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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 10, 2016

MEMORANDUM

TO: Scott Glenn, Director
Office of Environmental Quality Control

FROM: Suzanne D. Case, Chairperson *WDC*
Department of Land and Natural Resources

SUBJECT: Draft Environmental Assessment for Hawai'i Experimental Tropical Forest: Pu'u Wa'awa'a Construction Project, Pu'u Wa'awa'a Forest Preserve, North Kona, Hawaii, TMK: (3) 7-1-001:006 (portion).

The Department of Land and Natural Resources, Division of Forestry and Wildlife, has reviewed the enclosed draft environmental assessment (DEA) for the above-referenced project and anticipates a negative declaration determination.

Please publish the notice of availability for this project on the next publication date of the Environmental Notice.

Enclosed is a completed OEQC Bulletin Publication Form. We understand that the United States Department of Agriculture, Forest Service, has submitted directly to your office one (1) hard copy of the DEA, and one (1) searchable .pdf file of the DEA.

If you have any questions, please feel free to contact Dr. Elliott Parsons at (808) 974-6203.

Thank you.

Enclosure

cc: Land Board Member
Steven Bergfeld, Hawaii Branch Manager, DNLR DOFAW
David G. Smith, O'ahu Branch Manager, DNLR DOFAW
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| Project Name: | Hawai'i Experimental Tropical Forest: Pu'u Wa'awa'a Construction Project |
| Project Short Name: | Pu'u Wa'awa'a Construction Project Draft EA |
| HRS §343-5 Trigger(s): | Use of State or County Lands (DLNR, DOFAW Forest Reserve) |
| Island(s): | Hawai'i |
| Judicial District(s): | North Kona |
| TMK(s): | (3) 7-1-001:006 (portion). |
| Permit(s)/Approval(s): | State of Hawai'i Department of Health, National Pollution Discharge Elimination System Permit; US Fish and Wildlife Service, Informal Consultation on project effects upon Threatened and Endangered Species |
| Approving Agency: | Department of Land and Natural Resources Division of Forestry and Wildlife |
| <i>Contact Name, Email, Telephone, Address</i> | Elliott W.R. Parsons, Ph.D, Natural Area Reserves Specialist IV elliott.w.parsons@hawaii.gov Phone: 808-333-0084 Division of Forestry and Wildlife 19 E. Kawili St. Hilo, HI 96720 |
| Applicant: | USDA Forest Service, Pacific Southwest Research Station |
| <i>Contact Name, Email, Telephone, Address</i> | Rommel Tanglao, Station Engineer rommeletanglao@fs.fed.us Phone: 510-883-8851 800 Buchanan Street West Annex Building Albany, CA 94710 |
| Consultant: | USDA Forest Service, Enterprise Technical Services |
| <i>Contact Name, Email, Telephone, Address</i> | John R. Slown, Biologist/Planner jslown@fs.fed.us Phone: 406-329-3749 24 Fort Missoula Road Missoula, MT 59804 |

Status (select one) X DEA-AFNSI**Submittal Requirements**

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.

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("Direct to EIS")

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- FEIS Acceptance Determination The approving agency simultaneously transmits to both the OEQC and the applicant a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
- FEIS Statutory Acceptance The approving agency simultaneously transmits to both the OEQC and the applicant a notice that it did not make a timely determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and therefore the applicant's FEIS is deemed accepted as a matter of law.
- Supplemental EIS Determination The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
- Withdrawal Identify the specific document(s) to withdraw and explain in the project summary section.
- Other Contact the OEQC if your action is not one of the above items.

Project Summary

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

The Pacific Southwest Research Station in Hilo, USDA Forest Service, proposes to develop research and education facilities on land leased from the Hawaii DLNR, Division of Forestry and Wildlife, on the Pu'u Wa'awa'a Forest Reserve (a portion of TMK (3) 7-1-001:006). Facilities would include a bunkhouse for 10 visiting students or researchers, a sanitary building with vault toilets and shower, an education pavilion, camping space for up to 15 visiting students, and ten parking spaces. Facility access would include grading and minor improvement of approximately 2,500 linear feet of existing roadways. Sanitary waste water would be stored and periodically hauled to licensed disposal facilities off-site. Potable water would be purchased from a licensed hauler. Electrical power would be solar with generator back-up.

The direct, indirect, secondary and cumulative impacts associated with the project would be localized impacts to the visual environment within the immediate project vicinity. These would be mitigated on a larger scale by screening effects of vegetation and terrain. Other measurable impacts would occur during the construction phase, such as soil disturbance, habitat displacement and increased noise. No significant impacts to any resource are anticipated. A Finding of No Significant Impact is anticipated for this project.



United States Department of Agriculture

Pu'u Wa'awa'a Construction Project Environmental Assessment



Forest Service

**Pacific Southwest
Research Station**

**Institute of Pacific
Island Forestry,
Hawai'i
Experimental
Tropical Forest**

August 2016

For More Information Contact:

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Cover photo: View of the Pu‘u wa‘awa‘a Cinder Cone from Hawai‘i Highway 190 view is southerly and project site is approximately one mile north-northwest of the Cone. Photo by John Slown, May 2015.

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Table of Contents

| | |
|--|----|
| Summary | 1 |
| Introduction | 1 |
| Proposed Project Location | 2 |
| Need for the Proposal | 2 |
| Background | 2 |
| Purpose and Need for Action | 3 |
| Public Involvement, Agency and Native Hawaiian Consultation | 5 |
| Issues Identified | 6 |
| Major Issues | 6 |
| Minor Issues | 8 |
| Documents Incorporated by Reference | 8 |
| Proposed Action and Alternatives | 9 |
| No Action – Alternative 1 | 9 |
| Proposed Action – Alternative 2 | 9 |
| Actions Considered but Not Analyzed in Detail | 10 |
| Use Off-site Utility Connections and Constructed On-site Waste Water Treatment | 10 |
| Construction of a larger facility | 11 |
| Mitigations Specific to Alternative 2 | 11 |
| Comparison of Alternatives | 13 |
| Environmental Impacts of the Proposed Action and Alternatives | 15 |
| Soil and Water Resources | 15 |
| Relevant Laws, Regulations, and Policy | 15 |
| Affected Environment | 17 |
| Mitigations and Management Recommendations | 20 |
| Project Effects | 20 |
| Summary | 22 |
| Cultural Resources | 22 |
| Relevant Laws, Regulations, and Policy | 22 |
| Affected Environment | 23 |
| Mitigations and Management Recommendations | 29 |
| Project Effects | 29 |
| Biological Resources | 30 |
| Relevant Laws, Regulations, and Policy | 30 |
| Affected Environment | 31 |
| Mitigations and Management Recommendations | 33 |
| Project Effects | 33 |
| Scenic Resources | 33 |
| Relevant Laws, Regulations, and Policy | 33 |
| Affected Environment | 34 |
| Mitigations and Management Recommendations | 35 |
| Project Effects | 35 |
| Land Use | 37 |
| Relevant Laws, Regulations, and Policy | 38 |
| Affected Environment | 38 |
| Mitigations and Management Recommendations | 38 |
| Project Effects | 39 |
| Alternative 1 – No Action | 39 |
| Alternative 2 – Proposed Action | 39 |

| | |
|--|----|
| Required Permits and Approvals..... | 39 |
| Determination for Chapter 343 of the Hawai‘i Revised Statutes | 40 |
| Findings and Reasons..... | 40 |
| Project Interdisciplinary Team (IDT) Members..... | 42 |
| References | 43 |
| Appendix A: List of Agencies and Persons Consulted..... | 45 |
| Federal Agencies and Individuals | 45 |
| State of Hawai‘i Agencies and Individuals | 45 |
| Hawai‘i County or Local Agencies and Individuals | 46 |
| University of Hawai‘i..... | 47 |
| Public Utilities..... | 47 |
| Associations, Businesses, Clubs, and Other Organizations | 47 |
| Private Landowners, Lessees, and Other Individuals | 48 |
| Appendix B: Comments Received During January 4 through February 8, 2106 Scoping Period | 51 |

List of Tables

| | |
|--|----|
| Table 1 Mitigation Measures for the Pu‘u Wa‘awa‘a Construction Project | 11 |
| Table 2 Comparison of Alternatives by Resource Effect | 13 |
| Table 3 Water Resource indicators and measures for Alternative 2 | 21 |

List of Figures

| | |
|--|----|
| Figure 1 Context of Pu‘u Wa‘awa‘a Dry Forest Unit and Laupāhoehoe Wet Forest Units, Hawai‘i Experimental Tropical Forest..... | 3 |
| Figure 2 Pu‘u Wa‘awa‘a Construction Project Site Vicinity | 4 |
| Figure 3 Proposed Project Site Topography..... | 5 |
| Figure 4 Proposed Buildings on northern portion of project site, detail | 10 |
| Figure 5 Keawaiki Bay Watershed..... | 18 |
| Figure 6 Typical view of soil surface on project site | 20 |
| Figure 7 Natural surface road view is southeast from project site | 24 |
| Figure 8 Detail view of fence parallel to old airstrip..... | 25 |
| Figure 9 Cultural Resource (CR) Inventory in Project Vicinity..... | 26 |
| Figure 10 Project Site Topography..... | 32 |
| Figure 11 Photograph of site and vicinity from Pu‘uanahulu..... | 35 |
| Figure 12 Visual simulation of proposed project from Pu‘uanahulu | 36 |
| Figure 13 Visual simulation of proposed project from Pu‘u wa‘awa‘a..... | 37 |

Summary

The USDA Forest Service, Pacific Southwest Research Station (PSW) in Hilo, Institute of Pacific Islands Forestry, proposes to construct at the Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife, Pu'u Wa'awa'a Forest Reserve, a state-of-the-art, environmentally sensitive research and education facility that would support the vision and objectives of the Pu'u Wa'awa'a Dry Forest Unit of the Hawai'i Experimental Tropical Forest. The facility would be located on State of Hawai'i lands leased by PSW. The project would provide bunkhouse facilities for visiting scientists or students, instruction space, and restrooms. This environmental assessment evaluates one action alternative developed through project scoping and the no action alternative.

The 5.7 acre site selected for lease and development is located in Hawai'i County, off of Highway 190 approximately 10 miles south-southwest of the community of Waikoloa Village and approximately 20 miles south-southwest of the Town of Waimea. It is a portion of Hawai'i Tax Map Key number (3) 7-1-001:006. The site has been disturbed by construction of private airstrip and more than 100 years of cattle grazing. The proposed action (Alternative 2) includes: one bunkhouse building of approximately 1,100 square feet, with double occupancy capacity for up to 10 visiting scientists, restrooms, kitchen facilities, and common use areas; one education and demonstration pavilion of approximately 400 square feet suitable for conference, meeting, and classroom use; and a designated occasional-use tent area for up to 15 individuals subject to Forest Service directives and policies. Access would involve improvement of approximately 2,500 feet of existing roads and construction of parking areas for 10 vehicles (overflow parking for occasional large events would include off-site parking with shuttle service and use of the margins of the old runway on site). Overall ground disturbance would be less than one acre. No utility connections would be required. Power would be generated by a photo-voltaic array with battery storage and generator back up. Potable water would be hauled to the site, and sanitary waste hauled away for disposal at a licensed facility.

This environmental analysis is being conducted in accordance with the National Environmental Policy Act and Chapter 343 of the Hawai'i Revised Statutes. Implementation of mitigation measures would result in little to no impacts to wildlife or State-listed species and no adverse effects to federally listed species that are known to or may occur in and near the project area. No cultural or historical properties were identified within the project area, thus no impacts are expected. Additionally, this project would be in compliance with all county building regulations and would implement mitigation measures and best management practices related to soils and water to further reduce the potential for any environmental impacts.

Introduction

We, the Institute of Pacific Islands Forestry, Pacific Southwest Research Station, USDA Forest Service, are proposing to develop research and education support facilities on an approximately 5.7 acre site. These actions are proposed to be implemented on the Pu'u Wa'awa'a Dry Forest Unit of the Hawai'i Experimental Tropical Forest (see Figure 1 for geographic context).

We prepared this environmental assessment (EA) to determine whether implementation of construction and operation of facilities to support research and education at the Pu'u Wa'awa'a Dry Forest unit of the Hawai'i Experimental Tropical Forest may significantly affect the quality

of the human environment and thereby require the preparation of an environmental impact statement. By preparing this EA, we are fulfilling agency policy and direction to comply with the National Environmental Policy Act (NEPA). This EA will also fulfill the requirements of Chapter 343 of the Hawai'i Revised Statutes. For more details of the proposed action, see the Proposed Action and Alternatives section of this document.

Proposed Project Location

The project area is located in Hawai'i County, off of Highway 190 approximately 10 miles south-southwest of the community of Waikoloa Village and approximately 20 miles south-southwest of the Town of Waimea. The project site would be leased from the Hawai'i Department of Land and Natural Resources, and includes land on either side of an obsolete paved airstrip, although development is proposed only on the makai (seaward or lower) side of the airstrip. The overall length of the paved runway within the airstrip is approximately 2,850 feet. This runway extends beyond the site to both the northeast and southwest. The site is located at about 2,200 feet above mean sea level elevation, and 6.5 miles from the coast. The land to be leased from the Hawai'i Department of Land and Natural Resources is a portion of Hawai'i Tax Map Key (TMK) number (3) 7-1-001:006. See Figure 2 for a site vicinity map, and see Figure 3 for site topography.

Need for the Proposal

Background

In 1992, the Hawai'i Tropical Forest Recovery Act authorized the establishment of the Hawai'i Experimental Tropical Forest (or "the Experimental Forest") to serve as a center for long-term research and a focal point for developing and transferring knowledge and expertise for the management of tropical forests. In 2007, the Experimental Forest was formally established. Experimental Forest objectives are to: (1) provide lands for conducting research that serves as a basis for the restoration, conservation, and management of forests in Hawai'i and across tropical areas served by the Pacific Southwest Research Station; (2) provide education facilities for the general public, university researchers, and USDA Forest Service staff; and (3) contribute to local, regional, and global long-term environmental monitoring data sets.

The vision of the Hawai'i Experimental Tropical Forest is a research, demonstration, and educational forest focusing on ecological, economical, and cultural values important to all people of Hawai'i. The Experimental Forest will provide research opportunities for scientists, as well as learning opportunities for school children who are the future generations of landowners, land managers, and scientists in Hawai'i.

The Hawai'i Experimental Tropical Forest, established on State of Hawai'i land, on the Island of Hawai'i is currently divided into two units: the Pu'u Wa'awa'a Dry Forest Unit and the Laupāhoehoe Wet Forest Unit. The USDA Forest Service, Pacific Southwest Research Station in

Hilo, Hawai'i (i.e., the Institute of Pacific Islands Forestry), works with the State of Hawai'i in the management of the Experimental Forest. The research and education facility on the Pu'u Wa'awa'a Dry Forest Unit proposed in this document supports the vision and helps meet objectives of the Experimental Forest. For more information related to the establishment and vision of the Hawai'i Experimental Tropical Forest see: <http://www.hetf.us/>.

