane conditions, the SLOSH model MOMs predicted most of the Property being affected by "greater than 3 feet above ground" with some areas receiving a storm surge of "greater than 6 feet above ground", respectively (**Figure 10**).

Flood, Tsunami, and Sea Level Rise Impacts and Mitigation

The Proposed Action will follow CCH building permit guidance and designed to withstand tsunami inundations as well as floods from inland. The residential dwellings will be designed, located, and constructed to minimize or eliminate flood damage, or impairment, during and subsequent to flooding by the regulatory flood.

Currently, the impacts of minor flooding events are minimal; however, the impacts of a tsunami at the TMK could be significant. The chance of flooding impacts will increase with the sea level rise and climate change projections described above. The combination of SLR compounded by increased precipitation associated with climate change will escalate the chances of major flooding events impacting Kamehameha Hwy and the KWE TMK. Major shoreline erosion is already taking place fronting the Proposed Action on the *makai*-side of the highway. A shoreline survey performed in 2011 identified a 2630 SF erosion area along a 400-foot section of Kamehameha Highway. Major flooding will impact cesspools and may impact the IWS (i.e., tanks and leach field), resulting in treated wastewater rising to the surface and affecting adjacent areas. To reduce the threat of flooding or SLR-associated impacts to the IWS systems, the following mitigation measures should be implemented:

1) Contract a sanitary sewer pumping company to service the IWS tank (i.e., pump out) prior to inclement weather and potential flooding events.
2) Temporary (or permanent) flood barriers can be added fronting the property to deter storm surge inundation that may overtop Kamehameha Highway and enter the TMK.

With the State's effort being put forth in this area, and other personal precautions take, these mitigation measures would reduce the flooding impacts to the property to less than significant. By the year 2080 (or as early as 2060), other mitigation measures should be taken to protect lower lying areas of the TMK from sea level rise, and subsequent groundwater rise, including erosion protection of the shoreline immediately adjacent to Kamehameha Hwy.

Therefore, no significant long-term or cumulative adverse effects from climate-related events are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 4.6.2**.

SECTION 5 SOCIAL ENVIRONMENT

5.1 LAND USE

5.1.1 Definition of Resource

Land use discussions include land use history, as well as existing and planned land uses, and land use planning guidance that directs future development.

5.1.2 Affected Environment

The Koʻolau Loa region (including Hauʻula) has a long history of agriculture, going back to the 15th Century where Kalamakua, the ruling chief of Oʻahu is credited with establishing numerous irrigation ditches and agricultural terraces for taro. Extensive *loi* kalo and irrigation systems existed and significant amounts of kalo were cultivate in this region, and sugarcane was cultivated in the area until the 1970's. The Punaluʻu Stream and associated *ahupuaʻa* area' s have been negatively impacted historically, including water diversions, non-native invasive aquatic, flora and fauna; stream channelization; unprotected stream crossings; land grading and alteration of natural drainage patterns; tillage; aquaculture; and residential development. Currently, over 50-ac. of the lower Punaluʻu Valley have flooded annually, causing economic hardship. The flooding in 2005 and heavy flooding on July 19, 2014, damaged roads, properties, fields, and crops. Kamehameha Schools had identified the lower Punaluʻu Stream Valley as an opportunity to implement a restoration project, incorporating it's ahupua'a management strategies to provide flood mitigation and restore The Proposed Action associated with the TMK and surrounding land to the north and south are zoned as Urban, and the surrounding land to the west is zoned as Agricultural under State Land Use designations. The CCH DPP zoning designates the larger TMK as urban, with a split zone R-5 District/AG-2 District Residential / General Agricultural District (**Figure 4a**) and the KLSCP designates the project area as rural community land use (CCH, 2012).

The TMK is occupied by residential homes surrounded by grassed open space. The larger TMK is bounded by residential homes, open-space, and farmland to the north, Punaluʻu Beach Park and the Pacific Ocean to the east across Kamehameha Highway, and Punaluʻu Stream and estuarine wetland areas to the south (**Figures 1b and 6b**). To the west of the TMK are agricultural and freshwater emergent wetlands, with the UIC line located approximately 300-feet from the TMK western-most boundary (**Figure 1b, 4a, 5c, 6a and 6b**).

