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STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

REF: OCCL: TF

CDUA: HA-3865

To: Interim Director
Office of Environmental Quality Control

From: Suzanne D. Case, Chairperson
Department of Land and Natural Resources

Subject: Draft Environmental Assessment (DEA) for Conservation District Use Application (CDUA) HA-3865 for the Wright/Bentley Single Family Residence (SFR), Removal of Invasive Species, and Related Improvements located at Kaiwiki Road, Kaiwiki, South Hilo, Hawai'i Tax Map Key (TMK): (3) 2-6-011:033

The applicants J. Spencer Wright and M. Ellen Bentley are proposing to construct a one-story post-and-pier approximately 3,160 square foot single-family residence, removal of invasive species, and related improvements on their 19.000-acre property in the State Conservation District, Resource Subzone. Mr. Wright and Ms. Bentley note that the house site has been chosen to minimize the impact on the native forest and to displace much of the strawberry guava thickets found on their parcel. Additionally, the proposed SFR site utilizes the most level topography available on the lot so as to minimize grading. The applicants anticipate that the total area impacted by the building site, driveway, and associated construction activity would be less than a half of an acre of the 19-acre property. An exclosure fence of four (4) feet high field fencing is also proposed to surround an area of 0.45 acres that will include the proposed home. In addition to the SFR and related improvements, the applicants are proposing to remove invasive species (strawberry guava thicket) through the siting of the home and would like to restore the impacted and disturbed areas with native vegetation after they have built and occupied the SFR.

The Department of Land and Natural Resources has reviewed the DEA for the project and anticipates a Finding of No Significant Impact (FONSI) determination based on the information provided. In accordance with HAR §11-200.1-13, the reasons supporting the anticipated FONSI determination are as follows:

1. The project would not irrevocably commit a natural, cultural, or historic resource. The applicants have sited the proposed SFR in an area of their lot that will minimize impacts to the native forests while displacing much of the invasive strawberry guava thickets. The proposed SFR has been substantially setback from Mā'ili stream and a gully found on or near the property as well as from Kaiwiki Road and the neighboring parcels. Additionally, the

impacted areas will be restored with native vegetation following the completion of the project. An Archaeological Field Inspection and Cultural Impact Assessment were prepared in support of the project. These reports concluded that historical sites are not present and that the proposed project would not affect historical or cultural resources.

2. The project would not curtail the range of beneficial uses of the environment.

3. The applicant is committed to developing the property in a manner that preserves and protects natural and cultural resources. The proposed project is small in scale and intends to restore some of the impacted and disturbed areas of the project with native vegetation; and therefore, the proposed use is consistent with the State's long-term environmental policies.

4. The project would not result in substantial adverse impacts to the economic welfare, social welfare, or cultural practices of the community and State.

5. The project would not substantially affect public health and safety.

6. The small scale of the proposed project would not produce any major secondary impacts such as population changes or effects on public facilities.

7. The project is small in scale, carefully sited, and environmentally benign. The applicant's proposed use would not contribute to environmental degradation.

8. There are anticipated small disturbances associated with the construction of a SFR such as traffic, air quality, noise, and visual quality, but the area is fairly isolated. No special mitigation measures are anticipated but the applicant will implement a number of Best Management Practices to limit or mitigate some of the anticipated small disturbances associated with the construction of a SFR. No larger actions are planned or anticipated that could have adverse affects upon the environment.

9. A biological survey was conducted in support of the applicants' proposed use. The biological survey determined that no endangered plant species are present on the applicants' parcel. Other than the possible presence of the 'ōpe'ape'ae (Hawaiian hoary bat) and 'io (Hawaiian hawk), wide-ranging species that will experience no adverse impacts due to mitigation in the form of timing of vegetation removal and nest survey, no rare, threatened, or endangered species of fauna are known to exist on or near the project site and none would be affected by any project activities.

10. No substantial effects to air, water, or ambient noises are anticipated and Best Management Practices for erosion and sedimentation will be implemented during construction activities.

11. The proposed home site is not located in flood zone or any other hazardous area. All improvements will conform to appropriate regulations guiding development for the proposed use. The applicants understand that there are hazards associated with homes on Hawai'i Island and that the risk from these hazards can be reduced with a well-built code-compliant structure.

The proposed structure's foundation would be particularly engineered for the geological conditions present at the proposed building site.

12. No substantial adverse effects to scenic vistas and view planes are anticipated.

13. Negligible amounts of energy input would be required for construction and occupation of the residence. Electrical power will be provided via a rooftop mounted photovoltaic system and water will be provided via a rain catchment system. The applicants intend to restore some of the impacted and disturbed areas with native vegetation and minimizing hard surfaces.

Please publish notice of availability for this project in the February 23rd, 2020 edition of *The Environmental Notice*. The DEA will be attached and submitted to OEQC via OEQC's online submittal form.

Please contact Trevor Fitzpatrick of our Office of Conservation and Coastal Lands staff at 587-0373 should you have any questions.

From: webmaster@hawaii.gov
To: HI Office of Environmental Quality Control
Subject: New online submission for The Environmental Notice
Date: Friday, February 7, 2020 2:21:58 PM

Action Name

Wright/Bentley Single Family Residence (SFR), Removal of Invasive Species, and Related Improvements

Type of Document/Determination

Draft environmental assessment and anticipated finding of no significant impact (DEA-AFNSI)

HRS §343-5(a) Trigger(s)

- (2) Propose any use within any land classified as a conservation district

Judicial district

South Hilo, Hawai‘i

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

(3) 2-6-011:033

Action type

Applicant

Other required permits and approvals

County of Hawai‘i: Plan Approval and Grubbing, Grading, and Building Permits; State of Hawai‘i: Conservation District Use Permit and Department Of Health Wastewater System Approval

Discretionary consent required

Conservation District Use Permit

Approving agency

Department of Land and Natural Resources / Office of Conservation and Coastal Lands

Agency contact name

Trevor Fitzpatrick

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Map It

Applicant

J. Spencer Wright

Applicant contact name

J. Spencer Wright

Applicant contact email

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Applicant contact phone

(808) 345-4234

Applicant address

P.O. Box 6686
Hilo, HI 96720
United States
Map It

Was this submittal prepared by a consultant?

No

Action summary

Mr. Wright and Ms. Bentley (the applicants) seek a Conservation District Use Permit (CDUP) to build a single family residence on their 19 acre property along the south side of Kaiwiki Road in Kaiwiki Homesteads in the Kaiwiki ahupua'a of the South Hilo District of Hawai'i Island. The property, TMK 3 2-6-011:033, is in the Resource Subzone of the Conservation District.

Reasons supporting determination

1. The project would not irrevocably commit a natural, cultural, or historic resource. The applicants have sited the proposed SFR in an area of their lot that will minimize impacts to the native forests while displacing much of the invasive strawberry guava thickets. The proposed SFR has been substantially setback from Ma'ili stream and a gully found on or near the property as well as from Kaiwiki Road and the neighboring parcels. Additionally, the impacted areas will be restored with native vegetation following the completion of the project. An Archaeological Field Inspection and Cultural Impact Assessment were prepared in support of the project. These reports concluded that historical sites are not present and that the proposed project would not affect historical or cultural resources.

2. The project would not curtail the range of beneficial uses of the environment.

3. The applicant is committed to developing the property in a manner that preserves and protects natural and cultural resources. The proposed project is small in scale and intends to restore some of the impacted and disturbed areas of the project with native vegetation; and therefore, the proposed use is consistent with the State's long-term environmental policies.

4. The project would not result in substantial adverse impacts to the economic welfare, social welfare, or cultural practices of the community and State.

5. The project would not substantially affect public health and safety.

6. The small scale of the proposed project would not produce any major secondary impacts such as population changes or effects on public facilities.

7. The project is small in scale, carefully sited, and environmentally benign. The applicant's proposed use would not contribute to environmental degradation.

8. There are anticipated small disturbances associated with the construction of a SFR such as traffic, air quality, noise, and visual quality, but the area is fairly isolated. No special mitigation measures are anticipated but the applicant will implement a number of Best Management Practices to limit or mitigate some of the anticipated small disturbances associated with the construction of a SFR. No larger actions are planned or anticipated that could have adverse affects upon the environment.

9. A biological survey was conducted in support of the applicants' proposed use. The biological survey determined that no endangered plant species are present on the applicants' parcel. Other than the possible presence of the 'ope'ape'ae (Hawaiian hoary bat) and 'io (Hawaiian hawk), wide-ranging species that will experience no adverse impacts due to mitigation in the form of timing of vegetation removal and nest survey, no rare, threatened, or endangered species of fauna are known to exist on or near the project site and none would be affected by any project activities.

10. No substantial effects to air, water, or ambient noises are anticipated and Best Management Practices for erosion and sedimentation will be implemented during construction activities.

11. The proposed home site is not located in flood zone or any other hazardous area. All improvements will conform to appropriate regulations guiding development for the proposed use. The applicants understand that there are hazards associated with homes on Hawai'i Island and that the risk from these hazards can be reduced with a well-built code-compliant structure. The proposed structure's foundation would be particularly engineered for the geological conditions present at the proposed building site.

12. No substantial adverse effects to scenic vistas and view planes are anticipated.

13. Negligible amounts of energy input would be required for construction and occupation of the residence. Electrical power will be provided via a rooftop mounted photovoltaic system and water will be provided via a rain catchment system. The applicants intend to restore some of the impacted and disturbed areas with native vegetation and minimizing hard surfaces.

Please refer to Section 4.2, Findings and Supporting Reasons, of the Environmental Assessment for this project.

Attached documents (signed agency letter & EA/EIS)

- WrightBentley-SFR-OEQC-Memorandum_CDUA-HA-3865_Hyperlinks4OEQC.pdf
- Scansigned_WrightBentley-SFR_CDUA-HA-3865_AcceptanceLetter.PDF
- Wright-Kaiwiki-Draft-Environmental-Assessment-1.pdf

Action location map

- Wright-Kaiwiki-SFR.zip

Authorized individual

J. Spencer Wright

Authorization

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

DRAFT
Environmental Assessment

Wright/Bentley Single-Family Residence in the Conservation District in Kaiwiki Homesteads

TMK (3) 2-6-011-033
Kaiwiki 2 Ahupua'a, South Hilo District, County of Hawai'i, State of Hawai'i

January 2020

Submitted to:
State of Hawai'i
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, Hawai'i 96813

Submitted by the Applicants:
J. Spencer Wright & M. Ellen Bentley
P.O. Box 6686
Hilo, Hawai'i 96720
(808) 345-4234

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DRAFT
Environmental Assessment
Wright/Bentley Single-Family Residence

TMK (3) 2-6-011-033
Kaiwiki 2 Ahupua'a, South Hilo District, County of Hawai'i, State of Hawai'i

APPLICANTS:
J. Spencer Wright & M. Ellen Bentley
P.O. Box 6686
Hilo, Hawai'i 96720
(808) 345-4234

ACCEPTING AUTHORITY:
State of Hawai'i
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, Hawai'i 96813

CLASS OF ACTION:
Use of Land in Conservation District

This document is prepared pursuant to:
The Hawai'i Environmental Protection Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules (HAR).

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SUMMARY OF PROJECT, ENVIRONMENTAL IMPACTS, AND MITIGATION MEASURES

Mr. Wright and Ms. Bentley (the applicants) seek a Conservation District Use Permit (CDUP) to build a single family residence on their 19 acre property along the south side of Kaiwiki Road in Kaiwiki Homesteads in the Kaiwiki 2 ahupua'a of the South Hilo District of Hawai'i Island. The property, TMK 3 2-6-011-033, is in the Resource Subzone of the Conservation District.

The one story home would have 3 bedrooms, 2 bathrooms, a great room including the kitchen, dining area, and living area, a laundry room, a carport, storage and utility rooms, and front and back lanais. It would have an enclosed living area of 1920 square feet (sf), an attached carport and utility/accessory area of 800 sf, and front and back lanais totaling 440 sf. The total footprint would be 3160 sf. The maximum height of the house from finished grade to top of roof peak would be 25 feet. There would be a 10,000 gallon water tank with a Fire Department Connection hook-up. An Individual Wastewater System would be built in compliance with State Department of Health regulations. The gravel driveway would be 10 feet wide and 240 feet in length. The house would not be visible from Kaiwiki Road, nor from any neighboring residences. It would be set 161 feet back from Kaiwiki Road, 185 feet from the eastern lot line, 442 feet from the western lot line, and 908 feet from Mā'ili Stream and the southern lot line.

The lot was grazed in the first half of the 20th century, but has since re-grown. As such, the lot features a few older koa trees (both surviving and deceased), a generous scattering of 'ōhi'a, and substantial infestations of strawberry guava (aka waiawī, Psidium cattleianum). Undergrowth is primarily uluhe fern, melastoma, and clidemia. Other natives and non-natives occur, as detailed in the Biological Survey (Appendix 2). The heaviest grazing appears to have occurred within 200 feet of Kaiwiki Road, as evidenced by dense thickets of strawberry guava there.

The house site has been chosen to minimize impact on the native forest, and to displace much of the strawberry guava thickets. Additionally, the site utilizes the most level topography available on the lot so as to minimize soil disturbance. It is anticipated that the total area impacted by the building site, driveway, and associated construction activity would be less than ½ acre. There would be minor short-term impacts to air quality, noise, water quality, and scenery. The applicant intends to restore native vegetation to this impacted area, as approved by the Office of Conservation and Coastal Lands (Appendix 1). Additionally, these impacts would be mitigated by Best Management Practices associated with the CDUP and grading permit. The applicant would ensure that any grading or earthwork is performed in compliance with all regulations, standards, and laws.

A Biological Survey (Appendix 2) has been performed; no rare, threatened, or endangered plants were found. The Hawaiian hawk ('io, Buteo solitaries) has been seen in this area (as it has over much of Hawai'i Island), and it is also a possible nesting area for the Hawaiian hoary bat ('ōpe'ape'a, Lasiurus cinereus semotus). Impacts to 'io and 'ōpe'ape'a would be avoided by the timing of tree cutting and/or surveying for hawk nests.

A Cultural Impact Assessment (Appendix 4) has determined that no cultural site or practice would be affected. An Archeological Field Inspection was performed (Appendix 3) which found no archeological features, feature remains, or artifacts. If any archeological features, feature remains, artifacts, or iwi (bones) are found during construction, work would be stopped and the State Historic Preservation Division would be contacted to determine the correct course of action.

1: PROJECT DESCRIPTION AND E.A. PROCESS

1.1 Project Description and Location

The applicants, Mr. Wright and Ms. Bentley, seek a Conservation District Use Permit (CDUP) to build a single family residence on their 19 acre property, TMK 3 2-6-011-033, along the south side of Kaiwiki Road in Kaiwiki Homesteads in the Kaiwiki 2 ahupua'a of the South Hilo District of Hawai'i Island.

The one story home would have 3 bedrooms; 2 bathrooms; a great room including the kitchen, dining area, and living area; laundry; a sewing/storage room; a carport with utility room; and front and back lanais. It would have an enclosed living area of 1920 square feet (sf), an attached carport and utility/accessory area of 800 sf, and front and back lanais totaling 440 sf. The total footprint would be 3160 sf. The maximum height of the house from finished grade to top of roof peak would be 25 feet. There would be a 10,000 gallon water tank with a Fire Department Connection hook-up. An Individual Wastewater System would be built in compliance with State Department of Health regulations. Electrical service would be entirely supplied by an off-grid photovoltaic system. Propane would be supplied for kitchen, laundry, and hot water use from 30-pound propane tanks. As such, there would be no connections to outside utilities (nor are any available at this site). The driveway would be gravel and would measure 10 feet wide and 240 feet in length. The gravel driveway would be 10 feet wide and 240 feet in length. Additional features would include an exclosure of 4 foot high field fencing surrounding the house and the replanted area impacted by construction activity, and a driveway gate adjacent to the Kaiwiki Road right of way. The house would not be visible from Kaiwiki Road, nor from any neighboring residences. It would be set 161 feet back from Kaiwiki Road, 185 feet from the eastern lot line, 442 feet from the western lot line, and 908 feet from Mā'ili Stream and the southern lot line. The Site Plan in Figure 3 shows an overall plan view of the property, elevations, and the residence floor plan.

The lot was grazed earlier in the 20th century but has since re-grown. As such, the lot features a few older koa trees (both surviving and deceased), a generous scattering of 'ōhi'a, and substantial infestations of strawberry guava (aka waiawī, Psidium cattleianum). Undergrowth is primarily uluhe fern, melastoma, and clidemia. Other natives and non-natives occur, as detailed in the Botanical Survey (Appendix 2). The heaviest grazing appears to have occurred within 200 feet of Kaiwiki Road, as evidenced by dense thickets of strawberry guava.

The house site has been chosen to minimize impact on the native forest, and to displace much of the strawberry guava thickets. Additionally, the site utilizes the most level topography available on the lot so as to minimize soil disturbance. It is anticipated that the total area impacted by the building site, driveway, and associated construction activity would be less than ½ acre.

The applicant intends to restore native vegetation to this impacted area, as approved by the Office of Conservation and Coastal Lands (Appendix 1). Restoration work would be performed by the applicant after the house has been built and occupied.

1.2 Environmental Assessment Process

This Environmental Assessment (EA) process is conducted in accordance with Chapter 343 of the Hawai'i Revised Statutes (HRS) and its implementing regulations, Title 11, Chapter 200, of the Hawai'i Administrative Rules (HAR). Per Chapter 343, an EA is prepared to allow determination of impacts associated with an action and development of mitigation measures for adverse impacts, in addition to determination of the significance of the impacts according to criteria of the HAR.

As per State of Hawai'i requirements, this EA includes identification of the applicants; identification of the approving agencies; identification of the agencies consulted in preparing the assessment; general description

of the proposed project's technical, economic, social, and environmental characteristics; summary description of the affected environment; identification of impacts and alternatives considered, if any; proposed mitigation measures; anticipated determination of approving agency, as applicable; supporting reasons for anticipated determination; identification of agencies for further consultation if it is determined that an Environmental Impact Statement is required; list of all required permits and approvals; and written comments and responses under early consultation and public review periods.

1.3 Report Organization

This Environmental Assessment is organized as follows:

Part 1: Purpose of the EA, the review process, and general content requirements for environmental assessments, along with the consultation efforts made during the preparation of this assessment.

Part 2: Details of the applicant's proposed project and alternatives considered.

Part 3: Significant characteristics of the project site's physical environment, culturally and historically significant findings relative to the project site, and socioeconomic development of the site and adjacent lands; consequences of the proposed project which pose a significant impact on any of the aforementioned; proposed mitigation measures to be undertaken for any adverse impacts; and government permits, plans, and policies relevant to the project site.

Part 4: Determination of approving agency with respect to the applicants' request for a CDUP along with reasons supporting the determination.

1.4 Public Involvement and Agency Coordination

The early consultation process in the preparation of the draft environmental assessment relied primarily upon inquiries made to the following agencies:

State of Hawai'i
- Department of Health
- Department of Land and Natural Resources
  - Office of Conservation and Coastal Land
  - State Historic Preservation Division
- Office of Hawaiian Affairs

County of Hawai'i
- Civil Defense
- Planning Department
- Department of Public Works
- Police Department
- Fire Department
- Department of Water Supply

Non-Governmental
- The Nature Conservancy
- Big Island Invasive Species Committee

Copies of communications received during early consultation are contained in Appendix 1.

2: ALTERNATIVES

The applicants seek to construct and reside in a single family residence on a portion of the land parcel identified as TMK (3) 2-6-011:033, as described in Part 1.1 and shown in Figures 1-3. Additionally, the proposed project is detailed below in Part 2.1.

2.1 Proposed Project

The applicants propose a single-story single family residence on a portion of a 19 acre property located at the 1900 foot elevation along the south edge of Kaiwiki Road in the South Hilo District of Hawai'i Island. The 3 bedroom, 2 bathroom residence would have an enclosed living area of 1920 square feet (sf), an attached carport and utility/accessory area of 800 sf, and front and back lanais totaling 440 sf. The total footprint would be 3160 sf. The maximum height of the house from finished grade to top of roof peak would be 25 feet. There would be a 10,000 gallon water tank with a Fire Department Connection hook-up. An Individual Wastewater System would be built in compliance with State Department of Health regulations. All power would be generated on-site, through the use of photovoltaics and propane. As such, there would be no connections to outside utilities (nor are any available at this site). The gravel driveway would be 10 feet wide and 240 feet in length. Additional features would include an exclosure of 4 foot high field fencing surrounding the house and the area impacted by construction activity, and a driveway gate adjacent to the Kaiwiki Road right of way. The house would not be visible from Kaiwiki Road, nor from any neighboring residences. It would be set 161 feet back from Kaiwiki Road, 185 feet from the eastern lot line, 442 feet from the western lot line, and 908 feet from Mā'ili Stream and the southern lot line.

The house site has been chosen to minimize impact on the native forest, and to displace much of the strawberry guava thickets. Additionally, the site utilizes the most level topography available on the lot so as to minimize soil disturbance. It is anticipated that the total area impacted by the building site, driveway, and associated construction activity would be less than ½ acre. Other building sites on this lot would require extensive grading, a longer driveway, and possibly a culvert.

Note that this property is not currently occupied, nor has any evidence been found of prior occupation (see Archeological Inspection, Appendix 3). Records have been found of cattle grazing in the first half of the 20th century (see References).

No other uses for this property that are identified for the Resource Subzone in the Conservation District rules (HAR 13-5-24), such as commercial forestry or botanical gardens, are desired by the applicant.

2.2 No Action

Under the No Action Alternative, the residence would not be built. The lot would remain unused, except in the case that it were sold by the owner, in which case a future owner might choose to build a residence or make other use. This EA uses the No Action Alternative as the baseline by which to compare environmental effects from the project.

3: ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

The project site's physical environment and its biological, cultural, and socioeconomic resources are described below. Any anticipated environmental and cultural impacts along with corresponding mitigation measures will also be discussed in this section.

3.1 Physical Environment

The physical environment of the proposed project site is described in terms of its location, geology, topography, climate, flood zone, air and water quality, noise, and hazardous waste contamination, if any.

3.1.1 Location

The project site is a portion of a forested 19 acre lot, Kaiwiki Homesteads lot 56, TMK 3 2-6-011-033. The project site consists of less than ½ acre, or less than 2.7% of the total lot acreage. The lot is located on the south side of upper Kaiwiki Road, 5.6 miles northwest of Hilo, on the eastern slope of Mauna Kea. It is bordered on the east by Kaiwiki Homesteads lot 54 (currently occupied) and on the west by Kaiwiki Homesteads lot 58 (unoccupied). On the south it is bordered by Mā'ili Stream and TMK 3 2-6-018-011, an unoccupied 450 acre lot without road access that is owned by Bishop Estate. The single family residence would be set 161 feet back from Kaiwiki Road, 185 feet from the eastern lot line, 442 feet from the western lot line, and 908 feet from Mā'ili Stream and the southern lot line.

Hilo Forest Reserve and the Conservation District

The Hilo Forest Reserve was established in 1905 in order to protect the streams which were vital to the sugar industry.

"The reserve in the Hilo district is needed primarily to protect the headwaters of the streams, which play so important a part in the success of the various plantations. From Laupahoehoe to Hilo are many running streams, which thanks to the heavy and nearly continuous rainfall in the forests above, may be regarded as permanent, although of course subject to fluctuation. On these streams the plantations depend for water with which to flume their cane to the mill. Their importance is consequently very great and the necessity of safeguarding them is apparent." --Report of the Superintendent of Forestry**,** Honolulu, T.H., August 9, 1904.

The sugar plantation managers requested that the Hilo Forest Reserve's lower boundary be set at 1750 feet of elevation, as this was above the level of cultivation in this area. The Forest Reserve boundary routing was adjusted to allow for homestead lots, including the Kaiwiki 2 Homestead lots.

In 1961, the Conservation District was established for "the protection of watersheds and water supplies; preserving scenic areas; providing park lands, wilderness and beach reserves; conserving endemic plants, fish, and wildlife; preventing floods and soil erosion; forestry; and other related activities." In the South Hilo District, the lower boundary of the Conservation District was set in a straight line which approximated the lower boundary of the Hilo Forest Reserve. However, where the Forest Reserve boundary was routed to allow for homestead lots, and where "cut-outs" were made in the Conservation District to allow for other homesteads, such as at Honomu Homesteads, Kaiwiki 2 lot owners did not receive exemption from the Conservation District. Accordingly, the lower boundary of the Resource Subzone of the Conservation District cuts across Kaiwiki 2 lots 47 and 48 at approximately 1750 feet of elevation, four lots below the subject property.

