TETRA TECH

August 1, 2025:

TTCES-PTLD-2025-101

Mary Alice Evans, Director
Environmental Review Program
Office of Planning and Sustainable Development
235 S. Beretania Street, Suite 702
Honolulu, HI 96813

Subject: **Publication of the Draft Environmental Impact Statement (DEIS) for the Kaheawa Wind 1 Continued Use Project (Proposed Action)**

Applicant: **Kaheawa Wind Power, LLC**

Location: **Kaheawa Pastures, West Maui**

TMK(s): **(2) 4-8-001:001 (portion) and (2) 3-6-001:014 (portion)**

Proposed Applicant Action:

Continue operation of the existing Kaheawa Wind 1 (KWP 1) wind generation facility for an additional 20-year period to provide 30 MW of clean, renewable energy to the island of Maui. No new construction or physical modifications beyond the proposed maintenance activities are required as part of the Proposed Action.

Dear Ms. Evans,

On behalf of the Applicant, Kaheawa Wind Power, LLC, Tetra Tech is submitting the Draft Environmental Impact Statement (DEIS) for the KWP 1 Continued Use Project located in the Kaheawa Pastures area of West Maui, Hawai‘i within the Ukumehame ahupua‘a, on the island of Maui. In accordance with Hawai‘i Administrative Rules (HAR) §11-200.1-5(e)(5)(C), the DEIS has been simultaneously filed with the Board of Land and Natural Resources (BLNR) as the Accepting Authority via the Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW).

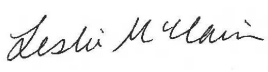
We respectfully request that the DEIS be published in the next edition of “The Environmental Notice” on August 8, 2025. An electronic copy of this letter and the supporting files and documentation for the DEIS have been uploaded to the Environmental Review Program online submittal portal including the audio file of all oral comments received at the designated time at the

Tetra Tech, Inc.
737 Bishop St., Suite 2000, Mauka Tower, Honolulu, HI 96813
Tel 808.441.6655 www.tetratech.com

EIS scoping meeting held on October 29, 2024. As required by HAR §11-200.1-5(e)(5)(D) paper copies of the DEIS will be submitted to the Kīhei Public Library and the Hawai'i Documents Center.

Should you have any questions, please contact me at (503) 222-4536 or at Leslie.mcclain@tetratech.com.

Sincerely,



Leslie McClain

Senior Project Manager and Environmental Planner

Tetra Tech

CC:

Jason D. Omick, Wildlife Program Manager, DOFAW, DLNR

Kinsley McEachern, Protected Species Habitat Conservation Planning Associate, DOFAW, DLNR

Tetra Tech, Inc.
737 Bishop St., Suite 2000, Mauka Tower, Honolulu, HI 96813
Tel 808.441.6655 www.tetratech.com

From: dbedt.opsd.erp@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Friday, August 1, 2025 4:04:59 PM

Action Name

Kaheawa Wind 1 Continued Use Project

Type of Document/Determination

Draft environmental impact statement (DEIS)

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds
- (2) Propose any use within any land classified as a conservation district

Judicial district

Maui - multiple districts

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

(2) 4-8-001:001 (portion) and (2) 3-6-001:014 (portion)

Action type

Applicant

Other required permits and approvals

Public Utility Commission approval of Power Purchase Agreement; Hawai‘i Board of Land and Natural Resources approval of a land lease; State Incidental Take License from Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW); Federal Incidental Take Permit (ITP) from U.S. Fish and Wildlife Service (USFWS); National Environmental Policy Act Compliance by USFWS for Federal Action of Issuance of an ITP; National Historic Preservation Act Section 106 Compliance by USFWS for the Federal Action of Issuance of an ITP; Hawai‘i Revised Statutes (HRS) Chapter 6E Compliance (Historic Preservation Review); Hawai‘i Department of Health Community Noise Permit (TBD); Hawai‘i Department of Transportation Permit to Operate or Transport Oversize and/or Overweight Vehicle and Loads (TBD); National Pollutant Discharge Elimination System Permit (TBD)

Discretionary consent required

Issuance of State Land Lease (State of Hawai‘i BLNR)

Agency jurisdiction

State of Hawai‘i

Approving agency

Board of Land and Natural Resources

Agency contact name

Jason Omick

Agency contact email (for info about the action)

jason.d.omick@hawaii.gov

Agency contact phone

(808) 347-6869

Agency address

1151 Punchbowl Street, Room 325
Honolulu, HI 96813
United States
Map It

Accepting authority

Board of Land and Natural Resources

Applicant

Kaheawa Wind Power, LLC

Applicant contact name

Molly Stephenson

Applicant contact email

Molly.stephenson@terraformpower.com

Applicant contact phone

(612) 451-4175

Applicant address

200 Liberty Street, 14th Fl
New York, NY 10281
United States
Map It

Is there a consultant for this action?

Yes

Consultant

Tetra Tech

Consultant contact name

Leslie McClain

Consultant contact email

leslie.mcclain@tetratech.com

Consultant contact phone

(503) 222-4536

Consultant address

737 Bishop Street, Suite 2000
Honolulu, HI 96813
United States
Map It

Action summary

Continue operation of the existing Kaheawa Wind 1 (KWP 1) wind generation facility for an additional 20-

year period to provide 30 MW of clean, renewable energy to the island of Maui. No new construction or physical modifications beyond the proposed maintenance activities are required as part of the Proposed Action.

Attached documents (signed agency letter & EA/EIS)

- KWP-1_DEIS_SubmittalLetter_08-01-2025_OCLScanned.pdf
- 20250801_DEIS_KWP-1-Continued-Use_OCLScanned.pdf
- KWP1_Scoping_testimony1.mp3

ADA Compliance certification (HRS §368-1.5):

The authorized individual listed below acknowledges that they retain the responsibility for ADA compliance and are knowingly submitting documents that are unlocked, searchable, and may not be in an ADA compliant format for publication. The project files will be published without further ADA compliance changes from ERP, with the following statement included below the project summary in The Environmental Notice: "If you are experiencing any ADA compliance issues with the above project, please contact (authorized individual submitting the project at email)."

Shapefile

- The location map for this Draft EIS is the same as the location map for the associated EIS Preparation Notice.

Action location map

- KWP1_ProjectBoundary_202508011.zip

Authorized individual

Leslie McClain

Authorized individual email

leslie.mcclain@tetratech.com

Authorized individual phone

(503) 222-4536

Authorization

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

Kaheawa Wind 1 Continued Use Project
Draft Environmental Impact Statement



Accepting Authority:

Hawai‘i State Board of Land and Natural Resources

1151 Punchbowl Street | Honolulu, HI 96813

Prepared for:

Kaheawa Wind Power, LLC

200 Liberty Street, 14th Floor | New York, NY 10281

kaheawawind.com

Prepared by:

TETRA TECH

737 Bishop St., Suite 2000, Mauka Tower | Honolulu, HI 96813

tetratech.com

August 2025

This document and all ancillary documents were prepared under my direction and to the best of my knowledge fully addresses the document content requirements as set forth in Subchapter 10 of Chapter 11-200.1, Hawai‘i Administrative Rules.



August 1, 2025

David Purcell, Vice President
Kaheawa Wind Power, LLC

Date

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
°F	degrees Fahrenheit
AG	Agricultural Zone
AIS	Archaeological Inventory Survey
Applicant or KWP LLC	Kaheawa Wind Power, LLC
BESS	battery energy storage system
BLNR	Board of Land and Natural Resources
BMP	best management practices
CAA	Clean Air Act
CAB	Clean Air Branch
CDP	Census Designated Place
CDUP	Conservation District Use Permit
CFR	Code of Federal Regulations
CIA	Cultural Impact Assessment
CIAA	Cumulative Impact Analysis Area
CUA	core use area
CWA	Clean Water Act
CWRM	Hawai‘i Commission on Water Resource Management
CZM	Coastal Zone Management
DAR	DLNR Division of Aquatic Resources
dB	decibels
dBA	A-weighted decibels
DHHL	Department of Hawaiian Homelands
DLNR	Department of Land and Natural Resources
DOFAW	Division of Forestry and Wildlife
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
EMF	electric and magnetic fields
ERP	Environmental Review Program
EoA	Evidence of Absence
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
ESRC	Endangered Species Recovery Committee
FAA	Federal Aviation Administration

Acronym/Abbreviation	Definition
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GE	General Electric
GET	General Excise Tax
GIS	geographic information system
HAR	Hawai‘i Administrative Rules
Hawaiian Electric	Hawaiian Electric Company
HCEI	Hawai‘i Clean Energy Initiative
HCP	Habitat Conservation Plan
HDOH	Hawai‘i Department of Health
HDOT	Hawai‘i Department of Transportation
HEER	Hazard Evaluation & Emergency Response
HEPA	Hawai‘i Environmental Policy Act
HRS	Hawai‘i Revised Statues
Hz	hertz
IARII	International Archaeological Research Institute, Inc.
ISO	International Organization for Standardization
ITL	Incidental Take License
ITP	Incidental Take Permit
KPA	Ka Pa‘akai Analysis
kV	kilovolt
KWP 1	Kaheawa Wind Power 1
KWP 2	Kaheawa Wind Power 2
LOD	limits of disturbance
LUC	Land Use Commission
LWSC	low wind speed curtailment
Maui Electric Company	Maui Electric
MBTA	Migratory Bird Treaty Act
mg/l Cl-	milligrams of chloride ions per liter
MOU	memorandum of understanding
MP	mile post
mph	miles per hour
MW	megawatt
MWh	megawatt hours
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

Acronym/Abbreviation	Definition
NFIP	National Flood Insurance Program
NFWF	National Fish and Wildlife Foundation
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRCS	National Resource Conservation Service
NSR	noise sensitive receptor
NWI	National Wetlands Inventory
O&M	operations and maintenance
OCCL	Office of Conservation and Coastal
OEQC	Office of Environmental Quality Control
OSHA	Occupational Safety and Health Administration
Phase I ESA	Phase I Environmental Site Assessment
PM	particulate matter
PPA	Power Purchase Agreement
Project	Kaheawa Wind Power 1 Continued Use Project
Proposed Action	Kaheawa Wind Power 1 Continued Use Project
PSPS	Public Safety Power Shutoff
PUC	Public Utilities Commission
REC	Recognized environmental conditions
RFP	Request for Proposals
RHA	Rivers and Harbors Act
ROD	Rapid ʻŌhiʻa Death
ROI	Region of Influence
RPS	Renewable Portfolio Standard
SAAQS	State Ambient Air Quality Standards
SCADA	supervisory control and data acquisition
SDC	seismic design category
SHPD	State Historic Preservation Division
SIHP	State Inventory of Historic Places
SMA	Special Management Area
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TMK	Tax Map Key
UCL	upper credible limit

Acronym/Abbreviation	Definition
UHERO	University of Hawai‘i Economic Research Organization
UIC	Underground Injection Control
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WOTUS	Waters of the U.S.
WTG	wind turbine generators
ZVI	Zone of Visual Influence

Project Information Summary

Project Name	Kaheawa Wind 1 Continued Use Project
Applicant	Kaheawa Wind Power, LLC 200 Liberty Street, 14th Fl, New York, NY 10281 Contact: Molly Stephenson Phone: (612) 451-4175 Email: Molly.stephenson@terraformpower.com
Accepting Authority	Board of Land and Natural Resources (BLNR) 1151 Punchbowl Street, Room 325, Honolulu, HI 96813 Contact: Jason D. Omick Phone: (808) 347-6869 Email: jason.d.omick@hawaii.gov
Consultant	Tetra Tech 737 Bishop Street, Suite 2000, Honolulu, HI 96813 Contact: Leslie McClain Phone: (503) 222-4536 Email: Leslie.mcclain@tetratech.com
Location	Kaheawa Pastures area of West Maui, Hawai'i. Figure 1-1 shows the location of the Proposed Action.
Judicial District	Wailuku and Lāhainā
Tax Map Keys (TMKs)[1]	(2) 4-8-001:001 (portion) and (2) 3-6-001:014 (portion)
Land Area of Project	Approximately 217 acres
Recorded Fee Owner	State of Hawai'i (DLNR)
Existing Use	Portions are used for the existing Kaheawa Wind 1 (KWP 1) wind generation facility and portions are undeveloped
Proposed Action	Continue operation of the existing KWP 1 wind generation facility for an additional 20-year period to provide 30 MW of clean, renewable energy to the island of Maui. No new construction or physical modifications beyond the proposed maintenance activities are required as part of the Proposed Action.
Existing Land Use Designations[2]	State Conservation District; Special Management Area (portion of main access road only)

Other Required Permits and Approvals	• Public Utility Commission approval of Power Purchase Agreement • Hawai'i Board of Land and Natural Resources approval of a land lease • Habitat Conservation Plan; State Incidental Take License from Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW); and Federal Incidental Take Permit (ITP) from U.S. Fish and Wildlife Service (USFWS) • National Environmental Policy Act Compliance by USFWS for Federal Action of Issuance of an ITP • National Historic Preservation Act Section 106 Compliance by USFWS for the Federal Action of Issuance of an ITP • Hawai'i Revised Statutes (HRS) Chapter 6E Compliance (Historic Preservation Review) • Hawai'i Department of Health Community Noise Permit (TBD) • Hawai'i Department of Transportation Permit to Operate or Transport Oversize and/or Overweight Vehicle and Loads (TBD) • National Pollutant Discharge Elimination System Permit (TBD)
HRS §343(a) Trigger(s)	(1) Propose use of state or county lands or the use of state or county funds (2) Propose any use within any land classified as a conservation district
Discretionary Consent Required	Issuance of State Land Lease (State of Hawai'i BLNR)

1. Note that in the EIS Preparation Notice (EISPN) published on October 23, 2024 (https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf), portions of TMKs (2) 4-8-001:010 and (2) 3-6-001:052 were identified as being included in the Project Area. However, upon further investigation of legal descriptions of the boundaries of these two TMKs (see State of Hawai'i Survey Division map C.S.F. No. 19186) and the legal description of the boundary of the KWP 1 lease area, the Applicant confirmed the 200-acre lease area associated with the Proposed Action only includes acreage on TMK (2) 4-8-001:001 and the Kaheawa Pastures access road easement on TMKs (2) 4-8-001:001 and (2) 3-6-001:014. Therefore, the two TMKs involved with the Project Area are TMKs (2) 4-8-001:001 (200-acre lease area) and 3-6-001:014 (Kaheawa Pastures access road).