Based on available planning documents, the TMK and surrounding area will continue to be used for residential and agricultural purposes for the foreseeable future.

5.1.3 Environmental Consequences

The TMK and surrounding areas are zoned for urban, residential, and agricultural uses, and its current and future use are consistent with the types of land use at surrounding properties. The TMK has not had a significant impact on existing land use in the area. The Proposed Action does not involve changes to the TMK's principal operations/land use and therefore, is not expected to have any impact to land use. The Proposed Action, including

each IWS will be located within each owner-occupied Unit.

In accordance with LUO Section 21-3.70-1, except for cluster housing and planned development housing development pursuant to Section 21-8.50, for zoning lots with one-family and two-family detached dwellings or duplexes, the dwellings: impervious area must not exceed 75% of the total zoning lot area, and the maximum density floor area ratio is 0.7, if the floor area ratio exceeds 0.6, the side and front yard must be at least eight (8) feet.

Therefore, no significant long-term or cumulative adverse effects to land use is anticipated from the Proposed Action above the No Action Alternative baseline conditions described in **Section 5.1.2**.

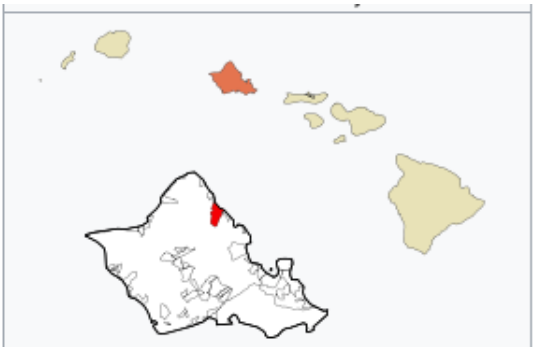
5.2 SOCIOECONOMIC RESOURCES

5.2.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment. Socioeconomic resources include population size and demographics, employment and income economic activity, government-funded health and human services, and social cohesion.

5.2.2 Affected Environment

The Proposed Action is located in Hau'ula, O'ahu in Census tract 102.04 conducted in 2020. As of the 2020 census, there were 4,018 people and 789 households residing in the census designated place (CDP).[46] The racial makeup of the CDP was 16.82% Caucasian, 0.77% African American, 0.36 Native American, 5.72% Asian, 37.44% Pacific Islander, 0.96% from other races, and 37.93% from two or more races. Hispanic or Latino of any race were 9.81% of the population. There were 1,020 housing units at an average density of 169.3 per square mile (65.4/km^2),[47] which was approximately 0.6% of O'ahu's total population. As comparison, in 2010 the population density was 605.9 inhabitants per square mile (233.9/km^2).



Location in Honolulu County and the state of Hawaii

Coordinates: 21°36′50″N 157°54′49″W

Country	United States
State	Hawaii
Area[1]	
• **Total**	1.93 sq mi (5.00 km^2)
• **Land**	1.16 sq mi (3.00 km^2)
• **Water**	0.77 sq mi (2.00 km^2)
Elevation	7 ft (2 m)
Population (2020)	
• **Total**	4,018
• **Density**	3,469.78/sq mi (1,340.02/km^2)
Time zone	UTC-10 (Hawaii-Aleutian)
ZIP code	96717
Area code	808
FIPS code	15-12400
GNIS feature ID	0359116

The Hau'ula population in this Census tract is similar in age to the overall age of the O'ahu population as a whole. The racial mix of the area is comprised of proportionately more Native Hawaiians and Pacific Islanders, and fewer

[46] Explore census data. Data.census.gov. Site visited 7JUL2023.
[47] US Census website. United States Census Bureau. Data Retrieved 7JUL2023.

Asians than the island as a whole.

The median household income in 2020 was $100,234 with an overall poverty rate of 14.87%[48], compared with a 2010 median income of $66,500, and 43.8% of Hau‘ula’s population living below the poverty level.