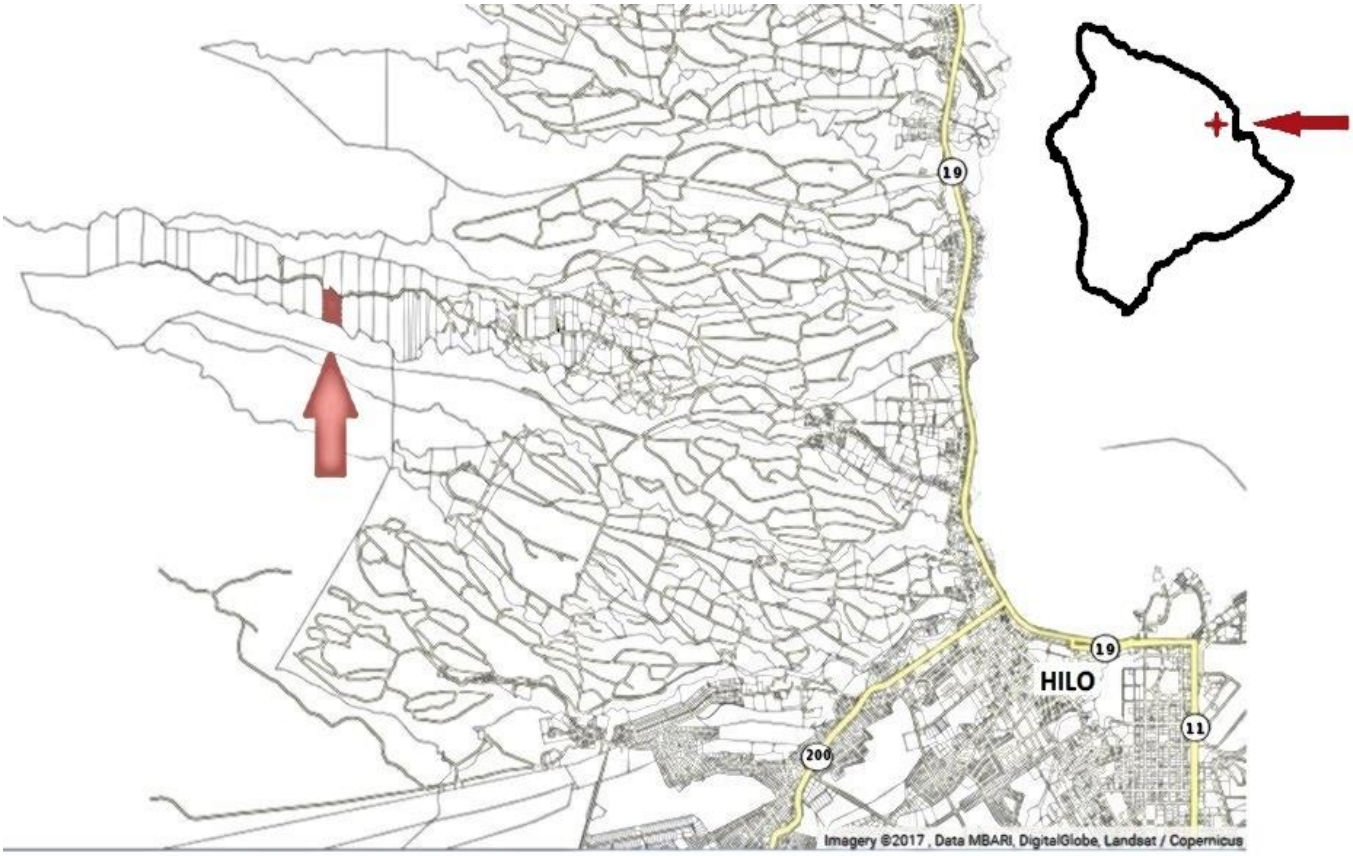

Figure 1A. Subject parcel location on Hawai'i Island

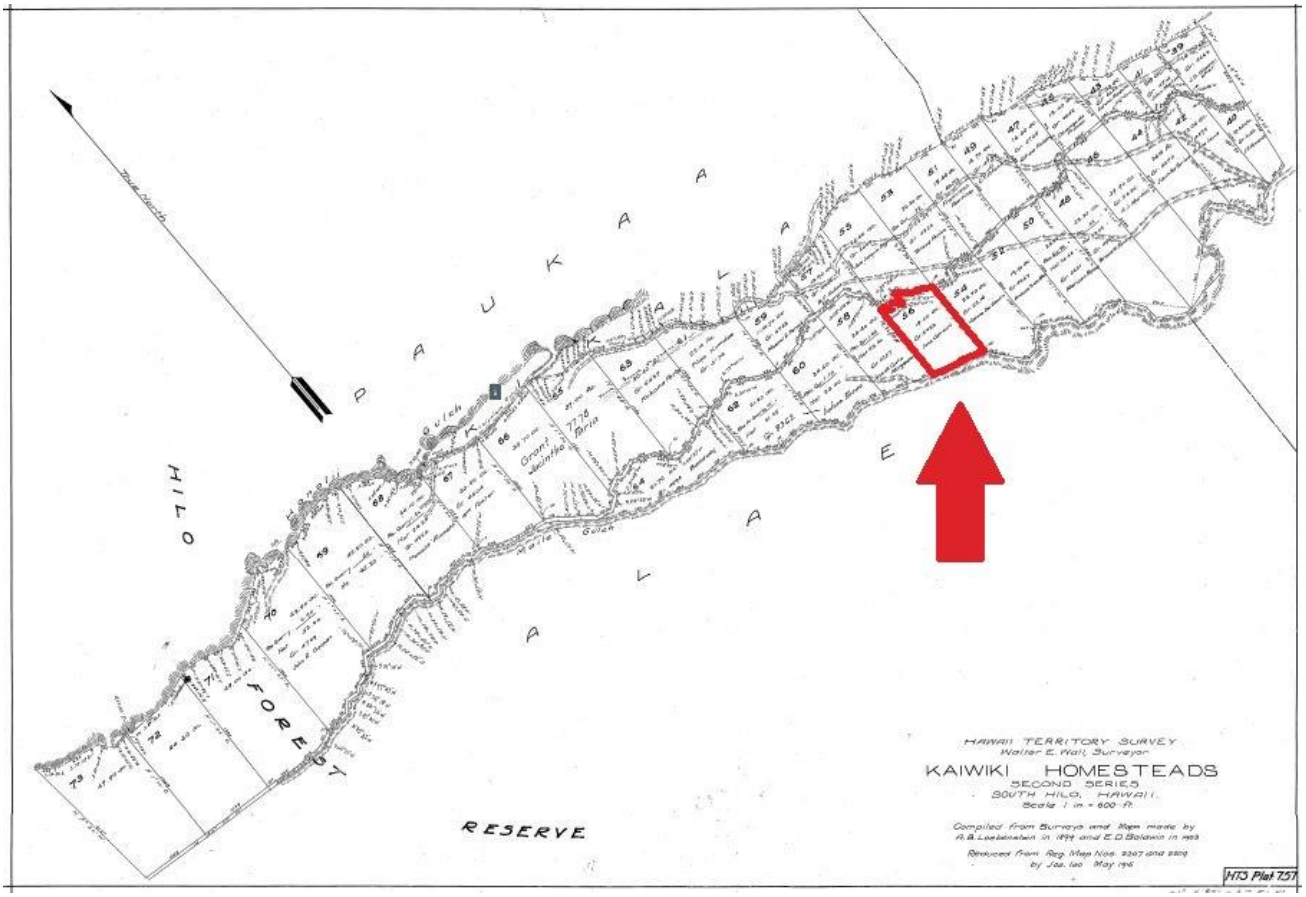

Figure 1B. Subject parcel location within Kaiwiki 2 Homesteads.

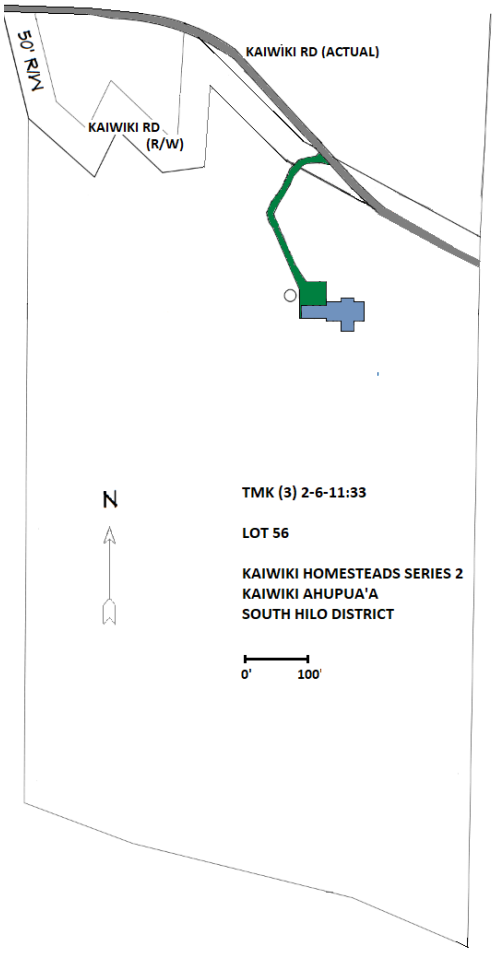

Figure 1C. Proposed project site on Kaiwiki 2 Homesteads lot 56

Figure 2A. Kaiwiki Road looking mauka. Subject parcel is on the left, lot 55 is on the right.

Figure 2B. The proposed driveway entrance on Kaiwiki Road.

Figure 2C. The proposed driveway.

Figure 2D. The proposed house site.

Figure 2E. Guava, uluhe, and deceased (but still standing) rose-apple, looking south from the proposed project site.

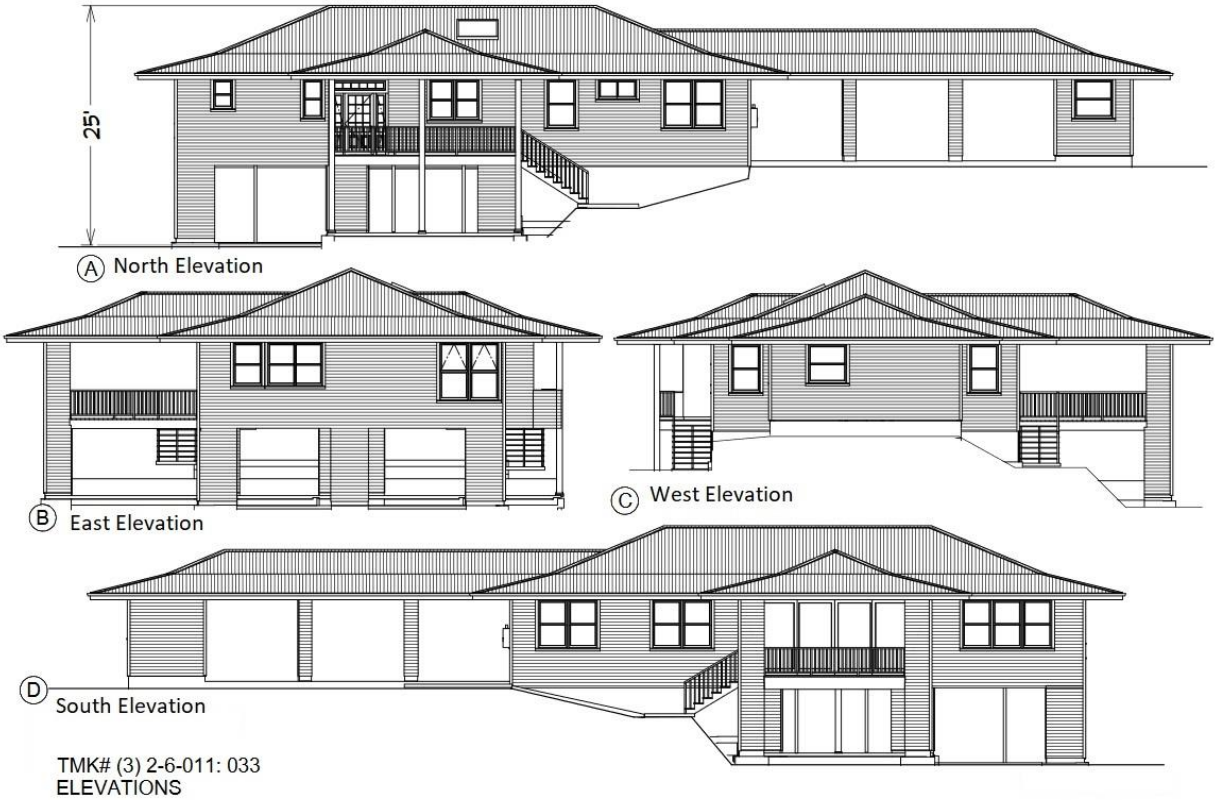

Figure 3A. Proposed Wright/Bentley residence elevations.

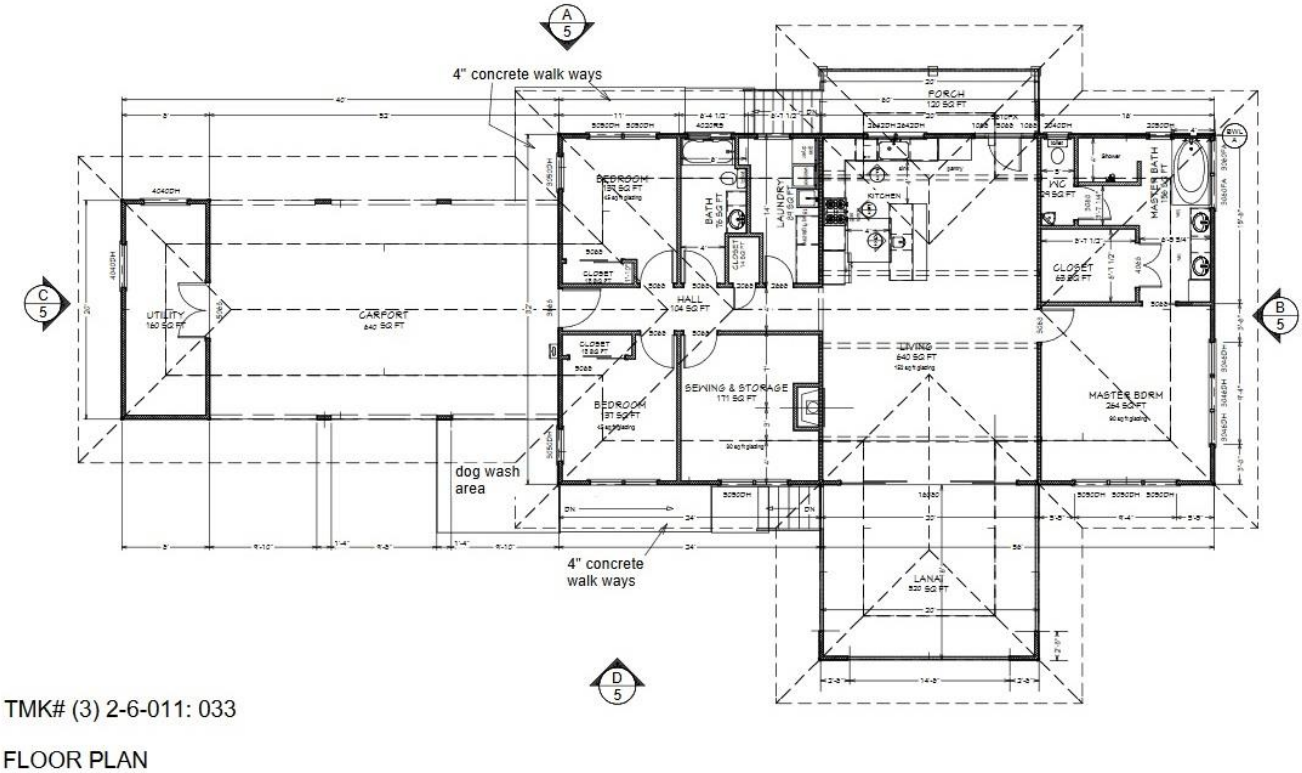

Figure 3B. Proposed Wright/Bentley residence floor plan.

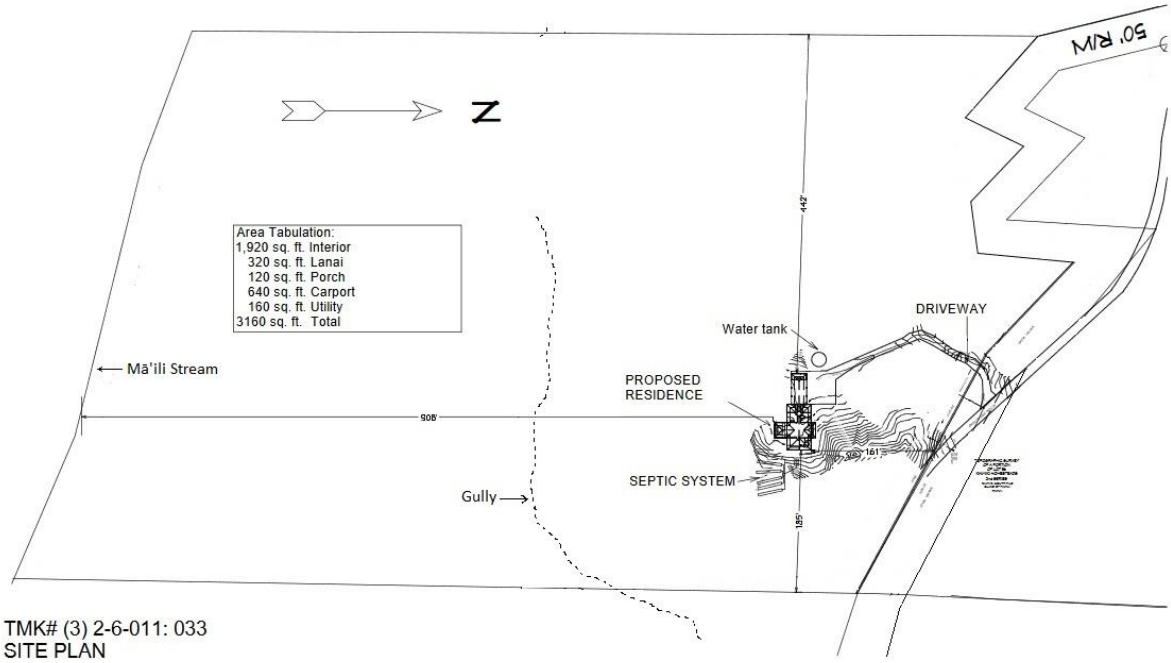

Figure 3C. Proposed Wright/Bentley residence site plan.

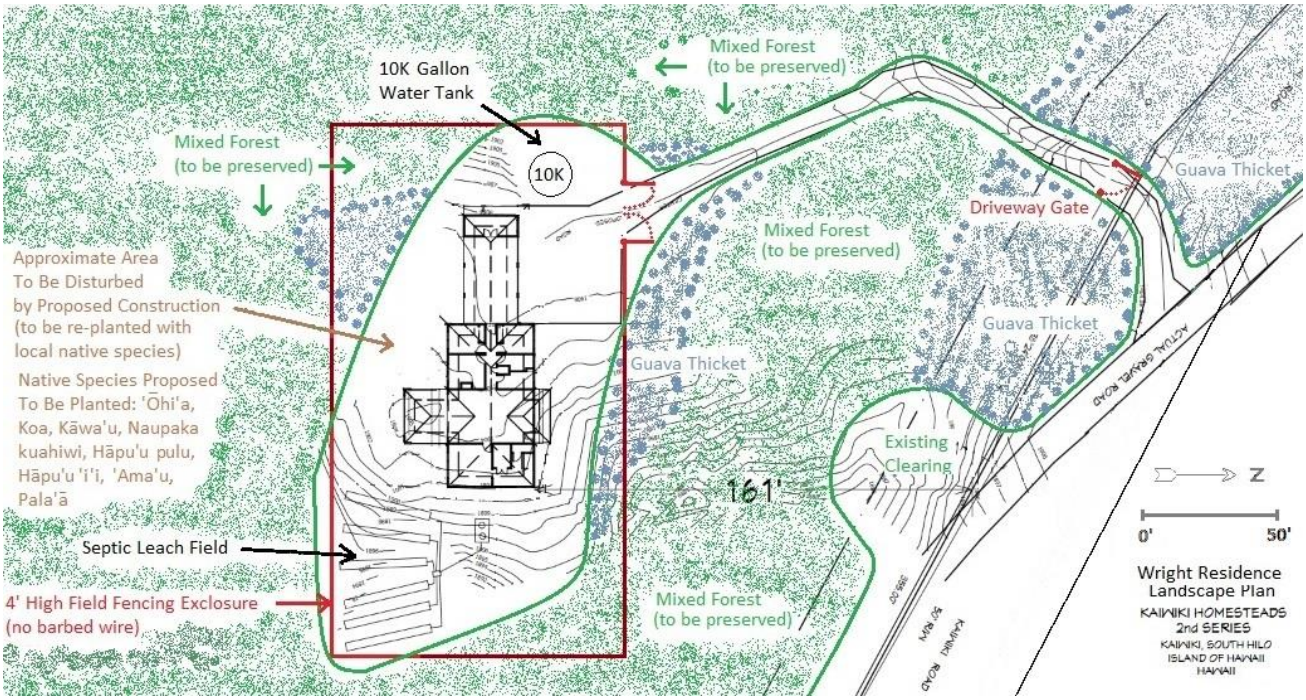

Figure 3D. Proposed Wright/Bentley residence landscape plan.

3.1.2 Topography

The undulating terrain of this lot slopes generally eastward, towards Hilo Bay, and south, towards Mā'ili Stream. The elevation of the lot varies from 1850 feet to 1970 feet. The elevation of the proposed house site is from 1908 feet to 1896 feet, and the proposed driveway elevation varies from 1905 feet to 1913 feet.

3.1.3 Geology

Mauna Kea is the tallest of Hawai'i Island's five mountains, and at 13,803 feet, its summit is the highest point within a 2500 mile radius. This mountain dictates weather for much of Hawai'i Island: the tradewinds shed abundant moisture as they are made to rise over the windward flanks, saturating the verdant slopes of Hilo and Hāmākua, and leaving very little for the leeward side. Over 1 million years old, Mauna Kea is in the advanced post-shield stage of volcanism, with eruptions less frequent and of less volume than during the shield stage of its growth. Its most recent eruption was between 4,000 and 6,000 years ago.

The soil at the project site consists of ash deposits lying on weathered basalt flows of the Hāmākua Volcanics, which resulted from eruptions from Mauna Kea 65,000 to 250,000 years ago. These ash deposits form a layer of clay that is 18 feet deep. This soil is listed as the Akaka Series and is moderately well-drained, runoff is medium, and the erosion hazard is moderate (USDA 1973). Akaka Series soil is further described in the Official Soil Series of the Natural Resources Conservation Service of the United States Department of Agriculture.

The United States Geological Survey (USGS) has ranked the volcanic hazard for Kaiwiki as Zone 8. The zones, 1 through 9, are ranked on a scale of decreasing hazard as the numbers increase, based on the probability of coverage by lava flows, with 1 as the highest hazard risk (i.e. the rift zones of Kilauea and Mauna Loa) and 9 as the lowest risk (i.e. Kohala Mountain). Zone 8 covers the lower flanks of Mauna Kea, it represents an area that has not been affected by lava flows for over 10,000 years. Therefore, a very low risk of lava inundation exists for the project site over short time scales.

Although Hawai'i Island is rated Zone 4 Seismic Hazard (Uniform Building Code, 1997 Edition, Figure 16-2), the USGS notes that numbered earthquake hazard zones (0,1,2,3,4) for building code maps are obsolete. 1969 was the last year such a map was put out by the USGS. Regardless, all of Hawai'i Island is at risk for major earthquake damage. Most of Hawai'i's earthquakes are directly related to volcanic activity, though some are less directly related, originating in structural weaknesses at the base of the volcanoes that form the island, or deeper yet below the island. Recently notable was the magnitude 6.9 earthquake on Kilauea's flank, heralding the Lower East Rift Zone activity that led to the Leilani Estates eruption. Residents at Kaiwiki reported strong shaking, with items being thrown from shelves.

Impacts and Mitigation:

Geologic conditions do not impose undue constraints on the proposed action as the seismic hazard is comparable to, and the volcanic hazard is lower than, most of Hawai'i Island. The applicant understands that there are hazards associated with homes on Hawai'i Island, and that the risk from these hazards can be reduced with a well-built, code-compliant structure. The proposed structure's foundation would be particularly engineered for the geological conditions present at the proposed building site.

During construction, site-specific erosion and sediment control Best Management Practices (BMPs) would be implemented whenever necessary to prevent sediment migration. Disturbed areas, storm water runoff controls, and sediment controls would be inspected by the contractor within 24 hours after any rainfall of 0.5 inches or greater during a 24-hour period, to ensure that appropriate controls are in place and functioning properly. Controls found to be damaged or ineffective would be replaced or repaired promptly.

3.1.4. Climate

The climate at the project site is mild and wet, averaging close to 240 inches of rain annually. The mean annual temperature is approximately 68 degrees Fahrenheit. Though somewhat buffered by trees, the project site is exposed to the tradewinds, as Kaiwiki sits on an east-facing ridge.

Impacts and Mitigation:

The climate is not anticipated to be significantly impacted by the proposed project. However, the prospect for heavy rainfall in the area has been considered by the applicants. The post and pier construction of the proposed SFR, along with the adequate drainage of the parcel's topography, would provide reasonable protection for the property in the event of site inundation due to heavy rainfall. The location on a ridge implies risk from hurricane conditions, particularly in the face of climate change. The applicants understand that there are hazards associated with homes on Hawai'i Island, and that the risk from these hazards can be reduced with a well-built, code-compliant structure.

3.1.5 Flora and Fauna

The subject property was surveyed for plant and animal species by a qualified biologist on January 26, 2017. The survey was conducted during the course of one day, and encompassed the proposed building site and areas of the property that were accessible by foot. No previous biological surveys of this lot are known to have been conducted. For the complete survey list, please see Appendix 2.

Flora Overview

The subject property is entirely forested. The Holdridge Life Zones system locates this property well within the Subtropical Rain Forest Zone. Based on the species present, it would be designated as the Koa/'ōhi'a Lowland Forest subset of the Lowland Wet Forest classification by Gagne and Cuddihy (Manual of the Flowering Plants of Hawai'i, Revised Edition, 1999).

The roughly 200 feet closest to Kaiwiki Road is dominated by invasive non-native species. Thickets of strawberry guava (Psidium cattleianum) occupy the driveway and house site, accompanied by melastoma (Melastoma candidum), clidemia (Clidemia hirta), and uluhe (Diacranopteris linearis). A few surviving 'ōhi'a (Metrosideros polymorpha) are scattered among the guava, often with guava growing directly against the 'ōhi'a trunks. On the fringe of the house site, there is a large but deceased koa (Acacia koa) entirely surrounded by guava. There is another large koa located approximately 50 feet south of the house site, this one still alive but also entirely surrounded by guava.

Beyond the house site and the thickets, guava share the undulating landscape more equitably with 'ohia, uluhe, koa, and rose-apple (Syzygium jambos). The koa appears to be somewhat diminished from its former abundance due to previous grazing and subsequent competition from the guava and rose-apple. The remaining koa are large and either fully mature, in decline, or deceased. It should also be noted that the rose-apple present are in decline or deceased due to 'ōhi'a rust (Austropuccina psidii).