2. The Project Area's 200-acre lease area and majority of the primary access road are located in County Agricultural (AG) zone and a portion of the primary access road and the access road driveway at Honoapi'ilani Highway are located in the County Open (OZ) Zone; however, as the Project Area is within the State Conservation District and, pursuant to HRS §205-5, land use is governed by DLNR.

Executive Summary

Introduction, Purpose, and Need for the Action

Kaheawa Wind Power, LLC (Applicant) proposes the Kaheawa Wind Power 1 (KWP 1) Continued Use Project (Project or Proposed Action), which seeks to extend the operations of the existing KWP 1 wind generation facility, located on state land in West Maui, Hawai'i, for a 20-year period. KWP 1 is an existing 30-megawatt (MW) wind energy generation facility located in the Kaheawa Pastures area of West Maui, Hawai'i within the Ukumehame ahupua'a. The KWP 1 facility has been operating under a 20-year Power Purchase Agreement (PPA) that is set to expire in 2026. The KWP 1 Continued Use Project was selected by Hawaiian Electric as part of the Maui Stage 3 Request for Proposals (RFP), a competitive bidding process developed by Hawaiian Electric in coordination with the Hawai'i Public Utilities Commission (PUC) to procure renewable energy sources for Maui's electric grid in response to anticipated energy resource shortfalls (PUC 2022). The Proposed Action would continue to use the existing interconnection with Hawaiian Electric's island-wide grid and the power would be sold to Hawaiian Electric under a new 20-year PPA that would be approved by the PUC. To proceed, the Proposed Action would require a new 20-year lease from the State of Hawai'i BLNR as the current DLNR land lease (General Lease No. S-5731) is anticipated to expire January 31, 2026[1]. The Proposed Action entails no new construction or physical modifications beyond the maintenance activities described in Section 2.1.2.2, *Maintenance Activities*. Continuing operations of the KWP 1 facility would contribute to Maui County's energy affordability, grid reliability, economic development, and environmental protection.

The Proposed Action would require the use of state-owned lands and use within the State Conservation District (general and protective subzones), which triggers Hawai'i Environmental Policy Act (HEPA) environmental review per Hawai'i Revised Statues (HRS) Section (§) 343-5(a)(1) and HRS § 343-5(a)(2), respectively. This Environmental Impact Statement (EIS) was prepared pursuant to the State of Hawai'i environmental review process, as defined and required by HRS Chapter 343 and Hawai'i Administrative Rules (HAR) Chapter 11.200.1. The Board of Land and Natural Resources (BLNR) is the accepting authority for the Proposed Action and the Department of Land and Natural Resources (DLNR) has determined that an EIS is required. An EIS preparation notice (EISPN) was published in the Environmental Review Program bulletin, *The Environmental Notice*, on October 23, 2024 and was made available during a 30-day public review and comment period. Following the public comment period, the Draft EIS was prepared to address the comments received on the EISPN and to fully disclose any potential impacts on the environment and proposed BMPs and mitigation measures to reduce these potential impacts. This EIS provides a detailed description of the Applicant's Proposed Action and the alternative to the Proposed Action (i.e., No Action Alternative). It also presents the existing environmental setting for the full range of potentially affected resources and the analysis of potential impacts to those resources.

[1] A one-year holdover of General Lease No. S-5731 was approved by the BLNR on December 13, 2024, thus extending the lease term to January 31, 2026.

Because the Proposed Action is likely to impact species listed under the Federal Endangered Species Act and protected under the State of Hawai'i's endangered species law under HRS Chapter 195D, the Applicant is preparing a Habitat Conservation Plan (HCP) to accompany its application for an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS), and an Incidental Take License (ITL) from the DLNR Division of Forestry and Wildlife (DOFAW). The purpose of the HCP is to outline the measures to minimize and mitigate the adverse effects of the Proposed Action on the Covered Species in support of applications for the ITP and ITL. This EIS evaluates the potential impacts related to ongoing operations of the existing KWP 1 wind generation facility as well as the potential impacts associated with the issuance of the ITP/ITL and implementation of the associated HCP. Issuance of the ITP would be subject to further environmental review in a National Environmental Policy Act (NEPA) document, as well as USFWS analysis in a Biological Opinion. The Proposed HCP is anticipated to be published in the same issue of *The Environmental Notice* as this Draft EIS.

Project Purpose and Need

The purpose of the Proposed Action is to utilize the existing wind energy infrastructure on land owned by DLNR to continue to provide 30-MW of clean, renewable energy to the island of Maui, thus contributing to the State of Hawai'i's RPS energy goals of generating 100 percent of the state's energy from renewable sources by 2045. The Proposed Action also would:

- Contribute to Maui's energy affordability;
- Contribute to Maui's grid reliability;
- Contribute to Maui's economic development through the provision of full-time local jobs, use of local contractors, and provision of a community benefits package; and
- Provide environmental benefits including decreasing dependence on fossil fuels, enhancing air quality, and contributing to habitat conservation through implementation of an HCP with a net conservation benefit for protected species.

The need for the Proposed Action is established by Hawaiian Electric's competitive procurement process for locally produced renewable energy (Maui Stage 3 RFP) which responds to the Hawai'i Clean Energy Initiative (HCEI) and the State of Hawai'i's Renewable Portfolio Standard (RPS) which requires that electric utility companies use renewable energy for the equivalent of 100 percent of net electricity sales by 2045. The need is also established by Hawaiian Electric's reliance on the existing KWP 1 facility to provide resource adequacy, grid reliability, and energy affordability (see Section 1.3.1, *State Energy Goals and Power Production*).

Project Objectives

In light of the established need for renewable energy projects in the State of Hawai'i and the objectives of the Proposed Action, along with the recognized environmental and infrastructure constraints (specifically the existing electrical grid) on Maui, the Applicant has set forth the following objectives for the Proposed Action, in accordance with HAR § 11-200-17(e)(2):

- Continue operating the existing KWP 1 facility within an area with sufficient wind resources to deliver reliable, efficient, and economically viable renewable energy.
- Address potential electricity supply shortages on Maui due to aging infrastructure and retiring facilities.
- Ensure a stable electricity supply to prevent outages and maintain service reliability.
- Provide cost-effective energy solutions for Maui Electric customers, particularly those overly burdened by energy costs.
- Shield consumers from the volatility of fossil fuel markets.
- Support the local economy through sustained local jobs and lease revenue provided to the state.
- Promote Hawai'i's energy independence by preserving a consistent source of renewable energy.
- Mitigate negative impacts on threatened and endangered species and promote habitat conservation.
- Reduce environmental impacts by leveraging existing infrastructure and implementing innovative mitigation strategies.
- Mitigate the potential air quality impacts of fossil fuel-based electricity generation, with its concomitant effects on respiratory health.
- Contribute to broader initiatives aimed at combating climate change.

Site-Specific Studies Contributing to the EIS

Data has been compiled from various environmental studies, permits, and assessments to inform the Draft EIS. The Project is supported by a comprehensive body of environmental documentation that spans nearly 30 years, including 19 years of site-specific data collected under the requirements of the current HCP. Table ES-1 lists the key studies that have contributed to the EIS.

Table ES-1. Key Site-Specific Studies Evaluated in EIS

Authors	Year	Title
Tomonari-Tuggle and Tuggle	1991	Archaeological Survey of Two Demonstration Trails of the Hawai'i Statewide Trail and Access System, Lahaina Pali Trail, Island of Maui/Kaiolohia Kahue Trail, Island of Lana'i, International Archaeological Research Institute, Inc., Honolulu
Robins et al.	1994	An Archaeological Inventory Survey of an Approximately 14.7 Mile Proposed Transmission Line, from Mā'alaea to Lahaina, Maui, Hawai'i. Revised 1994. Cultural Surveys Hawai'i.
Tomonari-Tuggle	1995	A Cultural Resource Management Plan for the Lahaina Pali Trail. International Archaeological Research Institute, Inc. Honolulu. Prepared for the Department of Land and Natural Resources, State of Hawai'i, Honolulu

Authors	Year	Title
Zond Pacific	1996	Final Environmental Assessment for a Proposed Action: Temporary Installation, Periodic Maintenance, and Collection of Data from Wind Resource Monitoring Stations at Kaheawa/Ukumehame, Maui.
Hammatt et al.	1996	Archaeological Survey of Access Roads Adjacent to the Māʻalaea-Lahaina Third 69KV Transmission Line Corridor. Cultural Surveys Hawaiʻi
Tomonari-Tuggle	1998	An Archaeological Reconnaissance Survey for 27 Wind Turbines in the Ukumehame Uplands, Island of Maui
Zond Pacific	1999a	Final Kaheawa Pastures 20 MW Wind Farm Environmental Assessment
Zond Pacific	1999b	Final Kaheawa Pastures 20 MW Wind-Farm Environmental Impact Statement
Athens	2002	An Upland Heiau Site, Ukumehame Ahupuaʻa, Maui. International Archaeological Research Institute, Inc. Prepared for GE Wind Energy, LLC
Magnuson	2003	Supplemental Archaeological Survey of Turbine Pad Alignments, Kaheawa Pastures, Upland Ukumehame Ahupuaʻa. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power, LLC
KWP	2004	Kaheawa Pastures Wind Energy Generation Facility: Final Environmental Assessment
Athens	2004	Supplemental Archaeological Survey of Turbine Pad Alignments, Kaheawa Pastures, Upland Ukumehame Ahupuaʻa. International Archaeological Research Institute, Inc., Prepared for Kaheawa Wind Power, LLC
USFWS	2005a	Draft Environmental Assessment for the Issuance of an Endangered Species Act Section 10(a)(1)(B) Incidental Take Permit for the Hawaiian Petrel (*Pterodroma sandwichensis*), Newell's (Townsend's) Shearwater (*Puffinus auricularis newelli*), Hawaiian Goose or Nēnē (*Branta sandvicensis*), and Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) to the Kaheawa Pastures Wind Energy Generation Facility, Ukumehame, Maui, Hawaiʻi
Rasmussen	2005a	Supplemental Archaeological Reconnaissance Survey of the Southern Portion of the New Low Impact Road for the Wind Turbine Project at Kaheawa Pastures, Upland Ukumehame Ahupuaʻa, Maui (TMK 3-6-01:14). International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC
Rasmussen	2005b	Supplemental Archaeological Reconnaissance Survey within the SMA Zone for the Wind Turbine Project at Ukumehame Ahupuaʻa, Maui (TMK 3-6-01:14). Draft. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC
Rasmussen	2005c	Field Inspection Letter for the SMA Portion of the New Low-Impact Road for the Wind Turbine Project at Kaheawa Pastures, Ukumehame Ahupuaʻa, Maui. Letter report. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC
Clark and Rechtman	2005	An Archaeological Inventory Survey of the Proposed Kaheawa Wind Farm Project Area. Rechtman Consulting, LLC. Prepared for Kaheawa Wind Power, LLC
Tomonari-Tuggle and Rasmussen	2005	Preservation Plan for Site 50-50-09-5232, An Upland Heiau in Ukumehame Ahupuaʻa, Island of Maui. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC, Honolulu.