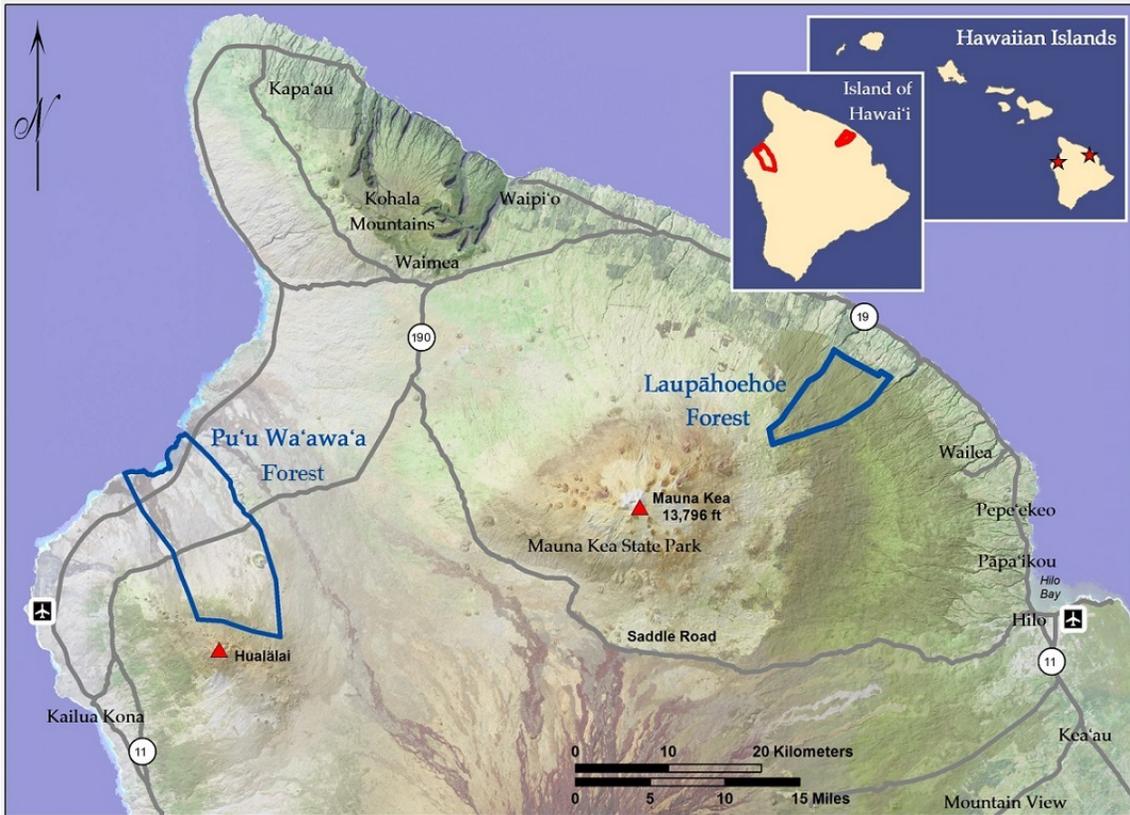


Figure 1 Context of Pu'u Wa'awa'a Dry Forest Unit and Laupāhoehoe Wet Forest Units, Hawai'i Experimental Tropical Forest

Purpose and Need for Action

The Pu'u Wa'awa'a Construction Project will provide facilities that will enhance the ability of the Experimental Forest to meet its full potential for research, education, and demonstration. The setting, Hawai'i, provides a globally unique opportunity for researchers to study ecological gradients from the coastal zone at low elevations through eight life-zones to an alpine environment at nearly 14,000 feet above sea level. The proposed bunkhouse facilities and tent area will provide a research and education base camp for visiting scientists, educators, and students within the dry forest unit of Experimental Forest. This conveniently located space to meet, study, and teach will bring researchers, educators, students, and others together and encourage the exchange of information and ideas among local residents interested in the Experimental Forest. The project will provide facilities that will support research, demonstration, and educational functions serving the entire Pacific Basin. Facilities that meet these purposes are not currently available within a practical distance of the Pu'u Wa'awa'a Dry Forest Unit of the Hawai'i Experimental Tropical Forest.

Hawaii Experimental Tropical Forest Pu'u Wa'awa'a Construction Project Site

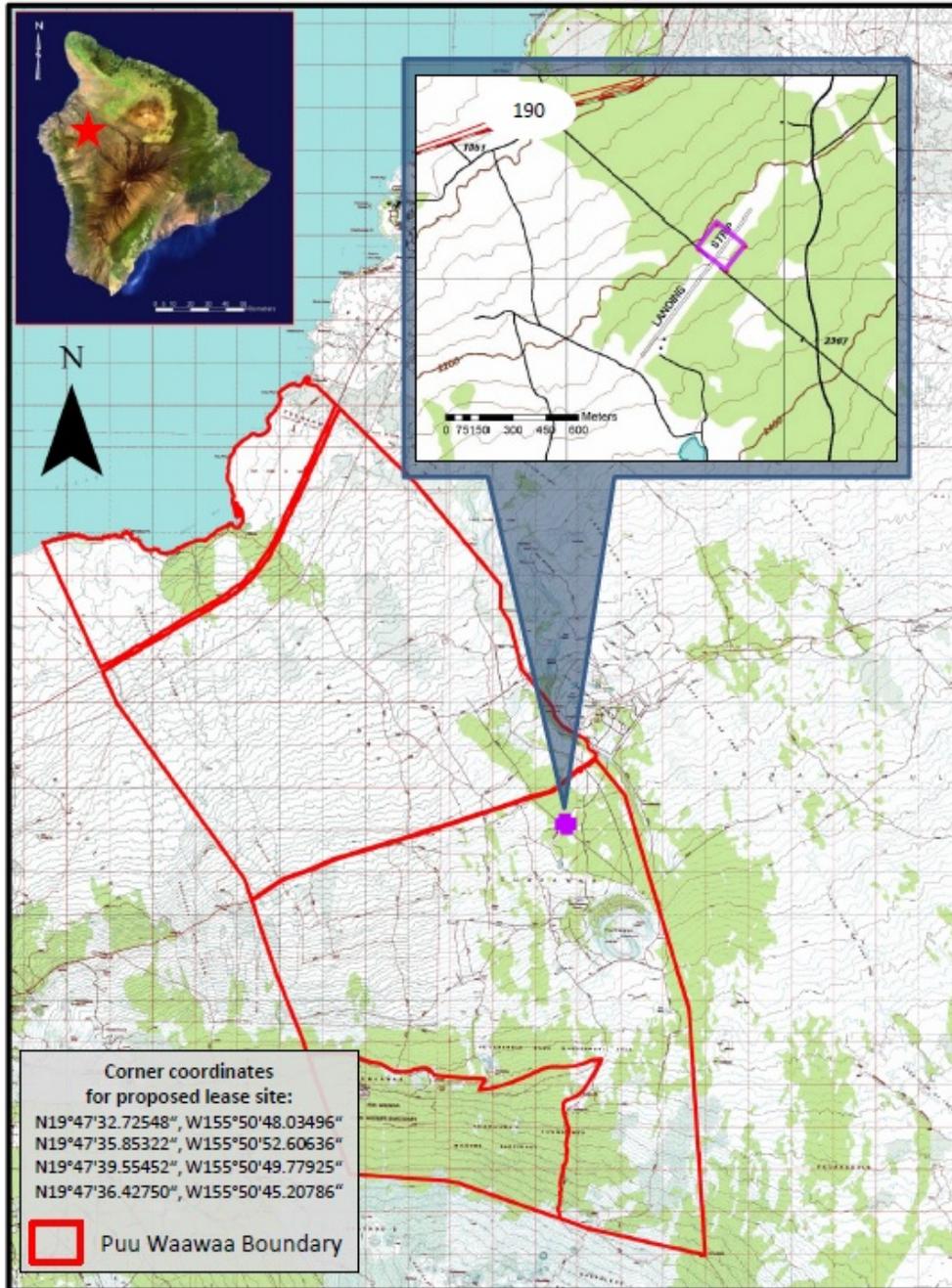


Figure 2 Pu'u Wa'awa'a Construction Project Site Vicinity

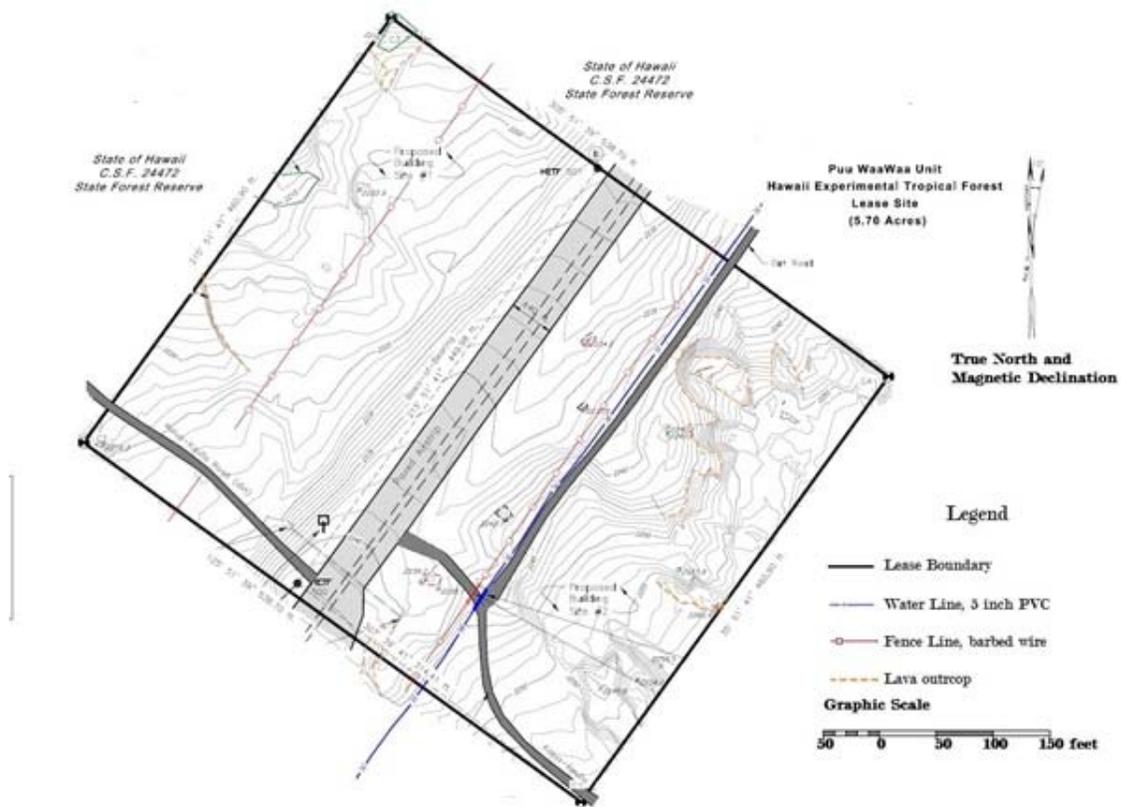


Figure 3 Proposed Project Site Topography

Public Involvement, Agency and Native Hawaiian Consultation

The Forest Service consulted the following Federal, State, and local agencies as well as nongovernmental organizations and businesses during the development of this EA:

Federal Government:

Congressional Delegation, State of Hawai'i; USDA. Natural Resources Conservation Service; US Fish & Wildlife Service; US Geological Service, Biological Resources Division; US Department of Transportation; Federal Highway Administration

State of Hawai'i:

Office of the Governor; Office of the Lieutenant Governor; Department of Agriculture; Department of Business, Economic Development & Tourism; Department of Education; Hilo District; Department of Hawaiian Homelands; Department of Health, Clean Water Branch; Department of Land and Natural Resources (DLNR), Aquatic Resources; DLNR, Division of Conservation and Resources Enforcement; DLNR, Division of Forestry and Wildlife; DLNR, Natural Area Preserve Commission; DLNR, State Historic Preservation Division; Department of Transportation; Office of Hawaiian Affairs; University of Hawai'i, Hilo

County of Hawai'i:

Mayor; County Council District 9; Civil Defense; Department of Parks and Recreation; Department of Public Works; Planning Department; Police Chief

Non-Governmental Organizations and Businesses:

Big Island Country Club; Big Island Gun Club; Big Island Invasive Species Committee; Coordinating Group on Alien Pest Species; Edith Kanaka'ole Foundation; Hawai'i Agriculture Research Center; Hawai'i Audubon Society; Hawai'i Hunting Advisory Council; Hawai'i Hunting Association; Hawai'i Island Economic Development Board; Hawaiian Ecosystems at Risk; Hawaiian Ecosystems at Risk; Hawaiian Electric Light Company; Hawai'i Natural Heritage Program; Kona Hawaiian Civic Club; Kumu Pono Associates; Mauka and Makai Access Committee; Na Pua No'eau; Pig Hunters of Hawai'i; Sierra Club, Moku Loa Group

Private Individuals:

We also contacted private individuals who own land or reside near the proposed project site or have expressed interest in the Experimental Forest. From comments received from the contacts listed above, and our internal discussions among the project interdisciplinary team, we identified issues that will be used to guide our analysis of project effects.

Issues Identified

Issues (cause-effect relationships) serve to highlight effects or unintended consequences of our proposed action. Identifying issues provides us with opportunities to clearly compare trade-offs and reduce potential adverse effects during the analysis (FSH 1909.15 Chapter 12.4). In other words, issues serve to focus the effects analysis and can help us to develop proposals to minimize effects.

An issue should be phrased as a cause-effect statement relating the proposed activities to effects. An issue statement should describe a specific action and the anticipated environmental effect(s) of that action. There is no set of standard issues applicable to every proposal, so it is important that we consider public and agency comments, applicable laws, regulations, executive orders, and other input. Issues are often grouped by common resources, cause-effect relationship, common geographical area, or a common action.

In addition, National Environmental Policy Act regulations require us to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources” (40 CFR 1501.2(C)). Reasonable alternatives to the proposed action should meet the purpose and need and address any unresolved conflicts related to the proposed action. Upon review of the issues, we determined that all the major issues could be adequately addressed through design features of the proposed action. No additional action alternatives have thus been developed for analysis.

Major Issues

The following cause-effect issues are relevant to the proposed action. We will analyze these in detail in the environmental assessment, and use them to compare the effects of the no action alternative.

Issue 1 – Water Quality Effects

Commenters expressed concern that development in the project area may adversely affect waters of Hawai'i. The project site is listed by the Hawai'i County Wastewater Advisory Committee as a critical wastewater disposal area, due to the area's hydrogeology (porous bedrock, potential presence of lava tubes, and limited soil development).

Untreated runoff from impervious surfaces created by project construction, such as building roofs, roadways, and sidewalks, could change the quality of storm water leaving site. Such changes are known as non-point source pollution. Additionally discharges of sanitary sewage from the site's restrooms, kitchen, and showers; known as point source pollution; could adversely affect downstream waters. Any point or non-point discharge from the site into waters of the State of Hawai'i would require a National Pollution Discharge Elimination System permit. These permits are administered by the State of Hawai'i Department of Health, Clean Water Branch.

We address this issue in the proposed action through the use of vault toilets with appropriate pump-out and removal of effluent to a licensed facility off-site, similar storage and removal of kitchen sink waste water, use of low flow fixtures in the shower and kitchen, grey water (shower and bathroom sink drainage) treatment and reuse for site irrigation, treatment of storm water flows through the use of naturally vegetated swale, and implementation of best management practices for erosion and sediment control during construction. Prior to any construction, we will conduct test borings at several locations on the project site to detect any lava tubes.

Issue 2 – Visual and Scenic Effects

Although visual and scenic effects were not specifically mentioned by any commenter, the Hawai'i County General Plan includes this direction: "Protect scenic vistas and view planes from becoming obstructed" (2005). The Pu'u Wa'awa'a volcanic cone is a designated Natural Beauty Site for the North Kona District by the plan. As such, it is important to consider the proposed project's potential to affect the general scenic vista, as viewed from the Pu'uanahulu neighborhood, as well as the proposed buildings' potential affects upon the view plane from Highway 190 toward the Pu'u Wa'awa'a cone. The generally low and sparse nature of vegetation in the area is likely to provide only modest visual screening of any buildings.

We address this issue in the proposed action through the use of smallest buildings feasible to meet the project purpose and need, using design consistent with that prevalent in Hawai'i during the early Twentieth Century, and choosing a palette of colors for the buildings that will blend well the surrounding bedrock and vegetation. We also analyze the potential scenic effects of the proposed project through visual simulation of the buildings on the proposed site as viewed from important vistas.

Issue 3 – Effects to Sensitive Species

The US Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, identified four sensitive wildlife species and one sensitive plant species that may occur on or near the project site, as well as a new pathogen of the native 'ōhi'a tree. Potential project effects to all such species must be disclosed and mitigated.

We evaluated the proposed project's potential to affect sensitive species through site survey and analysis by resource specialists from the State Department of Land and Natural Resources, Division of Forestry and Wildlife. We also consulted with the US Fish and Wildlife Service to identify any project design features and construction practices necessary to protect any such

species. We minimized disruption of natural habitats through selection of a disturbed site for the project development.