Many of the large, deceased rose-apple trees have fallen, creating jumbles of downed branches that greatly inhibit travel on the lot. To date, this has prevented efforts to access the Mā'ili Stream frontage and indeed, has prevented traveling any further back than approximately 500 feet from Kaiwiki Road. As a result, it is likely that additional, un-noted species may be present in currently inaccessible areas. These areas would not be affected by the proposed single family residence and driveway.

It should be noted that in some areas where trails have been cut by survey crews, koa seedlings have sprouted. This may indicate the presence of robust koa seed banks, and may indicate the potential for the recovery of koa on this lot.

For the complete list of species observed in the proposed house site, driveway, and other accessible areas of the lot, please see Appendix 2.

Rapid ʻŌhiʻa Death (Ceratocystis huliohia and Ceratocystis lukuohia)
Note that Rapid ʻŌhiʻa Death (R.O.D.) has been confirmed on a nearby lot, approximately 1000 feet east of the proposed building site. On Hawaiʻi Island, hundreds of thousands of ʻōhiʻa have already died from this fungus. It has killed trees in all districts of Hawaiʻi Island, has been detected on Maui, O'ahu, and Kaua'i, and has the potential to kill ʻōhiʻa trees statewide. As such, R.O.D. poses an immediate threat to the forest on the subject property.

Fauna
Six species of bird were identified on the subject property: The common myna (Acridotheres tristis), northern cardinal (Cardinalis cardinalis), Japanese bush warbler (Cettia diphone), zebra dove (Guopelia striata), spotted dove (Streptopelia chinensis), and Japanese white-eye (Zosterops japonicas). All species were identified by visual contact except the Japanese bush warbler, whose readily discerned call was considered distinctive enough to warrant inclusion.

Though no Hawai'i native forest birds were observed, it is likely that those species which are thought to have developed resistance to mosquito-borne diseases, such as the Hawai'i 'amakihi (Hemignathus virens) and 'apapane (Himatione sanguine) may frequent the subject property due to the presence of native plant species.

Similarly 'io, the endemic and endangered Hawaiian hawk (Buteo solitarus), were not seen on the lot but, as is true for much of Hawai'i Island, have been observed in the area.

No mammals were observed on the subject property, but tracks and a wallow of the feral pig (Sus scrofa) were found. Additionally, Indian mongoose (Herpestes javanicus) have been observed in the area, while black rats (Rattus rattus) and mice (Mus musculus) have been reported by neighbors. Though none were observed, the subject property is a possible nesting area for the ʻōpeʻapeʻa (Hawaiian hoary bat, Lasiurus cinereus semotus).

Neither insects nor amphibians were surveyed, but coqui frogs (Eleutherodactylus coqui) were heard in the area.

Biological surveys of this scale cannot promise to detect all species on the site. Bird species may not be present at all times of the year. The heavily forested nature of this lot, in particular, decreases the probable comprehensiveness of a survey of bird life. Similarly, plant species can be obscured by the thick growth, and the seasonality of some species may render them undetected. Therefore, the survey cannot guarantee the absence of any particular species.

Mā'ili Stream
The parcel is bordered on the south by Mā'ili Stream, a perennial stream with a length of 12.8 miles. It drains the Mā'ili Watershed, which has an area of 3.9 square miles and a maximum elevation of 2838 feet. Mä'ili Stream joins Honoli'i Stream just 200 feet before it reaches Hilo Bay, at the Mamalahoa Highway bridge. This stream has been surveyed twice, in 1967 and in 1989, at 3 different survey points. The highest of the survey points was at the 1400 foot elevation, about 1.5 miles below the subject property. Six native and three introduced species were found at this highest survey point, it may be expected that some of these will be present in the section of Mā'ili Stream adjacent to the subject property. The native species found were ʻoʻopu nākea (Awaous guamensis), ʻoʻopu ʻalamoʻo (Lentipes concolor), ʻōpae kalaʻole (Atyoida bisulcata), pinao 'ula (Megalagrion sp.), Telmatogeton sp., and Amphipod sp. Due to the abundance of native species, Mā'ili Stream has been ranked Outstanding in the Aquatic Resources category of the Hawai'i Stream Assessment of 1990.

Mā'ili Stream has not been accessed by the applicant from the subject parcel due to the dense foliage and a series of obstacles formed by downed, deceased rose apple trees. These sizeable trees appear to be victims of the ʻōhiʻa rust which has killed a great many of the formerly invasive rose apple trees on Hawai'i Island. When toppled, their large branches create a broad jumble that cannot be traversed on foot.

In addition to Mā'ili Stream, the parcel features a gully which runs during rainfall. It is located 315 feet south of the proposed project site. This area, like nearly all of the lot, is covered in very dense vegetation –which indeed arches over the gully rendering it invisible to all but ground inspection. Some early maps do indicate the presence of a gully, but do not accurately locate it. Access is difficult.

Impacts and Mitigation:
That the proposed project would impact less than 3% of the 19 acre lot, and that the proposed driveway and house site is in an area of the lot with greatly diminished native flora and fauna and substantial presence of invasive species, limits the biological impacts to minimal levels.

Though the proposed site is dominated by invasive non-native species, some native plant species are present. It is anticipated that a few ʻōhiʻa would be removed along with the guava. It might be noted that these ʻōhiʻa are currently being subsumed by the encroaching invasive species. Given the confirmed presence of Rapid ʻŌhiʻa Death in the immediate neighborhood, only approved uses for ʻōhiʻa, such as on-site residential firewood, would be undertaken.

The applicant is aware of and concerned about the potential impact of R.O.D. to this forest and to all of Hawai'i. Therefore, the applicant commits to follow the Hawai'i Island Staff Sanitation Protocol as specified by the University of Hawai'i College of Tropical Agriculture and Human Resources (CTAHR) page at https://gms.ctahr.hawaii.edu/gs/handler/getmedia.ashx?moid=1349&dt=3&g=12 Particular attention would be paid to education of all individuals entering the site regarding decontamination, avoiding injury to ʻōhiʻa, sealing any ʻōhiʻa injuries that occur, and the importance of not transporting any ʻōhiʻa material from the site. Additional actions would include the setting up of a decontamination station with necessary decontamination supplies (including 70% isopropyl alcohol, brushes, and receptacles) and with full decontamination instructions and informational pamphlets. Tree seal (pruning seal) would be supplied on site. Heavy equipment operators would be asked to pressure wash their equipment with detergent prior to arrival on site, and bonuses would be paid for compliance. Per recommendations by CTAHR, all felled ʻōhiʻa would be retained on site under tarp cover.

No live koa would be removed with the exception of a few seedlings that have sprung up in survey crews' trails. It is anticipated that some of these koa seedlings can be retained and transplanted into areas disturbed by the proposed construction.

Areas disturbed by the proposed construction would be replanted with local native species propagated from specimens on the subject lot and neighboring lots. For further information please see Appendix 1.

Though no 'io, the endemic and endangered Hawaiian hawk Buteo solitarus, were seen on the lot, ʻio have been observed in the area. Therefore earthmoving within 100 meters of tall trees and tree cutting would be avoided during the breeding season for 'io, which is March through September. Otherwise, a search for 'io nests would be conducted by a qualified biologist. If an 'io nest is found in or near the work site, no land clearing activity would take place during the breeding season.

Though none were observed, the subject property is a possible nesting area for the ʻōpeʻapeʻa (Hawaiian hoary bat, Lasiurus cinereus semotus). Impacts to ʻōpeʻapeʻa would be avoided by following guidance from the Hawai'i Division of Forestry and Wildlife and the U.S. Fish and Wildlife Service, so that harvesting or trimming of woody plants more than 15 feet tall would not occur

during the ʻōpeʻapeʻa pupping season, which is between June 1 and September 15, without prior consultation with a biologist. In order to avoid injury to ʻōpeʻapeʻa , no barbed wire would be utilized in fencing.

Any exterior lighting would be shielded from shining upward, in conformance with Hawaiʻi County Code § 14 – 50 et seq., to minimize the potential disruption of seabirds.

No significant impacts are anticipated to Mā'ili Stream or its biota due to the setback of 908 feet, the dense vegetation over the intervening 908 feet, and the properly engineered Individual Wastewater System (in compliance with State Department of Health regulations). Similarly, the distance and dense vegetation would prevent impacts to the gully. During construction, site-specific erosion and sediment control Best Management Practices (BMPs) would be implemented whenever necessary to prevent sediment migration. Disturbed areas, storm water runoff controls, and sediment controls would be inspected by the contractor within 24 hours after any rainfall of 0.5 inches or greater during a 24-hour period, to ensure that appropriate controls are in place and functioning properly. Controls found to be damaged or ineffective would be replaced or repaired promptly.

3.1.6. Flood Zone
Floodplain Status

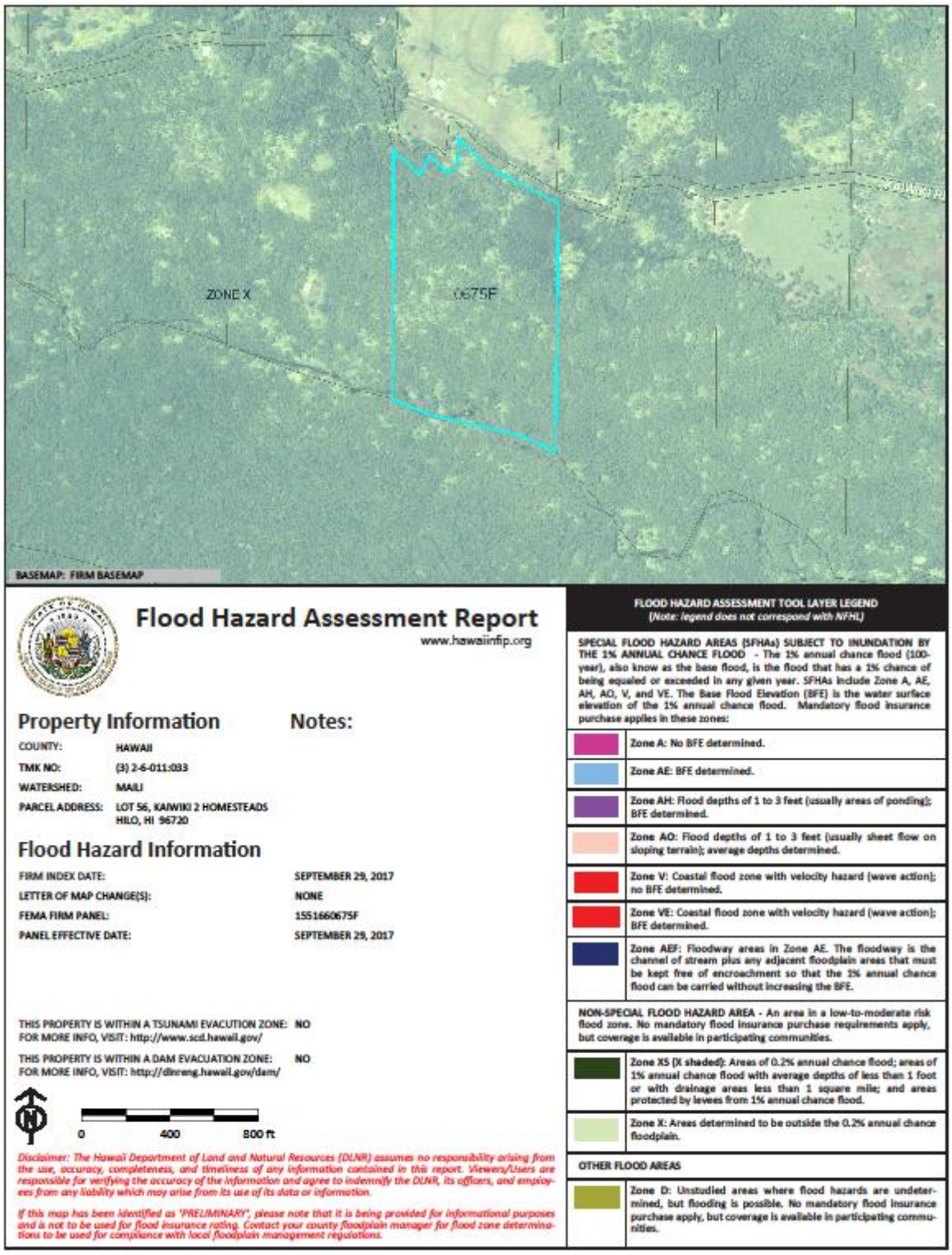

Figure 4. Flood Zone Map

Floodplain status for many areas of Hawai'i Island has been determined by the Federal Emergency Management Agency (FEMA), which produces the National Flood Insurance Program's Flood Insurance Rate Maps (FIRM). The subject parcel is on FEMA FIRM Panel 1551660675F, which is located within Zone X on the FIRM map. Zone X applies to areas of low to moderate risk, and that are determined to be outside the 0.2%

annual chance floodplain. The parcel is not within a tsunami evacuation zone, nor within a dam evacuation zone.

Impacts and Mitigation:
Site inundation from heavy rainfall is not expected to create flooding conditions, as the topography of the parcel affords adequate drainage.

During construction, site-specific erosion and sediment control Best Management Practices (BMPs) would be implemented whenever necessary to prevent sediment migration. Disturbed areas, storm water runoff controls, and sediment controls would be inspected by the contractor within 24 hours after any rainfall of 0.5 inches or greater during a 24-hour period, to ensure that appropriate controls are in place and functioning properly. Controls found to be damaged or ineffective would be replaced or repaired promptly.

3.1.7. Air Quality and Water Quality

Air Quality

Air quality at the project site is generally excellent due to its forested rural setting, elevation, distance from sites of volcanic activity, exposure to the tradewinds, and minimal human activity. Vog is an uncommon occurrence at the site, only noticeable when volcanic activity coincides with extreme slack and/or southerly winds, i.e. “Kona conditions.”

Water Quality

The parcel is bordered on the south by Mā’ili Stream, a perennial stream with a length of 12.8 miles. It drains the Mā’ili Watershed, which has an area of 3.9 square miles and a maximum elevation of 2838 feet. Mä’ili Stream joins Honoli’i Stream just 200 feet before it reaches Hilo Bay, at the Mamalahoa Highway bridge. This stream has been surveyed twice, in 1967 and in 1989, at 3 different survey points. The highest of the survey points was at the 1400 foot elevation, about 1.5 miles below the subject property. Six native and three introduced species were found at this highest survey point, it may be expected some of these will be present in the section of Mā’ili Stream adjacent to the subject property. The native species found were ‘oʻopu nākea (Awaous guamensis), ‘oʻopu ‘alamoʻo (Lentipes concolor), ‘ōpae kalaʻole (Atyoida bisulcata), pinao 'ula (Megalagrion sp.), Telmatogeton sp., and Amphipod sp. Due to the abundance of native species, Mā’ili Stream has been ranked Outstanding in the Aquatic Resources category of the Hawai’i Stream Assessment of 1990. It also received a rank of Substantial in the Recreational Resources category due to its available fishing, swimming, hunting, and scenic viewing opportunities.

Mā’ili Stream has not been accessed by the applicant from the subject parcel due to the dense vegetation and a series of obstacles formed by downed, deceased rose apple trees. These large trees were victims of the ‘ōhiʻa rust (Austropuccina psidii) which has killed a great many of the formerly invasive rose apple trees on Hawai’i Island. When toppled, their large branches create a broad jumble that cannot be traversed on foot.

In addition to Mā’ili Stream, the parcel features a gully which runs during rainfall. It is located 315 feet south of the proposed project site. This area, like nearly all of the lot, is covered in very dense vegetation –which indeed arches over the gully rendering it invisible to all but ground inspection. Some early maps do indicate the presence of a gully, but do not accurately locate it. Access is difficult.

Impacts and Mitigation:
No significant impacts are anticipated to the air quality in the area. Due to the damp climate, no significant levels of dust are anticipated to be generated during construction. In the event that dust is generated, it would be sufficiently separated from the Kaiwiki Road area by the forest. No significant impacts are anticipated to Mā’ili Stream due to the setback of 908 feet, the dense vegetation over the intervening 908 feet, and the properly engineered Individual Wastewater

System (built in compliance with State Department of Health regulations). Similarly, the distance and dense vegetation would prevent impacts to the gully. During construction, site-specific erosion and sediment control Best Management Practices (BMPs) would be implemented whenever necessary to prevent sediment migration.

Best Management Practices (BMPs) would include, but not be limited to, the following:

--The total amount of land disturbance will be minimized. The construction contractor will be limited to the specific delineated construction work areas within the lot.

--The contractor will take special precautions, including use of a dual-layer sedimentation control system in erosion prone areas, to prevent any sediment leaving the work areas, particularly towards the direction of streams or gullies.

--Construction activities with the potential to produce polluted runoff will not be allowed during unusually heavy rains or storm conditions that might generate storm water runoff.

--Disturbed areas, storm water runoff controls, and sediment controls would be inspected by the contractor within 24 hours after any rainfall of 0.5 inches or greater during a 24-hour period, to ensure that appropriate controls are in place and functioning properly. Controls found to be damaged or ineffective would be replaced or repaired promptly.

--Cleared areas will be replanted or otherwise stabilized as soon as possible.

With proper implementation of standard BMPs, the construction and use of the residence would not be expected to contribute to sedimentation, erosion, or pollution of stream waters.

3.1.8. Noise and Scenic Resources

There is a low level of noise at the proposed project site. Auditory stimuli are derived primarily from rain, wind, bird and amphibian vocalizations, occasional vehicle usage of Kaiwiki Road, and occasional helicopter overflights.

Though the forest of upper Kaiwiki is certainly an area of natural beauty, the subject property offers no scenic resources other than continuous vegetation along Kaiwiki Road. The absence of scenic resources is due to the distance from other viewpoints and dense vegetation. The County of Hawaiʻi General Plan contains Goals, Policies and Standards intended to preserve areas of natural beauty and scenic vistas from encroachment. No features or views on or near the project site are noted.

Impacts and Mitigation:

Temporary increases in noise level would occur at the project site and along Kaiwiki Road due to transport of construction materials during the construction phase of the proposed single family residence. Equipment use at the project site would also increase noise levels somewhat. The main area of construction would be set back approximately 150 feet from the Kaiwiki Road and approximately 480 feet from the nearest residence. The trees and brush in the intervening area would aid in dampening the noise of construction. Since the proposed site utilizes the most level topography available on the lot, noise from heavy grading equipment would be minimized. Noise increase during construction would be temporary and intermittent. Therefore, mitigation measures would likely not be needed beyond limiting construction to daytime hours.

Impact to scenic resources would be limited to the driveway entrance on Kaiwiki Road. It should be noted that this uppermost stretch of Kaiwiki Road is very lightly traveled, with traffic primarily limited to the few residents. Also note that other houses and driveways are scattered along this length of road. As such, the driveway would be in keeping with the established character of the

neighborhood. The proposed residence would not be visible from the road, nor from neighboring residences, nor from other viewpoints.

3.1.9. Hazardous Substances, Toxic Waste, and Hazardous Conditions

Hazardous Substances & Toxic Waste

No hazardous substances or toxic waste have been observed at the project site over numerous visits. There is no documented use of the property that would indicate the presence of hazardous substances. While no hazardous substances were identified on the proposed project site, use and storage of certain hazardous substances and materials for the construction of the residence may be temporarily necessary.

Hazardous Conditions

There is no documented use of the property that would indicate the presence of a hazardous condition, and no hazardous conditions were observed on the parcel.

Impacts and Mitigation:

During the construction phase of the proposed residence, all necessary measures would be taken to minimize the possibility for spills or combustion of hazardous substances and/or materials. Manufacturers' instructions for proper storage and use would be strictly followed, and all waste and unused materials would be removed and disposed of at an authorized waste disposal site according to manufacturer recommendation. Emergency spill treatment, storage, and disposal of all hazardous materials would strictly adhere to State and County requirements. Onsite storage of hazardous materials and substances would be limited to the minimum practical quantity needed for project completion. Onsite vehicles and machinery would be properly maintained and monitored for leaks. Construction materials, petroleum products, wastes, and debris would be prevented from entering or approaching any gullies or streams.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

The subject property is situated near the western, mauka end of Kaiwiki Road. It is at 1900 feet of elevation and about 5 miles above Māmalahoa Highway. The land use makai of the subject property shifted from traditional settlements along and immediately above the shore, to commercial sugar cane cultivation and its associated plantation villages and mills, to individual homestead lots dedicated to residences and diversified agriculture. At Kaiwiki, in particular, there was considerable overlap of the commercial sugar cultivation and the use of individual homestead lots. In some cases, sugar cane was cultivated by homestead lot owners under contract, in some cases the lots were leased, and many of the Kaiwiki Homesteads lots were purchased by Hilo Sugar Company in the 1920s. The subject property, though above the 1700 foot elevation (which was the upper limit of sugar cane cultivation at Kaiwiki), was purchased by Hilo Sugar Company in 1926. The subject property was owned by Hilo Sugar Company and its successors (Mauna Kea Sugar Company, Mauna Kea Agribusiness, and C. Brewer) until it was sold to a private party in 1988. Commercial cultivation of sugar cane ceased in the area in the 1970s.

Land use at Kaiwiki is now primarily residential, with a scattering of diversified agriculture. As such, the economy is focused on that of Hilo, with its private and public employment and commercial opportunities. The U.S. Census Bureau counted 203 residents in Kaiwiki Homesteads 1 and 2 in 2010, with a population growth of 3% since 2000 and a median age of 41.6 years.

Impacts and Mitigation:

The proposed project is not expected to have any adverse socioeconomic impacts. The proposed residence will not adversely impact population or demand for services. The proposed construction will have a small positive economic impact for Hawai'i County.

3.2.2 Cultural and Historic Resources

A Cultural Impact Assessment of the project and an archaeological inspection of the proposed project area were prepared and are attached as Appendices 3 and 4. The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The summary below does not include all scholarly references. For sources and additional details please refer to Appendices 3 and 4.

Historical and Cultural Contexts

Archaeologists have thought Hawaiʻi Island was first settled around A.D. 700 by people sailing from the Marquesas (Cordy 2000:104-109). Recently, there has been debate surrounding the archaeological dating of the initial settlement of Hawaiʻi. An article published in the Journal of Archaeological Science reviewing radiocarbon dates recovered at archaeological sites on the Island of Hawaiʻi suggests that, by relying on only carbon samples from short-lived plant remains, the most reliable dates point to initial Polynesian colonization of Hawaiʻi Island occurring between AD 1220 and 1261 (Rieth et al. 2011:2747).

Early settlers established settlements on the windward shores in likely places such as Waipiʻo, Waimanu, and Hilo Bay. People at these locations were able to sustain themselves through inshore and pelagic fishing, gathering shellfish from the shore and strand, plant and animal husbandry, and the utilization of natural terrestrial flora and fauna (Kirch and Kelly 1975; Pearson *et al*. 1971; Kirch 1985). The pattern of this early settlement is thought to have consisted of widely spaced, permanent home bases that gradually expanded to form a nearly continuous zone of permanent settlement along the windward coasts as local populations grew.

Pre-Contact Era Cultural and Historical Background

Kaiwiki Ahupuaʻa is a traditional Hawaiian land division in Hilo Moku situated from the 200 foot high coastal cliffs of Hilo Palikū up to 2,800 feet amsl (W.E. Wall Map 1928). Kaiwiki is translated as quick sea (Pukui *et al*.1974:71). Traditional settlement patterns in Kaiwiki are more characteristic of those along the Hāmākua coast than of lowland Hilo (Cordy 2000:44). There are no legendary places known to be mentioned in *moʻolelo* concerning Kaiwiki and its immediate environs other than the following:

According to Maly,
The lands of Kaiwiki were named for Kaiwi-kî-a-ola an *ʻôlohe* instructor, who was the husband of Honoliʻi, and grandfather of Kîkoʻoakapuna. Kaiwiki's foremost students were: Pau and Kekaʻa (brothers whose names combined to become Paukaʻa), Pueopâkû, Pâpaʻi-nui-a-kou (Pâpaʻikou), Waiâhole, and Kaʻieʻie-lulu-ka-iʻa (Kaʻieʻie). *Ahupuaʻa* and site features along this coastline are named for these *ʻôlohe*, and it was their custom to waylay all who traveled along their trails. [Maly 1993:59].

Post-Contact Era and Cultural and Historical Background

No published prehistoric accounts of Kaiwiki are recorded by Kamakau (1992), Iʻi (1993), Kalakaua (1990), or Fournander (1996). As for early historic accounts, there is mention of a battle fought along the coast in neighboring ʻAlae Ahupuaʻa, the *ahupuaʻa* south of Kaiwiki. The battle was one of many between Kamehameha and his allies against Keōua Kūʻahuʻula and his allies for control of Hawaiʻi Island. Angered that his uncle Keawemaʻuhili had aided Kamehameha by sending men and canoes to fight on Maui, Keōua invaded Hilo slaying Keawemaʻuhili and many of his warriors at Alae in 1790 (Cordy 2000:333; Kamakau 1992:151).

William Ellis later passed by Kaiwiki while travelling by canoe from Hilo to Laupāhoehoe where he disembarked and continued on foot to Humuʻula along the tree line at the northern foot of Mauna Kea (Ellis 2004:341-344). Ellis travelled by canoe because the road along the cliffs was too rough and passed through many deep gulches. He states that the cliffs between Hilo and Laupāhoehoe were dotted with plantations. Their canoe passed more than fifty ravines in the several hours it took them to travel the twenty-five or so miles between Hilo and Laupāhoehoe. He noted that none of ravines had a place for their canoe to land without being swamped in the surf. No mention is made of Kaiwiki Ahupuaʻa, though he passed it by canoe on the way to Laupāhoehoe.