The TMK and Proposed Action in Hau‘ula town is located north of Punalu‘u Town and south of Laie and is bounded by mainly single-family homes along Kamehameha Highway, and large agricultural lands in mauka areas. Hau‘ula's small commercial area is located about 1.6 miles to the north, and Punalu‘u’s small commercial area is located about 0.8 miles to the south. A fringing reef extends off the shoreline. There are several beaches and beach parks in Hau‘ula, including Hau‘ula Beach Park, Aukai Beach Park, Kokololio Beach Park, and Mahakea Beach. Sugarcane was once grown along the narrow coastal plain inland from the highway.

Hau‘ula has a total area of 1.9 square miles (mi^2) (1.2 mi^2 land, and 0.77 mi^2 water). The 40.57% of water refers to part of the Pacific Ocean, included in the census.[49]

5.2.3 Environmental Consequences

The Proposed Action is not anticipated to have significant adverse impacts on socioeconomic resources as the increase of the overall dwelling units and population in the Hau‘ula area would be negligible. Construction of the new dwellings will generate short-term economic benefits through expenditures for construction materials and employment of workers. The Proposed Action is consistent with the KLSCP’s general policies and guidelines regarding land use and focuses on developing pockets of residential homes. The KLSCP has guidelines for residential home design, and therefore the dwellings added will enhance the rural character, having a positive effect on the economic value of nearby homes.

Therefore, no significant long-term or cumulative adverse effects to socioeconomic resources are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 5.2.2**.

5.3 CULTURAL RESOURCES

[48] US Census 2020 ACS 5-year Survey (Table S 1901 and S1701). Data Retrieved 8JUL2023.
[49]Geographic Identifiers: 2010 Demographic Profile Data (G001): Hau‘ula CDP, Hawaii (https://ww.census.gov). United States Census Bureau. Data Retrieved 8JUL2023.

5.3.1 Definition of Resources

Title 54 – National Parks Service and Related Programs, Section 300308 defines "historic property" as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register including artifacts, records, and material remains relating to the district, site, building, structure, or object"[50]

5.3.2 Affected Environment

For at least two thousand years, native Hawaiians have placed the earthly remains and spirts of their "*kupuna*" or ancestors, within the landscapes of Hawai'i. When a departing *kupuna* was laid to rest they were covered by stacked stones, while others were buried with no surface markers, frequently in sand dunes.[51]

Several historic, archaeological, and cultural resource references that were prepared in the vicinity of the Proposed Action were reviewed to assess potential negative effects to these resources from the implementation of the Proposed Action. Copies of these references are located in Appendix D and listed below:

- Archaeological Assessment (AA) prepared by Scientific Consultant Services, Inc. (SCS) for the Final EA for the Wastewater Treatment System at the Hanohano Hale Condominium, SSFM Engineers, Inc. 1993 (SSFM, 1993).
- Archaeological Monitoring Report (AMP) prepared by SCS in 2010 for the greywater system installation project on the north side of the Hanohano Hale condominium building (SCS, 2010).
- Archaeological Inventory Survey (AIS) conducted by Garcia and Associates in support of demolition activities at southern portion of the Pat's at Punalu'u Condominium property (Garcia and Associates, 2017)

The 1993 AA prepared by SCS found that the only known archaeological site in the vicinity is situated in the southern parking lot of the Pat's at Punalu'u Condominium (State Site No. 50-80-06-3970), directly adjacent and to the north of the Hanohano Hale Condominium project. This site was recorded by Bath & Smith in 1988. Beneath the modern asphalt driveway, Bath and Smith identified one human burial and a subsurface cultural layer. The site consisted of a truncated dark humic sandy cultural layer identified below several layers of fill material under the asphalt parking lot. Several posthole and pit features were also noted.

The 2010 AMP prepared by SCS identified that during manual excavation for the project, human remains were encountered by construction personnel. Based on a field inspection conducted by Cultural Surveys Hawaii (CSH) the human remains were identified to be of native Hawaiian ancestry. The DLNR SHPD initiated an Archaeological Monitoring program for the remainder of work on the project, for which SCS archaeologists monitored all excavations until project completion. Ten burial features consisting of 12 human burials were documented on the north side of the Hanohano Hale Condominium building in natural beach sand deposits that occur below the fill-soils (State Site No. 50-80-06-7120). Under the criteria established for the Hawaii State Register of Historic Places, SCS

[50] Revised § 300308 from Source U.S. Code 16 USC 470w(5).
[51] https://dlnr.hawaii.gov/shpd/about/branches/ibs/hawaiian-burials/ website visited April 15, 2024.

determined that the burial site is culturally significant as a pre-Contact Hawaiian burial ground and as a traditional cultural place for fishing, farming, and habitation.