Issue 4 – Water Supply Effects

Area domestic water systems are at or near capacity, and there are concerns about new development in the area that would require water. We will address this concern by purchasing potable water from a licensed hauler for use in the project's kitchen and high efficiency shower system. Low water use (e.g., native and/or locally adapted) landscaping and irrigation water harvested from roof and other impervious surface runoff will be used. Sanitary waste disposal will use waterless vault toilets and storage of kitchen food preparation water. We will have sanitary waste water hauled off to a licensed treatment and disposal facility.

Minor Issues

Issue 1 – Agricultural land conversion

One commenter noted that the proposed project site has been designated as agricultural land by the County of Hawai'i Planning Department. Any development of buildings on agricultural lands requires review and approval by the Department.

We addressed this issue through selecting a disturbed project site and minimizing the foot print of the project. We will obtain County of Hawai'i approval to build in an agricultural district.

Issue 2 – Public access control

One commenter expressed concern that existing public access to the Pu'u Wa'awa'a State Forest (including the proposed project site) is unrestricted from 6 am to 6 pm, daily. The commenter has concerns that unrestricted access may lead to increased risk of fire ignitions, introduction of exotic weed species, and other inadvertent resource damage. Development of a research station within the Pu'u Wa'awa'a State Forest could facilitate additional access control and visitor monitoring.

Our purpose and need for the proposed project include hosting educational and research visits to the area. Specific control of general public access is not anticipated.

Documents Incorporated by Reference

The specialists' reports prepared in support of this document are incorporated into the document by reference. They are available for public review at the Pacific Southwest Research Station Office in Hilo, Hawai'i or online at http://www.hetf.us/page/projects_plans. These reports are:

1. The Pu'u Wa'awa'a Soil and Water Report;
2. The Pu'u Wa'awa'a Biological Resources Report;
3. The Pu'u Wa'awa'a Wildlife Survey for HETF Site;
4. The Pu'u Wa'awa'a Botany Survey Report;
5. The Pu'u Wa'awa'a Scenic Resources Report;
6. The Pu'u Wa'awa'a Land Use Report;

Proposed Action and Alternatives

We evaluated taking no action and implementing the proposed action:

No Action – Alternative 1

Under the no-action alternative, no construction of new structures or ground disturbing activities would occur on the proposed project site parcel located on State of Hawai'i owned lands. No road or parking improvements would be implemented.

Research activities associated with the Pu'u Wa'awa'a Dry Forest Unit of the Hawai'i Experimental Tropical Forest would continue to occur, requiring research scientists to travel to the site on a more frequent basis from Hilo or other places of residence to conduct research. Educational program scope would not reach program objectives due to the absence of teaching rooms and support facilities.

Proposed Action – Alternative 2

The Institute of Pacific Islands Forestry would construct field research and education support facilities on land leased from the Hawai'i Department of Land and Natural Resources on the Pu'u Wa'awa'a Dry Forest Unit of the Hawai'i Experimental Tropical Forest. Facility development would include the following:

- Construction of a bunkhouse building of approximately 1,100 square feet. This building would include double occupancy bunkhouse space for up to 10 visiting scientists, restrooms, kitchen facilities, and common use areas.
- Construction of an education and demonstration pavilion of approximately 400 square feet suitable for conference, meeting, and classroom use.
- Designation of an occasional-use tent area for up to 15 individuals subject to Forest Service directives and policies.
- Improvement of approximately 2,500 feet of access drive and construction of parking areas for 10 vehicles (overflow parking for occasional large events would include off-site parking with shuttle service and use of the margins of the old runway on site).
- Provision of electricity and potable water to serve the above facilities would be via solar power with generator backup and hauling of potable water. Disposal of sanitary waste water would be via on-site storage and hauling to a licensed disposal facility

Figure 4 shows the footprint of the proposed buildings and access drive on a portion of the project site.

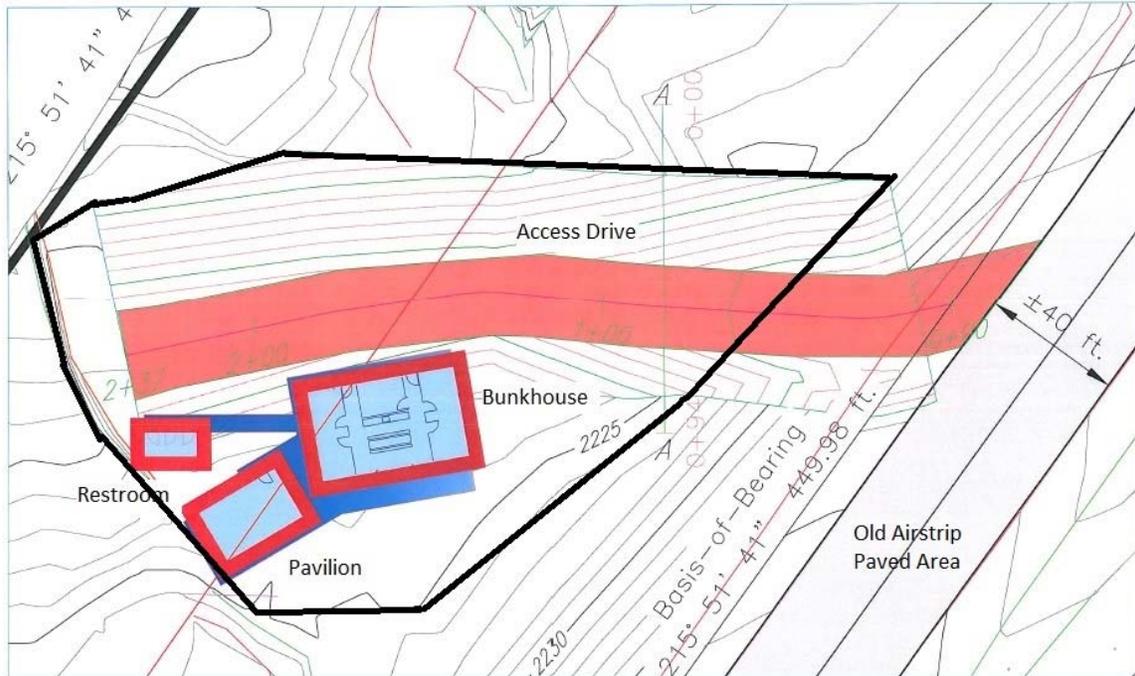


Figure 4 Proposed Buildings on northern portion of project site, detail

Actions Considered but Not Analyzed in Detail

Use Off-site Utility Connections and Constructed On-site Waste Water Treatment

Construct facilities described in proposed action, but provide electric and water utility connections from off-site, while treating waste water on site. We initially considered connecting the proposed education and research facility to an existing overhead electric line that crosses approximately 1,000 feet to the east of the site and a private water line approximately 1,700 feet from the site. With these utility connections, the project would include a constructed wastewater system built in soil material brought to the site.

Upon analysis of the private water utility system, we identified concerns about system capacity and high potential costs of bringing the system up to public water supply standards. Licensed commercial haulers are available in the area, and provide a cost effective alternative, given implementation of water conservation measures and capture of rain water for site landscape irrigation. Use of hauled potable water and water conservation measures would greatly decrease waste water generation from the site. During public and agency scoping, commenters identified concerns about the project's potential to adversely affect water quality. Considering this issue, and the site's poor potential for on-site waste water treatment due to soil and geology, we determined that hauling waste water off site to a licensed disposal facility would be preferable.

Electric generation investigations determined that the overall life-cycle cost of connecting the proposed facilities to the public utility transmission system and purchasing commercially generated electricity would be similar. In this circumstance, we determined that solar generation

of electricity on-site would be more consistent with the policies and goals of the Experimental Forest.

Construction of a larger facility

Earlier project plans had called for a larger facility to meet the need to host school groups on overnight visits. This concept would include a bunkhouse with space for 14 to 20 individuals in double occupancy rooms, a work space (sample sorting/storage/dry lab building), and an education and demonstration pavilion. The overall cost of developing the proposed project site at this intensity, estimated to range between \$1,195,000 and \$1,430,000, exceeded available funding. We determined that the smaller facility currently proposed, with provision for additional overnight accommodation in tents, would meet the project purpose and need.

Mitigations Specific to Alternative 2

We would implement the mitigation measures listed in Table 1 below to limit the adverse effects of the proposed action.

Table 1 Mitigation Measures for the Pu'u Wa'awa'a Construction Project

| | Mitigation Measure | Targeted Resource |
|---|---|------------------------------|
| | <i>Soil and Water</i> | |
| 1 | Vault toilets will be installed, as will a kitchen sink drain capture tank, with appropriate pump-out and removal of effluent to a licensed facility off-site. | Ground water, site soils |
| 2 | Waste water from shower use, also known as grey water, will be collected, treated, and reused for site irrigation. | Water supply, surface waters |
| 3 | Low flow fixtures will be installed in the shower and kitchen to promote water conservation. | Water supply |
| 4 | Potable water will be purchased from a licensed hauler for use in the project's kitchen and showers. Irrigation water will be harvested from roof and other impervious surface runoff and used for irrigation. | Water supply |
| 5 | Prior to any construction, test borings will be conducted at several locations on the project site to detect any lava tubes. | Ground water, site geology |
| | <i>Cultural Resources</i> | |
| 6 | If any burial remains are discovered, they will be treated on a case-by-case basis in concurrence with Chapter 6E-43 (as amended by Act 306) Hawai'i Revised Statutes. Final disposition of remains will be determined in consultation with Hawai'i State | Burials |

| | Mitigation Measure | Targeted Resource |
|----|--|---|
| | Historic Protection Division, and Native Hawaiian descendants of the families associated with Pu'u Wa'awa'a and adjoining lands. | |
| 7 | Should evidence of any archaeological or culturally significant sites be encountered during construction, all work in the immediate vicinity of the findings will be terminated, and the Hawai'i Island Representative of the Hawai'i State Historic Protection Division will be notified. | Archaeological or historic sites |
| | <i>Biological Resources</i> | |
| 8 | Any facility site fencing would use a mesh size suitable to reduce potential entanglement of grazing animals. | Wildlife |
| 9 | As mortality to Hawaiian hoary bat by impalement on barbed wire fences has been documented (Koob 2012), only smooth wire would be used in any facility site fencing. | Hawaiian hoary bat |
| 10 | Any removal of trees over 15 feet, native or non-native, would occur outside of the period from June 1 to September 15, when flightless young bats may be roosting. | Hawaiian hoary bat |
| 11 | If the tree tobacco plant on site must be removed, it would be inspected for Blackburn's sphinx moth eggs, larvae, or frass (dropping from larvae). If none are discovered the plant would be removed, but an area within a 33 foot radius of the plant would be left undisturbed for one year to protect any pupae of the moth that may be in the soil. | Blackburn's sphinx moth |
| 12 | Removal of native tree species would be minimized (95% unaffected) and disturbed areas will be restored with native plant species. Native trees would be marked and encircled with plastic construction fencing prior to project initiation. | 'Ōhi'a and mamane trees |
| 13 | Prior to and during construction a qualified botanist would inspect native trees on the site for health and condition. Should any trees be damaged, the project would implement remedial measures. If rapid 'ōhi'a death is observed or suspected, we would coordinate with the State Department of Land and Natural Resources, Division of Forestry and Wildlife. | 'Ōhi'a and mamane trees |
| 14 | Prior to and during construction a qualified wildlife biologist would monitor the project area and a surrounding 300 foot buffer for any nēnē nests. If any nests are discovered, construction activities would cease until young of the year are fledged. | Nēnē |
| 15 | Prior to and during construction a qualified wildlife biologist would monitor trees on the site for nests of native raptors (Hawaiian hawk or Hawaiian short eared owl) If any nests are detected, construction activities would cease until young of the year are fledged. | Hawaiian Hawk and Hawaiian short-eared owl. |
| 16 | During construction and operation of the Project, we would monitor roadsides and disturbed areas for establishment of exotic plant species. Any mulches or other plant materials used in site preparation would be inspected for weeds. | Weed prevention |

| | Mitigation Measure | Targeted Resource |
|----|---|--|
| | <i>Scenic Resources</i> | |
| 17 | Use dark grey or black, non-reflective surfaces for structure roofs and roof-top solar panels to limit visibility and reflectivity | Scenery |
| 18 | Use natural materials for building siding, and colors that blend with the characteristic landscape such as brown, dark brown, gray, and dark gray. | Scenery |
| 19 | Plant native vegetation around the constructed features to soften hard edges. | Natural appearance |
| | <i>Land Use</i> | |
| 20 | Use designs generally consistent with other buildings in the area, modest building size, clustered layout, consistent with traditional farm or ranch houses and related outbuildings. | Existing land use patterns |
| 21 | Use of site already altered by past runway construction and accessible by existing natural surfaced roads. | Limit change in apparent use |
| 22 | Abate dust during construction, limit construction activity to daylight hours, and use properly muffled construction equipment. | Construction phase noise, visual impacts |

Comparison of Alternatives

Table 2 Comparison of Alternatives by Resource Effect

| Resource | Alternative 1 – No Action Effects | Alternative 2 – Proposed Action Effects |
|---|--|---|
| Water Quality Non-Point Sources | No Effect | No Effect due to implementation of BMPs |
| Water Quality Point Sources | No Effect | No Effect due to implementation of Mitigation Measures 1 and 2, BMPs for Sanitary Waste Control |
| Water Supply | No Effect | No Effect due to Mitigation Measures 3 and 4 |
| Stream channels, wetlands, or floodplains | No Effect | No Effect, none present |
| Cultural Resources | No Effect | No Effect, Mitigation Measures 6 and 7 |
| General Biological Resources | No Effect | No Effect, Mitigation Measure 8 |

| Resource | Alternative 1 – No Action Effects | Alternative 2 – Proposed Action Effects |
|---------------------|--|--|
| Native Trees | No Effect | Minimal Effect, Mitigation Measures 12 and 13 |
| Endangered Wildlife | No Effect | No Adverse Effect, Mitigation Measures 9, 10, 11, 14, and 15 |
| Scenic Resources | No Effect | No Effect, Mitigation Measures 17, 18, and 19 |
| Land Use | No Effect | No Effect, Mitigation Measures 20, 21, and 22 |

Environmental Impacts of the Proposed Action and Alternatives

This section summarizes the potential impacts of the proposed action and alternatives for each impacted resource. Resources that were not impacted and therefore not specifically analyzed include: Air Quality, Traffic Volume, Ambient Noise, Socio-Economic Conditions, and Hazardous Substances.

Soil and Water Resources

This section is largely based upon the *Pu'u Wa'awa'a Construction Project; Water and Soils Report* prepared by Chad Hermandorfer, USDA Forest Service Hydrologist (2016). This report is available in the project record for anyone seeking more detailed accounts of the proposed project site's soils and hydrology.

Relevant Laws, Regulations, and Policy

Federal Law

The Clean Water Act, which includes the National Pollution Discharge Elimination System, and two executive orders for floodplains and wetlands are the fundamental pieces of federal legislation directing management of this proposed project.

Clean Water Act

The Clean Water Act was created to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. (Section 101(a)). It also regulates discharge of dredged or fill material into waters of the United States (Section 404).

National Pollution Discharge Elimination System (NPDES) Program

The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States. Created in 1972 by the Clean Water Act, the NPDES permit program is authorized to state governments by EPA to perform many permitting, administrative, and enforcement aspects of the program.

All proposed construction sites over 1 acre in size are required by law to obtain a NPDES Permit. There are two types of permits associated with NPDES, general or individual. In the case of the Pu'u Wa'awa'a Construction Project, an individual permit may be necessary due to the fact that the activity could disturb over 1 acre and will take place on lands owned by the State of Hawai'i (Pu'u Wa'awa'a Forest Reserve).

Executive Orders

- ◆ Executive Order 11990, 1977; (Wetlands Management) requires federal agencies to follow avoidance, mitigation, and preservation procedures with public input before proposing new construction in wetlands. To comply with Executive Order 11990, the federal agency would coordinate with the Army Corp of Engineers.
- ◆ Executive Order 11998, 1977; (Floodplain Management) requires all federal agencies to take actions to reduce the risk of flood loss, restore and preserve the natural and

beneficial values in floodplains, and minimize the impacts of floods on human safety, health, and welfare.