Native Testimony Before The Commission To Quiet Land Titles
With the Māhele of 1848 and the two Acts of 1850, authorizing the sale of land in fee simple to resident aliens and the award of *kuleana* lands to native tenants, land tenure in Hawaii arrived at a significant turning point (Chinen 1961:13). A large portion of Kaiwiki Ahupuaʻa (Kaiwiki 2nd) was awarded to William Charles Lunalilo (King Kamehameha V) as Land Commission Award (LCA) #8559B. Three smaller coastal awards were made to Pakele (LCA9928), Kaainoa (LCA5007), and Kaheana (LCA7852). No Land Claim awards were made within or near the project area parcel.

The project area parcel and the surrounding lands were all land grants awarded primarily to farmers of Portuguese descent. Parcel 033, where the project area is located, was awarded to Jose Carreiro for $148.56 as Land Grant 4433 in April 1901. The property was then sold to Mr. Fernandes, then Mr. Cabrinha, then Mr. Serrao and then to Hilo Sugar Company. Mr. Serrao owned many lots in the area and was known for his winery in Hilo, among other business ventures.

Modern Land-Use
Hawaiʻi County Planning records show that the property, having been purchased by Hilo Sugar Company in 1926, was sold to Mauna Kea Agribusiness Company Inc, then to C. Brewer and Company, and was finally sold to private owners. According to neighbors, Parcel 033 was used as cattle pasture beginning in the 1920s. The current owner, Mr. Wright, bought the property in 2014.

Previous Archaeological Investigations
Early archaeological studies conducted in the area by Thrum and Stokes (Thrum 1907 and 1908, and Stokes and Dye 1991), and by A.E. Hudson (Hudson 1932) did not locate any *heiau* or significant cultural resources in the area within or around the current project area.

A single archaeological inventory survey (AIS) was conducted by Hammatt and Colin (1998) within the Ahupuaʻa of Kaiwiki 3 on the slopes of Kolekole Gulch, under and surrounding the Kolekole bridge, including the 100 feet of slopes *mauka* and *makai* of the bridge. Cement footings from the previous bridge were recorded in their report. No other cultural resources were identified during the study.

In May of 2004, Rechtman Consulting, LLC conducted an AIS on 4.5 acres [(3) 2-9-03:13, 29, and 60] in coastal Wailea Ahupuaʻa, over one kilometer northeast of the current project area (Desilets *et* al. 2004). A single site (SIHP 50-10-26-24212 consisting of a section of railroad grade and a trestle abutment were recorded. Both features were recorded as significant under Criterion D and no further work was recommended at the site (Desilets *et* al. 2004:20).

SCS, Inc. conducted an archaeological inventory survey of 3.5 acres in Kaiwiki 3 Ahupuaʻa along the Kolekole stream (Escott 2011). There were no archaeological or cultural sites identified on the project area.

SCS, Inc. conducted an archaeological field inspection of 5.0 acres on TMK: (3) 2-6-011:026, two lots east of Parcel 033 (Escott 2017). There were no archaeological or cultural sites identified on the project area.

An archaeological field inspection (AFI) was conducted by SCS for the 0.496-acre proposed project area (Escott 2018). There were no archaeological sites or cultural properties identified in the project area.

Cultural Informant Interviews
SCS, Inc contacted ten individuals who, either work for the Office of Hawaiian Affairs, are SHPD personnel, are familiar with the project area lands through cultural, professional, or historical work, or are long-time residents of the area. Two OHA representatives, two SHPD staff members, three members of the Hawai'i Island Burial Council (HIBC), two members of Nā Ala Hele, and a long time resident familiar with Kaiwiki were contacted to for information about cultural practices in the Kaiwiki area.

Six individuals responded to inquires but were not aware of cultural practices associated with Kaiwiki. SHPD Burial Sites Specialist Jordan Calpito spoke with a friend who is familiar with the history of Kaiwiki, but he did not offer any information concerning Kaiwiki. The public notices also did not generate responses. The lack of information regarding cultural practices in upland Kaiwiki is not surprising, as the upland region of Kaiwiki are far from known habitation centers along the coast. The project area is 7.5 kilometers west of the coast, at an elevation of 1,900 feet amsl.

The uplands at this location were densely wooded prior to European contact. Upland Kaiwiki remained an isolated forest area until after the Māhele when the land was subdivided and sold for cattle ranching, sugarcane agricultural and homesteads. Even then, the project area is at the upper reaches of the Kaiwiki Homesteads lots. Sugarcane was never cultivated near the project area, but was cultivated at lower elevations east of the project area.

Prior to European contact, it is possible that this upland region was infrequently visited by bird hunters, canoe builders and those collecting upland forest plants. The lack of trails depicted on early Historic era survey maps suggest the area was only visited infrequently. In addition, it is likely that canoe builders could find *koa* trees to carve their canoes at lower elevations, making it possible to port the finished canoes from areas closer to the coast.

Impacts and Mitigation
Based on the results of an Archaeological Field Inspection of the project area, the results of previous archaeological studies, as well as organizational response, individual cultural informant responses, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel. The property owner will not restrict access for gathering purposes, as is protected by law. No cultural activities were identified within the project area, and the proposed undertaking will not produce adverse effects to any native Hawaiian cultural practices.

3.2.3 On-site and Adjacent Land Use

On-site

No evidence has been found of any occupation or use of the subject property, other than that records have been found of cattle grazing in the first half of the 20th century. Additionally, neighbors confirm that cattle were grazed on the subject and surrounding lots. Since grazing is not an approved use for the Resource Subzone of the Conservation District, it cannot be considered a potential economic use of the subject lot.

Adjacent

The lot immediately across Kaiwiki Road to the north of the subject property is occupied and includes a two-story single family residence. The lot to the immediate east of the subject property is occupied and includes

a two-story single-family residence. On the south it is bordered by Mā'ili Stream and an unoccupied 450 acre lot without road access that is owned by Bishop Estate. The lot to the immediate west of the subject property does not include any recorded structures, but satellite photos do show a small roofed structure in the middle of the lot. Neighbors report that it is not occupied.

Impacts and Mitigation:
It is not anticipated that the proposed project will have any negative impact on adjacent land uses. Rather, the proposed single family residence is in keeping with existing land uses in the immediate vicinity.

3.2.4 Roads and Access

The northern boundary of the subject property includes 522 feet of frontage along Kaiwiki Road. This uppermost section of Kaiwiki Road, though maintained by Hawai'i County, is unpaved from a point approximately 0.5 miles below the subject property to the road's terminus approximately 1 mile above the subject property. Kaiwiki Road provides the only access to the subject property.

3.2.5 Public Utilities

The subject property is not served by any public water distribution utility, wastewater collection utility, electrical power utility, or "landline" telecommunications utility. Cellular telephone service is available, as is satellite internet service.

Water Supply and Wastewater

All water for domestic use and Hawai'i Fire Code requirements would be supplied by rainwater catchment. A 10,000 gallon rainwater catchment tank would be used, comprising both the 3000 gallons required for firefighting and emergency purposes and the 6000 gallons required for domestic use. The location and capacity of the emergency water system, including the necessary compatible connector system, would meet the approval of the Hawai'i County Fire Department. Wastewater would be treated with a septic system in conformance with State Department of Health requirements.

Electricity

Electricity would be provided by a roof-mounted array of photovoltaic panels with a battery storage system and a back-up generator. There would be no extension of electric lines from their terminus approximately 0.4 miles below the subject property on Kaiwiki Road.

There will be no adverse impact to any public or private utilities. The addition of one single-family home will have no measurable adverse impact to or additional demand on public facilities such as schools, police or fire services, or recreational areas. The applicants acknowledge and understand that this lot, along with all other residences in Kaiwiki, is not located within a mile of emergency services.

Impacts and Mitigation:
No adverse impact is anticipated in relation to the installation of water, wastewater, and electrical systems. There will be no impact to any public or private utilities. The addition of one single family residence is unlikely to have any adverse impact on public facilities such as schools and police or fire services. The applicant understands that the subject property is not located within a mile of emergency services.

3.3 Secondary and Cumulative Impacts

The small scale of the proposed project indicates that no major secondary impacts, such as notable population change or adverse effects on public facilities, would be anticipated. It also would not be

anticipated that cumulative impacts would result from the combined impacts or the conflicting mitigation measures of multiple individual projects. There may occasionally be more than one home under construction along Kaiwiki Road, but the adverse effects of building a single family residence in this context are quite minor due to the temporary nature of the disturbances and the relatively isolated and sparsely populated nature of the area. No special mitigation measures would be required beyond those precautions listed above for preventing adverse effects during construction.

3.4 Required Permits and Approvals

County of Hawaiʻi:
Plan Approval and Grubbing, Grading, and Building Permits

State of Hawaiʻi:
Conservation District Use Permit
Wastewater System Approval

3.5 Consistency with Government Plans and Policies

Proposed construction and development should demonstrate consistency with government plans and policies. The proposed single-family residence demonstrates consistency with pertinent goals, plans, and policies as delineated in the Hawai'i County General Plan, the Hāmākua Community Development Plan, and Conservation District goals and guidelines.

3.5.1 Hawaiʻi County General Plan

The General Plan for the County of Hawaiʻi expresses the broad goals and policies for the long-range development of the island. It is organized into fourteen elements, with goals, policies, and standards for each. Included below are sections pertinent to the proposed project, as well as relevant discussion of the project's conformity to stated goals, policies, and standards.

Economic

Goals

2.2 (a) Provide residents with opportunities to improve their quality of life through economic development that enhances the County's natural and social environments.
2.2 (b) Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.
2.2 (d) Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County's cultural, natural, and social environment.

The proposed construction of the single family residence would create temporary construction jobs for local residents and would indirectly boost the economy through construction industry purchases from local suppliers. The single family residence and its construction is designed to be in balance with the natural, cultural and social environment of Hawai'i County, and such activities which would be generated primarily and cumulatively are in keeping with the overall economic development of the island.

Environmental Quality

Goals

4.2 (a) Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.
4.2 (b) Maintain and, if feasible, improve the existing environmental quality of the island.

4.2 (c) Control pollution.

Policies
4.3 (a) Take positive action to further maintain the quality of the environment.

Standards
4.4 (a) Pollution shall be prevented, abated, and controlled at levels that will protect and preserve the public health and well-being, through the enforcement of appropriate Federal, State and County standards.
4.4 (b) Incorporate environmental quality controls either as standards in appropriate ordinances or as conditions of approval.
4.4 (c) Federal and State environmental regulations shall be adhered to.

The proposed project would respect the natural resources of the land, in conformity with State and County regulations, and would not have substantial adverse effect on the environment. The proposed project would be compatible with existing single family residences in the area. The SFR would further allow direct and continual environmental stewardship of the project site and its biological and scenic resources, which might otherwise be threatened by illegal refuse dumping or disposal of hazardous substances and materials.

Flooding and Other Natural Hazards

Goals
5.2 (a) Protect human life.
5.2 (b) Prevent damage to man-made improvements.
5.2 (c) Control pollution.
5.2 (d) Prevent damage from inundation.
5.2 (e) Reduce surface water and sediment runoff.
5.2 (f) Maximize soil and water conservation.

Policies
5.3 (a) Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.
5.3 (g) Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.

Standards
5.4 (a) "Storm Drainage Standards," County of Hawaii, October, 1970, and as revised.
5.4 (b) Applicable standards and regulations of Chapter 27, "Flood Control," of the Hawaii County Code.
5.4 (c) Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).
5.4 (d) Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawaii County Code.
5.4 (e) Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.

The subject property is not within a tsunami evacuation zone, nor is it within a dam evacuation zone. The subject property is within Zone X, an area determined to be outside the 0.2% annual chance Floodplain in the Flood Insurance Rate Maps (FIRM). The project will conform to applicable drainage regulations and policies determined for the County of Hawaiʻi. The property owners further understand the risk of hurricane and earthquake likelihoods, and will proactively undertake all reasonable measures to

minimize threat to human life and property damage, as advised in the County General Plan with respect to the education of home and real property owners, as well as the general public.

Historic Sites

Goals

6.2 (a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaiʻi.
6.2 (b) Appropriate access to significant historic sites, buildings, and objects of public interest should be made available.

Policies

6.3 (a) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.
6.3 (b) Amend appropriate ordinances to incorporate the stewardship and protection of historic sites, buildings and objects.
6.3 (c) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.
6.3 (d) Public access to significant historic sites and objects shall be acquired, where appropriate.

An archaeological inspection determined that no historic sites were present. There are no historic sites listed in the Hawaiʻi County General Plan that are associated with the subject property. There are no known cultural resources or known or expected cultural uses on the lot; access to traditional forest resources and hunting areas will not be affected.

Natural Beauty

Goals

7.2 (a) Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.
7.2 (b) Protect scenic vistas and view planes from becoming obstructed.
7.2 (c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

Policies

7.3 (a) Increase public pedestrian access opportunities to scenic places and vistas.
7.3 (b) Develop and establish view plane regulations to preserve and enhance views of scenic or prominent landscapes from specific locations, and coastal aesthetic values.
7.3 (f) Consider structural setback from major thoroughfares and highways and establish development and design guidelines to protect important viewplanes.

The subject property is not associated with any sites listed as examples of Natural Beauty Sites in the Hilo District in Hawaiʻi County's General Plan nor with any Exceptional Tree. The improvements are consistent with traditional land use and will neither obstruct nor impede access to scenic vistas and places of public interest.

Natural Resources and Shorelines

Goals

8.2 (a) Protect and conserve the natural resources from undue exploitation, encroachment and damage.
8.2 (b) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.

8.2 (c) Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.
8.2 (d) Protect rare or endangered species and habitats native to Hawaii.
8.2 (e) Protect and effectively manage Hawaii's open space, watersheds, shoreline, and natural areas.
8.2 (f) Ensure that alteration to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.

Policies
8.3 (a) Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.
8.3 (c) Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is protective of resources and is of the maximum benefit to the general public.
8.3 (d) Protect the shoreline from the encroachment of man-made improvements and structures.
8.3 (h) Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
8.3 (p) Encourage the use of native plants for screening and landscaping.
8.3 (r) Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.
8.3 (u) Ensure that activities authorized or funded by the County do not damage important natural resources.

Natural resources will not be affected the proposed action, and there would be minimal alteration of natural landforms. Access to natural resources would not be affected. No unreasonable exposure to natural hazards not shared by every resident of the island would occur. No rare or endangered plant or animal species have been identified on the subject property, however the area impacted by the construction of the residence would be restored with vegetation native to the immediate and surrounding area. Mā'ili Stream is not feasibly accessible from the project site, and it is unlikely that the parcel would be considered a point of access for recreation or cultural practices. Access for any potential traditional and/or cultural practices would not be adversely impacted.

Housing

Standards
9.4 (a) Building Code
9.4 (b) Electrical Code
9.4 (c) Plumbing Code
9.4 (d) Zoning Code
9.4 (f) Standards of the single-family and multiple residential land use.

The construction of the single-family residence at the project site would conform to all applicable codes.

Public Utilities
Water

Standards
11.2.3(a) Public and private water systems shall meet the requirements of the Department of Water Supply and the Subdivision Control Code.

Sewer

Standards

11.6.3(i) All wastewater disposal systems shall conform to the applicable provisions of Chapter 11-62, Hawaii Administrative Rules for the Department of Health to ensure proper treatment and disposal of wastewater and to prevent further contamination of waterways, underground water sources, and the coastal waters.

The water catchment tank, septic system, and wastewater system for the proposed residence will conform to all State and County requirements.

3.5.2 Hāmākua Community Development Plan

The Hāmākua Community Development Plan (CDP) planning area covers the districts of Hāmākua, North Hilo, and a portion of South Hilo including Kaiwiki. It has been developed under the framework of the February 2005 County of Hawaiʻi General Plan, and was adopted by the Hawai'i County Council as Ordinance 2018-078 in August 2018.

Community Development Plans serve as the forum for community input into establishing County policy at the regional level, they coordinate the delivery of County services to the community, and they translate the broad General Plan statements into actions as they apply to specific geographical areas.

The Hāmākua CDP does not explicitly specify land use on the property, but it establishes priorities and goals for natural and cultural resources and community infrastructure. Priorities and goals pertinent to the proposed project include:

Protects coastal areas, agricultural land, and mauka forests from development

Protects open space, areas with natural beauty, and scenic view planes

Guides the development of programs to strengthen protections for coastal and agricultural lands as well as open space and view planes

Preserves historic resources

Ensures appropriate public access to the shoreline and mauka forests

Guides the development of a regional network of trails

Guides collaborative stewardship and enhancement of coastal and forest ecosystems, cultural resources, agricultural lands, public access, and trails

Concentrates future development in the existing towns, villages, and subdivisions

Supports the preservation of village and town character and guides the enhancement of communities' unique sense of place

The subject property is part of the Kaiwiki 2 Homesteads, which were established in 1901 for farming, timber harvest, ranching, and residences. While abiding by the Conservation District regulations, the proposed project does conform to the original intended purpose of the Kaiwiki 2 Homesteads. It should also be noted that this proposed project would impact less than 3% of the lot, and no pristine native habitats, rare species, or forest resources would be impacted. As such, the proposed single-family home would not represent development of mauka forest lands. The secluded and unexposed nature of the proposed project site precludes any adverse effect on natural beauty and scenic view planes. There would be no impact to historic

properties, nor would there be any impact to access to the forest. Occupation of the home would promote additional patronage of local businesses in the Hāmākua CDP area, perpetuating the quality of life and economy. The proposed single-family residence would be consistent with the Hāmākua CDP.

3.5.3 Conservation District

The State Land Use District for the project site is Conservation. Its subzone is Resource, for which, according to Hawai'i Administrative Rules (HAR) §13-5-15, a single-family residence is an identified use. Any proposed use must undergo an examination for its consistency with the goals and rules of this particular district and subzone. The applicant has concurrently prepared a Conservation District Use Application (CDUA). The CDUA includes a detailed evaluation of the consistency of the project with the criteria of the Conservation District permit process. The following individual consistency criteria apply:

1) **The proposed land use is consistent with the purpose of the Conservation District**

The development of the single-family residence (SFR) is in conformance with the purpose of the Conservation District. The proposed use of the subject property for a SFR is an identified use within the Conservation District, requiring a Board Permit for such use. A commitment by the applicants to the management of the site will conserve, protect and preserve the natural features on the subject property. The proposed use will not impact the public's ability to utilize resources in the vicinity of this property. Additionally, due to the careful and limited nature of the proposed development, there would be no significant impacts to natural or cultural resources in the general area of the property.

2) **The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur**

The objective of the Resource subzone "...is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." This identified use, which conforms to the design standards in 13-5-41, will ensure the sustained use of the natural resources in the project site by mitigating potential impacts as outlined in this document. Single family residences are an identified use in the Resource subzone under HAR 13-5-24, R-8.

3) **The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management," where applicable**

The proposed land use is outside the Special Management Area (SMA) and is thus not subject to County SMA rules. The use complies with all provisions and guidelines contained in Chapter 205A, Hawai'i Revised Statutes (HRS), entitled Coastal Zone Management. Most of the objectives, policies and guidelines of the Coastal Zone Management (CZM) program are specifically focused on the protection of coastal resources, such as the coastal recreational, historic, scenic, and marine resources, as well as beaches and ecosystems; or speak to the government's regulatory or management functions, such as managing development, providing public facilities in suitable locations, or promoting public participation in the management of coastal resources. The property's location at 1,900 feet in elevation and over five miles from the coast removes it from the area of direct impact on coastal resources. However, even projects located well inland can still have an impact to water quality as a result of onsite erosion and sedimentation impacting nearby streams, or from chemicals applied to the ground finding their way to the ground water and eventually to the coastal waters. In regard to erosion and sedimentation control, the applicant has taken extra precautions in the planning and siting of the planned residence, as discussed in Section 3.1.2. The house will be set back 908 feet from Mā'ili Stream, providing a large vegetative buffer area to the house site. Additionally, the applicant will require that the construction contractor implement a set of best management practices, as discussed above. Also, with regard to the use of chemicals that could potentially leach to the ground water, the area impacted by the construction of the residence would be restored with vegetation native to the area, minimizing the need for any fertilizers or pesticides. No aspect of the project will have direct or indirect impacts on the State's coastal zone or its resources.

4) **The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region**

The proposed land use is not likely to cause adverse biological impacts because of the relatively minor nature of the project and lack of endangered plant species on the project site. Although the endangered Hawaiian hoary bat and Hawaiian Hawk have not been observed on the project site, negative impact to these species will be avoided through timing of vegetation removal and/or a nest survey. The proposed project will have no impact on current access to or use of the forest reserve.

5) **The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel**

The proposed use is consistent with existing single family residences in the area. The proposed residence is designed as a one-story dwelling with an enclosed living area of 1920 square feet (sf), an attached carport and utility/accessory area of 800 sf, and front and back lanais totaling 440 sf. It would not be visible to the public from any public road or any other public vantage point. The identified use conforms to design standards set forth in HAR 13-5-41, and will be implemented to ensure sustained use of the natural resources in the general area of the project site by mitigating impacts. The use will not adversely affect the surrounding properties or how these properties are utilized.

6) **The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved**

The proposed use of the subject property and management of the site will help conserve, protect and preserve the natural features of the area. The natural beauty of the land and the existing ecosystems would be preserved as the proposed project would leave over 97% of the subject property untouched, and restore native plant species to the impacted area.

7) **Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District**

The proposed land use does not involve subdivision of land and will not lead to any increase in intensity of use beyond the proposed single family residence.

8) **The proposed land use will not be materially detrimental to the public health, safety, and welfare**

The proposed land use for a single family residence on the subject property is consistent with land use on other parcels in the Conservation district, and will not be detrimental to the public health, safety, and welfare.

4: DETERMINATION, FINDINGS, AND REASONS

4.1 Determination

Based on the findings below, and upon consideration of comments to the Draft EA, the applicant expects that the State of Hawai‘i Department of Land and Natural Resources will determine that the proposed action will not significantly alter the environment, as impacts will be minimal, and that this agency will accordingly issue a Finding of No Significant Impact (FONSI).

4.2 Findings and Supporting Reasons

1) **The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.**

No valuable natural or cultural resource would be committed or lost. Various common native plants are present but native ecosystems would not be adversely affected, particularly given the limited scale of disturbance and the siting within the most guava-infested 0.5 acre of the 19-acre property. No adverse impact upon vegetation or endangered species should occur. An archaeological inspection has determined that no historic sites are present on the property or would be affected. No valuable cultural resources and practices such as forest access, fishing, gathering, hunting, or access to ceremonial sites would be affected in any way.

2) **The proposed project will not curtail the range of beneficial uses of the environment.**

No restriction of beneficial uses would occur by residential use on this lot.

3) **The proposed project will not conflict with the State's long-term environmental policies.**

The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The proposed project is of small scale and is environmentally benign, and thus consistent with all elements of the State's long-term environmental policies.

4) **The proposed project will not substantially affect the economic or social welfare of the community.**

The project would not have any substantial effect on the economic or social welfare of Hawai'i Island's community or that of the State of Hawaiʻi.

5) **The proposed project does not substantially affect public health in any detrimental way.**

The project would not affect public health and safety in any way. Wastewater and household refuse would be disposed of in conformance with State Department of Health regulations.

6) **The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.**

The small scale of the proposed project would not produce any major secondary impacts, such as population changes or effects on public facilities.

7) **The proposed project will not involve a substantial degradation of environmental quality.**

The project is of small scale, carefully sited, and environmentally benign, and would not contribute to environmental degradation.

8) **The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.**

A careful biological survey has determined that no endangered plant species are present. Other than the possible presence of ʻōpeʻapeʻa and ʻio, wide-ranging species that will experience no adverse impacts due to mitigation in the form of timing of vegetation removal and/or nest survey, no rare, threatened or endangered species of fauna are known to exist on or near the project site, and none would be affected by any project activities.

9) **The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.**

The adverse effects of building a single family residence are limited to minor and temporary disturbance to traffic, air quality, noise, and visual quality during construction. This area is isolated from sensitive receptors, and this unpaved section of Kaiwiki Road sees infrequent use. There are no substantial government or private projects in construction or planning in the area, and no accumulation of adverse construction effects would be expected. The County of Hawaiʻi occasionally performs road maintenance on Kaiwiki Road. Other than the precautions for preventing adverse effects during construction listed above, no special mitigation measures should be required to counteract the small adverse cumulative effect.

10) The proposed project will not detrimentally affect air or water quality or ambient noise levels.

No substantial effects to air, water, or ambient noise would occur. Intermittent and temporary effects would occur during construction and would be mitigated. The context of the property's location, with no parks or other sensitive uses nearby, will help avoid noise impacts. Erosion and sedimentation impacts will be avoided by implementation of Best Management Practices during construction, which will occur in a limited area.

11) The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.

The proposed home site is not located in a flood zone or any other hazardous area, and it would not affect any such area.

12) The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.

No scenic views are located nearby or would be affected in any way. The siting, in which the home would not be visible from public vantage points, would ensure that the scenery of the project area would not be affected.

13) The project will not require substantial energy consumption.

Negligible amounts of energy input would be required for construction and occupation of the residence. Electrical power will be provided via a solar photovoltaic system. The project has allowed for climate change by accounting for the potential for larger storms, by minimizing hard surfaces (i.e. choosing a gravel rather than paved driveway) that generate runoff in heavy rainfall, and utilizing a site with excellent drainage.

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APPENDIX 1

Comments in Response to Early Consultation

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3.	DEPARTMENT OF LAND AND NATURAL RESOURCES STATE HISTORIC PRESERVATION DIVISION 40 PO'OKELA STREET HILO, HI 96720														
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Mr. Samuel J. Lemmo 9/6/2016
Office of Conservation and Coastal Lands
Kalanimoku Building
1151 Punchbowl St., Room 131
Honolulu, HI 96813

Aloha Mr. Lemmo,

I am hoping to build a modest single family residence on my lot on upper Kaiwiki Road in the South Hilo District. It is in the Resource subzone of the Conservation District, at TMK# 3-2-6-11-33
http://qpublic9.qpublic.net/hi_hawaii_display.php?county=hi_hawaii&KEY=260110330000
Could you please advise me of the permitting requirements and application process that I'll need to follow?