Authors	Year	Title
USFWS	2006	Finding of No Significant Impact (FONSI) for Proposed Issuance of Section 10(a)(1)(B) Permit (TE118901-0) Under the Endangered Species Act to Authorize Incidental Take of the Hawaiian Petrel, Newell's Shearwater, Nēnē, and Hawaiian Hoary Bat by Kaheawa Wind Power, LLC for the Kaheawa Pastures Wind Energy Generation Facility, Maui, Hawai'i
KWP	2006	Kaheawa Pastures Wind Energy Generation Facility Habitat Conservation Plan, Ukumehame, Maui, Hawai'i
Clark et al.	2006	An Archaeological Inventory Survey of 333 Acres for the Proposed Expansion of the Kaheawa Wind Farm (TMK: 2-4-8-01: por. 001), Ukumehame Ahupua'a, Lahaina District, Island of Maui
Clark and Rechtman	2008	An Archaeological Inventory Survey of 333 Acres for the Proposed Expansion of the Kaheawa Wind Farm (TMK: 2-4-8-01: por. 001), Ukumehame Ahupua'a, Lahaina District, Island of Maui. Prepared for Mike Gresham, Kaheawa Wind Power, LLC
Ah Sam et al.	2009	A Cultural Impact Assessment for the Proposed Kaheawa Wind Power (KWP) Phase 2 Project Area (TMKs: 2-3-6-001: por. 014 and 2-4-8-01: por. 001), Ukumehame Ahupua'a, Wailuku and Lahaina Districts, Island of Maui
Rechtman et. al	2009	An Archaeological Inventory Survey for the Kaheawa Wind Power (KWP) Phase 2 Project Area. Rechtman Consulting, LLC. Prepared for First Wind Energy, LLC
Planning Solutions, Inc.	2010	Final Environmental Impact Statement: Kaheawa Wind Power II Wind Energy Generation Facility, Ukumehame, Maui, Hawai'i
Rechtman Consulting, LLC	2010	A Preservation Plan for SIHP Site 50-50-09-5648 within the Kaheawa Wind Power Phase 2 Project Area (TMK: 2-3-6-001), Ukumehame Ahupua'a, Wailuku District, Island of Maui. Prepared for First Wind
ASM Affiliates	2025	Cultural Impact Assessment for the Continued Operation of the Kaheawa Wind Power I Facility. Ukumehame Ahupua'a, Lahaina Districts, Island of Maui (Appendix C)
Tetra Tech	2025a	Draft Kaheawa Wind Power I Habitat Conservation Plan, Maui, Hawai'i[2]
Tetra Tech	2025b	Phase 1 Environmental Site Assessment, Maui, Hawai'i
Tetra Tech	2025c	Kaheawa Wind Power 1 Continued Use Project Botanical Survey Report, Maui, Hawai'i (Appendix D)
Tetra Tech	2025d	Kaheawa Wind 1 Continued Use Project Acoustic Assessment Report, Maui, Hawai'i (Appendix E)
KWP LLC	2006 to Present	Kaheawa Wind Power Habitat Conservation Plan Annual Reports
KWP II LLC	2012 to Present	Kaheawa Wind Power II Habitat Conservation Plan Annual Reports

[2] The Proposed HCP is anticipated to be published in the same issue of *The Environmental Notice* as this Draft EIS.

In addition to these site-specific studies and reports, a number of KWP 1 operational plans were referenced in the development of this EIS and are listed in Table ES-2.

Table ES-2. KWP 1 Operational Plans Evaluated in EIS

Authors	Year	Title
Tetra Tech	2021	Nēnē-specific Vegetation Management Memo
Brookfield	2022	Emergency Response Plan – Wind Operations
WSP USA Environment and Infrastructure, Inc.	2023	Kaheawa Wind Power Spill Prevention, Control, and Countermeasure Plan
TerraForm Power	2025	Wildfire Prevention Plan
Tetra Tech	2025e	KWP 1 Vegetation Management Plan (Appendix F)
Tetra Tech	2025f	KWP 1 Invasive Species Prevention Plan (Appendix G)

Project Description and Alternatives

This section provides a detailed description of the Proposed Action and No-Action Alternative. No other alternatives were identified that would meet the purpose and need of the Proposed Action.

Location and Land Ownership

Proposed Action

KWP 1 is located on the boundary of the Wailuku and the Lāhainā judicial districts of Maui within the Kealaloloa moku (district) and Ukumehame ahupua‘a (traditional land division). The Project Area includes the approximately 200-acre lease area associated with the existing KWP 1 wind turbines and ancillary infrastructure located on a portion of TMK (2) 4-8-001:001. The Project Area also includes the existing Kaheawa Pastures access road which is located on portions of TMKs (2) 4-8-001:001 and (2) 3-6-001:014. The existing Kaheawa Pastures access road is a four-wheel-drive gravel road that begins at Honoapi‘ilani Highway and extends north to the conservation lands mauka of the KWP 1 facility. Along the Kaheawa Pastures access road, at the KWP 2 Turbine 12 turbine pad, is an existing less than one acre staging area that may be utilized by KWP 1 for temporary equipment staging during KWP 1 maintenance activities. At the makai-most area of the Kaheawa Pastures access road, a small parking and staging area (less than one acre) is located at the access road entrance off Honoapi‘ilani Highway.

The land within the Project Area is owned by the State of Hawai‘i and administered by the DLNR. As noted earlier, the use of the Project Area is secured through a long-term lease from the DLNR (General Lease No. S-5731). The lease also includes a non-exclusive access easement for the Kaheawa Pastures access road and is subject to perpetual non-exclusive easements for existing Hawaiian Electric transmission lines that cross through the lease area and non-exclusive easements associated with KWP 2 facilities located within the lease.

The Project Area also contains some of the supporting infrastructure for the adjacent KWP 2 wind energy facility (i.e. the KWP 2 substation, battery energy storage system (BESS) facility, and electrical collection system) and KWP 2 shares the use of the KWP 1 operations and maintenance (O&M) building and

warehouse storage facility and associated access roads (Figure 1-2). KWP 2 is a separate wind facility from KWP 1 – it is owned by KWP II LLC and has a separate state land lease (General Lease No. S-6003). Although KWP 1 and KWP 2 share some facilities, the two wind projects are separately permitted and have separate land entitlements. If KWP 1 were to be decommissioned prior to KWP 2, the shared facilities and access roads associated with KWP 2's access and utility easements would remain and continue to be operated and maintained as part of the KWP 2 facility.

The Project Area is bordered by Pāpalaua Gulch to the northwest, the West Maui Mountains to the north, Manawainui Gulch to the east, and the Pacific Ocean to the south. There are no residential uses within the Project Area. The nearest settlements are Olowalu, which is approximately five miles to the southwest, and Māʻalaea, which is approximately two miles to the east. The West Maui Forest Reserve is located mauka and west of the Project Area. The Lahaina Pali Trail traverses the Project Area at an elevation of approximately 1,500 feet, which is south of the KWP 1 200-acre lease area but crosses the Kaheawa Pastures access road (Figure 1-4).

HCP Mitigation Sites

The Applicant is preparing an HCP, which outlines the measures to minimize and mitigate the adverse effects of the Proposed Action on the Covered Species (Tetra Tech 2025a). The Proposed HCP identifies mitigation programs to offset the take of and provide a net benefit[3] to Covered Species. Mitigation would take place at the following locations:

- Identified mitigation sites, including existing mitigation facilities at:
    - Haleakalā Ranch: The Haleakalā Ranch mitigation area includes an approximately 1.3-acre nēnē release pen located at an elevation of 2,550 feet on the southern slopes of Mt. Haleakalā on Maui (Figure 1-5). This mitigation area is within portions of TMK (2) 1-9-001:001 and (2) 1-9-001:003, which are owned by the Haleakalā Ranch Company and Department of Hawaiian Home Lands (DHHL), respectively.
    - Puʻu O Hoku Ranch: The Puʻu o Hōkū Ranch mitigation area includes an approximately 2.8-acre nēnē release pen located at an elevation of 350 to 400 feet on the east end of Molokaʻi (Figure 1-5). This mitigation area is within a portion of TMK (2) 5-8-015:001, which is owned by Puʻu o Hōkū Ranch Ltd.
    - Greater Hiʻi Area: The Pūlama Lānaʻi mitigation area is located in the Greater Hiʻi area in central Lānaʻi (Figure 1-6). This mitigation area is within a portion of TMK (2) 4-9-002:001 (por), which is owned by Lanai Resorts, LLC.
    - Makamakaʻole: The Makamakaʻole mitigation area consists of two 4.5-acre fenced enclosures (total of 9 acres) at an elevation of approximately 1,850 to 2,050 feet within the West Maui Natural Area Reserve and the West Maui Forest on Maui (Figure 1-7).

[3] Net benefit to Covered Species means achieving mitigation that result in a net increase in individuals compared to the permitted amount of take of the Covered Species (i.e., mitigation offset is greater than permitted take).

This mitigation area is within portions of TMK (2) 3-1-006:001, (2) 3-1-006:003, and (2) 3-1-006:005 (por), which is owned by the State of Hawaii.

- Kaheawa Pastures (Project Area and Adjacent Lands): The assimulans yellow-faced bee mitigation area would be located within the Project Area or on adjacent, DNLR-owned lands. This mitigation would take place within the same TMKs as the Project Area (i.e., TMK (2) 4-8-001:001 (por) and (2) 3-6-001:014 (por).

- Future mitigation sites that have not yet been identified (e.g., ʻōpeʻapeʻa [hawaiian hoary bat] and ʻakēʻakē [band-rumped storm petrel] mitigation sites); all mitigation actions are currently anticipated to occur within the geographic region of Maui Nui which includes the islands of Maui, Molokaʻi, Lānaʻi, and Kahoʻolawe, though other locations within the Hawaiian Islands may be considered for certain seabird species if appropriate and consistent with conservation objectives.

Description of the Existing KWP 1 Facility

The existing KWP 1 facility comprises 20 WTGs, one substation, one O&M building, one warehouse storage facility, access roads, power collector system, communication systems, and transmission interconnections. The KWP 1 WTGs are GE 1.5se turbine models rated for 1.5 MW each and are arranged in a single articulated row. Each turbine tower reaches a height of 180 feet (i.e. hub height), with rotor diameters of 231 feet, resulting in a total structural height of about 296 feet at the maximum blade tip. Each WTG consists of four principal elements:

- A three-bladed rotor (comprised of three blades, pitch controls, and a rotor hub) attached to the nacelle, which converts the wind's energy into rotational shaft energy;
- A nacelle that houses a generator (which converts the rotational shaft energy into an electrical current), controller (which starts and stops the turbine depending on conditions), yaw system (which controls the turbines orientation), and the main mechanical components of the WTG (i.e., gearbox, main driveshaft and bearings, and power electronics);
- A tower that holds the rotor and nacelle above the ground; and
- Electronic equipment at the base of the turbine such as controls, electrical cables, and a transformer.

The intra-turbine power collection system includes 34.5-kV collector lines that carry the power produced from the transformers at the base of each WTG to the KWP 1 substation. The collector lines, fiber optic communication lines and supervisory control and data acquisition (SCADA) lines are buried approximately 4 feet below grade. Power generated by KWP 1 is integrated into the Hawaiian Electric island-wide grid through the existing Hawaiian Electric switchyard which is located immediately adjacent to the KWP 1 substation. The Hawaiian Electric switchyard connects to the 69-kV transmission line that runs through the Project Area immediately south of the KWP 1 substation and Hawaiian Electric switchyard (Figure 1-2).

The existing O&M building and warehouse storage facility serve both the KWP 1 and KWP 2 wind facilities. The O&M building also has two bathrooms and office space to support onsite O&M personnel. Wastewater is managed through an existing onsite septic system. Non-potable water for the O&M building is supplied by an existing rain catchment system consisting of three 500-gallon tanks. When the catchment system does not provide sufficient water, additional water is purchased and delivered to the site by a third-party vendor. Drinking water is trucked to the site for O&M personnel needs.

A non-operational steel lattice, guyed meteorological tower, approximately 175 feet tall and supported by a 1.5-square-foot concrete base, is located directly south of the KWP 2 BESS facility. The existing met tower guy lines are equipped with bird diverters.

Proposed Action (Continued Use)

The Proposed Action involves continuing use of the existing KWP 1 wind generation facility for an additional 20 years. The Proposed Action consists of three components/phases: 1) continued operation and maintenance, 2) HCP compliance activities, and 3) decommissioning and restoration.

Continued Operations

The Proposed Action involves continuing operation of the existing KWP 1 facility for an additional 20 years. The existing 20 WTGs would continue to operate, generating up to 30 MW of renewable energy. The substation, switchyard, and interconnection equipment would remain in place, allowing the energy generated by the turbines to be transmitted to the Hawaiian Electric island-wide grid. The O&M building and warehouse storage facility would continue to be used to support KWP 1 operations. The Proposed Action would require no construction or physical improvements beyond the maintenance activities described below. Throughout the 20-year operational period, KWP 1 would implement operational controls and industry standard BMPs, including those summarized in Table ES-5, to avoid and minimize adverse impacts to the community or environment.

No significant ground disturbance is anticipated to occur during the continued use operational period. However, minor grading or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities, to maintain the primary and secondary access roads for service vehicles, and to maintain vegetation free buffers (i.e., 230 feet (70 meters) of each WTG and 30-foot buffers around the substation and switchyard, and O&M building) to provide fire breaks and assist with HCP compliance monitoring. Certain timing restrictions and other vegetation management restrictions to minimize impacts to listed species are included in the KWP 1 Vegetation Management Plan (Appendix F). Ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint as shown in Figure 2-1. The total Limits of Disturbance (LOD) is approximately 58 acres. Within the LOD, approximately 35 acres (60 percent) are impervious and semi-impervious surfaces (e.g., buildings, turbine pads, and gravel laydown areas and roadway) and 23 acres (40 percent) is vegetated / pervious surfaces.