State of Hawai'i and Local Law

Hawai'i Water Quality Standards

The Pu'u Wa'awa'a Construction Project and its potential impacts to State waters must meet the following:

- ◆ Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
- ◆ Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
- ◆ Water quality criteria (HAR, Sections 11-54-4 through 11-54-8)

The following is State of Hawai'i general policy for water quality antidegradation (HAR, Section 11-54-3).

- (a) Existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
- (b) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the director finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the director shall assure water quality adequate to protect existing uses fully. Further, the director shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint source control.
- (c) Where high quality waters constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Forest Service Policy

National Core Best Management Practices

In April of 2012 the Forest Service issued new management direction regarding best management practices, or BMPs. Direction was received to implement the newly documented national "Core BMPs" (USDA Forest Service 2012) on all Forest Service related projects. These BMPs are contained in the document "*USDA National Best Management Practices for Water Quality Management on National Forest System Lands, Vol. 1 National Core BMP Technical Guide*", which is included in the project file. Although the site is not National Forest System land, but

rather State of Hawai'i land leased by the Institute of Pacific Island Forestry, we will apply these BMPs.

Affected Environment

The following sections describe the existing condition of the affected environment for water and soil resources in the Pu'u Wa'awa'a Construction project area and include the following: watersheds and 6th level hydrologic unit codes (HUCs), watershed condition, stream channels, wetlands, floodplains, and riparian ecosystems associated with the Pu'u Wa'awa'a Construction Project Area, physiography, climate, and hydrologic regime, water quality, and soils.

Watershed

Project area watershed boundaries were identified from the State of Hawai'i Office of Planning GIS dataset (<http://planning.hawaii.gov/gis/>). For hydrological analyses purposes, watershed effects were evaluated and presented for each 6th level HUC watershed (as defined by the US Geological Survey) involved with the project area. The project area lies within portions of just one watershed, designated Keawaiki Bay by the Geological Survey and indexed as Hydrological Unit Code 200100001204. The Keawaiki Bay watershed contains 97,930 acres of land, as mapped by the Hawai'i Office of Planning (for context the 5.7 acre proposed project site occupies less than 0.006 of 1 percent of the watershed). Of this total, more than 73,000 acres (or approximately 75 percent) are publicly owned. The Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife administers 58,176 acres; the US Army administers 14,486 acres; and the US National Park Service administers 405 acres of the entire HUC. Other than the Pu'uana'hulu Homesteads, a residential neighborhood approximately 1.5 miles north of the project site, and some transportation infrastructure, the lands are privately held pasture or lava flows. The bulk of the watershed's lands appear to be undeveloped from aerial imagery interpretation.

No formal watershed condition survey has been conducted for the Keawaiki Bay watershed. The watershed is dominated by light development due to historic lava flows, lack of developed soil, potable water, and limited forage in the area. According to the USGS topographic maps for the area, the last major lava flow occurred in 1859.

Keawaiki Bay Watershed begins just north of the summit of Mauna Loa and flows northwest and into the Pacific Ocean just south of the developments at Waikoloa Beach (see Figure 5). Except for sporadic development in and around the Pu'uana'hulu Homesteads and limited agriculture in the form of grazing and the two major highways (Queen Kaahumanu (Highway 19) and the Mamalahoa Highway (Highway 190) that bisect the lower part of the watershed, there is little cumulative disturbance. Limited natural surface water is present and soil development is minimal. Therefore, we consider this watershed to be properly functioning for its geologic and hydrologic setting.

Stream Channels, Wetlands, Floodplains, or Riparian Ecosystems associated with the Pu'u Wa'awa'a Construction Project Area

Field review and GIS interpretation indicate that most water in the Keawaiki Bay Watershed is subsurface due to the volcanism of the area. From GIS interpretation, we determined that approximately 5.1 miles of channel exists for the entire watershed, all located in the lower portion of the watershed (see Figure 5).

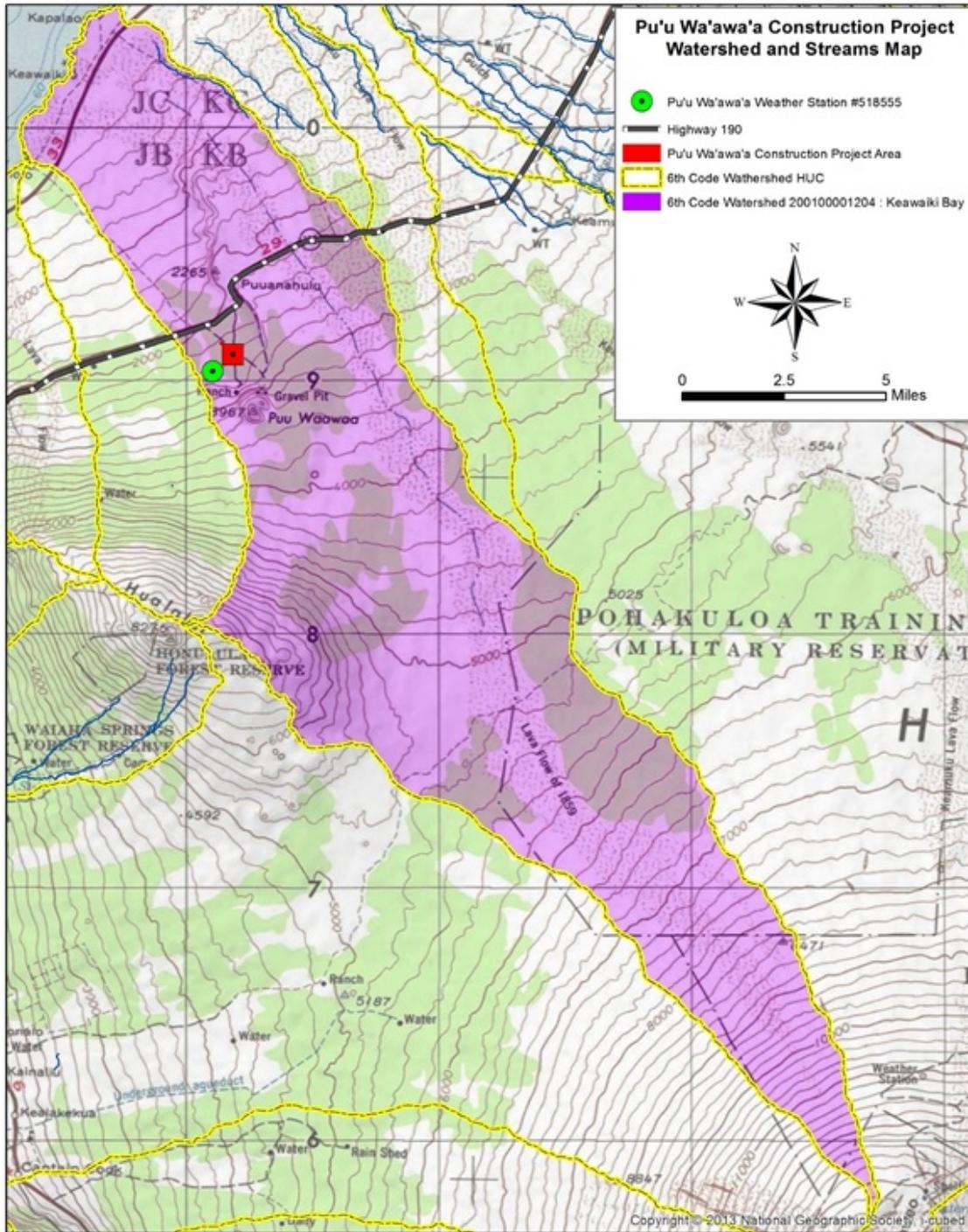


Figure 5 Keawaiki Bay Watershed

Water moves through the Keawaiki Bay Watershed primarily via lava tubes and groundwater flow. This occurs mostly during flood events, which are the dominant type of groundwater flow through Hawai'i's lava tubes. It is likely that ground water flows occur in a series of sporadic localized flows, due to the discontinuous patterns of tubes on the island (Halliday 2003).

No defined stream channels, wetlands, or associated riparian areas are present in the majority of the watershed. None exist near the proposed 5.7 acre building site and existing access road.

Water Quality

We consulted the 2014 State of Hawai'i Water Quality Monitoring and Assessment Report (Hawai'i State Department of Health, Environmental Planning Office 2016) to identify any streams or waterbodies in the Keawaiki Bay Watershed that are impaired based on the State of Hawai'i water quality criteria. All of the streams within the watershed meet the water quality standards set forth by the State of Hawai'i.

The waters that drain any State of Hawai'i lands are considered class 1 waters. All proposed activities in the project area are associated with State of Hawai'i lands (Pu'u Wa'awa'a Forest Reserve). Therefore they are located in class 1 waters.

Class 1 waters are protected to maintain their natural state as nearly as possible with an absolute minimum of pollution from any human caused source. To the extent possible, the wilderness character of these areas shall be protected. Waste discharge into these waters is prohibited. Any activity which results in a demonstrable increase in levels of point or nonpoint source contamination in class 1 waters is prohibited.

Further, the State of Hawai'i Administrative Rules basic water quality criteria applicable to all waters within the Pu'u Wa'awa'a project area states:

all waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including: soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

Soils

One soil type is associated with the proposed Pu'u Wa'awa'a Construction project site (USDA NRCS 2016). This soil is the Napuu extremely cobbly medial highly decomposed plant material, 2 to 10 percent slopes (Map Symbol 156). This soil type is derived from a parent material of weathered volcanic ash over a'a lava located on mountain footslopes. Depth to bedrock is approximately 15 inches with the texture of the upper layers being extremely cobbly highly organic medial sandy loam. The soil type is well drained with a very low available water storage capacity. There is never ponding or flooding of these soils and the depth to the water table is more than 80 inches (NRCS 2016). Figure 6 provides a typical view of the soil surface of the proposed project site.



Figure 6 Typical view of soil surface on project site

In addition to describing the characteristics of the soil within the Pu'u Wa'awa'a Construction Project area, NRCS 2016 gives general ratings for certain types of urban, agricultural, and forested uses. The Napuu soil mapped for the project site has a suitability rating of very limited for dwellings with or without basements, residential landscaping, shallow excavations, septic tank absorption fields, and use of soil for wastewater treatment. This soil has slight potential for off road and off trail erosion after disturbance, but is poorly suited for natural surfaced roads or parking areas.

Mitigations and Management Recommendations

See Table 1 for a list of mitigation measures. We consulted the US Forest Service's Core Best Management Practices Guidance, as issued in April 2012, to identify specific construction and operation practices appropriate for protection of water and soil resources (USDA Forest Service 2012). Specific Best Management Practices, as listed in the Watershed and Soils Report, are recommended to be implemented with this project. Our implementation of these BMPs would ensure protection of soil and watershed resources in the Pu'u Wa'awa'a project area into the future.

Project Effects

Alternative 1 – No Action

Under the no action alternative, we would not construct any new structures or disturb the ground surface. We would not construct facilities on the 5.7 acre leased parcel located on State of Hawai'i owned lands, or implement any road improvements to the existing access road. Therefore no impacts to soil and water resources above what are currently occurring would be realized. As there would be no direct or indirect effects from Alternative 1, there would be no cumulative effects.

Alternative 2 – Proposed Action

Alternative 2 has the potential to affect groundwater quality through non-point and point sources of pollution. For the Pu'u Wa'awa'a Construction Site, only groundwater resources could be impacted as surface water is not present in or near the project area. Untreated runoff from impervious surfaces created by project construction, such as building roofs, roadways, and sidewalks, could change the quality of the storm water leaving the site and entering groundwater. Such changes are known as non-point source pollution. Additionally discharges of sanitary sewage from the site's restrooms, kitchen, and showers, known as point source pollution, could adversely affect groundwater quality.

Alternative 2 also has the potential to affect area domestic water systems which are at or near capacity. Table 3 summarizes the effects to water issues for Alternative 2.

Table 3 Water Resource indicators and measures for Alternative 2

| Resource Element | Measure | Alternative 2 |
|---|---|--|
| Water quality | Potential (Qualitative) | Implementation of BMP Fac-2. Facility Construction and Storm water Control, Road-4. Road Operations and Maintenance, Road-9. Parking and Staging Areas, Road-10. Equipment Refueling and Servicing will ensure protection of water quality from non-point sources. |
| Water quality | Potential (Qualitative) | Implementation of Mitigation Measures # 1 and # 2 and BMP Fac-4. Sanitation Systems and consultation with the State of Hawai'i, Department of Health Clean Water Branch to obtain a NPDES permit will ensure protection of water quality from point sources |
| Water quantity | Amount of water taken from local groundwater or surface water | Potable water will be purchased from a licensed hauler for use in the project's kitchen and showers (Mitigation Measure # 4). |
| Stream channels, wetlands, or floodplains | Maximum Potential acres disturbed by project activities | No stream channels, wetlands, or floodplains exist at the construction site. This ensures the project would meet Executive Orders 11990 and 11998. |

Cumulative Effects – Alternative 2

Past, Present, and Reasonably Foreseeable Activities Relevant to Cumulative Effects Analysis

Past, present, and reasonably foreseeable activities in the Keawaiki Bay Watershed include road maintenance on the Queen Kaahumanu (Highway 19) and the Mamalahoa Highways (Highway 190), activities associated with small homesteads, and access roads especially in and around the Pu'uana'hulu Homesteads, and wild ungulate and small agricultural grazing (mainly cattle). Recreation is a minor component of activities in the area and generally does not affect water and soil resources except for the roads used to access these opportunities.

Overall disturbance in the watershed is low due to the land ownership, volcanic geology, limited water sources, and undeveloped soils. Therefore, we do not anticipate major development in the area over time (next 10 years).

Cumulative Effects to Groundwater

As discussed in the direct and indirect effects section for Alternative 2, effects to groundwater resources are expected to be minor and localized if at all. Less than 0.1% of the cumulative effect

watershed would be disturbed by this project. Because of this, we do not anticipate cumulative effects to non-point groundwater water quality from non-point sources of pollution.

Cumulative Effects to Water Supply

Water supply in the watershed would not be impacted by the Pu'u Wa'awa'a Construction Project, therefore no cumulative effects to this resource would be realized.

Cumulative Effects to Surface Waters

No stream channels, wetlands, or floodplains would be impacted by the Pu'u Wa'awa'a Construction Project, therefore no cumulative effects to these resource would be realized.

Summary

From a water and soil perspective, the Pu'u Wa'awa'a Construction Project would disturb less than 1.0 acre of land. Mitigation measures listed in Table 1, above, and standard BMPs would be implemented to reduce water quality impacts to acceptable levels. The project would comply with State of Hawai'i water quality rules (HAR Title 11, Chapter 54, Water Quality Standards) and federal Clean Water Act (Federal Water Pollution Act, As Amended Through P.L. 107-303).

All water used at the Pu'u Wa'awa'a site would be purchased offsite and brought to the facility to ensure no conflict with other local water users.

The project would meet the intent of Executive Orders 11990 and 11998.

Cultural Resources

This section is largely based upon *A Cultural Resource Assessment of Pacific Southwest Research Station - Institute of Pacific Islands Forestry - Hawai'i Experimental Tropical Forest Pu'u Wa'awa'a Research and Education Construction Project; in the Ahupua'a of Wai Kahalulu, Division of North Kona, Island of Hawai'i, Hawai'i [TMK (3) 7-1-001:006 (portion)]*. This cultural resource assessment was prepared by Prepared by: Paul G. Claeysens, Team Leader, Heritage Stewardship Group, USDA Forest Service (2016). Due to the sensitive nature of some cultural resource information, the cultural assessment is confidential and not generally available to the public.

Relevant Laws, Regulations, and Policy

Federal Law

The National Historic Preservation Act of 1966, as amended (P.L. 89-665, 80 Stat. 915)

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties and provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on those undertakings. The ACHP has issued the regulations implementing Section 106 (Section 106 regulations), 36 CFR Part 800: "Protection of Historic Properties." The NHPA requires that, in carrying out the requirements of Section 106, each federal agency must consult with any Native Hawaiian organization that attaches religious and cultural significance to historic properties that may be affected by the agency's undertakings.