The 2017 AIS conducted by Garcia and Associates, included the excavation of 14 test trenches, which produced similar evidence of the previously recorded State Site No. 50-80-06-3970 (mentioned above), a truncated pre-Contact Hawaiian cultural deposit.

The lot, including the entire TMK, has been previously disturbed, these land disturbing activities have included grading, leveling, and construction and renovation dwellings/structures. The Hawaii Register of Historic Places (State of Hawaii State Historic Preservation, 2020) provides general areas of historical and cultural significance in the Ko‘olau Loa region, however the Proposed Action is not within these areas. Additionally, the 1977 CCH General Plan, and 1999 CCH Development Plan, Ko‘olau Loa Sustainable Communities Plan, also provides general areas of historical and cultural significance in the Ko‘olau Loa region, but the Proposed Action is not within these areas.

5.3.3 Environmental Consequences

The Proposed Action is not expected to result in adverse impacts to historical, archaeological, or cultural resources since the entire TMK has been disturbed by former grading, leveling, and construction activities. Additionally, only small areas of jacuas sandy soils are present on this TMK limiting the potential for an ancient Hawaiian burial. DLNR SHPD was provided the opportunity to review and comment the Draft EA and provide guidance and further recommended mitigations measures above what is already described in the EA, as needed, to reduce adverse effects to cultural resources from the Proposed Action. These may include an AIS prior to ground disturbing activities and/or an archeological monitor present on-site during ground disturbing activities (e.g., trenching, excavations, drilling, etc.

Trenching activities are anticipated to be less than 24-inches wide, with the deepest hole/excavation of approximately 36-inches bgs. Due to the limited subsurface excavation, previous land disturbing activities, and limited jaucus sandy soil associated with the larger TMK, the subsurface excavation activities for the residential single-family homes are not anticipated to disturb any archaeological or cultural features.

Although no adverse effects are anticipated from the Proposed Action, since human burials and a subsurface cultural layer have been identified about ¼ mile north (albeit *makai* of Kamehameha Hwy and in sandy soils), there is the potential that similar cultural features or human burials might be encountered during the limited subsurface activities, therefore, the following mitigation measures will be implemented:

1) SHPD will be requested to provide concurrence and guidance to meet the No Adverse Effects anticipated by recommending applicable mitigation measures during subsurface activities, bit it AIS prior to individual projects proceeding or having an archeological monitor on-site during these ground-disturbing activities. .
2) If any archaeological or cultural resources, or burials, are inadvertently discovered during excavation, all construction work will cease immediately, and subsequent work shall proceed only upon an archaeological clearance from the SHPD. As discussed in No. 1, on SHPD’s discretion, an archaeologist maybe required to be present during excavation activities.

3) If any archaeological or cultural resources are discovered during subsurface activities, an AIS or Archaeological Monitoring may be requested, as directed by the SHPD, as a mitigation measure to identify and protect archaeological or cultural resources.

4) All work will be coordinated with and approved by the SHPD prior to re-starting excavation activities, to ensure that proper procedures are followed to protect archaeological or cultural resources. Implementation of any further mitigation measures required by SHPD will have to be resolved before any building or development permits will be issued.

With these mitigation measures implemented, any adverse effect to archaeological or cultural resources will be minimized from the Proposed Action. Therefore, no significant long-term or cumulative adverse effects to cultural resources are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 5.3.2**.

5.4 VISUAL RESOURCES

5.4.1 Definition of Resources

Visual resources include scenic area, vistas or view planes and locations that provide natural-appearing or aesthetically pleasing places or views. This includes natural views such as shorelines, seascapes, cliffs, mountains and valleys, and man-made views such as unique buildings, landscaping, parks, and other types of cultural features. Visual resources are not just limited to aesthetically pleasing views, but views and vistas that people are accustomed to seeing and often take for granted as a general part of the landscape, these are also considered important visual resources.