KWP 1 would continue to employ approximately five O&M personnel and two HCP compliance personnel on a daily basis to ensure the turbines and supporting facilities are operating properly and safely, to

monitor the condition of the internal roadways, to conduct vegetation management, and to conduct any needed maintenance. During a normal day of operation, the KWP 1 facility typically generates approximately seven round trip vehicle-trips along Honoapiʻilani Hwy.

Maintenance Activities

The Proposed Action includes an initial maintenance period where maintenance activities would occur on multiple WTGs at once. This initial maintenance is anticipated to occur over an approximately 6-to-9-month period prior to the start of the Proposed Action's commercial operations under a new 20-year PPA. During this time, the WTGs would not be producing power for the Maui Electric grid, thus allowing all the WTGs to be taken off-line and be available for maintenance work.

In addition to the initial maintenance activities, some components are expected to need replacement or refurbishment periodically during the 20-year continued use operational period. Regular inspections and maintenance over the course of the 20-year continued use operational period would ensure that the WTGs continue to operate in a safe and reliable manner. The WTG specifications in regard to tower height, diameter, and blade length are anticipated to remain the same over the 20-year extension period.

Maintenance work that could occur during the initial maintenance period or during the 20-year continued use operational period may include refurbishment or replacement of some components of the WTGs and site preparation for equipment transport and maintenance activities may involve civil work including recontouring the existing onsite access roads, turbine pads, crane paths, and/or onsite staging areas. No significant structural retrofits of WTG foundations are anticipated and other support infrastructure including underground electrical collection lines, fiber optic lines and SCADA systems, the O&M building, and warehouse storage facility are not anticipated to require refurbishment or replacement. The existing met tower would either be removed or replaced under the Proposed Action. A more detailed description of the proposed maintenance activities is included in Section 2.1.2, *Continued Operations*.

While typical maintenance activities are not anticipated to generate vehicle trips beyond normal operational levels, additional vehicle trips may be generated during the initial maintenance period when maintenance activities would occur on multiple WTGs at once. During the initial maintenance period, on-site employment is expected to average 15 workers on a typical maintenance day (50 workers on a peak day), which is estimated to generate an average of 15 round-trip vehicle trips per day to and from the highway/access road intersection (50 round trip vehicle trips on a peak day). Material, equipment, and waste from maintenance activities would also be transported to and from the Project Area via traditional sized transport trucks. The number of round-trip truck trips is anticipated to average 5 per day (20 on a peak day). Peak activity days are anticipated to only occur periodically, (i.e., on and off during the approximately 6-to-9-month maintenance period) and would typically be less than two weeks in duration. Nearly all vehicle and truck trips would occur during daytime, work hours (6:00 a.m. to 5:00 p.m.). Although no turbine blades or tower components are anticipated to be replaced during the initial maintenance period and therefore not anticipated to be transported to or from the Project Area, other

heavy or oversized loads for equipment such as cranes, grading equipment, or heavy trucks may be needed to transport equipment to the Project Area. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network.

Community Benefits Program

The RFP 3 required RFP proposers to provide a Community Benefits Package that addresses needs in the community to benefit community members. Kaheawa Wind 1 is committed to providing a Community Benefits Package valued at $300,000 per year for the 20-year PPA term of the Proposed Action, or $6 million for the term of the Stage 3 PPA. This is three times more than the annual community benefit funding guidance provided by Hawaiian Electric in the RFP 3 process. The Applicant has conducted outreach to obtain the community's input on the Community Benefits Program, and this outreach is ongoing, with the goal of tailoring the program to address the needs and choices identified by the community. The community is being further defined through public consultation and outreach. The Community Benefits Program would be implemented starting from the commencement of the Stage 3 PPA, which is anticipated to begin in December 2026. The Applicant anticipates partnering with one or more local, 501(c)(3) non-profit organizations to administer the benefits program over the lifetime of the project.

HCP Compliance Activities

KWP LLC is preparing an HCP (Tetra Tech 2025a) to accompany its application for an ITP from USFWS and ITL from DLNR DOFAW as the Proposed Action is likely to impact species listed under the Federal ESA and protected under the State of Hawai'i's endangered species law under HRS Chapter 195D. The Proposed HCP and new ITP/ITL, would cover incidental take that is anticipated to occur due to an additional 20.5 years of KWP 1operations (including approximately 6 months under the current PPA). KWP 1 is requesting a new ITL and ITP that would be valid through 2048. The Permit Area includes the Project Area and HCP mitigation sites.

The species proposed for coverage in this HCP include: Nēnē (Hawaiian goose), ʻŌpeʻapeʻa (Hawaiian hoary bat); ʻUaʻu (Hawaiian petrel); ʻAʻo (Newellʻs shearwater); ʻAkēʻakē (Band-rumped storm petrel), and assimulans yellow-faced bee.

The Proposed Action is anticipated to result in the take of up to 69 nēnē (Hawaiian goose), 38 ʻōpeʻapeʻa (Hawaiian hoary bat), 29 ʻuaʻu (Hawaiian petrel), 10 ʻaʻo (Newell's shearwater), and 10 'akē'akē (Band-rumped storm petrel) over 20.5 -years of operation (Tetra Tech 2025a)[4].

For the listed assimulans yellow-faced bee, habitat is used as a surrogate for take estimation. Of the 217-acre Project Area, a maximum of 23.2 vegetated acres may experience ground disturbance. Although

[4] To assess the anticipated level of take for each Covered Species, the Applicant used fatality data collected under the current ITP and ITL and modelled using the EoA program to project future take for an additional 20.5-year period at the 80 percent upper credibility limit (Tetra Tech 2025a). See Section 3.9, *Wildlife* for more information.

yellow-faced bee habitat is likely scattered and found within a subset of the overall acreage, the Proposed HCP conservatively estimated that potential impacts to assimulans yellow-faced bee may occur within the entire 23.2 acres. This number will be refined for the final Proposed HCP following site surveys.

Table ES-3 shows a comparison of the authorized take of Covered Species under the KWP 1's current HCP and the requested take for the Proposed Action.

Table ES-3. Summary of Current HCP Requested Take and Proposed Requested Take

Covered Species	Current KWP 1 HCP Tiers of Take			Total Adjusted Take through FY 2025 (80% UCL)[1]	Proposed Action Requested Level of Take
	Baseline Tier (Tier 1)	Higher Tier (Tier 2)	Notably Higher Tier (Tier 3)		
ʻŌpeʻapeʻa (Hawaiian hoary bat)	20	50	100-200	≤ 32	38
Nēnē (Hawaiian goose)	60	80-100	100-200	≤ 56	69
ʻUaʻu (Hawaiian petrel)	25	38	n/a	≤ 24	29
ʻAʻo (Newell's shearwater)	4	8	n/a	No take observed	10
ʻAkēʻakē (Band-rumped storm petrel)	n/a	n/a	n/a	No take observed	10
Assimulans yellow-faced bee	n/a	n/a	n/a	n/a	Up to 23.2 acres of habitat[2]

1. Includes direct take (e.g., standardized finds and incidental finds) and indirect take; based on preliminary data analysis to be updated as needed after annual reporting. UCL = Upper Credible Level

2. For the Assimulans yellow-faced bee, habitat is used as a surrogate for impacts. This acreage will be refined in the final Proposed HCP following site surveys.

HCP compliance activities would be implemented as part of the Proposed HCP (Tetra Tech 2025a). This would involve an average of two staff members on-site daily to conduct compliance activities such as post-construction fatality monitoring and associated bias correction trials, scavenger trapping, road and pad vegetation management, and biological monitoring for nēnē during vegetation management activities. The Proposed HCP also details species-specific avoid and minimize measures, which were developed in coordination with DNLR and USFWS. HCP compliance activities are designed to minimize and mitigate the impact on the Covered Species and to determine whether the biological objectives identified in the HCP are being met.

Mitigation would also continue to be implemented as part of the HCP compliance with the intent to fully offset the impact of the taking and provide a net conservation benefit. The mitigation proposed is for

future efforts but builds off of historic and ongoing mitigation efforts associated with KWP 1's current HCP (KWP 2006). While actions may be adaptively managed or expanded over time, potential mitigation efforts include, but are not limited to:

- Construction and/or maintenance of predator or ungulate fencing
- Removal of hazards as they relate to individual Covered Species (e.g., barbed wire)
- Social attraction using decoys and/or call playbacks
- Predator trapping and removal
- Vegetation management (e.g., invasive species removal, mowing, weed whacking, herbicide application, outplanting)
- Monitoring, including permitted handling of Covered Species, acoustic monitoring, and use of game cameras

The Proposed HCP (Tetra Tech 2025a) proposes mitigation programs to provide a net benefit to Covered Species as summarized in Table ES-4.

Table ES-4. Summary of KWP 1 Mitigation under the Proposed Action

Covered Species	Offset Requirement and Type	Mitigation Location	Mitigation Timing and Notes
ʻŌpeʻapeʻa (Hawaiian hoary bat)	> 38 ʻōpeʻapeʻa, which would be offset through habitat restoration efforts or habitat protection or through removal of hazards (e.g., barbed wire)	TBD location(s) on Lanaʻi, Molokaʻi or Maui	Acoustic surveys began in April 2025 on Lanaʻi and Molokaʻi. KWP would work with USFWS and DOFAW, along with landowners, on potential actions that could be taken at potential sites, and potential sites would be chosen after six months of acoustic data are collected (scheduled for April – October 2025). If no appropriate plan can be developed or if acoustic surveys do not indicate either site to be a viable option, the Applicant would adaptively manage to other sites on Lanaʻi or Molokaʻi or begin surveys at locations on Maui.
Nēnē (Hawaiian goose)	> 69 adult equivalent nēnē, which would be offset through direct replacement at propogation pens through fledglings and increased adult survival through trapping efforts, maintenance of predator fencing, and other management efforts.	Haleakalā Ranch Nēnē Pen (Maui) Puʻu o Hōkū Nēnē Pen (Molokaʻi)	Sites currently exist and are already being utilized to propagate nēnē; offsets for the new ITP and ITL would begin upon permit issuance concurrent with the current (2006-2026) ITP and ITL mitigation obligations. Mitigation actions would continue until a net benefit has been achieved relative to the permitted amount of take (and any accrued lost productivity).

Covered Species	Offset Requirement and Type	Mitigation Location	Mitigation Timing and Notes
ʻUaʻu (Hawaiian petrel)	> 29 ʻuaʻu, which would be offset through direct replacement through fledglings and increased adult survival through trapping efforts.	Greater Hiʻi Area (Lanaʻi)	Mitigation would be funded upon permit issuance for the following breeding season(s) and continue until the net benefit had been achieved.
ʻAʻo (Newell's shearwater)	> 10 ʻaʻo, which would be offset through direct replacement through fledglings and increased adult survival through trapping efforts, maintenance of predator fencing, and other management efforts.	Makamakaʻole (Maui)	Mitigation would be funded upon permit issuance for the following breeding season(s) and continue on an annual basis until the net benefit had been achieved.
ʻAkēʻakē (Band-rumped storm petrel)	> 10 ʻakēʻakē, which would be offset through metrics determined by USFWS and DOFAW and funded through NFWF.	TBD location(s)	Mitigation would be funded upon permit issuance or at a point in time agreed upon by DOAFW and USFWS.
Assimulans yellow-faced bee	Habitat mitigation to offset indirect and temporary impacts on up to 23.2 acres.	Project Area and Adjacent Lands within the same TMK (Maui)	Mitigation would be funded upon permit issuance, and is anticipated to begin after an assimulans yellow-faced bee survey occurs in early 2026. Mitigation would continue until the net benefit has been achieved.
1. Acreage for assimulans yellow-faced bee mitigation will be refined in the final Proposed HCP following site surveys.			

Decommissioning and Restoration Activities

Major activities required for decommissioning and restoration would typically occur in reverse order to the original construction activities and are listed below:

- Disassembly and removal of WTGs would include removal of the rotor (hub and blades) from the nacelle with a crane and turned horizontally and set on the ground. Once the turbine rotor has been removed, a crew and small crane would disassemble it into the hub and three loose turbine blades. When the rotor is disassembled, the blades would be sized for subsequent transport by trucks. The hub can also be removed once it is disassembled from the blades. Next, the nacelle would be removed from the top of the tower, followed by each portion of the tower. Turbine tower portions would be sized onsite for transport by trucks.
- Turbine foundations would be removed to a depth as specified by DLNR up to complete removal. The concrete would be reduced in size by excavator attachments and transported for disposal offsite. Concrete and steel would be hauled off-site. Foundations would be filled with reclaimed onsite cut and fill material, and if offsite material would be needed, native weed-free aggregate and soils would be utilized.