The Archaeological Resources Protection Act of 1979 (P.L. 96-95)

This law was enacted to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals (Sec. 2(4) (b)).

The Native American Grave Protection and Repatriation Act of 1990:P.L. 101-601)

Section 3(c) of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) requires federal land-managing agencies to consult with Native Hawaiian organizations prior to the intentional removal or excavation of Native American human remains and other cultural items as defined in NAGPRA from federal lands. For more information, go to:

<https://www.nps.gov/nagpra/>

The American Indian Religious Freedom Act of 1978 (P.L. 95-341)

This act establishes the policy of the federal government “to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.” For a copy of the act, go to: http://www.nps.gov/history/local-law/FHPL_IndianRelFreAct.pdf.

Forest Service Policy

Forest Service Manual 2360.1 outlines the applicable laws, regulations, and Executive Orders complied with during this analysis. Although written for, and primarily applicable to National Forest System lands, these laws, regulations, Executive Orders, and stipulations will be considered for Pu‘u Wa‘awa‘a Construction Project. Plans or protection measures developed in the future would apply. Protection of Historic and Cultural Properties, 36 CFR 800, outlines the set of procedures established by the NHPA that Federal agencies follow before implementing an action that may affect historic properties. The term “historic properties” refer to cultural properties as those that have been listed or determined eligible for the National Register of Historic Places (NRHP).

Affected Environment

The following sections describe the site in terms of physical evidence of human use based on existing site conditions and historic human use of the project site and surrounding area based on historic documentation and cultural research.

Site Conditions

The approximately 5.7 acre site has been subject to various modifications. A paved airstrip illegally constructed in the 1970s runs through the site from southwest to northeast. This airstrip no longer is used for fixed wing aircraft operations, although the Hawai'i State Department of Land and Natural Resources uses an area of the airstrip to the southwest of the site for helicopter operations. The airstrip includes a 40-foot wide paved runway, which is deteriorating, and a graded area approximately 150 feet wide. The area disturbed by grading for airstrip development occupies about one quarter of the site.

Two dirt roads occur on site, one crosses the airstrip near the southwestern limit of the site and roughly parallels the site's southwest boundary (see Figure 7). The other parallels the airstrip approximately 110 feet to the southeast. Neither road shows signs of heavy use. Two barbed wire fences on metal poles traverse the site parallel to the airstrip (see Figure 8 for detail view). One is approximately 135 feet to the northwest and one approximately 80 feet to the southeast. These fences were likely constructed to exclude livestock and feral sheep from the runway during its use as a private airstrip. The fences are currently in poor condition; we observed cattle and goats on both sides of the fences during May 2015 site reconnaissance. A 5 inch plastic water line also crosses the site parallel to the southeastern fence line. This is part of a private water system serving several buildings in the area.



Figure 7 Natural surface road view is southeast from project site

The site and surroundings were operated under a lease arrangement as a sheep and cattle ranch from the late Nineteenth Century through the early Twenty-first Century, when the land was transferred to the Hawai'i Department of Land and Natural Resources. The Department continues to permit some cattle grazing to manage vegetation. Feral sheep, goats, and pigs also occur in the surrounding area.



Figure 8 Detail view of fence parallel to old airstrip

We conducted pedestrian surveys of the site and surrounding areas, including roadways, during May 2015. The surveys cover approximately 12 acres, is shown in Figure 9 below. No construction or other ground-disturbing activities are planned for the area not surveyed. We surveyed the approximately 5.7 acre project site intensively. Only modern artifacts or features were noted; no historic or cultural properties were found.

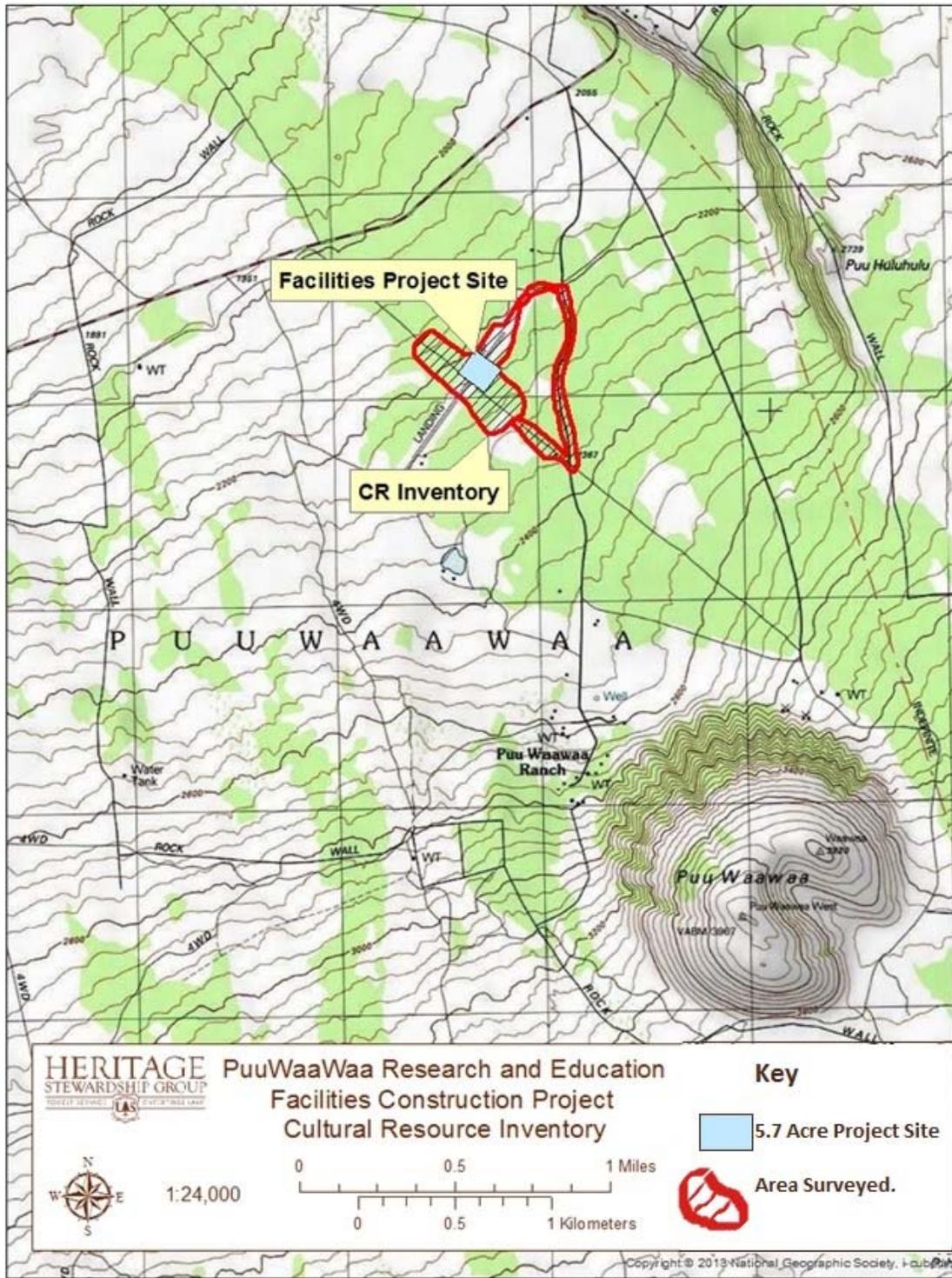


Figure 9 Cultural Resource (CR) Inventory in Project Vicinity

Cultural and Land Use History

Pu'u Wa'awa'a lies within Kekaha, which is the region of North Kona from Honokohau through Pu'uuanahulu. Kekaha means "a dry and barren place," a good description of the land below the hills or Napu'u as they were originally called. Pu'u Wa'awa'a ("furrowed hill" in the Hawaiian language) takes its name from a large volcanic cinder cone that is a prominent landmark in the area. The entire region was forested at one time, but wildfires and more than 100 years of livestock grazing have removed much of the native vegetation (Maly and Maly 2006).

During the Great Mahele (1848), the ahupua'a of Pu'u Wa'awa'a was chosen by Kauikeaouli King Kamehameha III for his own personal use. These lands were retained by the King and called "Crown lands". The King gave other lands to supporting Ali'i and Konohiki, which came to be called "Konohiki lands." A third class of lands was given to the Government or Kingdom inventory, and were called "Government lands." These lands were set aside to support government activities, and to provide additional lands for tenancy and lease-hold interests (Horowitz et. al 1969).

From the three classes of lands, native tenants were allowed to file claims for kuleana (approximately 1848-1855); then for grant lands (by Royal Patent); and by the 1880s, lands for homesteading purposes. When the monarchy was over thrown in 1893, both Crown and Government lands were ceded to the United States and later the State of Hawai'i. These two land inventories make up the land base of the State at the present time (Ibid.).

An Anonymous Government document published in 1903 (Hawai'i State Department of Forestry and Wildlife 2003) described the lands of Pu'u Wa'awa'a:

This is one of the most northern of the Kona lands, running from the sea to within a mile of the summit of Mount Hualalai, a distance of 15 miles. It has about 6 miles of seacoast, the last landing being at Kiholo, where a few hamlets are. The government road from Kailua to Kawaihae passes through the village at Kiholo. There are very few inhabitants on the land. The only real good land for cultivation is near the Pu'u Wa'awa'a Cone, distant 8 miles from the coast. Here fruits, particularly peaches, grow luxuriantly; also potatoes and taro. The makai [i.e., lower or seaward] portion of the land, say about one-third, is extremely rocky and would offer but scant pasturage to any herd. Above this, in the wood, is found some of the best grazing land in that part of the country. The forest in places is very heavy, the principal wood being koa and 'ohi'a . Dependent on rain for water supply, which is generally sufficient for all purposes (Area about 40,000 acres).

In 1865, Francis Spencer obtained a lease of the entire ahupua'a of Pu'uuanahulu "excepting the land rights of the native tenants thereon..." (Maly and Maly 2006). Spencer was a founder of the Waimea Grazing and Agricultural Company, based out of Waimea. By the time he acquired the Pu'uuanahulu lease, he also had bases of operation at Humu'ula in Hilo, and Ke'amoku in Waikoloa. The two primary herds of the company were cattle and sheep. Spencer maintained his lease on Pu'uuanahulu through 1895. It is likely that Spencer's grazing activities overflowed onto lands of Pu'u Wa'awa'a, and in 1891, he had made application for a lease on land near the actual hill of Pu'u Wa'awa'a. It appears that no formal agreement between Spencer and the Commissioners of Crown lands for Pu'u Wa'awa'a was ever made.

Prior to 1873, a native rancher by the name of Kaukuna had received a lease on the Crown Land of Pu'u Wa'awa'a, primarily for taking goats. The lease was transferred to J.W. Punihaole in 1874. By the late 1880s, the aging Punihaole gave up his residence and lease at Kiholo, and moved to Kohanaiki. It was not until March 1, 1893, that a long-term lease for Pu'u Wa'awa'a was entered into between the Commissioners of Crown Lands, Robert Hind, Jr., and Eben Low, at terms of 25 years.

On June 1, 1898, Hind and Low acquired Spencer's interest in Pu'uanahulu, and the lease-hold Government Lands were added to the inventory of the Pu'u Wa'awa'a Ranch holdings. Sheep were raised on the ranch in the early days. About 1922, a weed called Spanish needle (*Bidens pilosa*) became established. Seeds from this plant tangled the sheep's wool, making it impossible to card the fibers. As a result, the sheep operation was abandoned. Dairy heifers were raised at Pu'u Wa'awa'a for use in the Hind family dairy on Oahu. Turkeys were also raised with as many as 700 being shipped to Honolulu during some years.

Since 1917, the Territory or State of Hawai'i has issued six different leases at Pu'u Wa'awa'a for pasture purposes. Until recently, Pu'u Wa'awa'a Ranch encompassed 105,831 acres of land. All of this except 35 acres (rain shed, 2.75 acres and headquarters area, 32.54 acres) was State managed land. The most recent lease (General Lease No. S-3589) was let to Dillingham Ranch Inc. for a 40-year period on August 15, 1960. On September 15, 1972 the lease was assigned to Mr. F. Newell Bohnett.

The balance of 21,434 acres remained under pasture lease to Mr. Bohnett until August 14, 2000 when all encumbered lands reverted back to the State. On January 25, 2002, the public lands of Pu'u Wa'awa'a were transferred from the DLNR, Land Division to the Division of Forestry and Wildlife and the Division of State Parks for resource management purposes including restoration of native plant/animal ecosystems, preservation of cultural resources, reforestation, hunting, public recreation, research, pasture management, nature education, and eco-tourism activities.

Early native residents of Napu'u and their descendants share a deep cultural attachment with their environment. Their customs, beliefs, practices, and history are place based. This attachment to place is rooted in the native belief that all things within the environment are interrelated. Whether in the uplands, the near shore lowlands, or in the sea, everything was connected. The ahupua'a as the primary native land unit was the thread which bound all things together in Hawaiian life (Maly, 2000). These customs were intended to provide the basis and guidelines for managing Pu'u Wa'awa'a and the Makai lands of Pu'uanahulu in a manner that emulates the concept of ahupua'a management. The following excerpt (Maly, 1999) describes the ahupua'a land division or unit, and provides a purpose and rationale for the use of ahupua'a developed by ancient Hawaiians:

Ahupua'a - A Sustainable Hawaiian Resources Management Unit

The large districts (moku-o-loko) and sub-regions ('okana and kalana) were further divided into manageable units of land, and were tended to by the maka'ainana (people of the land) (Malo, 1951). Of all the land divisions, perhaps the most significant management unit was the ahupua'a. Ahupua'a are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name ahu-pua'a or pig altar). Ahupua'a may be compared to pie-shaped wedges of land that extended from the ocean fisheries fronting the land unit to the mountains or some other feature of geological significances (e.g., a valley or crater). The boundaries of the ahupua'a

were generally defined by the topography and cycles and patterns of natural resources occurring within the lands (Lyons, 1875).

The ahupua'a were also divided into smaller manageable parcels of land (such as the 'ili, ko'ele, mala, and kihapai, etc.) in which cultivated resources could be grown and natural resources harvested. As long as sufficient tribute was offered and kapu (restrictions) were observed, the common people, who lived in a given ahupua'a had access to most of the resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on a particular land, and earned as a result of taking responsibility for stewardship of the natural environment, and supplying the needs of ones' ali'i (Malo, 1951; Kamakau, 1961; Boundary Commission testimonies, 1873- 1886).

Entire ahupua'a, or portions of the land were generally under the jurisdiction of appointed konohiki or lesser chief-landlords, who answered to an ali'i-'ai-ahupua'a (chief who controlled the ahupua'a resources). The ali'i-'ai-ahupua'a in turn answered to an ali'i 'ai moku (chief who claimed the abundance of the entire district). Thus, ahupua'a resources supported not only the maka'ainana and 'ohana who lived on the land, but also contributed to the support of the royal community of regional and island kingdoms, or both. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided the fruits and vegetables for the diet, and the ocean provided most of the protein, and in communities with long-term royal residents, divisions of labor came to be strictly adhered to.

Mitigations and Management Recommendations

See Table 1 for a list of mitigation measures. We developed these mitigation measures to be consistent with the recommendations of Maly and Maly (2006), which was also the guide for site cultural resources surveys. These mitigation measures should limit the possibility of effects to any cultural sites or artifacts that could be discovered during project activities.

Project Effects

Alternative 1 – No Action

Under the no action alternative, we would not construct any new structures or disturb the ground surface. We would not construct facilities on the 5.7 acre leased parcel located on State of Hawai'i owned lands, or implement any road improvements to the existing access road. Therefore no impacts to cultural resource should occur. As there would be no direct or indirect effects from Alternative 1, there would be no cumulative effects.

Alternative 2 – Proposed Action

No direct, indirect, or cumulative impacts to historic or cultural properties would occur from the proposed action due to the fact that no historical properties have been identified on the site. Incorporation of the mitigation measures for cultural resources presented in Table 1 would reduce impacts from project activities in the case inadvertent discoveries were made during project activities. Therefore it is recommended that the proposed Pu'u Wa'awa'a Construction Project would have a Section 106 of the National Historic Preservation Act finding of No Historic Properties Affected. As there would be no direct or indirect effects to cultural properties from Alternative 1, there would be no cumulative effects.