5.4.2 Affected Environment

The Proposed Action is in Hau'ula adjacent to the coastal Kamehameha Highway. Trees and landscaping border the south, west and north side, along with overgrown grassed areas associated with the wetland. Depending upon your vantage point within the TMK, you may have view planes of either the mountains to the west and/or ocean and shoreline to the east. See **Figures 1a and Figures 1b** for an oblique aerial of the site, and **Appendix A, Photo Log.**

5.4.3 Environmental Consequences

The dwellings associated with the Proposed Action are all designed to have a height equal to or less than 25 feet amsl. The current height limitation for areas zoned as R-5 District , which includes the Proposed Action, is 25-ft. maximum at the highest point of buildable areas within a 30-ft. plane and requires a 10-ft front required yard and side and rear required yard[52]. (**See Section 3.1-1**). There is an 8-ft BFE allowance.

The Proposed Action dwelling will meet all structure width, and length criteria, and incorporate the 5-ft of setback. Some units maybe enclosed by CMU wall and vinyl fence, while others include open spaces without boundary

[52] § 21-3.70-1 and 21-4.60 for height measurements, and Figure 21-3.10, ROH LUO.

demarcations. The dwellings associated with the Proposed Action construction activities will not hinder existing views of the coastline from Kamehameha Highway, since the view to the ocean is on the *mauka*-side of the highway. Therefore, the Proposed Action will maintain the visual and aesthetic appeal of the rural area. Appropriate landscaping, such as trees or bushes, may be added to increase the visual appeal.

In general, the Proposed Action will follow building codes and guidelines established by the state and CCH and will require similar permits, approvals, and guidance documents for R-5 District / AG-2 District split district for dwelling construction.

Therefore, the Proposed Action would result in less than significant impacts to visual and aesthetic resources, and accordingly no significant long-term or cumulative adverse effects to visual resources are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 5.4.2**.

5.5 RECREATIONAL ACTIVITIES AND AREAS

5.5.1 Definition of Resources

Recreational uses of an area include any type of outdoor activity in which local area residents and visitors, or tourists may participate. Typically focused on weekends or vacation periods, such activities may include hiking, fishing, beachcombing, and boating. Recreational opportunities and resources can be very important component of an area's economy and the lifestyle of its residents.

5.5.2 Affected Environment

The Property is located in Hau'ula, with several named and un-named beach locations within a mile or two of the TMK, including Makao, Kapaka, and Hale Aha Beaches. The closest to the Proposed Action include Punalu'u Beach Park approximately 0.8 miles to the south and the Kaluanui Beach right-of-way 0.7 miles to the north. The Hau'ula Loop Trail, and Makaha Ridge and Valley hikes are approximately 2.5 miles north of the Proposed Action.

5.5.3 Environmental Consequences

There are some public facilities and services in area located near the Proposed Action, however, due to the distance and relatively small size of the Proposed Action, and negligible construction-related effects expected, it is unlikely there will be any adverse impact on current facilities, services, and recreational activities during the construction period, or during the dwelling inhabitance, due to the insignificant population influx.

Therefore, no significant long-term or cumulative adverse effects to recreational resources are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 5.5.2**.

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SECTION 6 INFRASTRUCTURE

The Proposed Action has the potential to affect the following two public services: (1) transportation and (2) utilities. Due to the location of the TMK and the Proposed Action, it is not anticipated that other public services will be affected.

6.1 DEFINITION OF RESOURCE

For the purposes of this EA, infrastructure is the essential built environment, which includes utilities and roadways in the town of Hau‘ula.

6.2 AFFECTED ENVIRONMENT

Kamehameha Highway (Route 83) is the major throughfare serving Hau‘ula area. The single lane, coastal highway begins at Kahalu‘u on the windward side of O‘ahu and ends at the historic Haleiwa Town on the Northshore and is approximately 36-miles in length.