- Electrical collection system removal would be completed for above-ground structures and decommissioning in place for below-ground cables, or otherwise required by DLNR.
- The O&M building and warehouse would be retained for KWP 2 facility use.
- Access roads would be removed only as required by and in accordance with lease agreement with DLNR. Access roads associated with the KWP 2 easements would be left for KWP 2 facility use. Road disturbances would be re-graded to original contours to the extent possible where cut and fill made recontouring feasible. Any roads left in place would become the responsibility of the DLNR or easement holder.
- Disturbed areas would be graded to preconstruction contours where feasible unless directed otherwise by DLNR or if doing so would present greater risk of environmental degradation via erosion or other mechanism.
- Revegetation of disturbed areas would be completed with approved native vegetation or pasture grass species to promote establishment of natural vegetation to extent possible.
- Recycling and disposal of materials, WTG components, and any hazardous and regulated materials and wastes would be conducted per applicable local, state, and federal regulations.
- Decommissioning and restoration would largely restore the visual and ecological character of the landscape and also remove effects to other environmental and public resources that may have occurred as a result of facility operations.
- The Hawaiian Electric equipment located at the KWP 1 substation may be decommissioned based on Hawaiian Electric's future needs of the site.

Prior to decommissioning/restoration, the Applicant would develop BMPs and a SWPPP to submit for a National Pollutant Discharge Elimination System (NPDES) permit and any other relevant permits and authorizations based on the anticipated disturbances for both demolition and ground disturbance required for component removal.

Decommissioning of the KWP 1 facility would generate vehicle and truck traffic on area roadways throughout the approximately 2-year decommissioning and restoration period. Most of these trips would be associated with employee commute trips to and from KWP 1 and with the delivery of decommissioning materials to off-site areas. During the decommissioning and restoration period, on-site employment is expected to average 40 workers on a typical maintenance day (60 workers on a peak day), which is estimated to generate an average of 40 round trip vehicle trips per day to and from the highway/access road intersection (60 round trip vehicle trips on a peak day). Most material, equipment, and decommissioning wastes would be transported via traditional sized transport trucks. The number of round-trip truck trips is anticipated to average 20 per day (50 trucks on a peak day). This would be an average of 20 round-trip truck trips (50 round-trip truck trips on a peak day) to and from the highway/access road. Peak decommissioning activities are not likely to occur more than six months out of the two-year decommissioning period. Nearly all vehicle and truck trips would occur during daytime,

work hours (6:00 a.m. to 5:00 p.m.). Heavy or oversized loads may be required to transport some heavy equipment (i.e., cranes) and larger debris from WTG components. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network. Heavy or oversized loads would be scheduled outside of peak traffic hours when practicable.

No work is anticipated to be required in existing highway rights-of-ways to accommodate decommissioning, however the transport of large pieces of equipment may cause temporary traffic delays and may require traffic control measures to minimize disruption.

Schedule

Major milestones associated with the Proposed Action are anticipated as follows:

- Complete HEPA review process: Q4 2025
- PUC approval of PPA: Q1/Q2 in 2026
- Obtain and begin new land lease: Q1 2026
- Obtain ITL and ITP: Q1 2026
- Initial Maintenance Period: Q3/Q4 2026
- Begin new Stage 3 PPA: Q4 2026
- Continued Operations: Q4 2026 – Q4 2046
- Decommissioning and Restoration: Q4 2046 – Q4 2048

Best Management Practices

O&M activities and decommissioning activities would incorporate BMPs to avoid and minimize potential impacts to the surrounding environment. BMPs would include various procedures, practices, treatments, structures and/or devices designed to eliminate and minimize the potential discharge of pollutants to downstream waters. Table ES-5 lists industry standard BMPs, Project-specific design features, and Project plans that together reduce potential impacts to environmental resources. Avoidance and minimization measures specific to each resource area are discussed in Section 3.

Table ES-5. Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
Existing Avoidance, Minimization, and Mitigation Measures
Maintain permanent landscaping and stabilizing all disturbed soil areas not subject to re-vegetation with gravel.
Minimize the extent of disturbed area where possible.
Keep access roads in good working condition.
Limit vehicle speed on all unpaved access roads to 10 miles per hour.
Maintain all vehicles and heavy equipment in proper tune according to manufacturer's specifications. Suitable mufflers or air-inlet silencers are installed on all internal combustion engines and certain compressor components.
Cover all trucks hauling dirt, sand, soil, or other loose materials.
Use a water truck or sprinklers to minimize the amount of airborne dust leaving the Project Area, when necessary.
Apply herbicide in accordance with manufacturer's instructions and industry BMPs.
Maintain onsite drainage features (e.g., culverts, swales, and drainage ditches) to control erosion, prevent damage to downstream properties and have waters follow to the natural drainage course in a manner which minimizes sedimentation or other pollution to the maximum extent practicable.
Implement an Emergency Response Plan (Brookfield 2022), which includes safety measures and precautions as well as response protocol to minimize risks to people and property in the event of a natural hazard or emergency.
Implement a SPCC Plan (WSP 2023) that identifies potential spill sources, preventive measures, control and response procedures, inspection programs, and required training of personnel to prevent the discharge of oil and hazardous substances from the KPW 1 facility. Ensure proper use and storage of hazardous material and implementation of BMPs to prevent spills and contamination of soils and water resources.
Minimize the movement of plant or soil material between worksites to prevent the spread of detrimental pathogens and invasive species.
Implement BMPs to minimize the introduction and spread of pathogens and invasive species.
Regularly service and maintain turbines, reducing the potential for damage or failure.
Follow the standard operating procedure in the event of a weather emergency. If the National Weather Service issues a severe weather watch for the site (for events such as a hurricane or a severe thunderstorm), the operations manager or designee determines if the warning affects the site location, and if so, immediately warns employees of the pending emergency and implements precautions.
WTGS are equipped with an IEC Class 2 lightning protection system and are grounded to mitigate the effects of a lighting strike.
WTGs automatically cut out and the blades feather to an inactive position (i.e., perpendicular to the wind) when winds speeds exceed 56 mph. The structural design of the WTGs allows them to withstand winds of at least 156.5 mph when the blades are in the feathered position.
Ensure that all structural elements on the Project Area were constructed in accordance with building code requirements at the time of construction (i.e., 2006) to prevent damage from earthquakes.
The KWP 1 facility is designed with fire prevention elements. Facility components were constructed with noncombustible materials. The towers supporting the turbines are steel, mounted on concrete foundations; the interconnecting electrical systems are below ground. The auxiliary operations and maintenance facilities are constructed of noncombustible construction and exterior finishes.
Maintain graveled, vegetation free buffers around buildings and the WTG foundation pads, which act as fire breaks.
Implement a Fire Contingency Plan (DLNR 2005) and Wildfire Prevention Plan (TerraForm 2025).

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
Maintain onsite fire-fighting resources including fire extinguishers in the O&M building, at the substation, and in all project vehicles, as well as shovels and backpack pumps in the O&M building and maintenance vehicles.
Maintain a fire-suppression system within the BESS facility.
Educate all onsite contractors and personnel on fire prevention and emergency response policies.
Conduct routine checks of electrical connections, washing substation equipment as outlined in the final design specifications and periodic infrared reconnaissance of electrical components to identify potential faults before they lead to a failure.
Monitor 24/7 live streams of the Project Area with ALERTWest camera systems to detect smoke and other early indications of fire in real time.
Inspect and maintain containment and diversionary structures regularly.
Use available spill equipment to prevent discharged oil from leaving the Project Area.
Ensure that all personnel who handle or could come into contact with hazardous and regulated materials and waste are sufficiently trained in the proper way to use and dispose of these materials.
Use chemicals in accordance with manufacturer's instructions and industry BMPs including: keep materials in their original containers with the original manufacturer's label; seal containers whenever they are not in use; procure and store only the amount of chemicals needed for the job; and follow the manufacturer's recommendation for proper handling and disposal.
Implement a Site Safety Handbook and posts Safety Data Sheets for all hazardous materials stored and used onsite. The Site Safety Handbook addresses proper hazardous materials management and worker training procedures to minimize the risk of worker exposure.
Ensure the proper use of personal protective equipment.
Maintain site security to prevent unauthorized personnel from accessing KWP 1 facilities.
Revegetate areas that have been temporarily cleared of vegetation within thirty days of the completion of the ground clearing activity.
Crew members receive training for endangered species awareness (WEOP), health and safety covering personal protective equipment, proper use of tools and equipment, and herbicide application and decontamination protocols.
Inform KWP 1 personnel and contractors about the presence of endangered and threatened species on-site and advised them not approach, feed, or disturb wildlife.
Implementing stop work requirements if a listed species is observed on-site during ground disturbance activities.
Limit the opportunity for habitat attractants such as mice and rats.
KWP 1 Design Features to Reduce Impacts on Wildlife • Equip the existing KWP 1 met tower guy lines with bird diverters to minimize bird collisions. • Employing relatively few turbines situated in a single row, rather than a large number of turbines in multiple rows. • Using "monopole" steel tubular towers, rather than lattice towers, to eliminate perching and nesting opportunities. The tubular towers may also reduce collision risk because they are considerably more visible. • Using a smaller tower (55 meters) than is typically used with the GE 1.5 turbine (65 meters or greater), to potentially reduce the risk of collision for birds and bats, even though such risk is not demonstrably related to the tower height. • Utilizing a rotor with a significantly slower rotational speed (11-20 rpm), which makes the rotor much more visible during operation (previous designs had 28.5 and 34 rpm rotors). • Choosing a site in proximity to existing electrical transmission lines to eliminate the need for an overhead transmission line from the project to the interconnect location; placement of all new power collection lines underground to eliminate the risk of collision with new wires;

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
• Designing and installing the site substation and interconnect to Maui Electric's transmission lines using industry-standard measures to reduce the possibility of wildlife electrocutions.
Conduct post-construction fatality monitoring to monitor potential impacts to non-listed and listed wildlife as a result of KWP 1 operations.
Adaptively manage the minimization and mitigation measures described herein and in the current KWP 1 HCP (KWP 2006), as needed, in coordination with USFWS and DOFAW.
'Ōpe'ape'a • Avoid trimming or removal of vegetation taller than 15 feet between June 1 and September 15, when juvenile 'ōpe'ape'a that are not yet capable of flying may be roosting in the trees. If tree removal is needed during the pupping season (due to a conflict with nēnē breeding season or for a site safety issue), a biological monitor would evaluate the trees first for roosting bats. • Implement LWSC below 5.5 m/s from sunset to sunrise from February 15 through December 15. • Conduct acoustic monitoring for bat activity at KWP 1.
Nēnē • Implement the vegetation management goals outlined in the nēnē-specific vegetation management memo (Tetra Tech 2021a) to limit favorable habitat on site. • Avoid creating areas with standing water and managing woody vegetation to minimize attracting nēnē. • Monitor nēnē activity on site to inform areas of vegetation management needs and successes. • Routinely inspect the Project Area for nēnē nests during the breeding season (September through April) and communicate observed nest and fledging to DOFAW Maui. • Vegetation management is limited to time periods outside the nēnē nesting season and accompanied by a biological monitor for nēnē.
Seabirds ('A'o, 'Ua'a, and 'Akē'akē) • Fully shield all outdoor lights to the bulb can only be seen from below. • Install automated motion sensor switched and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area. • Avoid nighttime construction during the seabird fledgling period (September 15 to December 15) that could attract or disorient seabirds.
Blackburn's sphinx moth • Project biologist is trained in tree tobacco survey methods and would report any observations of Blackburn's sphinx moth larval host plants during weekly HCP compliance monitoring and if observed, KWP 1 would coordinate removal of any non-native host plants under 3 feet.
Implement mitigation measures to offset unavoidable take of Covered Species, as summarized in Table 3-13.
Provides access to the wind farm site for cultural groups seeking access to the natural resources on site or mauka of the site.
Originally site the KWP 1 facility away from residences and other sensitive sound and visual receptors.
WTGs were placed in uniform layouts to present a trim, uncluttered, aesthetically attractive appearance.
WTGs were painted with white, non-reflective paint to minimize the need for daytime aviation lighting and eliminate glare from the turbines.
Auxillary structures were sited where natural topography features largely impede their view from public places and residences and collector lines were buried whenever possible.
The KWP 1 facility maintains a clean-looking facility, free of debris and unused or broken-down equipment; equipment and supplies are stored in designated areas within the O&M facility, and damaged or unusable equipment is promptly removed from the site.