Biological Resources

This section is largely based upon the *Pu'u Wa'awa'a Construction Project; Biological Resources Report* prepared by John Slown, USDA Forest Service Biologist (2016). This report is available in the project record for anyone seeking more detailed accounts of the proposed project site's flora and fauna.

Relevant Laws, Regulations, and Policy

Federal Law

Endangered Species Act of 1973:

The purpose of the Endangered Species Act is protection and recovery of imperiled species and the ecosystems upon which they depend. Under provisions of the Act and its implementing regulations, Federal agencies are directed to seek to conserve species listed as endangered and threatened. Agencies must also ensure that actions they authorize, fund, or implement are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of such species' critical habitats.

Migratory Bird Treaty Act (of 1918 as implemented subject to Executive Order 13186):

This Act, inspired by depletion of bird populations during the market hunting period of the early Twentieth Century, established an international framework for the protection and conservation of migratory birds. The Migratory Bird Treaty Act makes it illegal, unless permitted subject to the act's regulations, to "pursue, hunt, take, capture, purchase, deliver for shipment, ship, cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird." Within the NEPA process, effects of proposed actions on migratory birds will be evaluated and actions will consider approaches to identify and minimize take of birds.

State of Hawai'i Law

Hawai'i Revised Statutes (HRS) Chapter 344-4; Item 3: Flora and Fauna:

This law protects endangered species of indigenous plants and animals, ensures that any introduced species would not result in ecological hazards, and fosters the planting of native vegetation. Any activities proposed must analyze and evaluate effects to endangered species, their critical habitat, and native vegetation.

Hawai'i Administrative Rules Title 13 Department of Land and Natural Resources Subtitle 5: Forestry and Wildlife; Part 2: Wildlife Chapter 124: Indigenous Wildlife, Endangered and Threatened Wildlife, and Introduced Wild Birds:

These regulations provide the State Department of Land and Natural Resources, Division of Forestry and Wildlife, direction to conserve, manage, protect, and enhance indigenous wildlife and manage exotic birds. This is accomplished through Hawai'i's Comprehensive Wildlife Conservation Strategy, which is used to identify species in the State of greatest conservation need. The Conservation Strategy can be accessed at:

<http://dlnr.hawaii.gov/wildlife/hswap/cwcs/hawaii/>.

Affected Environment

The approximately 5.7 acre site has been subject to various modifications. A paved airstrip constructed in the 1970s traverses the site from southwest to northeast. This airstrip no longer is used for fixed wing aircraft operations, although the Hawai'i Department of Land and Natural Resources uses an area of the airstrip to the southwest of the site for helicopter operations. The airstrip is also used as an access road and a foot path. These uses would continue upon development of the proposed project. The airstrip includes a 40-foot wide paved runway, which is deteriorating, and a graded area approximately 150 feet wide. The area disturbed by grading for airstrip development occupies about one quarter of the site. Two dirt roads occur on site. One crosses the airstrip near the southwestern limit of the site and roughly parallels the site's southwest boundary. The other parallels the airstrip approximately 110 feet to the southeast. Neither road show signs of heavy use. Two barbed wire fences on metal poles traverse the site parallel to the airstrip. One is approximately 135 feet to the northwest and one approximately 80 feet to the southeast. These fences were likely constructed to exclude livestock and feral sheep from the runway during its use as a private airstrip. The fences are currently in poor condition; we observed cattle and goats on both sides of the fences during May 2015 site reconnaissance. We also observed numerous skeletons of cattle and sheep near the fences, suggesting that these animals become entangled in the fences at times, resulting in mortality.

The site and surroundings were operated as a ranch from the late Nineteenth Century through the early Twenty-first Century, when the land was transferred to the Hawai'i Department of Land and Natural Resources. Initially sheep and cattle grazed on the ranch. In the 1920s a weed called Spanish needle (*Bidens pilosa*) became established. Seeds from this plant tangled the sheep's wool, making it impossible to card the fleece. Sheep ranching was thus no longer viable on the site and the sheep were allowed to go feral. Private cattle ranching persisted until the land was transferred to the State, which continues to permit some cattle grazing to manage vegetation. Feral sheep, goats, and pigs also occur on the surrounding landscape.

The site's general topography slopes toward the coast to the north-northwest, with rougher micro-relief in the southeastern portion of the site and the graded airstrip area running through the middle (see Figure 10 for site topography). Site elevation ranges from approximately 2,210 to 2,260 feet above mean sea level. Site soil is generally a thin covering over lava with exposed lava in many areas. The site is located below the Pu'u Wa'awa'a Cinder Cone, approximately 10 miles south-southwest of the community of Waikoloa Village, 20 miles south-southwest of the Town of Waimea, and 6.5 miles from the coast.

The area's plant community reflects its history of disturbances. Dominant cover is invasive bunchgrass with scattered exotic and native woody vegetation. Ian Cole, Natural Area Reserves Specialist, Hawai'i Department of Land and Natural Resources. Division of Forestry and Wildlife, conducted a site survey for wildlife and habitat on July 30, 2015. Dr. Elliott Parsons, Natural Area Reserves Specialist, Hawai'i Department of Land and Natural Resources. Division of Forestry and Wildlife, conducted site vegetation surveys on November 6, 2015, and February 5, 2016. The following site description is based largely upon reports from those surveys. The survey reports are available in the project record.

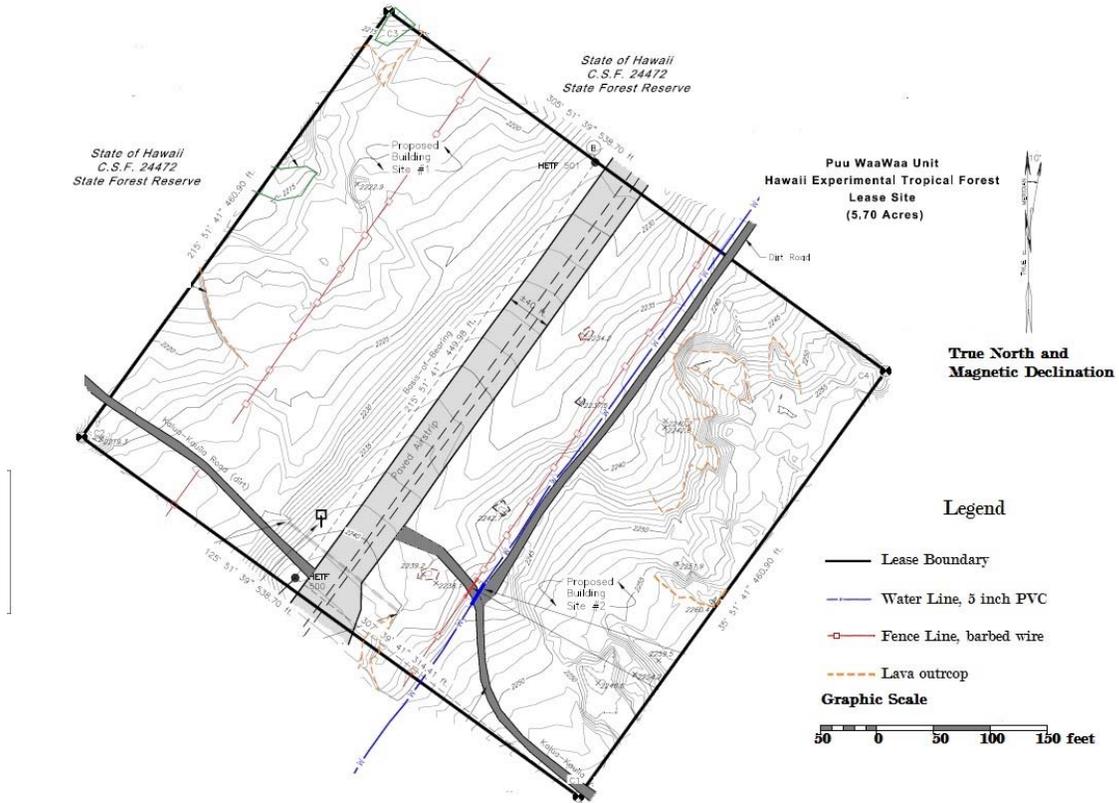


Figure 10 Project Site Topography

Fountain grass (*Pennisetum setaceum*) is the dominant plant species throughout the area of analysis. This species is an introduced exotic considered a noxious weed in Hawai‘i. It spreads rapidly and promotes wild fires through fuel loading. An ultimate result of fountain grass infestation is thus conversion of tree and shrub communities to grass savannah. Fountain grass was introduced to the Island of Hawai‘i as an ornamental plant and escaped cultivation. It is now established on more than 200,000 acres (Hawai‘i Invasive Species Council, 2016). This species likely became established on the site after tree clearing to enhance grazing forage. Fountain grass and another invasive species, the shrub lantana (*Lantana camara*), are the primary plants in the area graded for airstrip construction. Lantana is considered a noxious weed in Hawai‘i due to its aggressive spread and ability to form dense thickets that exclude other vegetation. It is likely spread by non-native birds that consume its fruits (Hawai‘i University Botany Program 1998) and disperse the seeds. Silky oak (*Grevillia robusta*), another exotic species, is the dominant woody species on the site outside the area graded for airstrip construction. Dr. Elliott Parsons identified 30 exotic plants on or near the 5.7 acre project site. He characterized seven of these as present in high or very high abundance.

Dr. Parsons identified 10 native plants on or near the project site, none characterized as present in greater than low abundance. These include the trees ‘ōhi‘a (*Metrosideros polymorpha*) and mamane (*Sophora chrysophylla*) and the small trees or shrubs naio (*Myoporum sandwicense*), ‘a‘ali‘i (*Dodonaea viscosa*), and iliahi (*Santalum paniculatum*). The native trees occur sparsely,

primarily at and beyond the edges of the project site. 'Ōhi'a is the most abundant native tree on the site. There are 26 individual 'ōhi'a trees on or near the site; the other tree species are all present in smaller numbers.

Mitigations and Management Recommendations

See Table 1 for a list of mitigation measures. We developed these mitigation measures to protect native flora, fauna, and habitats consistent with Federal and State of Hawai'i laws and regulations protecting biological resources. We have conducted informal consultation with the U.S. Fish and Wildlife Service under Section 7 of the Federal Endangered Species Act, and would include any additional measures required by that agency to protect species listed, or proposed for listing as federally threatened or endangered.

Project Effects

Alternative 1 – No Action

Under the no action alternative, we would not construct any new structures or disturb the ground surface. We would not construct facilities on the 5.7 acre leased parcel located on State of Hawai'i owned lands, or implement any road improvements on the existing access road. Conditions for biological resources would not change, so no direct or indirect effects to such resources would occur. As there would be no direct or indirect effects from Alternative 1, there would be no cumulative effects.

Alternative 2 – Proposed Action

Overall direct and indirect effects to biological resources of implementing the proposed alternative would be minor. Project mitigation measures and monitoring would be implemented to protect any potentially important plants or wildlife habitat elements, such as 'ōhi'a or other potential nest trees for Hawaiian hawk and hoary bat. The overall baseline habitat quality of the largely disturbed project site is low. This is evidenced by the paucity of native wildlife or its sign identified on or near the site by Ian Cole during his 2015 survey, and the preponderance of non-native plants, both by species represented and overall density, observed by Dr. Parsons during his 2015 and 2016 Surveys. As direct and indirect effects of this project would be minimal, no cumulative effects would be anticipated.

Scenic Resources

This section relies upon the *Scenic Resource Report; Pu'u Wa'awa'a Construction Project*, which was prepared by Kelly Ortiz, USDA Forest Service, TEAMS Enterprise Unit. The report is available in the project record for anyone seeking additional information.

Relevant Laws, Regulations, and Policy

State of Hawai'i and Local Laws

Hawai'i Administrative Rules title 11, Department of Health, Chapter 200, Sub chapter 6, line (b) item 12

The State of Hawai'i's planning directions state an action will have a significant effect if it "substantially affects scenic vistas and viewpoints identified in state or county plans or studies." Therefore the Hawai'i County regulations identifying and guiding scenery management are important to this evaluation.

Hawai'i County General Plan

The Hawai'i County General Plan states in Chapter 7-Natural Beauty: "Natural beauty is a multifaceted resource. It is an aesthetic resource experienced by human perceptions. It is an economic resource, as evidenced by the scale of resort development and by visitor-related activities. Real property values further substantiate the economic value of Hawai'i's dramatic beauty." The introduction to Chapter 7 also cautions that Hawai'i's natural beauty is: "fragile and although often enhanced by man can easily be adversely affected. Measures must be taken to insure its protection, both now and in the future, for the enjoyment of Hawai'i's residents and visitors." General plan items that relate to evaluation of the proposed action include:

- 7.2 Goals: (b) Protect scenic vistas and view planes from becoming obstructed.
- 7.3 Policies: (b) Develop and establish view plane regulations to preserve and enhance views of scenic or prominent landscapes from specific locations. (e) Develop standard criteria for natural and scenic beauty as part of design plans (County of Hawai'i 2005).

The Pu'u Wa'awa'a volcanic cinder cone is identified in the Hawai'i County Plan as a Natural Beauty Site.

Affected Environment

The Pu'u Wa'awa'a Construction Project area can be considered a natural appearing landscape with some deviations to the landscape character. Most visitors would not recognize the dominance of non-native plant species, and would consider the largely undeveloped, vegetated landscape as primarily natural. The airport hangar, the landing strip, and natural surface roads are the most dominant deviations from a natural landscape. Of these, the airport hangar is the most noticeable due to its reflective finish and light color. The landing strip would be the next dominant landscape deviation. However, these elements are not enough to identify this landscape as heavily altered. The landscape existing scenic integrity level for the Pu'u Wa'awa'a area would be considered slightly altered. Natural features that give this Forest Reserve its sense of place; the Pu'u Wa'awa'a volcanic cinder cone and the unique lava flows, are both still intact to the casual observer.

The approximately 5.7 acre proposed project site is not visually distinct from the surrounding area. Figure 11 shows the view toward the project site from a location on the hillside adjacent to the Pu‘uanahulu Homesteads neighborhood, a critical vista for the site. The magenta X near the



Figure 11 Photograph of site and vicinity from Pu‘uanahulu

center of the photo is the approximate site location. The light building just above the X is the old aircraft hangar. The X and the hangar appear nearly superimposed on this photo, due to the distance between the photo point and the site. The proposed project site and the hangar are, however, actually separated by approximately 1,500 feet.

Mitigations and Management Recommendations

See Table 1 for a list of mitigation measures. We developed these mitigation measures to limit the visual impact of the proposed facilities.

Project Effects

We evaluated potential project effects to scenic resources through visual simulation of the proposed buildings on the project site and surrounding area topography. For the simulated images of the proposed buildings, we used Sketchup, a design software program, to create images of the buildings based on initial engineering specifications. We then superimposed these images on site landscape, as created using Google Earth images of the site. We compared these images with actual photographs from known positions overlooking the project area. In order to analyze the most critical vistas, we used simulations of the site as viewed from Pu‘uanahulu Homesteads, a nearby housing development on a hill overlooking the site, and from the top of the Pu‘u Wa‘awa‘a volcanic cone.

Alternative 1 – No Action

Under the no action alternative, we would not construct any new structures or disturb the ground surface. We would not construct facilities on the 5.7 acre leased parcel located on State of Hawai'i owned lands. There would be no change in visual conditions, so no direct or indirect effects to scenery resources would occur. As there would be no direct or indirect effects from Alternative 1, there would be no cumulative effects.

Alternative 2 – Proposed Action

Under the proposed action, we would construct three small buildings on the project site, and make minor improvements to existing roads. Figure 12 is visual simulation of the view of the developed project from the edge of the Pu'u'anahulu Homesteads neighborhood. Figure 13 is a visual simulation of the view of the developed project from the crest of the Pu'u Wa'awa'a volcanic cone. In each case, the white arrow in the figure indicates the simulated project buildings. The distance from the vista to the site from would help to mitigate the impacts from the Pu'u Wa'awa'a Construction Project. When the proposed Pu'u Wa'awa'a Construction Project buildings were georeferenced and placed on the landscape, the buildings appear small and nearly undetectable even at the maximum height of 18 feet (the height of the tallest building plus the potential for fill of up to 5 feet). The proposed project would thus have minimal impacts to the Visual and Scenic Resources for the Area. We do not anticipate any cumulative effects on scenic resources.