As described in the CPR documents, the location of each of the units have access to Kamehameha Highway, a public highway, either directly, or over a shared Limited Common Element Driveway (Driveway 1, to the North, and Driveway 2 to the South, as shown on **Figure I-1 and I-2** and **Appendix A, Photo 1 and Photo 14**, respectively). The driveways, designated as Limited Common Element Driveway 1 and Driveway 2, consist of 2,767 SF and 6,845 SF, respectively, which is consistent with existing conditions. There are no easements through Driveway 1 or Driveway 2. Driveway 1 is being shared with Units 3, 4, 5, & 6. Driveway 2 is shared with units 7, 8, 9, and 11. Unit 1 and 2 have direct access to the highway, with no additional vehicles added. Units 3-6 share Driveway 1, with an expected 2 additional vehicles over existing 3 vehicles for a total of 5 vehicles. Units 7-11 share driveway 2, with an expected 2-4 additional vehicles over the existing conditions of 2-3 vehicles, for a total of 6 or 7 additional vehicles egressing Kamehameha Hwy.

Units	Vehicle Use / Driveway Existing Conditions	Vehicle Use Change Future Proposed Action
1	1 with direct access to highway	0
2	1 with direct access to highway	0
3	1 / Driveway 1	0
4	1 / irregular basis Driveway 1	+2
5	1 irregular 1 (6 mo. out of year)	1
6	1 / Driveway 1	0
7	0 / Driveway 2	+2
8	2 / Driveway 2	0
9	0 / Driveway 2	+2-3
10	None	0
11	1 / irregular basis Driveway 2	0
	Approximately 9 Total	Increase of approx. 6-7

The KWE property line is setback approximately 10 ft. from the highway, so visibility from both driveways have a clear line of

sight to the north and south with no corners (**Figure 1b**, **Site Location – Oblique Aerial** of KWE, and **Photos 9 and 12, Appendix A**). There are no traffic controls managing access to the highway. There is no public parking for beach access (**Appendix A, Photos 9 - 11**). If the Kahena Wai residents have visitors, they would park within the designated CPR unit lot and walk across the highway, not illegally park fronting the dwellings on Kamehameha Hwy or on the *makai*-side of the road.

Bus service is provided to the Hau'ula area by routes along Kamehameha Highway. Generally, smooth traffic flow is characteristic along this coastal highway. Traffic is typically busiest during weekday commuter periods and weekend afternoons. The annual traffic vehicle count, between MP 21.7 and 28.07 on Route 83 fronting Kahena Wai Estates, is 9,526. This is not expected to significantly change based on the Proposed Action.

Utilities include electrical power and potable water supply. Electricity is provided to the TMK by the Hawaiian Electric Company (HECO) via overhead service lines along Kamehameha Highway. Potable water is provided by the Honolulu Board of Water Supply (BWS) water line on Kamehameha Highway. Daily water usage consists of domestic uses for the residents and landscape irrigation. Fire suppression water supply is also provided at the TMK; a fire hydrant is located at the southern driveway, at the corner of the unit 8 CMU wall.

6.3 ENVIRONMENTAL CONSEQUENCES

All construction activities associated with the Proposed Action will take place within the larger TMK, and mostly the specific property unit/lot boundaries. No work will be performed within the State Right-of-Way or on Kamehameha Hwy. Construction activities will not alter public roadways or affect bus service or bike/pedestrian access to the State Right-of-Way. There will be no modifications to the TMK site access/egress on Kamehameha Highway.

While the project is not expected to have significant traffic impacts, traffic on and adjacent to the lots may be impacted on a short-term basis during transportation of construction equipment and supplies to the specific lots for dwelling construction, since there are only two shared driveways. Construction vehicles will add to the traffic on the roadways during these short periods.