As an aside, I should mention that I intend to minimize the impact of this project on the forest. The house site will displace a grove of invasive strawberry guava (waiawi), and I hope to have a net positive impact by planting site-specific native species. I hope that the Office of Conservation and Coastal Lands will affirm my notion of a restored native forest on this site.

I should also note that I am sending this same message via email, as I'm not sure which method is preferred.

Mahalo no,

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

kaleo@olapanoe.net

Ph. 408 314-9584

DAVID Y. IGE
GOVERNOR OF HAWAI'I

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

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LAND
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STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

Ref: OCCL:LY

CORR: HA 17-58

SEP 16 2016

Mr. J. Spencer Wright
P.O. Box 843
Mountain View, HI 96711

SUBJECT: Request to Construct a Single Family Residence on Conservation Land Located in Kawaiki, Hilo, Hawai'i
Tax Map Key: (3) 2-6-01:033

Dear Mr. Wright:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your inquiry to construct a modest single family residence (SFR) at the subject location. The OCCL notes that the subject property is located in the Resource Subzone of the State Land Use Conservation District.

Regarding construction of a SFR on the subject property, pursuant to HAR § 13-5-24, R-7 SINGLE FAMILY RESIDENCE (D-1) *A single family residence (SFR) that conforms to the design standards outlined in this chapter*[1], is an identified land use within the Resource subzone. The proposed land use would require the filing of a Conservation District Use Application (CDUA) and all required attachments, such as an Environmental Assessment. To allow, modify or deny the proposed land use would be at the discretion of the Board of Land and Natural Resources (BLNR). A copy of the CDUA can be found on our website at http://dlnr.hawaii.gov/occl/forms-2/. Details regarding our application process can also be found on our website at http://dlnr.hawaii.gov/occl/application-process/. For more information regarding the preparation of an Environmental Assessment, please contact the State Department of Health, Office of Environmental Quality Control.

Regarding your proposal to restore the native forest at the project site, more information is needed prior to us providing you with a permit determination. Please provide the following:

- Purpose for the restoration work;
- The total area of forest proposed to be restored;
- The methodology for the restoration work;
- The types of trees and/or plants proposed to be removed;

[1] The design standards can be found in HAR Chapter 13-5 as Exhibit 4, Single Family Residential Standards.

- The types of trees and/or plants proposed to be planted and how they will be promulgated (i.e. will the plants be produced from an onsite nursery, purchased from a commercial nursery, or some other method?);

Should you have any questions regarding this correspondence, please contact Lauren Yasaka of our Office at (808) 587-0386.

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
CoH, Planning Dept.

Mr. Samuel J. Lemmo
Office of Conservation and Coastal Lands
Kalanimoku Building
1151 Punchbowl St., Room 131
Honolulu, HI 96813

10/11/2016

Dear Mr. Lemmo,

Thank you for your reply to my letter of September 6 regarding my hopes to build a single family residence on upper Kaiwiki Road at TMK# 3-2-6-11-33. The information you provided was very helpful, I hope to follow this process in a manner to thoroughly satisfy all concerned.

Regarding my aside about restoring native species to the house site area, I should note that this is to be a personal hand gardening project. The entire area impacted by this single family residence project, including driveway and house site, will be approximately ½ acre. So the area to be restored will be less than ½ acre, primarily in the area disturbed by construction. All work will be performed by the landowner (me) after we have built and occupied the house.

To answer your queries specifically:

- The purpose of the restoration work is to enhance the native forest habitat by removing invasive species and increasing the presence of plants and trees native (indigenous and endemic) to the immediate area.
- The total area of forest to be restored is less than ½ acre.
- The methodology for the restoration work will be to
  1) Positively identify non-native, invasive species in and adjacent to the disturbed area;
  2) Remove identified non-native species by hand;
  3) Concurrently, propagate native species from specimens located on this lot and (with permission from the owners) on neighboring lots, from seed and/or cuttings;
  4) Plant native species in the disturbed area and adjacent locations previously occupied by non-native species.
- The types of trees and/or plants to be removed will be those species positively identified as non-native: primarily strawberry guava, rose apple, clidemia, and tibouchinia.
- The types of trees and/or plants to be planted will be entirely native species, propagated on-site from specimens located on this lot and on neighboring lots, from seed and/or cuttings.

Thank you,

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

kaleo@olapanoe.net
Ph. 408 314-9584

DAVID Y. IGE
GOVERNOR OF HAWAI'I

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Ref: OCCL:LY

CORR: OA 17-58

NOV 10 2016

Mr. J. Spencer Wright
P.O. Box 843
Mountain View, HI 96711

SUBJECT: Restoration of Native Species on Land Located in Kawaiki, Hilo, Hawai'i
Tax Map Key: (3) 2-6-01:033

Dear Mr. Wright:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your additional information regarding your request to conduct native forest restoration at the subject property.

According to the information you have provided, the restoration would be less than half an acre and would involve the removal of non-native species, primarily strawberry guava, rose apple, clidemia, and tibouchinia. Once cleared, the area would be re-vegetated with native species propagated from seeds and/or cuttings from specimens located on the subject property and from neighboring lots (with permission for the landowners).

Based on your description, it would appear that the restoration work is consistent with Hawai'i Administrative Rules (HAR) §13-5-22, P-4, REMOVAL OF INVASIVE SPECIES (A-1) *Removal of invasive species including chemical and mechanical control methods, not to exceed one acre, in accordance with state and federal laws and regulations, for the purpose of protecting, preserving, or enhancing native species, native habitat, or native ecosystem functions that results in no, or only minor ground disturbance. The department or board reserves the right to require site plan approval, departmental or board approval if it is determined that the proposed action may cause significant negative secondary impacts on natural or cultural resources, or the surrounding community. Any replanting shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to the State. For existing developed lots, compliance with section 13-5-23 (L-2) satisfies the requirements of this section.* However, as your proposal is rather preliminary at this time, we ask that before pursuing such work in the Conservation District, you provide us with more information regarding the method in which you propose to conduct your invasive species removal work, as well as a specific list of best management practices (BMPs) and a list of proposed native plants to be propagated and planted so that we can better determine if any permits or approvals from the department will be required.

Should you have any questions regarding this correspondence, please contact Lauren Yasaka of our Office at (808) 587-0386.

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
CoH, Planning Dept.

Mr. Samuel J. Lemmo
Office of Conservation and Coastal Lands
Kalanimoku Building
1151 Punchbowl St., Room 131
Honolulu, HI 96813

2/10/2017

Dear Mr. Lemmo,

Thank you for your reply to my letter of October 11, which was in response to your request for information regarding my aside about restoring native species to the proposed house site area of my lot on Kaiwiki Road at TMK# 3-2-6-11-33. Thank you, also, for your response that it appears that this restoration work is consistent with HAR 13-5-22, P-4, Removal Of Invasive Species (A-1).

Please forgive the lateness of this response. In order to better answer your questions I have consulted with a certified Master Gardener, and a biological survey has now been completed on the lot. I have attached copies of our previous correspondence for reference.

To answer your additional questions,

The method in which I propose to conduct invasive species removal work is by hand, with the use of tools such as pruning shears, machete, and chainsaw. The intent is to leave the soil surface unbroken.

The best management practices will include

1) No grubbing or grading.
2) Leave soil surface unbroken to avoid runoff.
3) Avoid removal of plants where erosion may be expected to result.
4) Positively identify individual plants as non-native invasive species prior to removal.
5) Removed plants to be kept on site and allowed to decompose to restore nutrients to soil.
6) Re-growth of removed invasives to be prevented through the use of sheet mulching, maintenance removal by hand, and such techniques as recommended by the Big Island Invasive Species Committee.
7) Propagate only disease-free native plants from subject lot and adjacent lots.
8) Examine seedlings and cuttings for evidence of disease as they mature.
9) Seedlings and cuttings to be grown in native on-site soil and/or sterile commercial mix, to avoid introduction of diseases or pests.
10) Propagated plants to be outplanted in sites appropriate to their species' horticultural requirements.

[Type the company name]

The native plants proposed to be propagated and planted are as follows:

kāwa'u (Iles anomala)
koa (Acacia koa)
'ōhi'a lehua (Metrosideros polymorpha)
'ōlapa (Cheirodendron trigynum)
'uki (Machaerina mariscoides)
'ama'u (Sadleria cyatheoides)
hapu'u 'i'i (Cibotiium menziesii)
hapu'u pulu (Cibotium glaucum)
pala'a (Sphenomeris chinensis)

Additional native ferns such as uluhe are anticipated to naturally regenerate in disturbed areas.

Thank you,

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

kaleo@olapanoe.net
Ph. 408 314-9584

DAVID Y. IGE
GOVERNOR OF HAWAI'I

SUZANNE D. CASE
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STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

Ref: OCCL:LY

CORR: OA 17-58

APR - 4 2017

Mr. J. Spencer Wright
P.O. Box 843
Mountain View, HI 96711

SUBJECT: Restoration of Native Species on Land Located in Kawaiki, Hilo, Hawai'i
Tax Map Key: (3) 2-6-01:033

Dear Mr. Wright:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your additional information regarding your request to conduct native forest restoration at the subject property.

According to the information you have provided, the restoration would be less than half an acre and would involve the removal of non-native species by hands. Species primarily include strawberry guava, rose apple, clidemia, and tibouchinia. Best management practices (BMPs) proposed include the following:

- No grubbing or grading;
- Soil surface to remain unbroken to avoid runoff;
- Plant removal in areas where erosion may be expected will be avoided;
- Plants to be removed will be positively identified as non-native, invasive species prior to removal;
- Removed plants will remain on site and allowed to decompose;
- Re-growth of invasive plant species will be prevented through the use of sheet mulching, maintenance removal by hand, and other techniques as recommended by the Big Island Invasive Species Committee;
- Propagate only disease-free native plants from subject property and adjacent properties;
- Examine seedlings and cuttings for evidence of disease as they mature;
- Seedlings and cuttings will be planted in on-site soil and/or with sterile commercial soil mix to avoid introduction of diseases or pests; and
- Propagated plants will be out planted in site appropriate the their species' horticultural requirements.

Once cleared, the area would be re-vegetated with native species propagated from seeds and/or cuttings from specimens located on the subject property and from neighboring lots (with

permission for the landowners). Species to be planted include kāwa'u, koa, 'ōhi'a lehua, 'ōlapa, 'uki, 'ama'u, hapu'u i'i, hapu'u pulu, and pala'a. Additional native ferns such as uluhe are anticipated to naturally regenerate in disturbed areas. The OCCL notes that all of the proposed species for planting are listed on the University of Hawai'i's Native Plants Hawai'i website (nativeplant.hawaii.edu).

The OCCL also notes that you are proposing to propagate 'ōhi'a lehua. As the island of Hawai'i is currently dealing with the problem of Rapid 'Ōhi'a Death, a fungal pathogen that is quickly killing 'ōhi'a trees, we have consulted with the Division of Forestry and Wildlife (DOFAW) regarding best management practices (BMPs) when dealing with 'ōhi'a plants. DOFAW recommended that all boots and tools should be cleaned using rubbing alcohol before leaving an area. In addition, should the need arise to remove any 'ōhi'a trees (i.e. dead trees), they recommend that any trees removed should be kept on site. The main tree log should be kept as a whole as it will reduce the number of cuts to the tree. The cuts are where the fungus attacks and infects the tree. If there are any branches sticking up, they ask that you please cut them and store them as close to the ground as possible. This reduces the possibility of the ambrosia beetle boring into the branches and creating sawdust. The sawdust is one of the spreading mechanisms for the fungus as the fungal spores attach to the sawdust and then travel in the wind or on shoes/equiment. You may also wish to tarp any 'ōhi'a logs in an effort to keep the beetles from accessing the logs. They also suggested that you contact Mr. James Boyd "J.B. Friday of the University of Hawai'i, Department of Natural Resources and Environmental Management. He is the point of contact for the public who has questions regarding Rapid 'Ōhi'a Death. He can be reached via e-mail at jbfriday@hawaii.edu.

The OCCL has no objections to your proposed project. The proposed restoration work is consistent with Hawai'i Administrative Rules (HAR) §13-5-22, P-4, REMOVAL OF INVASIVE SPECIES (A-1) *Removal of invasive species including chemical and mechanical control methods, not to exceed one acre, in accordance with state and federal laws and regulations, for the purpose of protecting, preserving, or enhancing native species, native habitat, or native ecosystem functions that results in no, or only minor ground disturbance. The department or board reserves the right to require site plan approval, departmental or board approval if it is determined that the proposed action may cause significant negative secondary impacts on natural or cultural resources, or the surrounding community. Any replanting shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to the State. For existing developed lots, compliance with section 13-5-23 (L-2) satisfies the requirements of this section* and no permit is required by the Department. The OCCL requests that the correspondent adhere to the following general conditions:

1. That in issuing this letter, the Department and Board has relied on the information and data that the correspondent has provided in connection with the letter. If, subsequent to this letter, such information and data prove to be false, incomplete or inaccurate, this letter may be modified, suspended or revoked;

2. The proposed project is minor in scope and may be considered an exempt action pursuant to Hawaii Revised Statutes (HRS), §343, as amended, and Hawaii Administrative Rules (HAR), Exempt Classes of Action §11-200-8(a) (2) Replacement or reconstruction of

existing structures and facilities or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification;

3. If the scope of the project changes or the cumulative impacts is perceived to be moderate or major, the department may require additional authorizations or approvals for the proposed land use; and

4. The correspondent shall implement Best Management Practices (BMP) while conducting any land use in the conservation district.

Should you have any questions regarding this correspondence, please contact Lauren Yasaka of our Office at (808) 587-0386.

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
CoH, Planning Dept.

Harry Kim
Mayor

Paul K. Ferreira
Police Chief

Kenneth Bugado Jr.
Deputy Police Chief

County of Hawai`i

POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

March 20, 2017

Mr. J. Spencer Wright
P. O. Box 843
Mountain View, HI 96771

Dear Mr. Wright:

SUBJECT: ENVIRONMENTAL ASSESSMENT

Staff has reviewed your request for comments regarding environmental issues associated with your proposed project.

The Hawai'i Police Department will provide comments regarding traffic and public safety, of which we have no concerns. We defer any comment on environmental issues to the proper government agencies.

If you have any questions, please contact Captain Gregory M. Esteban, South Hilo Patrol District Commander, at (808) 961-2350 or via e-mail at Gregory.Esteban@hawaiicounty.gov.

Sincerely,

PAUL K. FERREIRA
POLICE CHIEF

GE:lli/170232

"Hawai'i County is an Equal Opportunity Provider and Employer"

Harry Kim
Mayor

Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i

HAWAI'I FIRE DEPARTMENT

25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

March 29, 2017

J. Spencer Wright
P.O. Box 843
Mountain View, Hawai'i 96771

Dear Mr. Wright,

SUBJECT: Environmental Assessment
Tax Map Key: (3) 2-6-11:33

In regards to the above-referenced Environmental Assessment, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION

Note: Hawai'i State Fire Code, National Fire Protection Association 2006 version, with County of Hawaii amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures 400ft^2 (37 m^2) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ 18.2.3.4.1.1 FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ 18.2.3.4.1.2 FDAR shall have an unobstructed vertical clearance of not less then 13ft 6 in.

C~ 18.2.3.4.1.2.1 Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1 The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curb cuts extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other access ways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C~ 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001- 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code.*

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;

2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
   a) 4" for C900 PVC pipe;
   b) 4" for C906 PE pipe;
   c) 3" for ductile Iron;
   d) 3' for galvanized steel.

3) The Fire Department Connection (FDC) shall:
   a) be made of galvanized steel;
   b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
   c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
   d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
   e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;
   f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
   g) also comply with section 13.1.3 and 18.2.3.4.6.1 of *this code.*

4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus'conducting drafting operations at once, in mind.

5) Inspection and maintenance shall be in accordance to NFPA 25.

6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.

2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.

3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.

4) For one and two family dwellings, agricultural buildings, and storage sheds greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.

5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact the Fire Prevention Bureau at (808) 932-2911.

DARREN J. ROSARIO
Fire Chief

KV:ds

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

April 17, 2017

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

Dear Mr. Wright:

Subject: Information for Environmental Assessment
Proposed Residence within Conservation District
Tax Map Key 2-6-011:033

This is in response to your letter dated March 7, 2017.

As you may be aware, the subject parcel is not within the service limits of the Department's existing water system facilities. We do not have any comments regarding environmental issues to offer at this time.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.
Manager-Chief Engineer

RQ:dfg

DAVID Y. IGE
GOVERNOR OF HAWAII

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

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PETERSON
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

April 25, 2017

J. Spencer Wright
PO Box 843
Mountain View, HI 96771

LOG NO: 2017.00770
DOC NO: 1704SN13
Archaeology

Aloha Mr. Wright:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Request for Comment in Anticipation of a County of Hawaii CDUP
Honoli'i Ahupua'a, South Hilo District, Island of Hawai'i
TMK: (3) 2-6-011:033

Thank you the opportunity to review this submittal from J. Spencer Wright (landowner) in advance of an application for a Conservation District Use Permit (CDUP) with the County of Hawai'i. The SHPD Hilo office received this submittal on March 7, 2017. Per the submittal, a single-family residence with associated infrastructure is planned for the parcel. The proposed project will consist of the residence, a carport, a utility shed, a photovoltaic system, a water catchment, and a wastewater system on a portion of the 19-acre parcel. The proposed plan will include land clearing and be contained to the project area and will minimize grading and impacts to the existing forested areas.

Our records indicate that this parcel has not been subjected to an archaeological inventory survey. **SHPD requests** that an inspection be conducted of the proposed project area by a qualified archaeologist to determine if undocumented historic properties exist prior to SHPD's determination on the proposed permit application. If unrecorded historic properties are present, SHPD will request that an archaeological inventory survey report be prepared and approved by our office prior to initiation of land altering activities.

Please contact Sean Nāleimaile at (808) 933-7651 or at Sean.P.Naleimaile@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Archaeology Branch Chief

cc: Michael Yee, County of Hawaii Planning Director (planning@hawaiicounty.gov)

DAVID Y. IGE
GOVERNOR OF
HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

August 10, 2018

IN REPLY REFER TO:
Log No. 2018.01436
Doc. No. 1808SN06
Archaeology

Michael Yee, Planning Director
County of Hawaii
101 Pauahi Street, Suite 3
Hilo, HI 96720

Dear Mr. Yee:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Field Inspection Report and County of Hawaii Conservation District Use Application
Kaiwiki Ahupuaʻa, South Hilo District, Island of Hawaiʻi
TMK: (3) 2-6-011:033

Thank you for the opportunity to review the field inspection letter report titled *Archaeological Field Inspection Letter Report for 0.496-Acre Portion of a 19.89-Acre TMK: (3) 2-6-011:033, Kaiwiki Ahupuaʻa, South Hilo District, Island of Hawaiʻi* (Escott, May 2018). In response to a County of Hawaii (COH) conservation district use application (CDUA) a field inspection survey was requested by SHPD in a letter dated April 25, 2017 (Log No. 2017.00770, Doc. No. 1704SN13) to satisfy historic preservation review requirements. We received the field inspection report on June 18, 2018.

The field inspection report was prepared by Scientific Consultant Services (SCS) on behalf of the property owners, Mr. James Spencer Wright and Ms. Margaret Ellen Bentley. The applicants propose to construct a single-family residence and associated infrastructure. The proposed project will consist of the residence, a carport, a utility shed, a photovoltaic system, water catchment, and a wastewater system on a 0.496-acre portion of the 19.89-acre parcel. Ground disturbance will involve excavations for the foundations and infrastructure. Grubbing and grading activities will be confined to the project area and will minimize impacts to the existing forested areas.

The report indicates that a single archaeological inventory survey (AIS) (Hammatt and Colin 1998) has been conducted within Kaiwiki Ahupuaʻa. Only cement footings from a bridge were identified, no additional historic properties were identified. Three additional AIS were conducted in adjacent or nearby ahupuaʻa (Escott 2011, Desilets et al. 2004, Escott 2017). Only a single historic property was identified in the Desilets et al. (2004) AIS, a section of a railroad grade and trestle abutment (Site 50-10-26-24212). The site was assessed as significant under Criterion d and as having been adequately documented. No historic properties were identified in the Escott (2011, 2017) studies.

The field inspection involved a pedestrian survey of 100% of the current project area. No archaeological historic properties were identified. Based on the field inspection findings, SHPD's determination is **no historic properties affected** for the subject project. Permitting for the subject project may proceed.

Please contact Sean Nāleimaile at (808) 933-7651 or at Sean.P.Naleimaile@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,
Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Christian Kay (Christian.Kay@hawaiicounty.gov)
Glenn Escott (ggescott@yahoo.com)
James Spencer Wright kaleo@olapanoe.net

APPENDIX 2

Biological Survey

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Biological Survey of Wright Property,
Kaiwiki Rd, Hilo, HI
Date: January 26, 2017

The Wright property, located on Kaiwiki Road at approximately 1900 ft elevation, was surveyed for plant and animal species. The survey was conducted during the course of one day, and encompassed all areas of the property that were accessible by foot. All sighted species are listed, with the exception of insect species.

Survey conducted by:
Joanna Norton
M.S. candidate
Tropical Conservation Biology and Environmental Science
University of Hawaii at Hilo

List of plants found at Wright property, Kaiwiki

Common name	Genus	Species	Status
Trees			
koa	Acacia	koa	endemic
'ōlapa	Cheirodendron	trigynum	endemic
swamp mahogany	Eucalyptus	robusta	introduced
kāwa'u	Ilex	anomala	indigenous
'ōhi'a lehua	Metrosideros	polymorpha	endemic
mai'a, banana	Musa	sp.	introduced
waiawī 'ula'ula, strawberry guava	Psidium	cattleianum	introduced
'ohi'a loke, rose apple	Syzygium	jambos	introduced
Shrubs, forbs, grasses			
broomsedge	Andropogon	virginicus	introduced
bamboo orchid	Arundina	graminifolia	introduced
narrow-leaved carpetgrass	Axonopus	fissifolius	introduced
california grass	Brachiaria	mutica	introduced
Koster's curse	Clidemia	hirta	introduced
hono hono	Commelina	diffusa	introduced
	Cymbidium	dayanum	introduced*
'awapuhi melemele, yellow ginger	Hedychium	flavescens	introduced
'uki	Machaerina	mariscoides	endemic
melastoma	Melastoma	candidum	introduced
hilahila, sleeping grass	Mimosa	pudica	introduced
sourbush	Pluchea	carolinensis	introduced
thimbleberry	Rubus	rosifolius	introduced
palmgrass	Setaria	palmifolia	introduced
ōi	Stachytarpheta	dichotoma	introduced
tibouchina	Tibouchina	herbaceae	introduced
	Torenia	glabra	introduced
Ferns and fern allies			
palai lā'au	Adenophorus	pinnatifidus	endemic
wahine noho mauna	Adenophorus	tamariscinus	endemic
'analiʻi	Asplenium	lobulatum	indigenous
hāpu'u pulu	Cibotium	glaucum	endemic
hāpu'u 'i'i	Cibotium	menziesii	endemic
uluhe	Diacranopteris	linearis	indigenous
uluhe lau nui	Diplopterygium	pinnatum	indigenous
'ēkaha	Elaphoglossum	crassifolium	endemic

mahinalua	Grammitis	tenella	endemic
wāwae'iole	Lycopodiella	cernua	Indigenous
sword fern	Nephrolepis	multiflora	introduced
laua'e haole	Phlebodium	aureum	introduced
laukahi	Pityrogramma	calomelanos	introduced
pākahakaha	Pleopeltis	thunbergiana	indigenous
'ōali	Pteris	cretica	indigenous
'ama'u	Sadleria	cyatheoides	endemic
palai hinahina	Sphaerocionium	lanceolatum	endemic
pala'ā	Sphenomeris	chinensis	indigenous

*recently found in Hawaii

List of animals observed on Wright property, Kaiwiki

Birds

Common names	**Genus**	**Species**	**Status**
common myna	Acridotheres	tristis	introduced
northern cardinal	Cardinalis	cardinalis	introduced
Japanese bush warbler	Cettia	diphone	introduced
zebra dove	Guopelia	striata	introduced
spotted dove	Streptopelia	chinensis	introduced
Japanese white-eye	Zosterops	japonicus	introduced

Notes:
The Japanese bush warbler, Cettia diphone, was not seen but its distinctive call was heard on the lot.

No mammals were observed on the lot, but tracks and a wallow of the feral pig, Sus scrofa, were found. Additionally, Indian mongoose (Herpestes javanicus) have been observed in the area, while black rats (Rattus rattus) and mice (Mus musculus) have been reported by neighbors.

Amphibians were not surveyed, but coqui frogs (Eleutherodactylus coqui) were heard in the area.

Biological surveys of this scale cannot promise to detect all species on the site. Bird species may not be present at all times of the day or year. The heavily forested nature of this lot, in particular, decreases the probable comprehensiveness of a survey of bird life. Similarly, plant species can be obscured by the thick growth, and the seasonality of some species may render them undetected. Therefore, this survey cannot guarantee the absence of any particular species.

APPENDIX 3

Archaeological Field Inspection

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SCIENTIFIC CONSULTANT SERVICES Inc.
HAWAII
Hawai‘i Island Office: PO Box 155 Kea‘au, HI 96749

May 31, 2018

Sean Naleimaile
Hawai‘i Island Assistant Archaeologist
State Historic Preservation Division
40 Po‘okela Street
Hilo, HI 96720

Re: Archaeological Field Inspection Letter Report for 0.496-Acre Portion of a 19.89-Acre Parcel in Kaiwiki Ahupua‘a, South Hilo District, Island of Hawai‘i [TMK: (3) 2-6-011:033].