Figure 12 Visual simulation of proposed project from Pu'u'anahulu

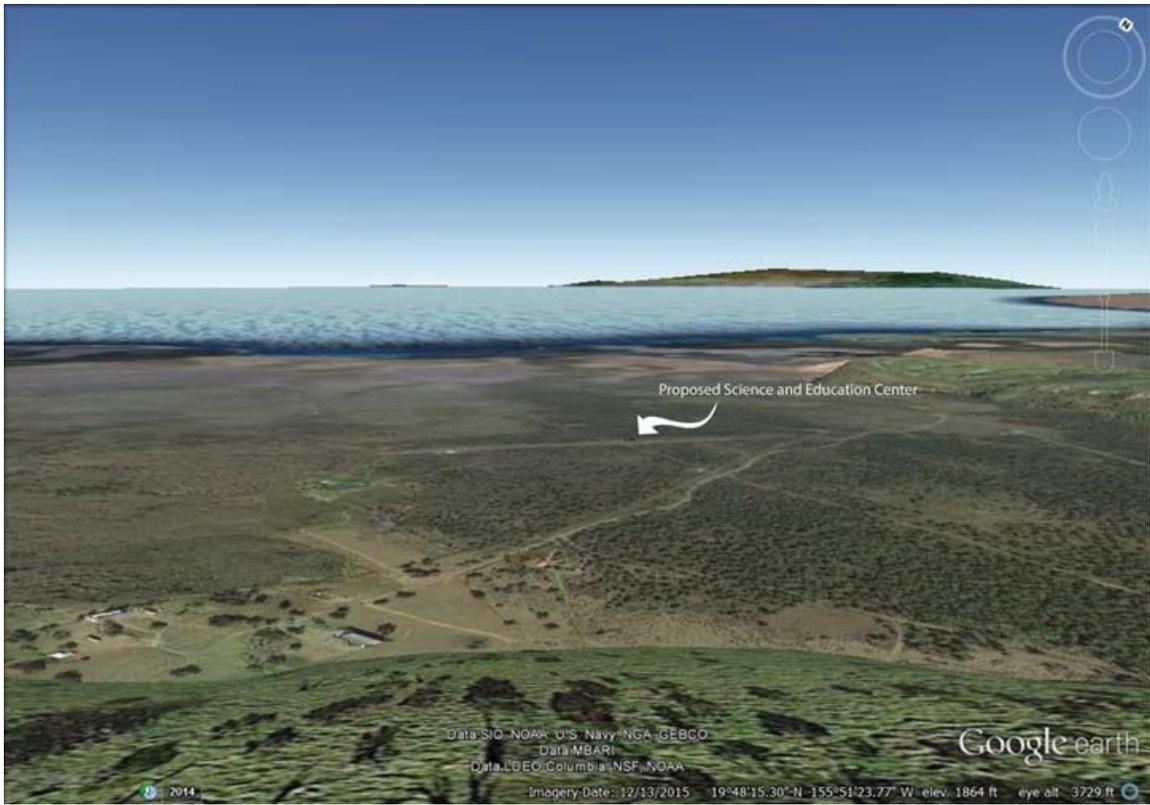


Figure 13 Visual simulation of proposed project from Pu'u wa'awa'a

Land Use

This section is largely based upon the *Pu'u Wa'awa'a Construction Project; Land Use Report* prepared by John Slown, USDA Forest Service Biologist/Planner (2016). This report is available in the project record for anyone seeking more detailed accounts of the proposed project site's land use.

Relevant Laws, Regulations, and Policy

State and Local Law or Policy

State of Hawai'i Department of Health, Title 11, Chapter 46, HAR (Community Noise Control)

This law establishes maximum noise levels, in decibels, as measured as the property boundary for activities in different zoning districts. For the project site, the daytime maximum is 55 decibels, and the nighttime maximum is 45 decibels.

The Hawai'i County General Plan (2005, as amended)

The county general plan establishes overall development guidance for Hawai'i County. Chapter 14 addresses land use.

Kona Community Development Plan (2008, as amended)

This plan guides development in the region surrounding the project site.

Affected Environment

Land use in the area surrounding the project site is consistent with the area's ranching history, as well as its current zoning as Extensive Agriculture, a zone that includes lands not suitable for intensive, high yield agriculture due to soil condition, slope, lack of water, or other limitations. The Hawai'i Department of Land and Natural Resources, which administers the land, continues to lightly graze the area with domestic cattle, to control fountain grass. There are several existing structures on the State land, including an old hangar associated with the obsolete runway, four dwellings dating to the area's ranching days, and a small compound of ten private structures on private parcels within the state land to the south of the project site, just north of the base of the Pu'u Wa'awa'a cinder cone. Overall this level of development is consistent with the project site and surroundings' zoning of A20a, which allows private dwellings on minimum lot sizes of 20 acres. Other zoning districts within a 2-mile radius of the project site includes Open, to the northeast the project site where development is restricted, A5a, to the north of Hawai'i Highway 190 where private dwellings on minimum lot sizes of 5 acres are allowed; and A1a in the community of Pu'uuanahulu Homesteads to the northeast of the project site. This community, with one acre and larger lots, is most developed area within 2 miles of the site. It includes a private golf course, church, and 318 subdivided lots, according to the Hawai'i County Finance Department, Real Property Tax maps. Approximately 100 of the lots are developed, primarily as residences.

Mitigations and Management Recommendations

See Table 1 for a list of mitigation measures. We developed these mitigation measures to ensure that the proposed project is as consistent with existing area land use as possible.

Project Effects

Alternative 1 – No Action

Under the No Action Alternative, no development of the site would occur. The Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife, would continue to manage the site jointly with the Experimental Forest. No direct or indirect effects to area land use would be likely to occur. As there would be direct or indirect effects to area land use, there would be no cumulative effects.

Alternative 2 – Proposed Action

Overall direct and indirect effects to area land use patterns of implementing the preferred alternative would be minor. The proposed project would construct buildings similar in appearance to others in the area, and generally smaller than most of the area buildings. Project design features would further reduce the likelihood of negative effect to area land use character. The overall site developed area would be small in the context of the extensive undisturbed surrounding area. As there would be no major direct or indirect effects to area land use associated with the proposed alternative, there would be no cumulative effects.

Required Permits and Approvals

The following permits and approvals would be required prior to implementing the proposed action:

- State of Hawai'i, Department of Health, National Pollutant Discharge Elimination System (NPDES) Permit.
<http://hawaii.gov/health/environmental/water/cleanwater/wqsmaps/forms/index.html>.
- Project review by the Hawai'i Coastal Zone Management program to insure consistency with Section 307 (c) of the Federal Coastal Zone Management Act and its implementing regulations at CFR 15 § 930.33(b).
- Under 40 USC 3312 – Sec. 3312, the Federal Government is exempt from obtaining building permits from local jurisdictions except for permits for wastewater treatment. PSW will follow the International Building Code, State and County building codes to the greatest extent possible and will offer plans to the County of Hawai'i for review and comment.
- Informal consultation with USFWS and Determination of Not Likely to Adversely Affect any species listed as threatened or endangered under the Federal Endangered Species Act of 1973.
- Obtain an Approval in Principle and Final Approval of Direct Lease from State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife to United States of America, Department of Agriculture of land for Research and Educational Purposes at the Pu'u Wa'awa'a Forest Reserve, Hawai'i, portion of Hawai'i Tax Map Key (TMK) number (3) 7-1-001:006, for approximately 5.7 acres of land.

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- During the construction phase no vehicles or loads onto State Highway 190 are expected to exceed the provisions of Chapter 291 Sections 34, 35, and 36. However, if vehicles and/or loads exceed these provisions, all contractors would be required to obtain these approved special permits prior to commencement of work.

Determination for Chapter 343 of the Hawai'i Revised Statutes

Based on analysis of the anticipated impacts, An Anticipated Finding of No Significant Impact is proposed for the Pu'u Wa'awa'a Construction Project. The following findings and reasons follow Chapter 343 of the Hawai'i Revised Statutes along with it implementing regulations, Title 11, Chapter 200 of the Hawai'i Administrative Rules. These statutes and rules form the basis of the environmental impact process in the State of Hawai'i. A draft Decision Notice and Finding of No Significant Impact will be prepared as a separate document in accordance with the federal National Environmental Policy Act.

Findings and Reasons

Chapter 11-200-12, Hawai'i Administrative Rules, outlines those factors agencies must consider when determining whether an action has significant effects:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.

For both alternatives, no direct, indirect, or cumulative impacts to historic or cultural properties would occur from any of the proposed activities, due to the fact that no cultural or historical properties were identified on the project site or within its vicinity. Incorporation of the mitigation measures would reduce impacts from project activities in the case that we discover previously unknown cultural materials during project activities.

2) Curtails the range of beneficial uses of the environment.

The objectives of establishment of the Hawai'i Experimental Tropical Forest are to provide lands for conducting research that serves as bases for the restoration, conservation, and management of forests in Hawai'i; to provide education facilities for the general public and university and USDA Forest Service staffs; and to serve as a site providing local, regional, and global long-term environmental monitoring data. Establishment of facilities as described in Alternative 2, on a site already disturbed by past development, would provide beneficial uses of the environment. It would provide a platform for education in addition to facilities for research scientists conducting research in the Pu'u Wa'awa'a Dry Forest Unit of the Hawai'i Experimental Tropical Forest.

3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.

The proposed action is consistent with the environmental policies established in Chapter 344, Hawai'i Revised Statutes and contributes to the conservation of threatened and endangered species, as covered by Chapter 195D, Hawai'i Revised Statutes. It is also consistent with Section 4 of the County of Hawai'i General Plan (2005), which sets goals and policies for maintaining environmental quality.

4) Substantially affects the economic or social welfare of the community or state.

The proposed action would not adversely affect the economic or social welfare of the community or state.

5) Substantially affects public health.

The proposed action should not substantially affect public health. The proposed action may have a positive impact on public health by providing opportunities for outdoor environmental education and interpretation.

6) Involves substantial secondary impacts, such as population changes or effects on public facilities.

The proposed action should not result in any substantial secondary impacts, such as population changes or effects on public facilities.

7) Involves a substantial degradation of environmental quality.

The proposed action would have minor impacts on the environment. Environmental quality is being regulated by permits to avoid environmental degradation, and thus, the proposed action would not contribute to environmental degradation of environmental quality.

8) Is individually limited but cumulatively has considerable effect upon environment or involves a commitment for larger actions.

The proposed Pu'u Wa'awa'a Construction Project would serve as a platform for long-term research and a focal point for developing and transferring knowledge and expertise for the management of tropical dry forests. Objectives for the Hawai'i Experimental Tropical Forest are to: (1) provide lands for conducting research that serves as bases for the restoration, conservation, and management of forests in Hawai'i and across tropical areas served by the Pacific Southwest Research Station; (2) provide education facilities for the general public and university and USDA Forest Service staffs; and (3) serve as a site providing local, regional, and global long-term environmental monitoring data. Although future research will be proposed within the Hawai'i Experimental Tropical Forest to attain mission goals, specific activities are unknown at this time and subject to funding availability. All newly proposed projects within the Hawai'i Experimental Tropical Forest would require additional environmental analysis and review. Therefore, the proposed action would not cumulatively have a considerable effect on the environment nor involve a commitment for larger actions.

9) Substantially affects a rare, threatened or endangered species, or its habitat.

Although there are rare, threatened or endangered species and habitats in and near the project area, implementation of mitigation measures associated with the proposed action would result in little or no impacts to wildlife or State-listed species, and no adverse effects to federally listed species.

10) Detrimentially affects air or water quality or ambient noise levels.

The proposed action will have no detrimental effects on air quality, water quality, or noise levels. The area is remote, and construction noise will be localized and temporary.

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

Although the area proposed for the Pu'u Wa'awa'a Construction Project is located in an area with volcanic and seismic risk, the entire Island of Hawai'i shares this risk. No floodplains, tsunami zones, beaches, erosion-prone areas, geologically hazardous lands, estuaries or coastal waters are involved.

12) Substantially affects scenic vistas and view planes identified in county or State plans or studies.

Although the Pu'u Wa'awa'a volcanic cone is noted as a site of scenic beauty in the Hawai'i County General Plan, visual simulation of the proposed project demonstrates that the proposed structures would not impair views to or from the cone.

13) Requires substantial energy consumption.

Construction of the Pu'u Wa'awa'a Construction Project would require some additional energy consumption for operation of construction equipment. Operation of the proposed facility would not require any consumption of energy produced off-site, as all electrical power would be generated on-site, primarily through the use of a photovoltaic array.

For the reasons above, the proposed action will not have any significant effect in the context of Chapter 343, Hawai'i Revised Statutes and section 11-200-12 of the State Administrative Rules.

Project Interdisciplinary Team (IDT) Members

| | |
|-------------------|---|
| John Slown | <i>IDT Leader and Project Manager</i> |
| Rommel Tanglao | <i>Station Engineer</i> |
| Chris Ida | <i>Project Engineer</i> |
| Frank Leoni | <i>Project Engineer</i> |
| Ian Cole | <i>Natural Area Reserves Specialist</i> |
| Elliott Parsons | <i>Natural Area Reserves Specialist</i> |
| Paul Claeysens | <i>Heritage and Cultural Resources Specialist</i> |
| Chad Hermandorfer | <i>Geology, Soils, Hydrology</i> |
| Kelly Ortiz | <i>Scenery and Visual Resources</i> |
| Melissa Dean | <i>Project Manager</i> |

References

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- NRCS (USDA Natural Resources Conservation Service). 2016. Soil Mart Data webpage: <http://soildatamart.nrcs.usda.gov/>

USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands.

University of Hawai'i Botany Program. 1998. Hawaiian Invasive Plant Studies; *Lantana camara*. Accessed on line at: http://www.botany.hawaii.edu/faculty/cw_smith/aliens.htm, February 25, 2016.

Appendix A: List of Agencies and Persons Consulted

Note: For a complete list of mailing addresses, see the project record.