The following mitigation measures are recommended for optimal traffic conditions during construction:

- Construction activities and construction materials should be located and stored away from vehicular traffic. Sight lines for drivers on the roadway should be carefully maintained.
- The Honolulu Police Department (HPD) recommends that all necessary lights, signs barricades, and other safety equipment be installed and maintained by the contractor during the construction phase of the project. Additionally, adequate notification should be made to area businesses and residents prior to possible road closures, as any impact to pedestrian and/or vehicular traffic or construction-related debris could lead to complaints. Lastly, the HPD recommends a long-term plan to mitigate the tracking of dirt, gravel, and debris to minimize potential environmental impacts from all affected areas, including the shoreline resources.
- Trucks delivering construction materials should be scheduled on weekdays during times of non-peak commuter periods (8:30 AM to 3:30 PM).
- No construction will take place on Kamehameha Hwy.
- As described in previous section, a full range on Construction BMPs will be implemented, including

construction entrance to prevent tire tracking off-site, stormwater BMPs to retain all stormwater on-site and prevent discharge into the wetland area, along with other noise and air BMPs, as applicable

- Construction contractors shall coordinate with HDOT POC to assess construction-phase conflicts with the Proposed Action and potential impacts.
    - HWY-O-04-22 Guardrail and Shoulder Improvements at Various Locations, Oahu, Phase 3
        - Scheduled Advertise Date (SAD): Summer 2023
        - Point of Contact (POC): Jennifer Russell, jennifer.t.russell@hawaii.gov
    - NH-083-1(084) Kamehameha Highway Coastal Highway Mitigation, Vicinity of Kualoa, Kaaawa, Punaluu and Hauula
        - SAD: Summer 2025
        - POC: Mel Chung, mungfa.chung@hawaii.gov
    - 83D-01-24 Kamehameha Highway Culvert Remediation, Mile Post 23-30
        - SAD: Winter 2024
        - POC: Ross Hironaka, ross.hironaka@hawaii.gov

With these mitigation measures in place, the project would result in less than significant impacts to traffic and roads during construction activities. The HDOT website currently doesn't list projects in this area.

The additional future vehicles (approximately 6-7) associated with KWE will not negatively impact traffic or have any increased adverse effects for safety to pedestrians, bicyclist, and vehicles.

Additionally, the Proposed Action is not anticipated to require any offsite infrastructure improvements; utility services such as potable water and electricity to the surrounding area will be slightly increased during construction activities and when dwellings are complete and occupied. However, these impacts will be short-term and insignificant, respectively, therefore, less than significant impacts to utilities are expected from the Proposed Action.

Therefore, no significant long-term or cumulative adverse effects to infrastructure are expected from the Proposed Action above the No Action Alternative baseline conditions described in **Section 6.2**.

SECTION 7 DETERMINATION

Based on the analysis of information in this EA, it has been determined that the Proposed Action will not have significant negative impacts to the natural, built, or social environment. Therefore, a FONSI will be issued and an EIS will not be required.

7.1 FINDINGS AND REASONS SUPPORTING THE DETERMINATION

The potential effects of the Proposed Action were evaluated based on the thirteen *significance criteria* identified in HAR Title 11, Chapter 200.1-13. All phases and expected consequences of the Proposed Action have been evaluated, including potential primary, secondary, short-term, long-term, and cumulative impacts. Table 7-1 summarizes the significance criteria and the evaluation of the potential effects of the project.

Therefore, It is concluded that the Proposed Action does not meet any of the thirteen criteria. By not meeting these criteria, it is appropriate that the Proposed Action be issued a FONSI and that an EIS is not required.