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
Maintain open communication with the community and respond appropriately and promptly to community concerns and complaints.
Developed a Community Outreach and Communications Plan (KWP 2023) to inform the public and gather feedback from target communities and stakeholders during the planning, development, and execution of the Proposed Action.
Proposed Action's Avoidance, Minimization, and Mitigation Measures
General Dust Control Measures • Design, develop and implement a dust control plan for maintenance and decommissioning activities. • Apply water, dust suppressants, or suitable compounds in the demolition of existing structures, grading or clearing of land, and on roads and material stockpiles. • Clean up material spills as soon as possible. • Install dust screens or wind barriers around demolition sites, as needed. • Implement permanent dust control measures identified in the project landscape plans as soon as possible following completion of any soil disturbing activities.
Earthmoving Activities and Stockpiles • Pre-apply and re-apply water as necessary to maintain soils in a damp condition. • Limit the amount of exposed areas through planning and timing of project phases. • Cover temporarily exposed areas with mulch. • Stabilize stockpile materials. • Keep stockpiles wet or damp as needed • Cover stockpile when not in use. Use mulch or synthetic cover based on usage of stockpile. • Keep drop or pile height as low as possible.
Trucks and Vehicles • Maintain all construction equipment in proper tune according to manufacturer's specifications. • Maximize to the extent feasible, the use of diesel construction equipment meeting the latest certification standard for off-road heavy-duty diesel engines. • Provide water while loading and unloading to prevent fugitive dust. • Maintain at least six inches of freeboard on haul vehicles. Level the height of load. • Cover all trucks hauling dirt, sand, soil, or other loose materials. • Install a gravel pad and grizzly at exit and use a tire wash or spray system, as needed.
Prior to the initial maintenance and decommissioning and restoration periods, obtain a National Pollution Discharge Elimination System (NPDES) permit (as needed) and develop and implement an ESCP and SWPPP setting forth ground disturbance limits and BMPs. The ESCP and SWPPP would contain a description of the characteristics of the Project Area such as nearby surface waters, topography, and storm water runoff patterns; identification of potential pollutants such as sediment from disturbed areas, and stored wastes or fuels; and identify BMPs that would be used to minimize or eliminate the potential for these pollutants to reach surface waters through storm water runoff.
Stage maintenance and decommissioning activities to minimize the amount of disturbed area at any given time.
During the initial maintenance and decommissioning and restoration periods, stabilize all disturbed areas with temporary erosion control measures that may include: • locating potential nonpoint pollutant sources away from steep slopes, water bodies, and critical areas; • protecting and retaining natural vegetation; • stockpiling topsoil, covering the stockpile to prevent dust, and reapplying the topsoil; • covering or stabilizing all soil stockpiles;

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
• using wind erosion control; • intercepting runoff above disturbed slopes and conveying it to a permanent channel or storm drain; • constructing benches, terraces, or ditches at regular intervals to intercept runoff on long or steep disturbed or man-made slopes; • providing linings or other method to prevent erosion of storm water conveyance channels; • using check dams where needed to slow flow velocities; • using seeding and fertilizing, mulching, sodding, matting, blankets, bonded fiber matrices, or other effective soil erosion control technique; and • providing vehicle wheel wash facilities for vehicles before they leave the Project Area.
During the initial maintenance and decommissioning and restoration periods, capture sediment that is transported in runoff to minimize the sediment from leaving the Project Area. Sediment control measures may include sediment basins; sediment traps; filter fabric silt fences; straw bale, sandbag, or gravel bag barriers; inlet protection; stabilized construction entrances, and other measures to minimize offsite tracking of sediment by construction vehicles; and vegetated filter strips.
Commence reclamation as soon as practicable following equipment removal, ideally before the next growing season following the completion of ground-disturbing activities, to minimize the spread and establishment of invasive weed species in affected areas.
Implement permanent erosion control measures, which may include: recontouring, soil decompaction, designing final onsite drainage to control erosion and minimizes sedimentation, topsoil replacement, seeding, and signage and fencing to minimize further human disturbance in these recovering zones.
Implement any additional control measures set forth in the ESPC and SWPPP.
Direct stormwater runoff to vegetated areas by means of vegetated stormwater infiltration basins, water detention basins, and planned vegetation management.
Develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities and the use, storage, and handing of petroleum-based products used for decommissioning equipment.
Prior to decommissioning, revise and implement the Emergency Response Plan (Brookfield 2022) and Site Safety Handbook and update safety measures and precautions to minimize risks during decommissioning.
Limit ground disturbance to areas within the LOD to the extent practicable.
Implement the KWP 1 Vegetation Management Plan (Appendix F).
Implement the Invasive Species Prevention Plan (Appendix G) to minimize the introduction and spread of invasive species associated with the Proposed Action.
Prior to commencement of ground disturbing activities, all on-site Project staff and contractors would be provided the WEOP training. The training would include information on the sensitive native botanical resources and invasive species prevention protocols.
Vegetation removal/management would be completed by a qualified vegetation management company.
If vegetation removal is needed in areas outside of the existing maintained areas (i.e., around WTGs, roads, structures), a plant expert/botanist would be hired to determine if any areas with native plants should be avoided. Any areas to be avoided should be flagged with highly visible tape or temporary perimeter fencing should be installed to prevent disturbance. The plant expert/botanist may also supervise removal work, if needed. If removal is required, native plants may be translocated or replaced.
Removal/disturbance of ilima would be avoided to the maximum extent practicable.
Conduct post-construction fatality monitoring to monitor potential impacts to non-listed and listed wildlife as a result of continued KWP 1 operations.

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
Adaptively manage the minimization and mitigation measures described herein and in the Proposed HCP, as needed, in coordination with USFWS and DOFAW.
Ōpeʻapeʻa • Continue to implement existing avoidance and minimization measures. • Barbed wire within the Project area would be minimized to the maximum extent practicable.
Nēnē • Continue to implement existing avoidance and minimization measures. • Traffic signage would be used in areas of higher nēnē use for general awareness, and the locations of this signage may be increased and/or updated over time in conjunction with the location(s) nēnē use observations. • During fatality monitoring, precautions would continue to be taken to prevent potential canine interactions with the nēnē. If nēnē are present in a search area, the canine handler would immediately retrieve and restrain the dog, avoid disturbing the birds, and would postpone searching in the vicinity of the birds, worked on leash away from wildlife and/or temporarily skipping canine searches in the proximity of the nēnē. • Engage with DOFAW Maui to band nēnē within the Project Area to track individual nēnē, better understand their movements, nesting location fidelity, and provide insight to nēnē mortality at KWP 1.
Seabirds (ʻAʻo, ʻUaʻa, and ʻAkēʻakē) • Continue to implement existing avoidance and minimization measures. • If nighttime construction (i.e., for maintenance or for decommissioning) during this period is unavoidable, KWP I would utilize a biological monitor during nighttime activities. This monitor would observe construction activities between approximately 0.5 hour before sunset to 0.5 hour after sunrise (i.e., when lighting is used) to be on lookout for wildlife species that appear to be disoriented or attracted to the lighting, or grounded by lighting, and facilitate corrective actions to be taken with the construction crew so as to avoid or minimize potential issues. If any Covered Species are observed being affected by the lighting, the biological monitor would immediately notify the construction manager that wildlife have been observed reacting to the lighting and that lighting may need to be reduced or turned off until the observed wildlife leave the area. If the individual(s) do not exit the construction area, the biological monitor would direct the construction manager to reduce lighting as soon as it is safe to do so. If the reduction in lighting does not appear to be sufficient (i.e., the individuals do not leave the area), lighting should be turned off as soon as it is safe to do so.

Assimulans Yellow-faced Bee
• ʻIlima Protection and Timing:
  ○ Avoid removal or disturbance of ʻilima to the maximum extent practicable.
  ○ If vegetation management affecting ʻilima must occur, schedule work between July and November, or when ʻilima is confirmed to not be flowering, corresponding with a presumed period of dormancy for yellow-faced bees.
  ○ If work must occur during the active season (December–June), a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for listed yellow-faced bees in the impact area and a 50-foot buffer around any ʻilima.
  ○ Any ʻilima plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional ʻilima may also be planted to supplement the translocated plant(s).
• Other foraging resources (natives):
  ○ Avoid removal of the native ʻuhaloa and ʻūlei to the maximum extent practicable

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
○ If vegetation management of these species must occur, schedule work when the species are not flowering or have a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer. ○ And native plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional outplantings may also be used to supplement the translocated plant(s). • Other foraging resources (non-natives: kiawe [*Neltuma pallida*] and koa haole [*Leucaena leucocephala* subsp. *Leucocephala*]): ○ Vegetation management of these species would be scheduled for when the species are not flowering or a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer. • Additional Measures: ○ Restrict vehicle use to existing roads, and enforce the posted speed limit of 10 mph. ○ Include ʻilima and assimulans yellow-faced bees (including nests) in onsite environmental awareness training. ○ Limit herbicide use to periods between July and October, which is outside the active period for assimulans yellow-faced bees, and implement the following BMPs related to the use of herbicides (adapted from McKnight et al. 2018): ▪ Conduct herbicide applications on calm days when wind speed is <10 mph (avoid applications during gusty or sustained high winds) ▪ When available, use selective herbicides that are targeted to the species that need treating ▪ Use targeted application techniques ▪ Selectively control undesirable plants with spot treatments, frill treatment, weed wipe, or other well-targeted techniques to avoid non-target species ▪ Avoid broadcast applications of herbicides ▪ Keep applications on target and minimize drift • Carefully choose and calibrate your spray nozzles to minimize drift, ensuring only target plants are treated • When possible, utilize spatial or vegetative buffers around pollinator habitat ▪ Apply herbicide during the plant life stage when a weed is most vulnerable • Plants should not be sprayed when they are in flower or after they have gone to seed. This practice alone can greatly reduce herbicide exposure for the local pollinator community ▪ When possible, apply in the early morning or in the evening when pollinators are less active, and not during mid-day when bees and other pollinators are most active, especially if the optimal time to spray the target plant is when it is flowering • Assimulans Yellow-faced Bee Surveys ○ Surveys for YFB and their nests would be conducted by a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience), and would be developed in consultation with entomologists. These surveys would occur during the active assimulans yellow-faced bee period, prior to initial maintenance activities, and again at the end of the operational life prior to decommissioning. Surveys in the interim years would be conducted on an as-needed basis (i.e., if there is a need to disturb areas off the main roads and pads during the following year). ○ Following the guidelines in Blackburn et al. (2021), and adapted based on consultation with DOFAW entomologists, the surveys would be conducted during the following environmental conditions (if possible): ▪ Minimum temperature: Above 60° F (~15°C) ▪ Cloud cover: partly sunny or better. On cooler days the sun can play a very important role in bee activity ▪ Wind: less than 20 mph

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
▪ Precipitation: No rain and dry vegetation; wait three days after moderate to heavy rain which can remove nesting signs (e.g., expelled dirt) ▪ Time of day: target between 930am and 230pm ▪ Time of year: target the ▪ period of adult bee nest-building activity, roughly February through April. ○ Surveyors would walk the limits of disturbance, marking on a GPS any locations where YFB are observed on flowers, around nest sites, or over the ground. Nests would also be physically marked for avoidance.
Blackburn's Sphinx Moth • Continue to implement existing avoidance and minimization measures. • Site staff would be trained to identify tree tobacco and would report any sighting of tree tobacco to the onsite biologist or site manager; signage would be added to the O&M building illustrating different stages of tree tobacco for identification. • If tree tobacco less than 3 feet in height is observed within areas with potential vegetation disturbance, the plants would be removed immediately to prevent attracting Blackburn's sphinx moth. DOFAW recommends this removal occur during the dry season (usually May to October). • If tree tobacco over 3 feet in height is observed in an area requiring disturbance, a qualified biologist would thoroughly search the plant(s) for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). DOFAW and USFWS may be contacted for additional guidance. • Should any major ground disturbance occur within the Project Area, regular surveys for tree tobacco may occur in those areas to confirm tree tobacco is not present and there no impacts to the listed Blackburn's sphinx moth.
Pueo • Provide $11,000 in funding to the Hawai'i Wildlife Center as voluntary mitigation for the Pueo. • Before any ground disturbing activities that may disturb potential pueo nesting habitat, a qualified biologist would conduct surveys for pueo. Surveys should be done for 2-3 nights prior to ground disturbing activities during crepuscular hours from vantage points where the entire disturbance area can be observed. If any pueo breeding displays are observed, it is likely there could be a nest. • If pueo nests are detected in the Project Area at any time, a 328-foot (100 meters) buffer should be established in which no activity occurs until the nesting cycle is complete and the chicks are capable of flight. • As part of the WEOP Program, all construction and regular on-site staff would be trained to identify pueo and if pueo or a pueo nest are observed, staff would stop work and coordinate with onsite biologist to determine appropriate steps. • DOFAW staff should be notified of any nests or adult breeding behavior. • Where fences extend above the vegetation, KWP I would integrate three strands of polytape into the fence to increase visibility where feasible.
Implement mitigation measures to offset unavoidable take of Covered Species, as described in Section 2.1.3.3, HCP Mitigation and summarized in Table 2-2.
Educate Project operations and maintenance staff regarding the presence of valued cultural resources located within and adjacent to the Project Area, so they may understand the cultural significance of the area and the importance of ensuring that all operations and decommissioning activities, especially those conducted in the Project Area's upper elevations and in the general vicinity of the heiau, are carried out respectfully and with proper decorum.
Provide access to cultural practitioners to lands above and adjacent to KWP 1's wind farm operations.
Coordinate with SHPD to provide measures to address previously recorded historic properties, as needed.
Coordinate with the DLNR and provide the necessary funding to repair or replace the signs where the Lāhainā Pali Trail crosses the Kaheawa Pastures access road. The signs would remain in place for the duration of the Proposed Action.