Federal Agencies and Individuals

US Department of Agriculture, Natural Resources Conservation Service, D. Clausnitzer

US Department of Agriculture, Natural Resources Conservation Service, L. Yakamoto

US Department of Defense

US Department of Transportation, Federal Highway Administration

US Fish & Wildlife Service, Hawaii Ecological Services Office

US Fish & Wildlife Service, Hakalau National Wildlife Refuge, J. Kraus

US Geological Survey, Biological Resources Division, J. Jacobi

US Representative T. Gabbard

US Representative M. Takai

US Senator M. Hirono

US Senator B. Schatz

State of Hawai'i Agencies and Individuals

Civil Defense Administrator, D. Mayne

Department of Agriculture

Department of Business, Economic Development & Tourism, Land Use Commission

Department of Business, Economic Development & Tourism, Office of Planning

Department of Hawaiian Home Lands

Department of Health

Department of Health, Clean Water Branch, K. Sunada

Department of Land and Natural Resources, Administrator, S. Case

Department of Land and Natural Resources, Division of Aquatic Resources

Department of Land and Natural Resources, Division of Conservation and Resource Enforcement

Department of Land and Natural Resources, Division of Forestry and Wildlife, Administrator, L. Hadway

Department of Land and Natural Resources, Division of Forestry and Wildlife, Conservation Initiative Coordinator, L.H. Salbosa

Department of Land and Natural Resources, Division of Forestry and Wildlife, C. Chang

Department of Land and Natural Resources, Division of Forestry and Wildlife, I. Kawashima

Department of Land and Natural Resources, Division of Forestry and Wildlife, C. Ogura

Department of Land and Natural Resources, Division of Forestry and Wildlife, Natural Areas and Reserves System

Department of Land and Natural Resources, Hawai'i Island Burial Council

Department of Land and Natural Resources, Land Division

Department of Land and Natural Resources, Natural Area Reserve Commission

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

Department of Land and Natural Resources, State Historic Preservation Division, A. Downer

Department of Land and Natural Resources, State Parks

Department of Transportation, F. P. Keeno

Department of Transportation, Highways Division

Governor, D. Ige

Lieutenant Governor, S. Tsutsui

Natural Heritage Program, B. Gibson

Office of Hawaiian Affairs, B. Lindsey

Office of Hawaiian Affairs, L Ruddle

Hawai'i County or Local Agencies and Individuals

Department of Education, Hilo District

Hawai'i County Civil Defense, D. Oliveira

Hawai'i County Council District 9, M. Wille

Hawai'i County Department of Agriculture, R. Ishisaka

Hawai'i County Department of Parks and Recreation, C. Honma

Hawai'i County Department of Parks and Recreation, P. Englehart

Hawai'i County Department of Public Works, L. Warren, Director

Hawai'i County Fire Chief, D. Rosario

Hawai'i County Game Management Advisory Commission, T. Sylvester

Hawai'i County Government, D. Ley

Hawai'i County Mayor, B. Kenoi

Hawai'i County Planning Department, D. Arai, Program Manager

Hawai'i County Police Department, H. S. Kubojiri, Chief

University of Hawai'i

University of Hawaii Hilo, L. Hallacher

University of Hawaii Hilo, D. Price

University of Hawaii Hilo, College of Agriculture, Forestry, and Natural Resource Management,
B. Steiner

University of Hawai'i Hilo, Ka Haka 'Ula O Ke'elikōlani, K. Silva

University of Hawai'i Hilo, Office of Mauna Kea Management, S. Negata

University of Hawai'i Hilo, Research Corporation of the University of Hawai'i, D. Lovell

Public Utilities

Hawaiian Electric Light Company

Associations, Businesses, Clubs, and Other Organizations

Big Island Country Club, R. Oliver

Big Island Gun Club, J. O'Keefe

Big Island Invasive Species Committee, S. Kaye

Coordinating Group on Alien Pest Species, C. Martin

Edith Kanaka'ole Foundation, K. Kanaahle-Frias

Hawai'i Agriculture Research Center, S. Whalen, Executive Director

Hawai'i Audubon Society, W. Johnson

Hawai'i County Hawaiian Chamber of Commerce

Hawai'i Forest Industry Association

Hawai'i Hunting Advisory Council, S. Araujo

Hawai'i Hunting Association, T. Lodge

Hawai'i Island Economic Development Board

Hawaiian Ecosystems at Risk

Kahea

Kona Hawaiian Civic Club

Kumu Pona Associate, K. Maly

Mauka and Makai Access Committee, K. B. Clarkson

Na Pua No'eau, D. Sing

Parker Ranch, M. Sanchez

Parker Ranch Hunt Club, R. Hoeflinger

Pig Hunters of Hawi'i, T. Medeiros, Sr.

Sierra Club, Moku Loa Group

Private Landowners, Lessees, and Other Individuals

H. Adamus

A. Alapai

R. K. & B. J. Alapai

J. & H. Alapai

D. A. K. Bertelmann

F. N. & N. V. Bohnett

L. L. Hao

L. K. & R. K. Hao

W. J. Hooper

K. L. & M Humble

S. F. & L. K. Jusuf

J. H. & D. R. Kailiwai

D. L. Kailiwai-Ray

M. Kato

S. K. Keakealani (trust)

J. King

C. & V. Martinez

R. L. & B. T. Mitchell

C. O. & K. D. Nichols

R. R. & C. L. Robinson

A. & S. L. Texeira

R. J. Wagner

Appendix B: Comments Received During January 4 through February 8, 2106 Scoping Period

Note: Comment letters begin on the following page; scoping issues are addressed in the text of the Draft Environmental Assessment

Hi Lydia,

Our apologies for not having included that in the letter. The site is within Puu Waawaa Forest Reserve, TMK: (3) 7-1-001: Portion of 006

We have an existing direct lease in principle for the project site.

If you have any further questions, please let me know.

Thanks,

Mel Dean
HETF Project Manager
PCSU employee
Forest Service Contractor
Pacific Southwest Research Station, Institute of Pacific Island Forestry
p: 808-854-2603 (new #)
f: 808-933-8121
melissakdean@fs.fed.us



60 Nowelo Street
Hilo, HI 96720
www.fs.fed.us



Caring for the land and serving people

From: Morikawa, Lydia M [mailto:lydia.m.morikawa@hawaii.gov]
Sent: Friday, January 08, 2016 8:13 AM
To: FS-hawaii experimental tropical forest
Subject: Pa'a Wa'awa'a Construction Project Comments

Aloha Mr. Lopez,

We received your request for comments for the subject project. Please provide the Tax Map Key Nos. for this project, so that we can route your request to the Department of Land and Natural Resources' divisions.

Mahalo,

Lydia Morikawa, DLNR – Land Division
1151 Punchbowl Street; Rm. 220 Honolulu, Hawaii 96813 Phone: (808)
587-0410
Fax: (808) 312-6357

From: Hao, Louis [mailto:louis.hao@hawaii.gov]
Sent: Thursday, January 07, 2016 1:54 PM
To: FS-hawaii experimental tropical forest
Subject: Pu'u Wa'awa'a Construction Project

Where exactly is this Project Site? Your letter of January 4, 2016 offer an invitation to participate in development of a research and education field facility by the Institute of Pacific Islands Forestry. More information is needed at this juncture. We have been exploring the possibility of an historical and educational facility for those youths, adults and Kupuna who would want to learn the Konohiki and Ahu pua'a Customs as well as the Paniolo lifestyle of the Region. Please call me as a keiki o ka aina where my ancestors lived as far back as I can remember, the Alapai , Kaholo, Konanui and the Manuhoa Makapiipii Line.

Is it a possibility for a joint venture?

You may reach me at 808 228 5461. By the way, the phone number you listed is not in working order, 808 854 2601.

DAVID Y. IGE
GOVERNOR OF HAWAII



VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 16--014

January 14, 2016

Mr. Ric Lopez, Director
Institute of Pacific Islands Forestry
Pacific Southwest Research Station
USDA Forest Service
60 Nowelo Street
Hilo, Hawaii 96720
Email: hawaii_experimental_tropical_forest@fs.fed.us

Dear Mr. Lopez:

SUBJECT: Review and Comments for Puu Waawaa Construction Project, Hawaii

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your notification to our office on January 11, 2016. Thank you for allowing us to review and comment on the proposed project via the Pacific Southwest Research Station: <http://www.fs.fed.us/psw/ef/hawaii/>. Your letter was routed to the District Health Office on Hawaii, the Clean Air, Clean Water, Wastewater and Safe Drinking Water Branches. Your letter was also forwarded to the Environmental Health Services Division, Sanitation Branch. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: <http://health.hawaii.gov/epo/landuse>. Projects are required to adhere to all applicable standard comments.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: <https://eha-cloud.doh.hawaii.gov>

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: <http://eha-web.doh.hawaii.gov/oeqc-viewer>. This viewer geographically shows where previous Hawaii Environmental Policy Act (HEPA) (Hawaii Revised Statutes, Chapter 343) documents have been prepared.

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

Mahalo nui loa,



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

LM:nn

Attachments: EPO Draft Environmental Health Management Map
OEQC Viewer Map - <http://eha-web.doh.hawaii.gov/oeqc-viewer>

c: DHO Hawaii, CAB, CWB, WWB, SDWB, & SAN (via email only)



OECC Viewer

Hybrid

9 sites found

Waikeola Highlands (FEES)
Environmental Impact Statement (Applicant)

Waikeola Dry Forest Recovery (FEA-FONS)
Environmental Assessment (Agency)

Kohala Place Waikeola (FEA-FONS)
Environmental Assessment (Applicant)

Waikeola Dry Forest (DEA-FNS)
Environmental Assessment (Agency)

Kohala Place Waikeola (DEA-FNS)
Environmental Assessment (Applicant)

WAIKOLOA MAKAI (FEA-EISPN)
Environmental Impact Statement (Applicant)

Waikeola Congregation Kingdom Hill (FEA-FONS)
Environmental Assessment (Applicant)

Waikeola Congregation Kingdom Hill (DEA-FNS)
Environmental Assessment (Applicant)

Waikeola Emergency Row (FEA-FONS)
Environmental Assessment (Agency)

From: Grirobins@aol.com [<mailto:Grirobins@aol.com>] **Sent:** Monday, January 18, 2016 3:51 PM
To: FS-hawaii experimental tropical forest
Subject: Puuwaawaa Construction Project Comment

Dear Mr. Lopez,

This note is written not as a comment on your existing proposal for the site within Puuwaawaa Ranch. Rather it is written as a suggestion of an alternative that will make your life easier and provide a project that has greater and safer access to the general public, places you closer to all utilities, and provides you with a much greater visual perspective of your managed lands of Puuwaawaa.

My wife and I own 5 acres located on the bluffs of Puuanahulu. The property over looks the Puuwaawaa lands including the pu'u with many furrows, waawaa.



We purchased this property many years ago for our family use and we currently graze sheep on the property after having it cross fenced. There was an older home on the property that was in bad condition and we donated that home to a non-profit in Waimea for its use and it is now restored in Waimea.

The property would be identified as TMK 3-7-1-5-62 and I have attached a copy of the TMK for that area with the parcel highlighted. The parcel has 900 linear feet of alignment with the Ahupuaa of puuwaawaa and also fronts on the Mamalahoa with a drive way into the property. From the edge of the pali that comprises the boundary between puuwaawaa and puuanahulu you can see all of puuwaawaa, top of hualalai, to kiholo bay, to hualalai resort, and the summit of Mauna Kea. It is the best vantage to view what JF Rock identified as the largest dryland forest he had ever seen.

After reading your proposal for what you would like to build and in giving consideration to the uses that will occur on the property my wife and I talked and we are willing to offer you a long term lease on our property for your project. I believe this parcel will offer you better access to the Mamalahoa Highway, access to utilities, and provide a safer and more convenient access for the public who will want access to your facilities. It also has a trail that originates on the property and connects with the trail between Kiholo Bay and Puuwaawaa hill.

If you are interested in discussing this further my contact information is included below. In our suggestion we do expect to be compensated for the use of the property, yet are willing to provide for a long term lease at a very favorable rate.

G. Rick Robinson
P. O. Box 430
Kealahou, HI 96750
Cell - 808-224-0638
Home - 808-323-3209
grirobins@aol.com

William P. Kenoi
Mayor

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563



County of Hawai'i
PLANNING DEPARTMENT

Duane Kanuha
Director

Bobby Command
Deputy Director

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

February 4, 2016

Mr. Ric Lopez, Director
Institute for Pacific Islands Forestry
Pacific Southwest Research Station
USDA Forest Service
60 Nowelo Street
Hilo, HI 96720

Dear Mr. Lopez:

SUBJECT: Comments for the Hawai'i Experimental Tropical Forest (HETF)
Applicant: Institute of Pacific Islands Forestry
Project: Pu'uwa'awa'a Research and Education Field Facility
TMK: (3) 7-1-001:006, Pu'uwa'awa'a, N. Kona, Hawai'i

This is to acknowledge receipt of your January 4, 2016, letter requesting comments from this office regarding the proposed Pu'uwa'awa'a research and education field facility project. Although no tax map key number was provided, it appears to be on TMK: (3) 7-1-001:006.

The Institute of Pacific Islands Forestry plans to construct environmentally low-impact facilities that will support the fundamental land management needs within the Pu'uwa'awa'a Unit of the HETF. Primarily to provide facilities for ecological research, facilitate youth/community engagement, and support conservation, the facilities will include the following:

- 1,100 square feet bunkhouse building with space for 10 visiting scientists, restrooms, kitchen facilities, and common use areas
- 400 square feet education and demonstration pavilion suitable for conference, meeting, and classroom use
- 400 square feet equipment storage building
- Designated occasional-use tent area for up to 15 individuals
- 2,500 feet of access drive and construction of parking areas for 10 vehicles
- Electrical and water utility connections and waste water disposal system

The subject 13,046.1 acre parcel is designated Agricultural by the State Land Use Commission and zoned Agricultural (A-20a) by the County. It is not located in the Special Management Area

Mr. Ric Lopez, Director
Institute for Pacific Islands Forestry
Page 2
February 4, 2016

(SMA). In addition, the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the parcel as Extensive Agriculture.

The proposed project must be consistent with the policies, standards, and courses of action of the Hawai'i County General Plan, as amended in February 2005. Section 8: Natural Resources and Shoreline, 8.2 Goals, include the following:

- (a) Protect and conserve the natural resources from undue exploitation, encroachment and damage.
- (b) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.
- (c) Protect and promote the prudent use of Hawai'i's unique, fragile, and significant environmental and natural resources.
- (d) Protect rare or endangered species and habitats native to Hawai'i.
- (e) Protect and effectively manage Hawai'i's open space, watersheds, shoreline, and natural areas.
- (f) Ensure that alterations 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.

As the project site is located in the Kona Community Development Plan (CDP) planning area, the CDP document should be carefully reviewed. The project must be consistent with the goals, objectives, policies and action of the CDP. For your information, one of their eight guiding principles is to protect Kona's natural resources and culture. Also, under Section 4.3 Environmental Resources, Overall Strategy includes managing impacts and recognizing the multi-value importance of the mauka lands.

In the State Land Use Agricultural District, Hawai'i County Code, Chapter 25-5-72(c) states that public uses and structures, other than those necessary for agricultural practices, as provided under Section 25-4-11, will require a Special Permit issued by the Planning Commission. Hawai'i County Code Section 25-4-11(c) states that "Public uses, structures and buildings and community buildings are permitted uses in any district, provided that the director has issued plan approval for such use."

Further, the subject parcel is in an area that has been designated a critical habitat. Therefore, describe how the project will impact the endangered or threatened species and/or their ecosystem.

Mr. Ric Lopez, Director
Institute for Pacific Islands Forestry
Page 3
February 4, 2016

Thank you for the opportunity to provide our comments and concerns on the proposed project.

If you have questions, please feel free to contact Esther Imamura of our office at 961-8139.

Sincerely,


DUANE KANUHA
Planning Director

ETI:kl
F:\Wpwin60\NET\2016 Letters\Lopez HETF Puuwaawaa 7-1-1-6.Rtf

cc: Planning Department - Kona

From: Jerry King [mailto:jk@bigisland.net]

Sent: Friday, February 12, 2016 6:27 PM

To: FS-hawaii experimental tropical forest <hawaii_experimental_tropical_forest@fs.fed.us>

Aloha director Ric Lopez,

My wife and I restored the "Headquarters Property" (the 32 acres) after we purchased it in 2000. We had to sell (due to health reasons) all of it except for the 4 acre parcel that we still own. We have been gone for many years and I received this late but wanted to comment on the proposed Construction Project at the old runway but also any accesses to or around it. I came back to see that on the entry gate that the whole of the Forest Preserve's valuable resources are open to the public between 6 AM and 6 PM, and without any restrictions. And we have had on too many occasions witnessed people and cars wandering around, sometimes even lost. This is shocking because the thinking has always been that anyone that was to come on this wonderful preserve would be guided or at least taught on the dangers to the land and the endangered species by fire as well as the inadvertent tracking in of invasive species, etc. Consideration has always also included limiting/controlling vehicle access (providing and requiring parking at/near the gate, in a manner to hopefully prevent hitchhiking invasive species.

For example, when the cinder cone was opened for people to hike up to the top, it was on specific days only (and closed when it was dry and more susceptible to fire), and docents were made available during those open hours to both check-in people, control them and check them out. Now, people can go anywhere, and the dangers from them tracking in invasive species, and being the cause of fire, etc. is unlimited. This is so sad after so much money, time, and effort has been spent to preserve and protect such a unique resource. It seems to me that your specific project, particularly the access to and from it by construction and/or scientists and/or other visitors could be set up in a manner to reinstate all the appropriate protective procedures (for all of both ahupua'a's) including limiting people to certain protocol and any other things which would reach the goal of enhancing and protecting this resource for the very very long term, and not the short-term enjoyment of a few which can ruin it for everyone in the future.

Please do not hesitate to send me an email if you have any questions. Thank you for letting me provide my observations.

Jerry