Aloha e Mr. Naleimaile:

At the request of the Hawai‘i Department of Land and Natural Resources - State Historic Preservation Division (SHPD) [Enclosure 1] and under contract to the property owner, Scientific Consultant Services, Inc. (SCS) conducted an archaeological field inspection (AFI) of a 0.496-acre portion of a 19.89-acre parcel [TMK: (3) 2-6-011:033] located in Kaiwiki Ahupua‘a, South Hilo District, Hawai‘i Island to determine the presence or absence of historic properties within the surveyed project area [Enclosures 2 through 5]. The 0.496-acre field inspection project area includes a 160 foot long by 20 foot wide area for a proposed driveway and a 160 foot long by 120 foot wide area for a proposed house lot. The actual driveway will be 10 feet wide and the house foot print will be 120 feet long by 80 feet wide, so that the surveyed project area is larger than the proposed construction area.

The property is bounded to the north by Kaiwiki Road and by undeveloped land on all other sides. The property owners are Mr. James Spencer Wright and Ms. Margaret Ellen Bentley. Their mailing address is PO Box 843 Mountain View, HI 96771-0843. Mr. Wright’s email address is kaleo@olapanoe.net.

The property is in the Kaiwiki Conservation District and Mr. Wright is preparing a Conservation District Use Application (CDUA). The field inspection was conducted as a County of Hawai‘i Planning Department requirement for the CDUA.

Environmental Background
The project area is located between 1,880 feet (573 meters) and 1,900 feet (579 meters) above mean sea level on a single Mauna Kea lava flow dated to the Pleistocene Era, more than 10,000 years before present (Wolfe and Morris 1996). Soil in the project area is Akala (rAK) series moderately well drained silty clay loam with 3 to 20% slope (Sato 1973:11). The project area ground surface is hummocky and rolling with a moderate southeasterly slope. Annual rainfall at the property ranges from 200 to 240 inches. Mā‘ili Stream forms the south boundary of Parcel 033 area and serves as the main drainage for the surrounding area.

Plants in the project are dominated by *‘uluhe* fern (*Dicranopteris linearis*), *waiwi* (*Psidium sp*.), melastoma (*Melastoma candidum*), clidemia (*Clidemia hirta*), scattered *‘ohia* (*Metrosideros plymorpha*) and *koa* (*Acacia koa*), and rose apple (*Syzgium jambose*) (Starr Environmental 2016).

Pre-Contact Era Cultural and Historical Background
Kaiwiki Ahupua‘a is a traditional Hawaiian land division in Hilo *Moku* situated along the 200 foot high cliffs of the Hāmākua coast up to 1,500 feet amsl (W.E. Wall Map 1928). Kaiwiki is translated as quick sea (Pukui *et al*.1974:71). Traditional settlement patterns in Kaiwiki are more characteristic of those along the Hāmākua coast than of lowland Hilo (Cordy 2000:44). There are no legendary places mentioned in *mo‘olelo* concerning Kaiwiki and its immediate environs.

According to Maly,

> The lands of Kaiwiki were named for Kaiwi-kî-a-ola an *‘ôlohe* instructor, who was the husband of Honoli‘i, and grandfather of Kîko‘oakapuna. Kaiwiki's foremost students were: Pau and Keka‘a (brothers whose names combined to become Pauka‘a), Pueopâkû, Pâpa‘i-nui-a-kou (Pâpa‘ikou), Waiâhole, and Ka‘ie‘ie-lulu-ka-i‘a (Ka‘ie‘ie). *Ahupua‘a* and site features along this coastline are named for these *‘ôlohe*, and it was their custom to waylay all who traveled along their trails. [Maly 1993:59].

Post-Contact Era Cultural and Historical Background
No published prehistoric accounts of Kaiwiki are recorded by Kamakau (1992), I‘i (1993), Kalakaua (1990), or Fournander (1996). As for early historic accounts, William Ellis traveled by canoe from Hilo to Laupāhoehoe (Figure 6) where he disembarked and continued on foot to Humu‘ula along the tree line at the northern foot of Mauna Kea (Ellis 2004:341-344). He travelled by canoe because the road along the cliffs was too rough and passed through many deep gulches. Ellis states that the cliffs between Hilo and Laupāhoehoe were dotted with plantations. Their canoe passed more than fifty ravines in the several hours it took them to travel the twenty-five or so miles between Hilo and Laupāhoehoe. He noted that none of ravines had a place for their canoe to land

without being swamped in the surf. No mention is made of Kaiwiki Ahupuaʻa, though he passed it by canoe on the way to Laupāhoehoe.

Native Testimony Before the Commission to Quiet Land Titles
With the Māhele of 1848 and the two Acts of 1850, authorizing the sale of land in fee simple to resident aliens and the award of *kuleana* lands to native tenants, land tenure in Hawaii arrived at a significant turning point (Chinen 1961:13). Much of Kaiwiki Ahupuaʻa was awarded to Crown Prince William Pitt Leleiohoku (Land Claim Award 9971H). Three smaller wards were made to Pakele (LCA9928), Kaainoa (LCA5007), and Kaheana (LCA7852). No Land Claim awards were made within or near the project area parcel.

The project area parcel and the surrounding lands were all land grants awarded primarily to farmers of Portuguese descent (see Attachment 5). Parcel 033, where the project area is located, was awarded to Jose Carreiro for $148.56 as Land Grant 4433 in April 1901.

Modern Land-Use
Hawaiʻi County Planning records show that the property was owned by Hilo Sugar Company, was sold to Mauna Kea Agribusiness Company, Inc, then to C. Brewer and Company, and was finally sold to private owners. According to neighbors, Parcel 033was used as cattle pasture beginning in the 1920s. The current owner, Mr. Wright, bought the property in 2014.

Previous Archaeological Studies
Early archaeological studies conducted in the area by Thrum and Stokes (Thrum 1907 and 1908, and Stokes and Dye 1991), and by A.E. Hudson (Hudson 1932) did not locate any *heiau* or significant cultural resources in the area within or around the current project area.

A single archaeological inventory survey (AIS) was conducted by Hammatt and Colin (1998) within the Ahupuaʻa of Kaiwiki 3 on the slopes of Kolekole Gulch, under and surrounding the Kolekole bridge, including the 100 feet of slopes *mauka* and *makai* of the bridge. Cement footings from the previous bridge were recorded in their report. No other cultural resources were identified during the study.

In May of 2004, Rechtman Consulting, LLC conducted an AIS on 4.5 acres [(3) 2-9-03:13, 29, and 60] in coastal Wailea Ahupuaʻa, over one kilometer northeast of the current project area (Desilets *et* al. 2004). A single site (SIHP 50-10-26-24212 consisting of a section of railroad grade and a trestle abutment were recorded. Both features were recorded as significant under Criterion D and no further work was recommended at the site (Desilets *et* al. 2004:20).

SCS, Inc. conducted an archaeological inventory survey of 3.5 acres in Kaiwiki 3 Ahupua‘a along the Kolekole stream (Escott 2011). There were no archaeological or cultural sites identified on the project area.

SCS, Inc. conducted an archaeological field inspection of 5.0 acres on TMK: (3) 2-6-011:026, two lots east of Parcel 033 (Escott 2017). There were no archaeological or cultural sites identified on the project area.

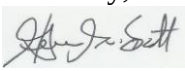
Field Inspection Expectations
Based on previous archaeological studies, historical and ethnographic studies, and land-use research in the area of the property, it was expected that if archaeological sites were located on the property, they would be related to pre-Contact temporary habitation and forest resources extraction, and Historic era farming and ranching activities. Pre-Contact era features might include terraces, enclosures, rock mounds, and possibly trails.

Field Inspection Methods
SCS Senior Archaeologist Glenn Escott, M.A. conducted the field inspection on May 9, 2018. A series of north/south transects spaced 2.0 meters apart were walked across the entire project area. One hundred percent of the 0.496-acre project area was surveyed. Ground cover consisted of primarily of hand-cleared brush and ground visibility was very good [Enclosures 8 through 23].

Field Inspection Results
No archaeological features, feature remains, or artifacts were identified on the 0.496-acre project area.

The field inspection pedestrian survey concluded that there are no archaeological sites or features in the 0.496-acre project area and that there will be no effect to historic properties posed by any proposed work within the project area. SCS requests SHPD concurrence that there will be no effect to historic properties posed by future ground disturbance activities at the 0.496-acre project area at Parcel 033.

Sincerely,



Glenn G. Escott, MA
Senior Archaeologist
Scientific Consultant Services, Inc.
PO Box 155 Kea‘au, HI 96749
808-938-0968 (cell)

Enclosures:
Enclosure 1: SHPD Archaeological Inspection Request Letter
Enclosure 2: Hawai‘i Island Project Area Map
Enclosure 3: USGS TMK Project Area Map
Enclosure 4: USGS TMK Project Area Close Up Map
Enclosure 5: TMK Project Area Map
Enclosure 6: Aerial Photo of Project Area
Enclosure 7: Portion of Kaiwiki Homesteads Map 1915
Enclosures 8 through 23: Photographs of Survey Area

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COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
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BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
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April 25, 2017

J. Spencer Wright
PO Box 843
Mountain View, HI 96771

LOG NO: 2017.00770
DOC NO: 1704SN13
Archaeology

Aloha Mr. Wright:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Request for Comment in Anticipation of a County of Hawaii CDUP
Honoli'i Ahupua'a, South Hilo District, Island of Hawai'i
TMK: (3) 2-6-011:033

Thank you the opportunity to review this submittal from J. Spencer Wright (landowner) in advance of an application for a Conservation District Use Permit (CDUP) with the County of Hawai'i. The SHPD Hilo office received this submittal on March 7, 2017. Per the submittal, a single-family residence with associated infrastructure is planned for the parcel. The proposed project will consist of the residence, a carport, a utility shed, a photovoltaic system, a water catchment, and a wastewater system on a portion of the 19-acre parcel. The proposed plan will include land clearing and be contained to the project area and will minimize grading and impacts to the existing forested areas.

Our records indicate that this parcel has not been subjected to an archaeological inventory survey. **SHPD requests** that an inspection be conducted of the proposed project area by a qualified archaeologist to determine if undocumented historic properties exist prior to SHPD's determination on the proposed permit application. If unrecorded historic properties are present, SHPD will request that an archaeological inventory survey report be prepared and approved by our office prior to initiation of land altering activities.

Please contact Sean Nāleimaile at (808) 933-7651 or at Sean.P.Naleimaile@hawaii.gov if you have any questions or concerns regarding this letter.

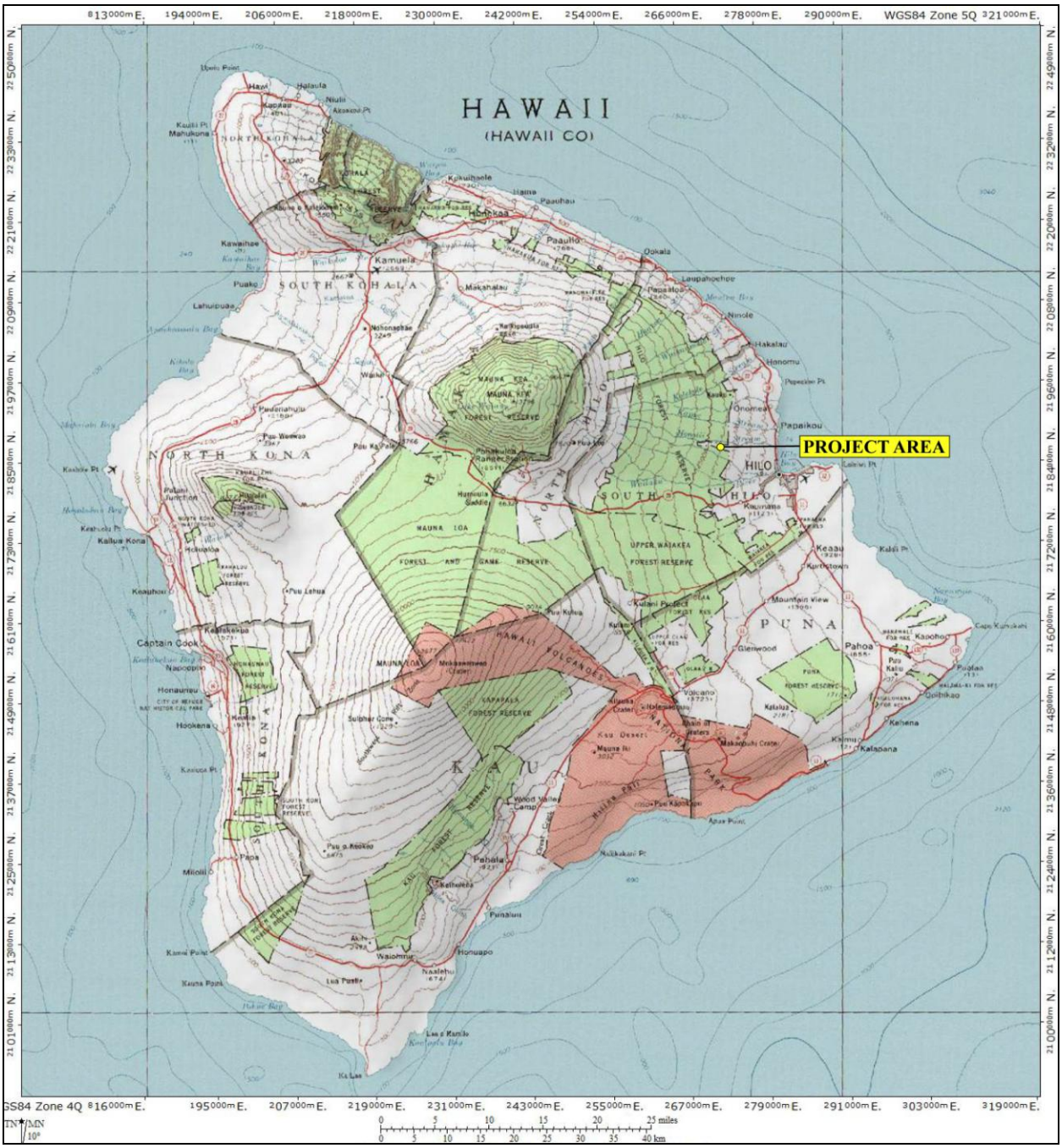
Aloha,

Susan A. Lebo

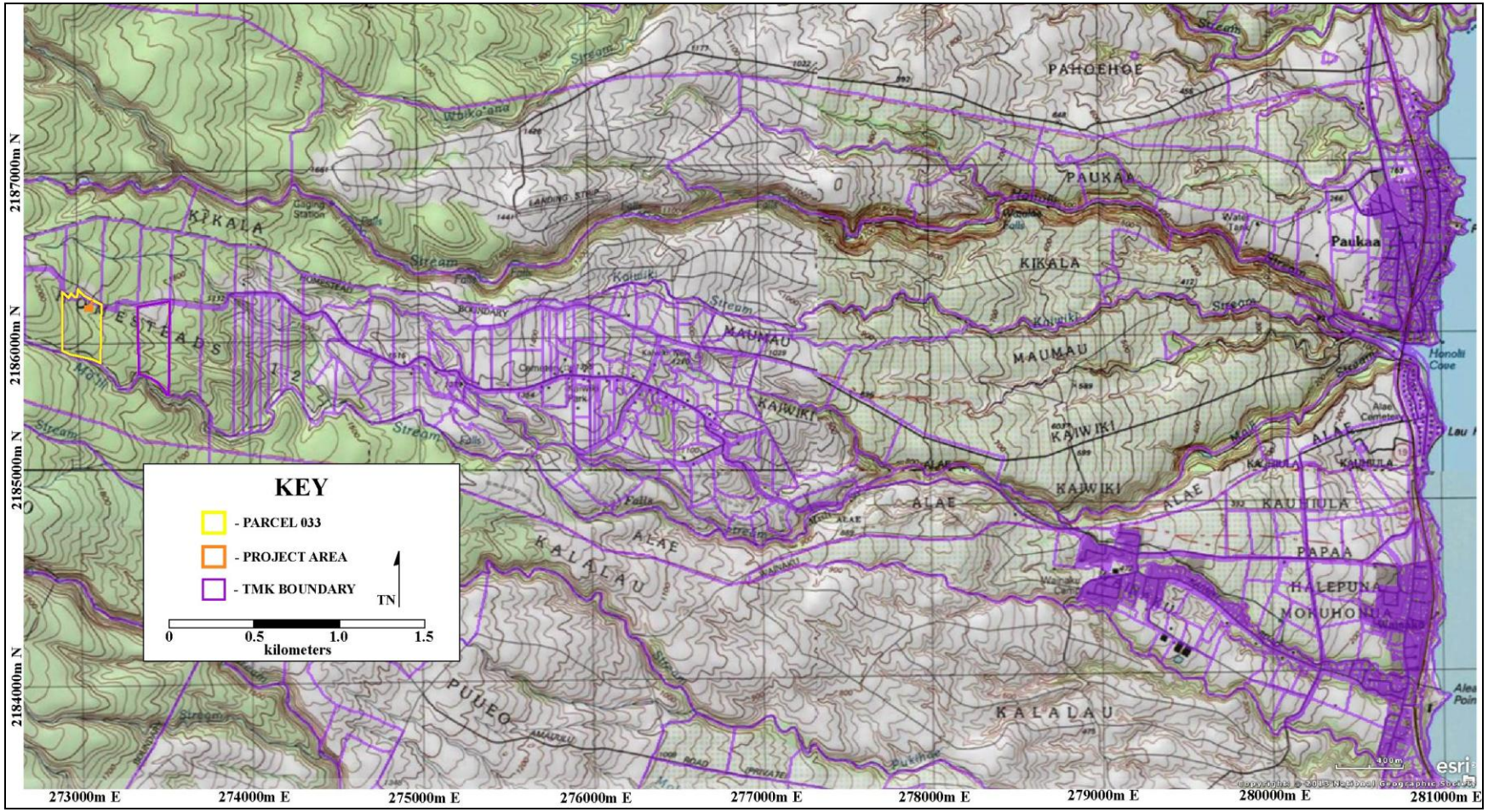
Susan A. Lebo, PhD
Archaeology Branch Chief

cc: Michael Yee, County of Hawaii Planning Director (planning@hawaiicounty.gov)

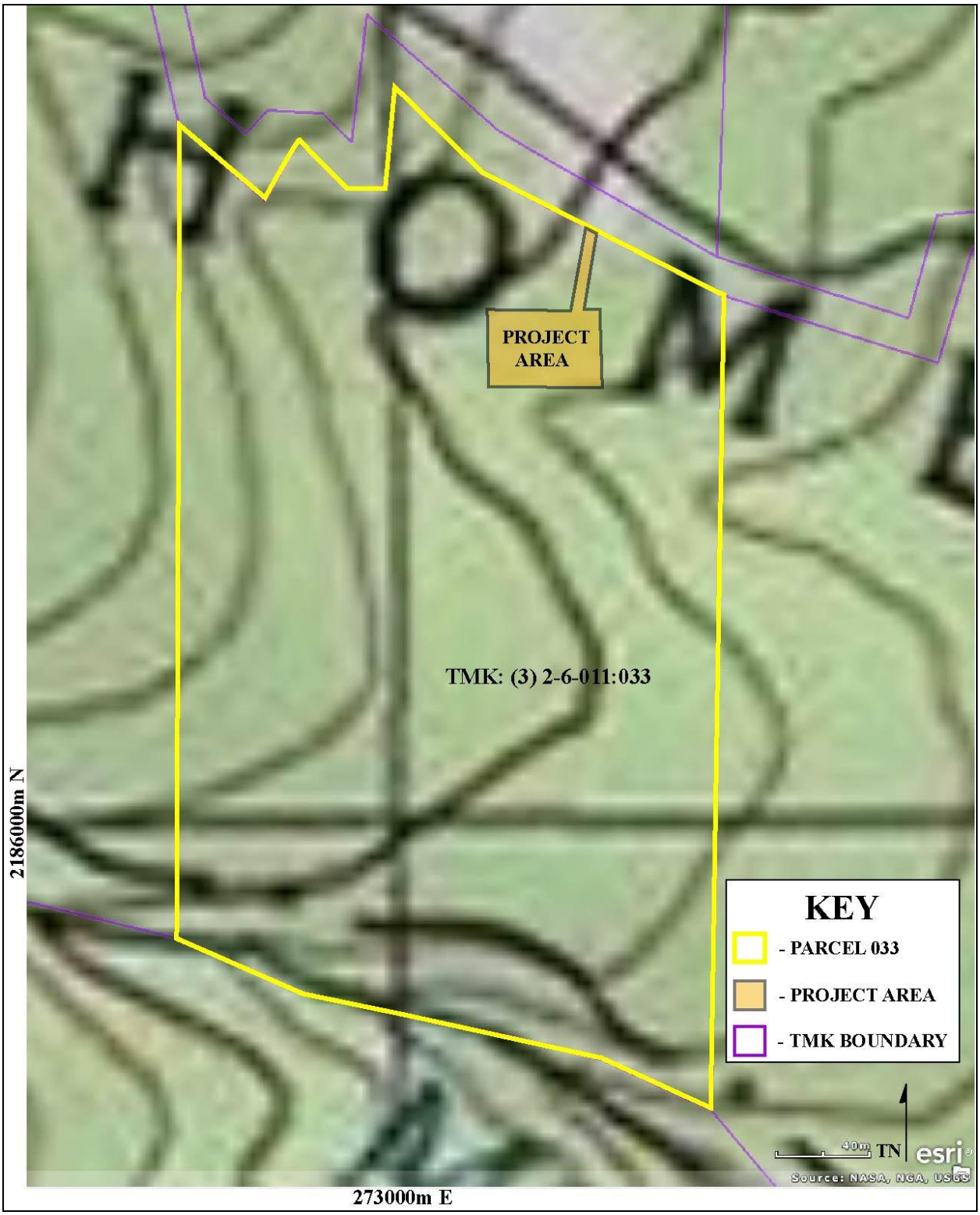
Enclosure 1: State Historic Preservation Division Archaeological Inspection Request Letter.



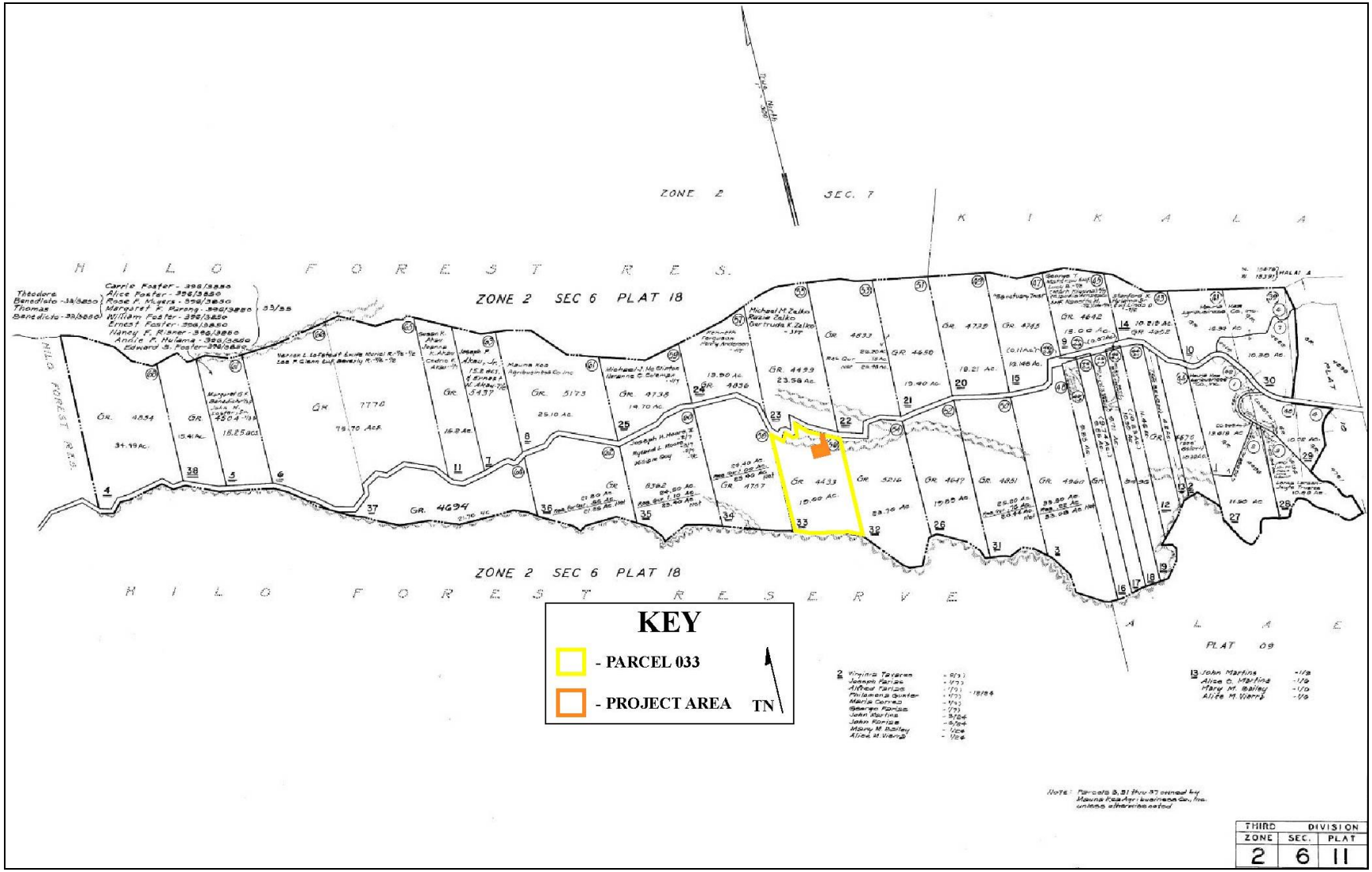
Enclosure 2: 5,500 K-Series Map of Hawai‘i Showing Location of Project Area (National Geographic Topo!, 2003. Sources: National Geographic Society, USGS).