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
continue to contribute $1,500 annually to the Na Ala Hele program as mitigation for visual impacts to the Old Lahaina Pali Trail (in compliance with the Project's CDUP conditions).
Ensure compliance with the SHPD-approved preservation plan for Site 05648 by consulting with SHPD to confirm the informational/cautionary signs were installed, assess whether they are visible and clear of vegetation, and to improve or replace the signs if they are illegible or damaged.
Support a curation agreement for the upland heiau (Site 50-50-09-05232). The Curation agreement would be between DLNR and a community group such as Maui Cultural Lands, to manage the heiau site. The Applicant would support the curator community group with the following activities: • Confirming the location of permanent makers identifying the perimeter of a 200-foot buffer from the heiau and if necessary, replace install markers if not easily visible. • Replacing the current educational signs with new ones identifying the heiau and non-disturbance buffer. Signage text would be determined by the curator group. • Managing vegetation within the heiau. • Onsite employees and contractors (when appropriate) would be notified regarding the location of the heiau and the requirement to avoid impacts within a 200-foot buffer of the site. • Prior to any ground disturbing maintenance activities occurring within 500 feet of the heiau, ensure a cultural/archaeological monitor is onsite to monitor work within 500 feet of the heiau.
In the event that human remains are discovered, all construction activities in the immediate vicinity would be halted, and the SHPD staff would be notified in accordance with HAR §13-300-40. The final disposition of any discovered human remains would be determined by SHPD staff. Possible treatments for inadvertent discoveries may include preservation in place or disinterment followed by reburial near the original find location.

Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources
Document, investigate, evaluate, and resolve project-related noise complaints, if any arise.
Maintain all maintenance and decommissioning equipment in good working order in accordance with manufacturer specifications. Suitable mufflers or air-inlet silencers should be installed on all internal combustion engines and certain compressor components.
Obtain a noise permit or community noise variance, as needed, prior to maintenance and decommissioning activities.
Limit noisy maintenance and decommissioning activities to the least noise-sensitive times of day (daytime only, between 7:00 a.m. and 7:00 p.m.) and weekdays.
Post-decommissioning, restore the Project Area to as close to pre-construction conditions as feasible, to promote the open space characteristic of the area.
Prior to the initial maintenance and decommissioning/restoration periods, post signage at the intersection of the Kaheawa Pastures access road and the Lāhainā Pali Trail to advise hikers of the traffic on the access road.
Develop and implement a Traffic Control Plan for decommissioning and restoration activities. The Traffic Control Plan may include: • A police escort while transporting large WTG pieces during decommissioning. The escort would ride ahead of the truck warning other traffic of the oncoming load and stopping other vehicles for the few turns that are required; and • Traffic control at Honoapi'ilani Highway/Access Road Intersection. The entrance to the access road would be staffed by two people during working hours to stop other traffic for the 1-2 minutes that are needed for the large trucks to turn into and out of the site access road.
Encourage employees to carpool whenever possible to minimize vehicle trips, road dust, and greenhouse gas emissions.
Contribute $300,000 annually to a community benefits program for the 20-year PPA term of the Proposed Action Implement. The community benefits program is anticipated to be delivered and administered through a local, Maui-based 501(c)(3) non-profit organization for community benefits.

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No-Action Alternative

The only alternative analyzed in the EIS is the No Action Alternative. No other alternatives were identified that would meet the purpose and need of the Proposed Action which is to utilize the existing wind energy infrastructure to provide 30-MW of clean, renewable energy to the island of Maui in response to Hawaiian Electric's Maui Stage 3 RFP, the HCEI, and the State of Hawai'i's RPS.

Under the No-Action Alternative, the existing KWP 1 facility would not continue operations and would instead be decommissioned. Should a new lease term not be granted by the DLNR, decommissioning would commence after the end of the current lease term in Q1 2026 (or at a time determined by DLNR and the Applicant). Decommissioning and restoration activities would take place, as described above.

Existing Environment, Potential Impacts, and Mitigation Measures

Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures* describes the environmental setting as it exists before commencement of the action, and the potential impacts of the Proposed Action and No Action Alternative on environmental, cultural, and socioeconomic resources. Where applicable, the discussions draw from experience and data gained during construction and operation of the existing KWP 1 facility.

The potential impacts for each resource are discussed based on type, duration, intensity (magnitude), extent, and context of the impact. Impacts may be adverse or beneficial, direct or indirect, and short- or long-term. Implementation of avoidance and minimization measures may reduce the severity of the impact. Where major impacts cannot be avoided, mitigation measures are proposed to reduce or offset the adverse impact caused by the Proposed Action.

Each resource section (e.g., air quality, climate and climate change, etc.) includes a brief description of the existing environment and a summary of the potential impacts to that resource from the Proposed Action. Proposed impacts from the No-Action Alternative follows.

Proposed Action

Air Quality

As KWP 1 is located within an air quality attainment area, the Proposed Action would not result in significant adverse air quality effects so long as appropriate dust control measures are implemented. The Proposed Action would have minor direct impacts to air quality but would provide a moderate indirect beneficial impact to air quality by displacing fossil fuel generated electricity on the island of Maui. The Proposed Action's principal effect on air quality would be through the long-term reduction in emissions by offsetting electricity that would otherwise be produced by existing fossil fuel generating facilities or new renewable energy projects. KWP 1 operations, HCP compliance activities, and decommissioning would generate emissions from vehicle-trips to and from the Project Area, vehicle and equipment movement within the Project Area, the operation of gas-powered equipment such as mowers and generators, and fugitive dust generated from ground disturbance and the movement of vehicles and

equipment. Overall, increased air emissions and fugitive dust levels would be minor, temporary, and in a localized area. With the continued use of BMPs, the Proposed Action would not be anticipated to exceed State and Federal ambient air quality standards and would limit fugitive dust emissions in compliance with HAR § 11-60.1-33. After the KWP 1 facility is decommissioned, restoration activities would revegetate disturbed areas with native or pasture grass species, which would have a long-term, beneficial impact on fugitive dust.

See Section 3.2, *Air Quality* for additional information.

Climate and Climate Change

The Hawaiian Islands have a tropical climate, characterized by relatively mild temperatures and moderate humidity throughout the year (except at high elevations), persistent northeasterly trade winds, notable differences in rainfall across short distances, and infrequent, severe storms. Local climate conditions in Hawai'i are influenced by its rugged, mountainous topography and the persistent flow of the trade winds (Giambelluca and Schroeder 1998). The KWP 1 facility is located on the leeward side of the island of Maui within the West Maui Mountain range. The topography of Maui and the West Maui Mountains is largely responsible for the heightened wind velocity and power at Kaheawa Pastures.

The global scientific community is in general agreement that human activities, specifically those resulting in the emission of GHGs, are contributing to a rise in average global temperatures (IPCC 2023). The GHGs associated with human activities that are of greatest concern are carbon dioxide from the combustion of fossil fuels and industrial processes, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The State of Hawai'i is committed to reducing its contribution to global climate change and has taken efforts to measure and reduce statewide GHG emissions.

The Proposed Action would have no effect on temperature, rainfall, humidity, or other meteorological parameters. The Proposed Action would generate clean, renewable wind energy for the Maui gird and would result in a long-term reduction in GHG emissions by offsetting electricity that would otherwise be produced by fossil fuel combustion. KWP 1 operations, HCP compliance activities, and decommissioning would generate GHG emissions, including carbon dioxide from operation of gas-powered vehicle and equipment. These GHG emissions are negligible, temporary, and, except for the vehicles traveling to and from the sites, would be isolated to the Project Area and mitigation sites.

See Section 3.3, *Climate and Climate Change* for additional information.

Geology, Topography, and Soils

The terrain within the Project Area slopes downward and the KWP 1 WTGs and axillary facilities are positioned at elevations between approximately 2,000 and 3,200 feet whereas the staging area/parking lot is located at approximately 100 feet (USGS 2025a). The Project Area and vicinity is underlain by basaltic and silicious rocks known as the Wailuku Volcanics (1.3 – 2.0 million years old) and Honolua Volcanics (1.1 – 1.3 million years old), respectively (Stearns and Macdonald 1942). According to the USDA NRCS Web Soil Survey (NRCS 2023), there are five soil associations in the area of the Proposed

Action facilities: Naiwa silty clay loam, 13 to 45 percent slopes (50.5 percent of the Project Area); Olelo silty clay, 15 to 50 percent slopes (13.2 percent); Oli medial silt loam, 13 to 45 percent slopes (23.3 percent), rock land and rock outcrop (2.5 percent), and rough broken and stony land (10.3 percent) (Figure 3-3). These soil types are generally not suited to mechanized production of common field crops without special management; hence their agricultural usefulness is largely limited to pasture and wildlife habitat. Soils within the Project Area have been disturbed from previous land uses including the construction and operation of the existing KWP 1 facility.

Short and long-term impacts to geology, topography, and soils are expected to be minimal because the Proposed Action would utilize the existing turbines and auxiliary facilities. The Proposed Action would result in small increase in the amount of new semi-pervious surfaces (i.e. aggregate) in the Project Area, primarily from regrading and resurfacing the gravel WTG pads, crane pads, and access roads. No new impervious surfaces (i.e. concrete) are anticipated. The Proposed Action would result in minor ground disturbance during maintenance activities and decommissioning, much of which would be temporary and restored/revegetated upon completion of that phase of activity. Ground disturbance increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, could increase sedimentation in down-gradient areas or water bodies, and would alter natural vegetation and increase the opportunity for the introduction and spread of invasive species. Implementation of BMPs, including implementation of ESCP, SWPPP, SPCC (WSP 2023), Vegetation Management Plan (Tetra Tech 2025e, Appendix F), and Invasive Species Prevention Plan (Tetra Tech 2025f, Appendix G), would minimize these impacts such that the impacts to geology, topography, and soils would be negligible to minor. Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions. Removal of impervious and semi-impervious surfaces within the Project Area would result in a long-term beneficial impact on water resources.

See Section 3.4, *Geology, Topography, and Soils* for additional information.

Water Resources

The Project Area is primarily within the boundaries of the Ukumehame aquifer system (aquifer code 60206, as designated by the CWRM) while the access road is within the Waikapū aquifer system (aquifer code 60101, as designated by CWRM) (HDOH 2024). These aquifers are currently or have the potential to be used as drinking water. There are no groundwater wells associated with the KWP 1 operations within the Project Area.

The Project Area is primarily within the Pāpalaua watershed, and the access road is within the Pōhākea watershed (CWRM 2008). There are no perennial streams or wetlands within the Project Area. Two non-perennial streams intersect portions of the Project's access road—Malalowaiaʻole Gulch and an unnamed stream. Several additional non-perennial streams (Kaalaina Gulch, Makahuna Gulch, Mokumana Gulch) occur to the south and west of the Project Area. In 2004, the USACE provided confirmation that there were no WOTUS within the Project Area, including the access roads (Young, November 8, 2004 as cited in Planning Solutions 2010).

The existing KWP 1 facility includes impervious and semi-impervious surfaces, which are widely scattered and stormwater runoff from them is not concentrated and flows onto adjacent permeable areas with sufficient infiltration. Runoff from the turbine pads, access roads, and other axillary structures discharge over land into drainage features (i.e., ditches or swales) that divert runoff into the numerous small, unnamed dry gulches developed by the natural contours of the surrounding land. Runoff flows downstream through its natural drainage course and eventually discharges into the Pacific Ocean. Onsite drainage features (e.g., culverts, swales, and drainage ditches) are maintained to control erosion, minimize sedimentation, and prevent damage to downstream properties to the maximum extent practicable.

The Proposed Action would result in minor ground disturbance and could create new semi-impervious surfaces, which increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and could increase sedimentation in down-gradient areas or water bodies. Ground disturbance would be limited to the original KWP 1 construction and operations footprint and implementation of BMPs, including a ESCP and SWPPP, would minimize potential impacts. It is not anticipated that the non-perennial Malalowaiaʻole Gulch and an unnamed stream in Manawainui Gulch within the Project Area would be altered by the Proposed Action. The types and sources of potential water pollutants within the Project Area would not change with continued operations. KWP 1 operators would continue to implement a SPCC (WSP 2023) to protect water resources from hazardous materials that are transported, stored, and used at the Project Area. Given the relatively minimal increase in semi-impervious surfaces, coupled with the Project BMPs, the Proposed Action is anticipated to have a negligible to minor impact on water resources. In the long-term, the final restoration of the Project Area would have an overall long-term, beneficial impact on surface water and groundwater quality, availability, flow and drainage patterns in the Project Area and surrounding areas.

See Section 3.5, *Water Resources* for additional information.