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Table 7-1

Evaluation of Significance Criteria

Kahena Wai Estates Proposed Action, Final Environmental Assessment

No.	Significance Criterion	Yes	No	Reason for Determination
1	Irrevocably commits a natural, cultural, or historic resource?	☐	☑	The Proposed Action is not expected to irrevocably commit any natural, cultural, or historic resource. The Proposed Action will be installed in an area that has been previously disturbed by residential development and is currently a landscaped area. There are no known significant cultural or historic resources in the project area and recommendations by the SHPD for other projects in the area will be followed, and mitigation measures have been identified in the EA to protect cultural resources during construction activities.
2	Curtails the range of beneficial uses of the environment?	☐	☑	The project will not permanently curtail the beneficial uses of the environment. The Proposed Action conforms to the land use designation for the Property and will be located within the existing property boundary of the respective unit/lot owner.
3	Conflicts with the State's environmental policies or long-term environmental goals established by law?	☐	☑	The Proposed Action will be in conformance with the State's environmental policies and goals established by law. The single-family dwelling's proposed for construction will follow all environmental policies and/or long-term goals, acquire all necessary permits and approvals, therefore will not be in conflict with applicable state environmental laws.
4	Has a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State?	☐	☑	The Proposed Action is not anticipated to have any adverse effects on the economic and social welfare or cultural practices of the community or state. Rather, it will benefit the existing residents and nearby community by creating temporary jobs and providing a stylish dwelling construction at vacant lot areas improving economic value in the immediate area.
5	Has a substantial adverse effect on public health?	☐	☑	The Proposed Action, dwelling construction at four vacant lots, is not anticipated to have any adverse effects on public health. Construction BMPs to address noise, air, and water resources, including appropriate scheduling of activities, will be implemented to reduce any potential temporary effects.
6	Involves adverse secondary impacts, such as population changes or effects on public facilities?	☐	☑	The Proposed Action when complete will have an insignificant effect on population or public facilities in the area, therefore will not result in adverse secondary impacts.

No.	Significance Criterion	Yes	No	Reason for Determination
7	Involves a substantial degradation of environmental quality?	☐	☑	The Proposed Action will be properly permitted, follow State and City County of Honolulu recommendations, including construction BMP, therefore is not anticipated to degrade environmental quality.
8	Is individually limited but cumulatively has substantial adverse effect upon the environment or involves a commitment for larger actions?	☐	☑	The Proposed Action is not anticipated to result in a significant cumulative negative impact on the environment. The short-term, less than significant effects of the Proposed Action will primarily be limited within the specific unit/lot boundary. The residential dwelling construction associated with the Proposed Action will be staggered and due to the rural nature of the general area, other significant development projects are not anticipated. The Proposed Action does not involve a commitment for larger actions, and therefore, cumulative effects, including those insignificant effects of the Proposed Action combined with the effects of other past, present, and reasonably foreseeable future action(s), is anticipated to have an insubstantial effect on the environment.
9	Has a substantial adverse effect on a rare, threatened, or endangered species, or its habitat?	☐	☑	The Proposed Action is not anticipated to adversely affect any rare, threatened, or endangered species or habitat. There are no known significant biological resources or habitats in the project area.
10	Has a substantial adverse effect on air or water quality or ambient noise levels?	☐	☑	The Proposed Action is not anticipated to adversely affect air quality, water quality, or ambient noise levels in the long-term. Construction-related activities may temporarily affect air, water, or noise quality, however with the implementation of BMPs those less than significant effects will be minimize further.
11	Has a substantial adverse effect on or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters?	☐	☑	The Proposed Action is located within the SMA and appropriate permits and approvals will be obtained for development in areas zoned as such. The Proposed Action is located within the 100-year flood hazard area and in the County's Tsunami inundation evacuation zone. The single-family dwellings will be designed, located, and constructed accordingly to minimize or eliminate flood damage, impairment, and/or contamination during and after flooding. BMPs will be used during construction, so that stormwater associated with construction activities does not leave the site. The Proposed Action may need address sea level rise exposure issues by from 2060 to 2080, based on current NOAA models of a 3.2 ft. amsl rise scenario.

12	Has a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies?	☐	☑	The Proposed Action is located *mauka* of Kamehameha Highway, therefore will not interfere with open ocean views to the ocean. The dwelling(s) design will be visual and aesthetic appealing of the rural area and is not anticipated to have adverse effects on scenic vista's and view planes during day or night, that are identified in the county or state plans or studies.
13	Requires substantial energy consumption or emits substantial greenhouse gases?	☐	☑	The Proposed Action will not require substantial energy consumption nor emission of greenhouse gases. A slight increase in energy use will result from the dwelling construction

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FIGURES

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APPENDIX A

Site Photographs and Wetland / TMK Overlay

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APPENDIX A-1
Shoreline Survey, DAGS 2011

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APPENDIX B

Drawings for Dwelling Construction

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APPENDIX C

Comments and Responses

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APPENDIX D

Prior Archaeology Reports in the Vicinity

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APPENDIX E

Declaration of Condominium Property Regime
Kahena Wai Estates

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APPENDIX F

Wetland Delineation Report

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