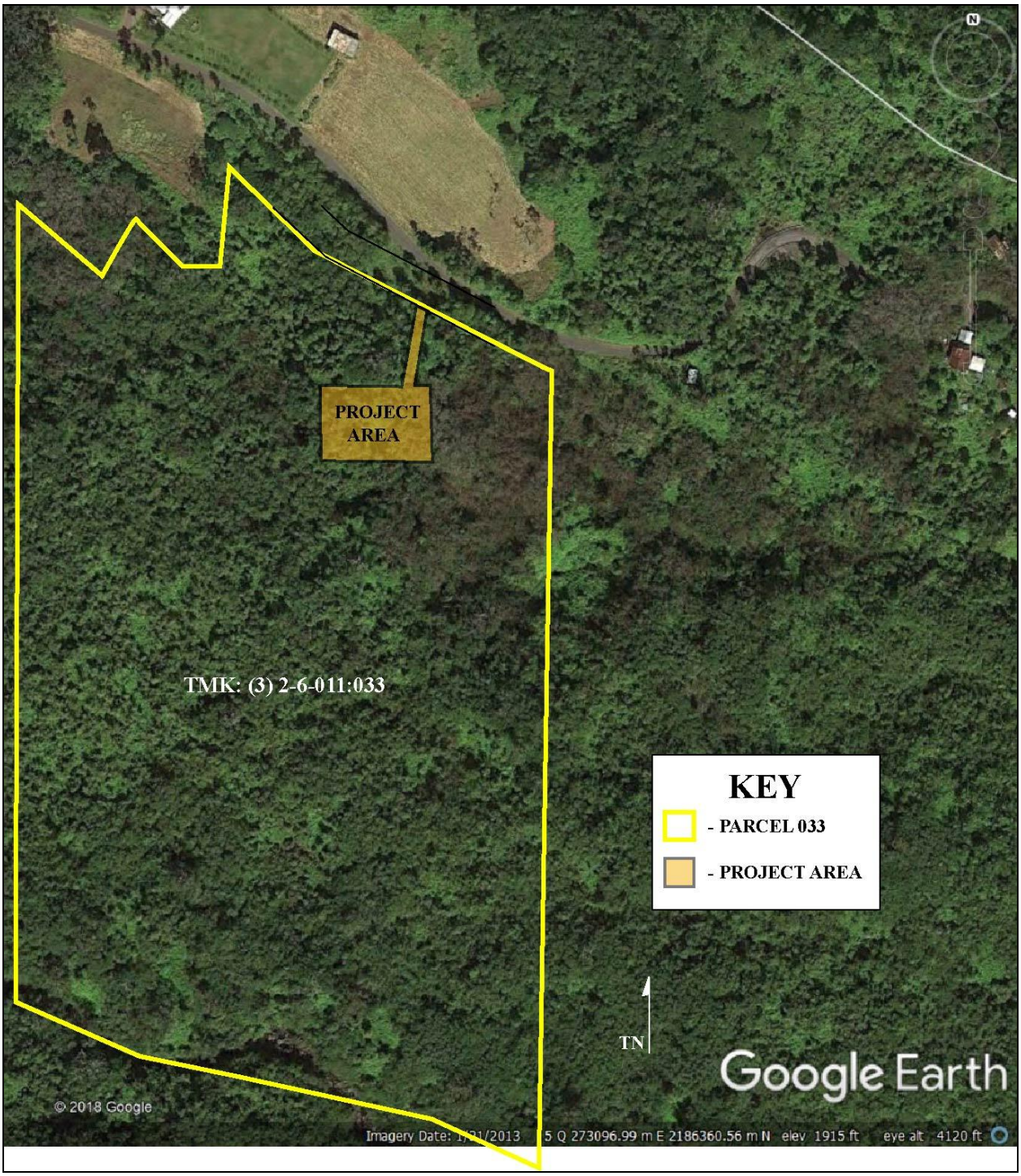
Enclosure 3: 7.5-Minute Series USGS Topographic Map Showing Location of Parcel 0265 and Field Inspection Survey Area (ESRI, 2011. Sources: National Geographic Society, USGS. Akaka Falls Quadrangle).



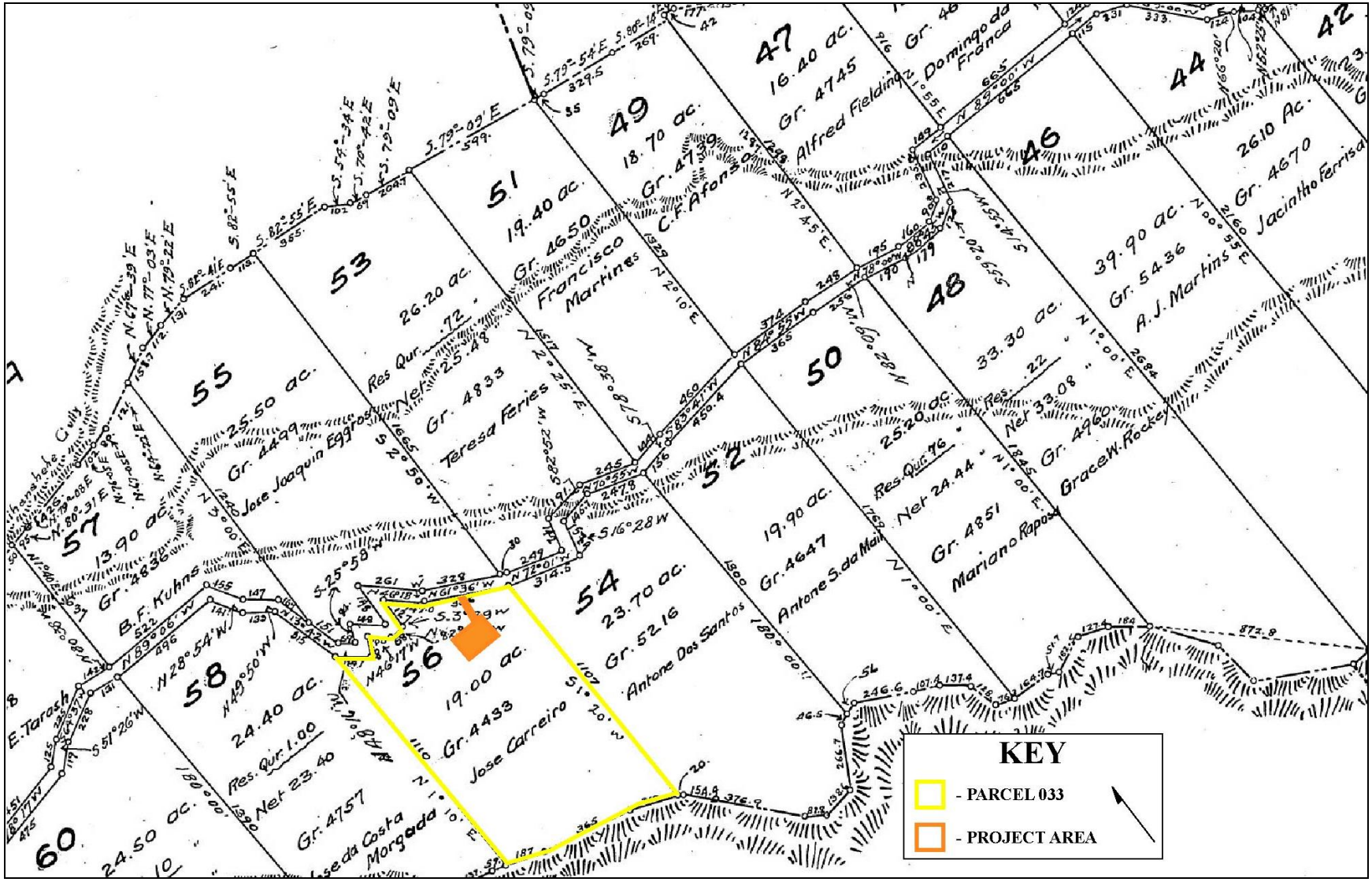
Enclosure 4: 7.5-Minute Series USGS Topographic Map Showing Location of Parcel 0265 and Field Inspection Survey Area (ESRI, 2011. Sources: National Geographic Society, USGS. Akaka Falls Quadrangle).



Enclosure 5: TMK: (3) 2-6-011 Map Showing Location of Parcel 026 and Field Inspection Survey Area (Hawai‘i County Planning Department, 2016).



Enclosure 6: Aerial Photograph Showing Location of Field Inspection Survey Areas (Google Earth 2018, Kaiwiki Homesteads, HI, 5Q 273097m E, 2186361m N, 2013 Image).



Enclosure 7: Portion of Kaiwiki Homesteads Map (Lao 1915, HTS Plat 757).

Enclosure 8: Photograph of North End of Proposed Driveway Area Looking East.

Enclosure 9: Photograph of North End of Proposed Driveway Area Looking West.

Enclosure 10: Photograph of North End of Proposed Driveway Area Looking North.

Enclosure 11: Photograph Near North End of Proposed Driveway Area Looking North.

Enclosure 12: Photograph of Middle Portion of Proposed Driveway Area Looking South.

Enclosure 13: Photograph of Middle Portion of Proposed Driveway Area Looking North.

Enclosure 14: Photograph of South End of Proposed Driveway Area Looking North.

Enclosure 15: Photograph of Proposed House Lot Area Looking Southeast.

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Enclosure 17: Photograph of Proposed House Lot Area Looking South.

Enclosure 18: Photograph of Proposed House Lot Area Looking North.

Enclosure 19: Photograph of Proposed House Lot Area Looking North.

Enclosure 20: Photograph of Proposed House Lot Area Looking West.

Enclosure 21: Photograph of Proposed House Lot Area Looking West.

Enclosure 22: Photograph of Proposed House Lot Area Looking East.

Enclosure 23: Photograph of Proposed House Lot Area Looking East.

APPENDIX 4

Cultural Impact Assessment

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SCS Project Number 2268-CIA-1

A CULTURAL IMPACT ASSESSMENT OF UPLANDS IN KAIWIKI AHUPUA‘A, SOUTH HILO DISTRICT, ISLAND OF HAWAI‘I [TMK: (3) 2-6-011:033]

Prepared By:
Glenn G. Escott, M.A. And
Nicole A. Mello, M.A.

DRAFT
APRIL 2019

Prepared For:
J. Spencer Wright
And
M. Ellen Bentley P.O. Box 6686
Hilo, HI 96720

SCIENTIFIC CONSULTANT SERVICES Inc.
1347 Kapi‘olani Boulevard, Suite 408 Honolulu, HI 96814
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Figure 4: TMK: (3) 2-6-011 Map Showing Location of Parcel 026 and Field Inspection Survey Area (Hawai‘i County Planning Department, 2016). 4
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Figure 6: Portion of Kaiwiki Homesteads Map Displaying the Project Area (Lao 1915, HTS Plat 757). 13

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INTRODUCTION

At the request of Mr. Spencer Wright, Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment (CIA) for a 19.00-acre parcel [TMK: (3) 2-6-011:033] located in Kaiwiki Ahupuaʻa, South Hilo District, Island of Hawaiʻi (Figures 1 through 5). The project area is located in the uplands of Kaiwiki between 1,880 feet (573 meters) and 1,900 feet (579 meters) above mean sea level (amsl) and is bounded to the north by Kaiwiki Road and undeveloped land on all other sides. The parcel is currently undeveloped land. The property owner is proposing to build a single family home and driveway on approximately 0.496 acres in the north portion of the property. The CIA was undertaken as part of the landowner's application for a Special Management Area (SMA) permit and Conservation District Use (CDUA) permit.
The landowner's address is P.O. Box 6686 Hilo, HI 96720. Their email address is kaleo@olapanoe.net.

The Constitution of the State of Hawaiʻi clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupuaʻa* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778" (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the people's traditional right to subsistence.

As a result, in 1850 the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupuaʻa* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiʻi Revised Statutes (HRS) 7-1. In 1992, the State of Hawaiʻi Supreme Court, reaffirmed HRS 7-1 and expanded it to include, "native Hawaiian rights…may extend beyond the *ahupuaʻa* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992). Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

> …there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaiʻi's culture, and traditional and customary rights… [H.B. NO. 2895].

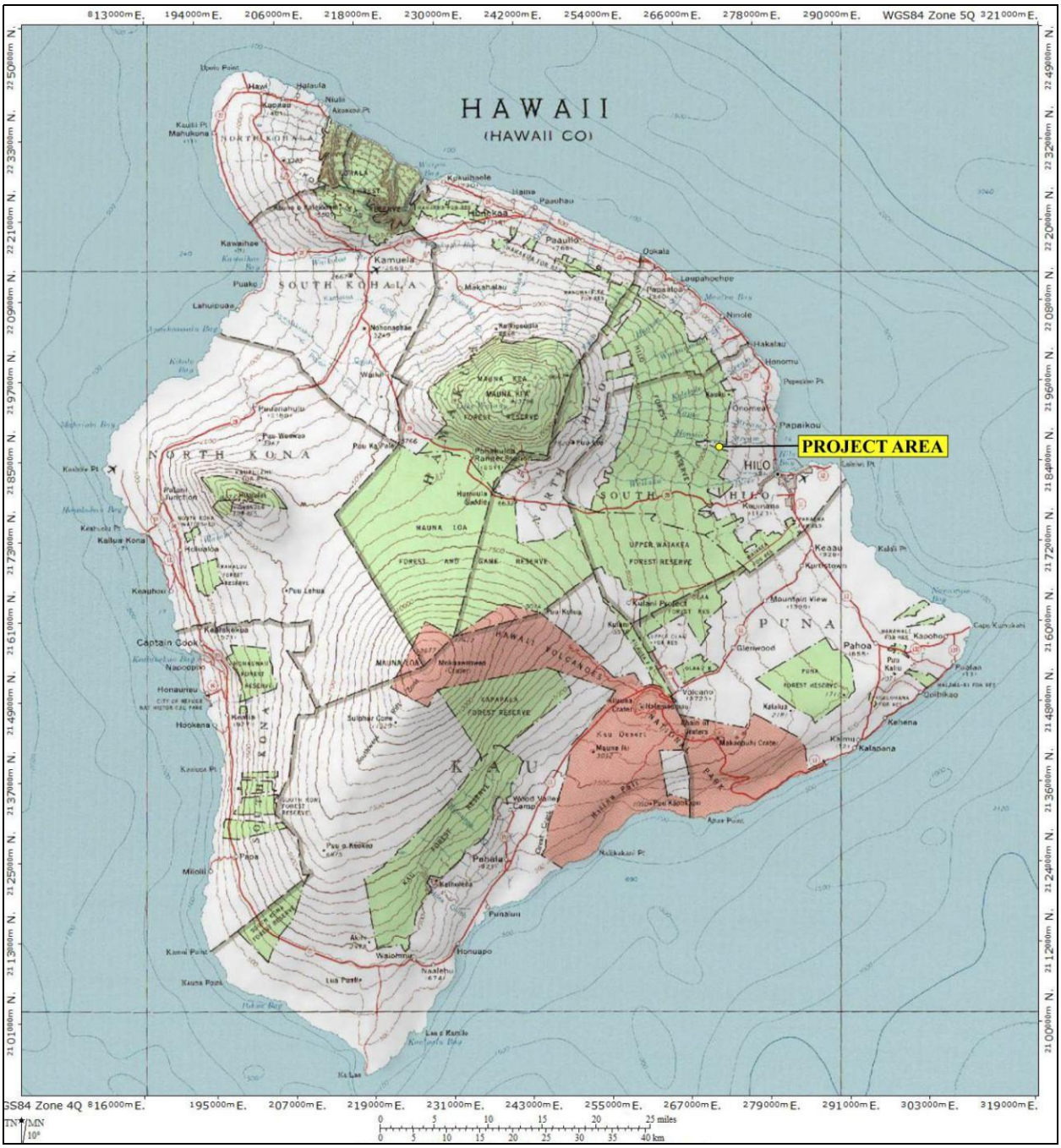

Figure 1: 5,500 K-Series Map of Hawai‘i Showing Location of Project Area (National Geographic Topo!, 2003. Sources: National Geographic Society, USGS).

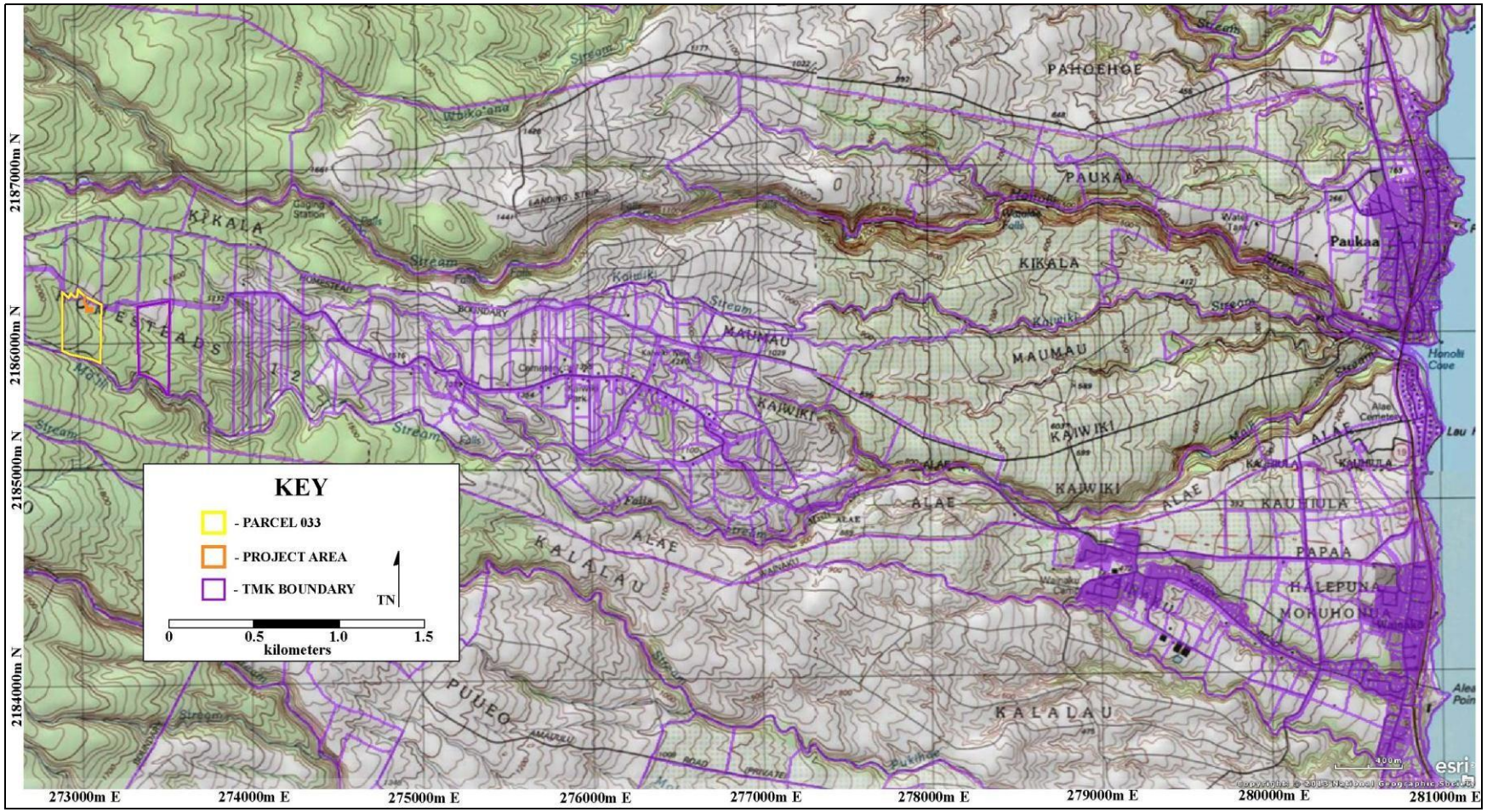

Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Parcel 0265 and Field Inspection Survey Area (ESRI, 2011. Sources: National Geographic Society, USGS. Akaka Falls Quadrangle).

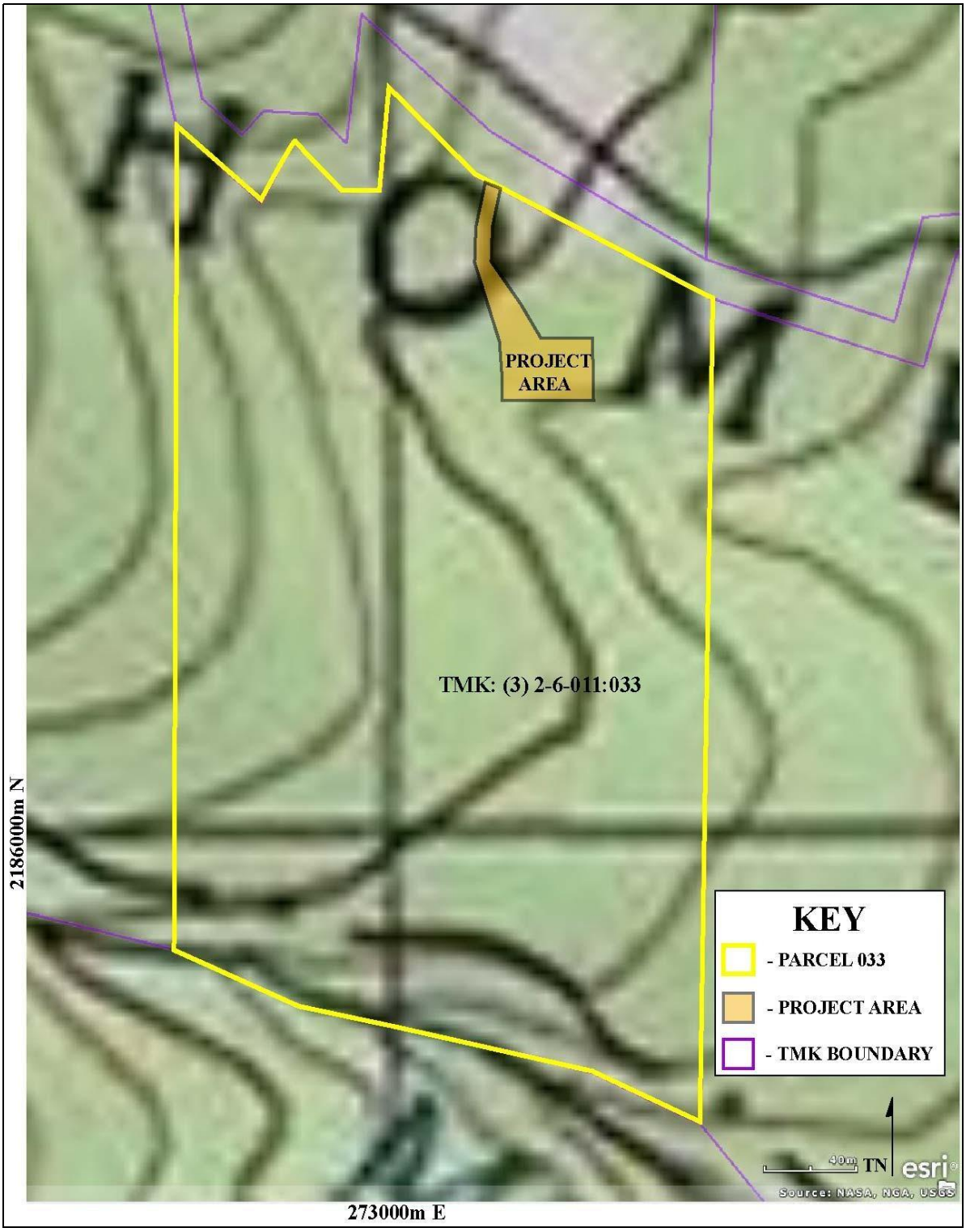

Figure 3: 7.5-Minute Series USGS Topographic Map Showing Location of Parcel 0265 and Field Inspection Survey Area (ESRI, 2011. Sources: National Geographic Society, USGS. Akaka Falls Quadrangle).

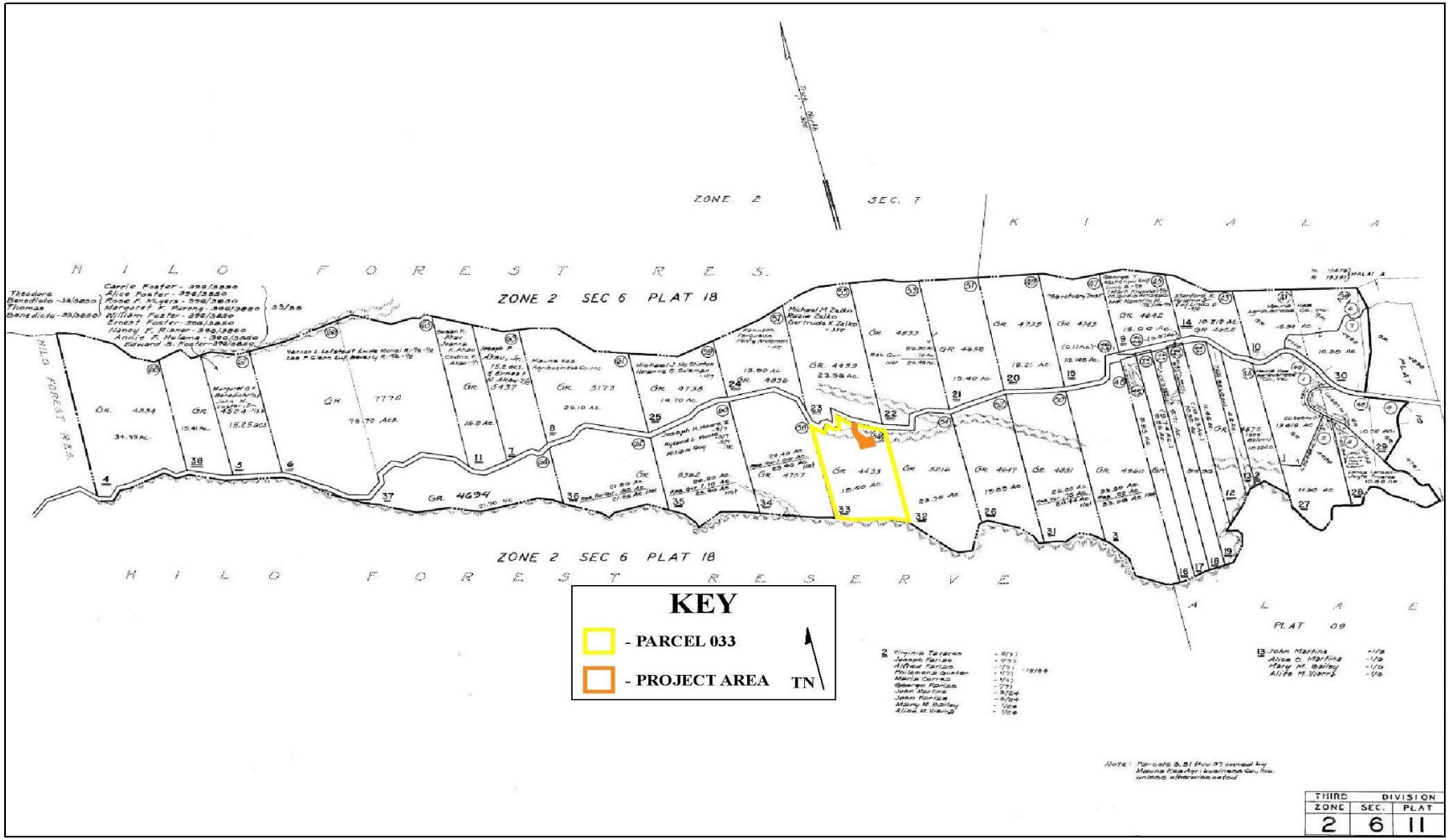

Figure 4: TMK: (3) 2-6-011 Map Showing Location of Parcel 026 and Field Inspection Survey Area (Hawai‘i County Planning Department, 2016).

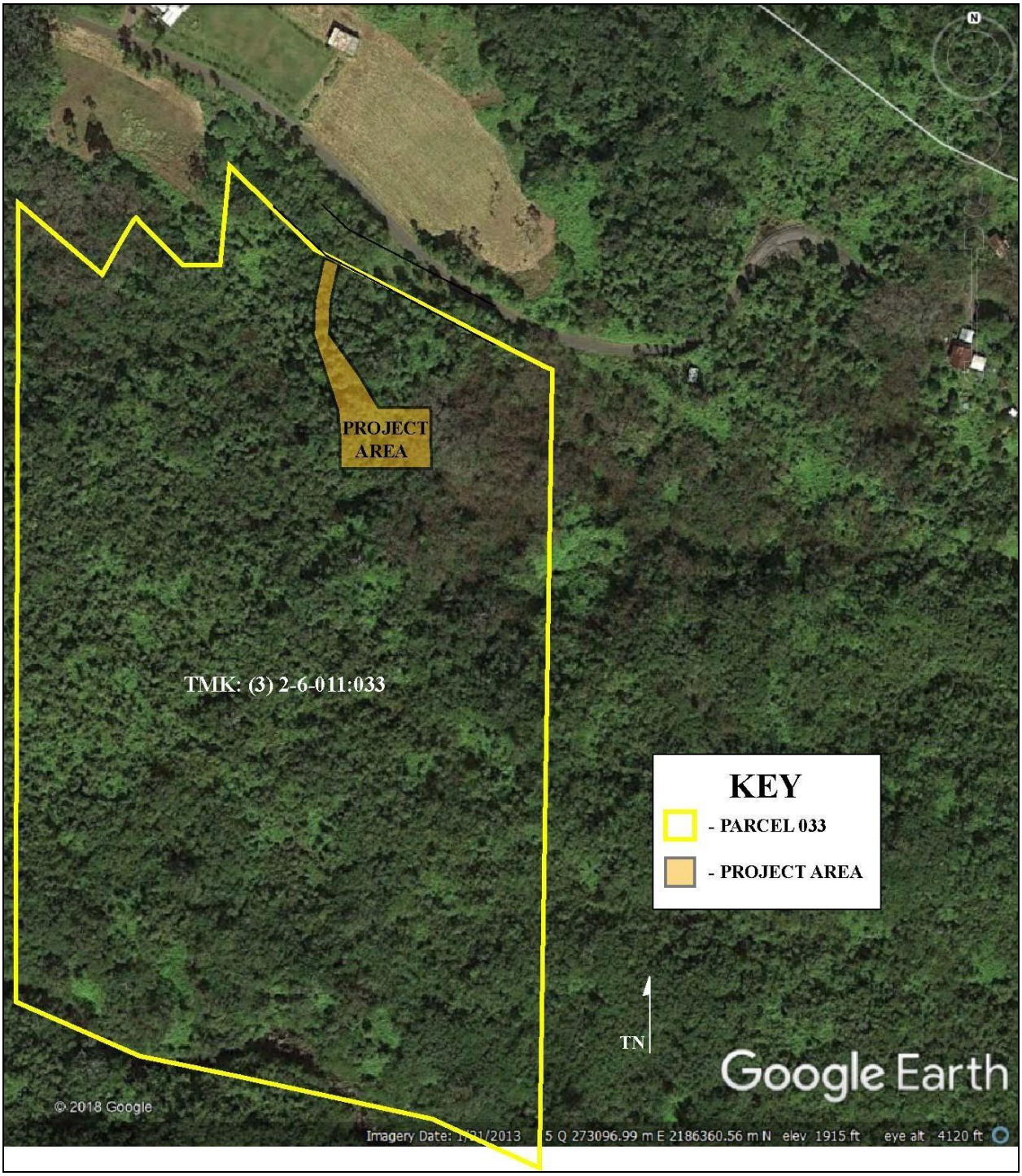

Figure 5: Aerial Photograph Showing Location of Field Inspection Survey Areas (Google Earth 2018, Kaiwiki Homesteads, HI, 5Q 273097m E, 2186361m N, 2013 Image).

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shoreline developments on the "cultural practices of the community and State" as part of the HRS Chapter 343 environmental review process (2001).

Its purpose has broadened, "to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of 'significant effect' to be re-defined as "the sum of effects on the quality of the environment including actions that are…contrary to the State's environmental policies…or adversely affect the economic welfare, social welfare, or cultural practices of the community and State" (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, "the broad geographical area, e.g. district or *ahupua'a*" (OEQC 1997). It was decided that the process should identify 'anthropological' cultural practices, rather than 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

> According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997): The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC states: …information may be obtained through scoping, community meetings, ethnographic interviews and oral histories… (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations with might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the

proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with applicable state laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their

relevant information. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupua'a*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, letters with maps and descriptions the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from Kamaile Puluole-Mitchell, OHA East Hawai'i Representative; Shane Palacat-Nelsen, OHA West Hawai'i Representative; Jordan Kea Calpito, SHPD Burial Sites Specialist; Sean Naleimaile, State Historic Preservation Division (SHPD) Assistant Archaeologist; Nalei Pate-Kahakalau, Chairman of the Hawai'i Island Burial Council (HIBC); Randy Waiola Higa, HIBC Member; Kalena Blakemore, HIBC Member; Jackson Bauer, Nā Ala Hele Trail and Access Specialist; Moana Rowland, Nā Ala Hele Abstractor; and longtime Kaiwiki resident Noe Noe Wong-Wilson.

If cultural resources are identified based on the information received from these organizations and/or additional informants, an assessment of the potential effects on the identified cultural resources in the project area and recommendations for mitigation of these effects can be proposed. Public notices were published in the Honolulu Star-Advertiser, and the Hawai'i Tribune Herald on February 20th, 21st and 24th (Appendix A). Public notice was also published in the March issue of the Office of Hawaiian Affairs (OHA) Ka Wai Ola Newspaper.

PROJECT AREA NATURAL ENVIRONMENT

The project area is located between 1,880 feet (573 meters) and 1,900 feet (579 meters) amsl on a single Mauna Kea lava flow dated to the Pleistocene Era, more than 10,000 years before present (Wolfe and Morris 1996). Soil in the project area is Akaka (rAK) series moderately well drained silty clay loam with 3 to 20% slope (Sato 1973:11). The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS) lists soil in the project area as primarily Kaiwiki silty clay loam. The project area ground surface is hummocky and rolling with a moderate southeasterly slope. Annual rainfall at the property ranges from 200 to 240 inches. Mā‘ili Stream forms the south boundary of Parcel 033 area and serves as the main drainage for the surrounding area.

Plants in the project are dominated by *‘uluhe* fern (*Dicranopteris linearis*), *waiwi* (*Psidium sp*.), melastoma (*Melastoma candidum*), clidemia (*Clidemia hirta*), scattered *‘ohia* (*Metrosideros plymorpha*) and *koa* (*Acacia koa*), and rose apple (*Syzgium jambose*) (Starr Environmental 2016).

HISTORICAL AND CULTURAL CONTEXTS

Archaeologists have long thought Hawai‘i Island was first settled between around A.D. 700 by people sailing from the Marquesas (Cordy 2000:104-109). Recently, there has been debate surrounding the archaeological dating of the initial settlement of Hawai‘i. An article published in the Journal of Archaeological Science reviewing radiocarbon dates recovered at archaeological sites on the Island of Hawai‘i suggests that, by relying on only carbon samples from short-lived plant remains, the most reliable dates point to initial Polynesian colonization of Hawai‘i Island occurring between AD 1220 and 1261 (Rieth et al. 2011:2747).

Early settlers established settlements on the windward shores in likely places such as Waipi‘o, Waimanu, and Hilo Bay. People at these locations were able to sustain themselves through inshore and pelagic fishing, gathering shellfish from the shore and strand, plant and animal husbandry, and the utilization of natural terrestrial flora and fauna (Kirch and Kelly 1975; Pearson *et al*. 1971; Kirch 1985). The pattern of this early settlement is thought to have consisted of widely spaced, permanent home bases that gradually expanded to form a nearly continuous zone of permanent settlement along the windward coasts as local populations grew.

PRE-CONTACT ERA CULTURAL AND HISTORICAL BACKGROUND

Kaiwiki Ahupuaʻa is a traditional Hawaiian land division in Hilo *Moku* situated from the 200 foot high coastal cliffs of Hilo Palikū up to 2,800 feet amsl (W.E. Wall Map 1928). Kaiwiki is translated as quick sea (Pukui *et al*.1974:71). Traditional settlement patterns in Kaiwiki are more characteristic of those along the Hāmākua coast than of lowland Hilo (Cordy 2000:44). There are no legendary places mentioned in *moʻolelo* concerning Kaiwiki and its immediate environs.

According to Maly,

> The lands of Kaiwiki were named for Kaiwi-kî-a-ola an *ʻôlohe* instructor, who was the husband of Honoliʻi, and grandfather of Kîkoʻoakapuna. Kaiwiki's foremost students were: Pau and Kekaʻa (brothers whose names combined to become Paukaʻa), Pueopâkû, Pâpaʻi-nui-a-kou (Pâpaʻikou), Waiâhole, and Kaʻieʻie-lulu-ka-iʻa (Kaʻieʻie). *Ahupuaʻa* and site features along this coastline are named for these *ʻôlohe*, and it was their custom to waylay all who traveled along their trails. [Maly 1993:59].

POST-CONTACT ERA AND CULTURAL AND HISTORICAL BACKGROUND

No published prehistoric accounts of Kaiwiki are recorded by Kamakau (1992), Iʻi (1993), Kalakaua (1990), or Fournander (1996). As for early historic accounts, there is mention of a battle fought along the coast in neighboring ʻAlae Ahupuaʻa, the *ahupuaʻa* south of Kaiwiki. The battle was one of many between Kamehameha and his allies against Keōua Kūʻahuʻula and his allies for control of Hawaiʻi Island. Angered that his uncle Keawemaʻuhili had aided Kamehameha by sending men and canoes to fight on Maui, Keōua invaded Hilo slaying Keawemaʻuhili and many of his warriors at Alae in 1790 (Cordy 2000:333; Kamakau 1992:151).

William Ellis later passed by Kaiwiki while travelling by canoe from Hilo to Laupāhoehoe where he disembarked and continued on foot to Humuʻula along the tree line at the northern foot of Mauna Kea (Ellis 2004:341-344). Ellis travelled by canoe because the road along the cliffs was too rough and passed through many deep gulches. He states that the cliffs between Hilo and Laupāhoehoe were dotted with plantations. Their canoe passed more than fifty ravines in the several hours it took them to travel the twenty-five or so miles between Hilo and Laupāhoehoe. He noted that none of ravines had a place for their canoe to land without being swamped in the surf. No mention is made of Kaiwiki Ahupuaʻa, though he passed it by canoe on the way to Laupāhoehoe.

NATIVE TESTIMONY BEFORE THE COMMISSION TO QUIET LAND TITLES

With the Māhele of 1848 and the two Acts of 1850, authorizing the sale of land in fee simple to resident aliens and the award of *kuleana* lands to native tenants, land tenure in Hawaii arrived at a significant turning point (Chinen 1961:13). A large portion of Kaiwiki Ahupuaʻa (Kaiwiki 2nd) was awarded to William Charles Lunalilo (King Kamehameha V) as Land Commission Award (LCA) #8559B. Three smaller coastal awards were made to Pakele (LCA9928), Kaainoa (LCA5007), and Kaheana (LCA7852). No Land Claim awards were made within or near the project area parcel.

The project area parcel and the surrounding lands were all land grants awarded primarily to farmers of Portuguese descent (Figure 6). Parcel 033, where the project area is located, was awarded to Jose Carreiro for $148.56 as Land Grant 4433 in April 1901. The property was then sold to Mr. Fernandes, then Mr. Cabrinha, then Mr. Serrao and then to Hilo Sugar Company. Mr. Serrao owned many lots in the area and sold *koa* cabinets in Hilo.

MODERN LAND-USE

Hawaiʻi County Planning records show that the property was owned by Hilo Sugar Company, was sold to Mauna Kea Agribusiness Company, Inc, then to C. Brewer and Company, and was finally sold to private owners. According to neighbors, Parcel 033was used as cattle pasture beginning in the 1920s. The current owner, Mr. Wright, bought the property in 2014.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Early archaeological studies conducted in the area by Thrum and Stokes (Thrum 1907 and 1908, and Stokes and Dye 1991), and by A.E. Hudson (Hudson 1932) did not locate any *heiau* or significant cultural resources in the area within or around the current project area.

A single archaeological inventory survey (AIS) was conducted by Hammatt and Colin (1998) within the Ahupuaʻa of Kaiwiki 3 on the slopes of Kolekole Gulch, under and surrounding the Kolekole bridge, including the 100 feet of slopes *mauka* and *makai* of the bridge. Cement footings from the previous bridge were recorded in their report. No other cultural resources were identified during the study.

In May of 2004, Rechtman Consulting, LLC conducted an AIS on 4.5 acres [(3) 2-9-03:13, 29, and 60] in coastal Wailea Ahupuaʻa, over one kilometer northeast of the current project area (Desilets *et* al. 2004). A single site (SIHP 50-10-26-24212 consisting of a section of

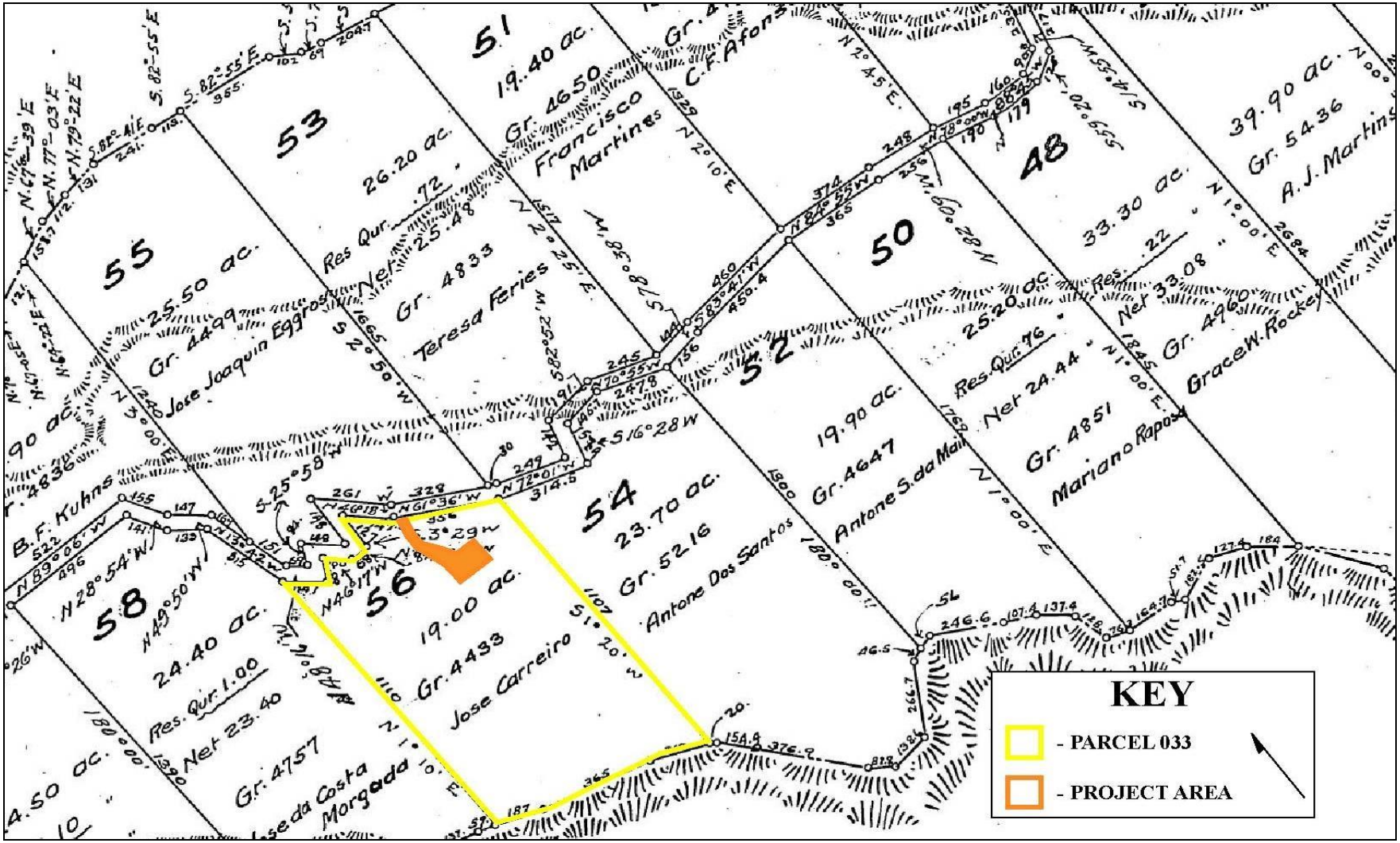

Figure 6: Portion of Kaiwiki Homesteads Map Displaying the Project Area (Lao 1915, HTS Plat 757).

railroad grade and a trestle abutment were recorded. Both features were recorded as significant under Criterion D and no further work was recommended at the site (Desilets *et* al. 2004:20).

SCS, Inc. conducted an archaeological inventory survey of 3.5 acres in Kaiwiki 3 Ahupuaʻa along the Kolekole stream (Escott 2011). There were no archaeological or cultural sites identified on the project area.

SCS, Inc. conducted an archaeological field inspection of 5.0 acres on TMK: (3) 2-6011:026, two lots east of Parcel 033 (Escott 2017). There were no archaeological or cultural sites identified on the project area.

An archaeological field inspection (AFI) was conducted by SCS for the 0.496-acre proposed project area (Escott 2018). There were no archaeological sites or cultural properties identified in the project area.

CULTURAL INFORMANT INTERVIEWS

SCS, Inc contacted ten individuals who, either work for the Office of Hawaiian Affairs, are SHPD personnel, are familiar with the project area lands through cultural, professional, or historical work, or are long-time residents of the area (Table 1). Two OHA representatives, two SHPD staff members, three members of the Hawaiʻi Island Burial Council (HIBC), two members of Nā Ala Hele, and a long time resident familiar with Kaiwiki were contacted to for information about cultural practices in the Kaiwiki area.

Table 1: Individuals Responding to CIA.

Name	Affiliation	Responded	Has Knowledge	Cultural Practices
Jackson Bauer	Nā Ala Hele	No	-	-
Kalena Blakemore	HIBC	Yes	No	No
Jordan Kea Calpito	SHPD Burial Sites	Yes	No	No
Randy Waiola Higa	HIBC	Yes	No	No
Sean Naleimaile	SHPD Archaeologist	No	-	-
Shane Nelson	OHA	Yes	No	No
Nalei Pate-Kahakalau	HIBC	Yes	No	No
Kamaile Puluole-Mitchell	OHA	Yes	No	No
Moana Rowland	Nā Ala Hele	No	-	-
Noe Noe Wong-Wilson	Long-Time Resident	No	-	-

Six individuals responded to inquires but were not aware of cultural practices associated with Kaiwiki. SHPD Burial Sites Specialist Jordan Calpito spoke with a friend who is familiar with the history of Kaiwiki, but he did not offer any information concerning Kaiwiki. The public notices also did not generate responses. The lack of information regarding cultural practices in upland Kaiwiki is not surprising, as the upland region of Kaiwiki are far from known habitation centers along the coast. The project area is 7.5 kilometers west of the coast, at an elevation of 1,800 feet amsl.

The uplands at this location were densely wooded prior to European contact. Upland Kaiwiki remained an isolated forest area until after the Māhele when the land was subdivided and sold for cattle ranching, sugarcane agricultural and homesteads. Even then, the project area is at the upper reaches of the Kaiwiki Homesteads lots. Sugarcane was never cultivated near the project area, but was cultivated at lower elevations east of the project area.

Prior to European contact, it is possible that this upland region was infrequently visited by bird hunters, canoe builders and those collecting upland forest plants. The lack of trails depicted on early Historic era survey maps suggest the area was only visited infrequently. In addition, it is likely that canoe builders could find *koa* trees to carve their canoes at lower elevations, making it possible to port the finished canoes from areas closer to the coast.

SUMMARY

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential.

In the case of the present parcel, letters of inquiry were sent to organizations and individuals whose expertise would include the project area. Consultation was sought from Kamaile Puluole-Mitchell, OHA East Hawai‘i Representative; Shane Palacat-Nelsen, OHA West Hawai‘i Representative; Jordan Kea Calpito, SHPD Burial Sites Specialist; Sean Naleimaile, State Historic Preservation Division (SHPD) Assistant Archaeologist; Nalei Pate-Kahakalau, Chairman of the Hawai‘i Island Burial Council (HIBC); Randy Waiola Higa, HIBC Member; Kalena Blakemore, HIBC Member; Jackson Bauer, Nā Ala Hele Trail and Access Specialist;

Moana Rowland, Nā Ala Hele Abstractor; and longtime Kaiwiki resident Noe Noe WongWilson.

Public notices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, and were published in the Honolulu Star-Advertiser and the Hawai‘i Tribune Herald.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I‘i, Kamakau, Chinen, Kame‘eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku‘i and Elbert, Thrum, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai‘i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona ‘Aina 2007 Data Base.

CIA INQUIRY RESPONSE

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

As stated above, consultation was sought from ten individuals. Four people responded to consultation requests, but none of the individuals knew of past or ongoing cultural practices in Kaiwiki. Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area was not used for cultural practices. Based on historical research and the responses from the above listed contacts, it is reasonable to conclude that, as Hawaiian rights related to gathering, access or other customary activities are protected by law, and as the current project property owner will not prevent access, traditional cultural practices within the project area will not be affected and there will be no direct adverse effect upon cultural practices or beliefs.
There will also be no visual impact of the project from surrounding vantage points.

CULTURAL ASSESSMEMNT

Based on the results of an Archaeological Field Inspection of the project area, the results of previous archaeological studies, as well as organizational response, individual cultural informant responses, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel. The property owner will not restrict access for gathering purposes, as is protected by law. No cultural activities were identified within the project area, and the proposed undertaking will not produce adverse effects to any native Hawaiian cultural practices.

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APPENDIX A: PUBLIC NOTICES AND AFFIDAVITS

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices on lands of mauka Kaiwiki Ahupua'a, South Hilo District, Island of Hawai'i, TMK: (3) 2-6-011: 026 & 033. Please respond within 30 days to Glenn Escott at (808) 938-0968. ■

Ka Wai Ola Public Notice.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
CULTURAL IMPACT ASSESSMENT NOTICE - Kaiwiki

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: FEB 25 2019 **# Pages:** 1
Notary Name: Patricia K. Reese First Judicial **Circuit**
Doc. Description: Affidavit of Publication
Notary Signature FEB 25 2019 Date

PATRICIA K. REESE NOTARY PUBLIC No. 86-467 STATE OF HAWAII

CULTURAL IMPACT ASSESSMENT NOTICE
Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices on lands of *mauka* Kaiwiki Ahupua'a, South Hilo District, Island of Hawai'i, TMK: (3) 2-6-011: 026 & 033. Please respond within 30 days to Glenn Escott at (808) 938-0968.
(SA1175246 2/20, 2/21, 2/24/19)

Gwyn Pang being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 3 times on:
02/20, 02/21, 02/24/2019
MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Gwyn Pang
Gwyn Pang

Subscribed to and sworn before me this 25 day of February A.D. 2019

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2022

Ad # 0001175246

PATRICIA K. REESE NOTARY PUBLIC No. 86-467 STATE OF HAWAII

SP.NO.: _____ L.N.

Honolulu Star-Advertiser Public Notice Affidavit.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
CULTURAL IMPACT ASSESSMENT NOTICE - Kaiwiki

STATE OF HAWAII }
} SS.
City and County of Honolulu }

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(HTH1175252 2/20, 2/21, 2/24/19)

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Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 3 times on:
02/20, 02/21, 02/24/2019

West Hawaii Today 0 times on:

Other Publications: 0 times on:

PATRICIA K. REESE NOTARY PUBLIC No. 86-467 STATE OF HAWAII

And that affiant is not a party to or in any way interested in the above entitled matter.

Gwyn Pang
Gwyn Pang

Subscribed to and sworn before me this 25 day of February A.D. 2019

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2022

Ad # 0001175252 SP.NO.: _____ L.N.

Hawai'i Tribune-Herald Public Notice Affidavit.