Natural Hazards

The Project Area is not located within an environmentally sensitive area such as a flood hazard area, tsunami inundation zone, sea level rise exposure area, or lava-flow hazard zones and therefore would have no impact to risks from these natural hazards. During the Proposed Action, facilities could be exposed to seismic, hurricane, high wind, lightning, and fire hazards, but negligible to minor impacts are anticipated due to the planned preventive and response measures. Implementation of the SPCC Plan, wildfire preventive measures, Site Safety Plan, and Emergency Response Plan (Brookfield 2022) would mitigate this risk. Additionally, structures at the KWP 1 facility have been designed and constructed to withstand damage from high winds and earthquakes and minimize fire risks.

See Section 3.6, *Natural Hazards* for additional information.

Hazardous and Regulated Materials and Waste

Operation of the existing KWP 1 facility requires the use and storage of hazardous and petroleum-based materials including mineral oil, lubricating oils, waste oil, cleaner/degreaser, waste aerosols, combustible

liquids, chemicals, paint, and herbicides. Most of these materials are stored in small quantities. However, mineral and lubricating oils are used and stored in relatively larger quantities in the O&M building, wind turbine generators, electrical substation, and BESS Building. Mineral and lubricating oils within the wind turbine and transformers are changed periodically and waste oil is collected, temporarily stored in the O&M building, and transported offsite and disposed of at an appropriately permitted waste disposal facility. A SPCC Plan is in place for the facility and is updated every 5 years (WSP 2023). The SPCC plan identifies potential spill sources, preventive measures, control and response procedures, inspection programs, and required training of personnel to prevent the discharge of oil and hazardous substances from the KPW 1 facility. This plan adheres to applicable federal, state, and local regulations governing the use of hazardous materials and the disposal of hazardous wastes. With implementation of the SPCC Plan, regulated wastes and petroleum products are used, managed, and stored effectively at the Project Area. There have been no major releases or spills of hazardous or petroleum products at the KWP 1 facility (KWP LLC, personal communication, April 17, 2025).

Under the Proposed Action, KWP 1 operations would continue to safely use, store, and transport hazardous materials and petroleum products within the Project Area. There is potential for the accidental release of these hazardous materials and petroleum products into the environment, particularly during maintenance activities and decommissioning. Offsite mitigation activities may require the temporary use of heavy equipment and vehicles. Hazardous materials required for construction equipment include antifreeze, diesel fuel, gasoline, hydraulic oil, lube oil, and grease. Implementation of the control measures and BMPs described in the SPCC Plan are designed to prevent and respond to spills and releases; potential impacts from hazardous and regulated materials are anticipated to be negligible to minor. Following decommissioning, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions. Hazardous and regulated materials associated with KWP 1 operations would be removed from the Project Area, which would result in a long-term, beneficial impact.

See Section 3.7, *Hazardous and Regulated Materials and Wastes* for additional information.

Vegetation

Vegetation at the Project Area is dominated by non-native species and consists of primarily non-native grassland and non-native and native dry shrublands. No listed or otherwise rare plant species have been recorded in the Project Area in previous or recent surveys for the existing wind farm or in post-construction monitoring over the last 19 years. Native plant species were observed in the April 2025 botanical survey (Tetra Tech 2025c; Appendix D), including 7 species which are endemic to and found only in the Hawaiian Islands. The native plant species observed are considered common species throughout the Hawaiian Islands.

Direct impacts to vegetation from ground disturbance and continued vegetation management activities would be the primary impact to vegetation from the Proposed Action. Operations and decommissioning of KWP 1 could also indirectly impact vegetation through the introduction or spread of invasive species. In order to minimize adverse effects on vegetation, KWP 1 would implement a Vegetation Management

Plan (Tetra Tech 2025e; Appendix F) and Invasive Species Prevention Plan (Tetra Tech 2025f; Appendix G). The Proposed Action would have negligible to minor adverse impacts on vegetation.

See Section 3.8, *Vegetation* for additional information.

Wildlife

Section 3.9, *Wildlife* discusses the existing environment and potential impacts on terrestrial wildlife, which include native and non-native bird, mammal, and invertebrate species. This section discusses common and rare wildlife species and their habitats, as well as state or federally-listed threatened or endangered species pursuant to the federal ESA or HRS Chapter 195D. On-site knowledge of wildlife species in the Project Area and immediate vicinity is well-known given 18 years of post-construction monitoring at KWP 1 (KWP 2024a) and 12 years of monitoring at the nearby KWP 2 facility (KWP II 2024), as well as pre-construction surveys that occurred prior to facility construction (KWP 2006, SWCA 2011).

Critical habitat has been designated by the USFWS within the northernmost portion of the Project Area for two endangered forest bird species—the ʻakohekohe and kiwikiu (USFWS 2016a). This critical habitat was designated after construction of KWP 1, and neither species have been documented within the Project Area. Ground disturbance and vegetation management activities may result in removal of up to 1 acre of vegetation within the LOD located within the Montane Mesic – Unit 5 critical habitat. This vegetation would have been previously disturbed during initial construction of KWP 1 and is unlikely to be high-quality habitat for the ʻakohekohe and kiwikiu. Revegetation would occur in compliance with the KWP Vegetation Management Plan (Tetra Tech 2025e, Appendix F). Mitigation activities also occur within designated critical habitat for ʻakohekohe, kiwikiu, and Blackburn sphinx moth. Neither ʻakohekohe nor kiwikiu are known to occur within the Makamakaʻole mitigation area (Lowland Wet – Unit 4). None of the activities occurring at the mitigation site since designation (e.g., predator trapping, social attraction) are expected to have had any negative impact on either species. Blackburn sphinx moth is not known to occur within the Haleakalā Ranch mitigation area (Kahikinui – Unit 4) due to a lack of host plants. The Kaheawa Pastures mitigation site is anticipated to be outside of the Montane Mesic – Unit 5 critical habitat. Therefore, the Proposed Action is anticipated to have a negligible impact on designated critical habitat within the ROI.

Seven federally listed wildlife species could occur within or transit the Project Area: ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), ʻaʻo (Newell's shearwater), ʻakēʻakē (Band-rumped Storm Petrel*)*, assimulans yellow-faced bee, and Blackburn's sphinx moth.

Operation of the KWP 1 facility could result in the take of federally and state-listed wildlife species (Tetra Tech 2025). To proceed, the Proposed Action would require a new ITP from USFWS, a new ITL from DLNR DOFAW, and approval of an associated HCP to cover incidental take of threatened and endangered species that may occur during the Proposed Action. The Covered Species for the Proposed Action are the ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), ʻaʻo (Newell's shearwater), ʻakēʻakē (Band-rumped Storm Petrel), and assimulans yellow-faced bee. In accordance with the Proposed HCP, KWP 1 would implement measures to minimize take, monitor fatality, and trap

scavengers. KWP 1 also would implement off-site mitigation programs to offset the unavoidable take of Covered Species and deliver a net positive impact on Covered Species across Maui Nui.

Other native birds protected by the MBTA are known to or have the potential to occur in or fly through the Project Area; these include (but are not limited to) the koaʻe kea (white-tailed tropicbird), ʻewaʻewa (sooty tern), ʻuaʻu kani (wedge-tailed shearwater), ʻūlili (wandering tattler), pueo (Hawaiian short-eared owl), and ʻapapane (Nishibayashi 1997, Nishibayashi 1998, First Wind 2013; KWP 2006, KWP 2024a, Tetra Tech 2025a). The continued operation of KWP 1 may directly impact native and MBTA protected birds, as a result of removal of habitat, temporary disturbance or displacement, or collisions with wind turbines, vehicles, or other structures. Impacts are anticipated to not adversely affecting local or regional populations. With implementation of avoidance and minimization measures, impacts to non-listed native and MBTA protected birds would be negligible to minor.

Indirect impacts to designated wildlife habitat could result from the introduction or spread of invasive species and increased risk of fire during decommissioning. To minimize these risks, the decommissioning contractor would execute KWP 1's Invasive Species Prevention Plan (Tetra Tech 2025f, Appendix G) and Wildfire Prevention Plan (TerraForm 2025).

Following the dismantling and removal of KWP 1 infrastructure, restoration activities would take place to return the Project Area to preconstruction conditions to the extent practicable. This would have a long-term, beneficial impact on wildlife species at risk of colliding with turbines and vehicles.

Cultural and Archaeological Resources

The Project Area is located in Ukumehame Ahupuaʻa, which is the easternmost ahupuaʻa within the moku (district) of Lāhainā. Valued cultural resources, culturally valued natural resources, archaeological and historic properties, and traditional Native Hawaiian Practices relevant to the Project Area and vicinity are discussed in Section 3.10.1, *Existing Environment.* Valued cultural resources were identified through cultural-historical background research and interviews conducted for the Project's CIA (ASM 2025, Appendix C) and include the wao akua, the red soil exposed on Hanaʻula Ridge, and the viewshed from Kahoʻolawe. Numerous species of indigenous and endemic plants and animals were identified in the CIA as culturally valued natural resources. The CIA also identifies traditional and customary practices that historically occurred and continue to occur in the Ukumehame Ahupuaʻa. A Ka Paʻakai Analysis was conducted as part of the CIA and is included in Section 3.10, *Cultural and Archaeological Resources*. The extent to which culturally valued resources that have relevance to the exercise of traditional and customary native Hawaiian rights may be affected or impaired by the Proposed Action and identification of actions to be taken to reasonably protect these valued historical, cultural, and natural resources is discussed in Section 3.10.2, *Potential Impacts and Mitigation Measures*.

The entire ground surface of the Project Area, including the access road leading from the Honoapiʻilani Highway to the KWP 1 lease area, has been surveyed for historical resources (ASM 2025). As described in more detail in Section 3.10.1.6, *Archaeological and Historic Features*, twelve archaeological surveys have been completed within the Project Area or its vicinity since 1991 and 15 historic properties have been recorded as being located within or intersecting with the Project Area or its immediate vicinity.

Under the Proposed Action, ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint. For those archaeological features that are within or immediately adjacent to the LOD, the Applicant would consult with SHPD under the HRS 6E review process and would coordinate with SHPD on compliance with existing mitigation commitments. Potential indirect impacts from noise, dust, and vibration are anticipated to be minimal. Three of the 15 historic properties recorded as being located within or intersecting with the Project Area or its immediate vicinity have preservation or management plans: Site 02946 - Lāhainā Pali Trail, Site 05648 – Habitation Complex, and Site 05232 – Upland Heiau. As discussed in Section 3.10.2.2, *Proposed Action* the Applicant would comply with the measures described in these preservation plans.

Following the dismantling and removal of KWP 1 infrastructure, restoration activities would take place to return the Project Area to preconstruction conditions to the extent practicable. These actions may have minor temporary impacts to cultural resources and archaeological and historic features but BMPs would be in place to minimize or mitigate impacts to these resources.

With implementation of existing and proposed avoidance, minimization, and mitigation measures, the Proposed Action is anticipated to have negligible to minor impacts to cultural resources including valued cultural resources, culturally valued natural resources, archaeological and historic features, and traditional Native Hawaiian practices. Since KWP 1 is an existing facility that has been in operation for over a decade, it is anticipated that there would be no new impacts to traditional and customary Native Hawaiian practices as a result of continued operations. The Applicant will continue to provide access to cultural practitioners to lands above and adjacent to KWP 1's lease area under the Proposed Action.

See Section 3.10, *Cultural and Archaeological Resources* for additional information.

Noise

Noise levels at the Project Area would remain unchanged during continued operations, as there would be no significant increase in personnel, changes to O&M activities, or additional vehicle trips. The facility is located away from sensitive receptors and KWP 1 would continue to implement operational BMPs to minimize noise from the facility. Although modeling results show that there are exceedances of the daytime and nighttime noise limits at the parcel boundary due to the Class A Zoning District maximum permissible levels being the most restrictive, noise sensitive receptors are not expected to be in proximity to the parcel boundary given the surrounding land use and terrain. Therefore, no meaningful noise impacts would occur at the parcel boundary. Noise levels at Lāhainā Pali Trail could exceed Class A zoning district noise limits during maintenance and decommissioning activities. A noise permit or variance would be obtained from HDOH, as needed. Modeled sound levels at all other noise sensitive receptors are well below the daytime and nighttime limits for the Class A zoning district. Overall, the continued operation of the KWP 1 facility is anticipated to have a negligible to minor, long-term impact on noise.

See Section 3.11, *Noise* for additional information.

Visual Resources

The Project Area is located on the upper slope of Ukumehame, above McGregor Point. KWP 1 WTGs, which stand approximately 296 feet tall, are visible from a significant portion of the island. No scenic vistas and view planes were identified in county or state plans or studies within the vicinity of the Project Area. However, both the Maui Island Plan and the community plans generally emphasize the importance of protecting mauka-to-makai and makai-to-mauka view planes, as well as preserving views of significant geographic features and landforms, such as the West Maui Mountains. This protection is particularly relevant for public views from scenic roadways, parks, and other public access points.

Because the Proposed Action is a continuation of the existing KWP 1 facility, the WTG do not represent a new feature on the landscape. KWP 1 is and would continue to be an existing visual feature of the West Maui Mountains. The facility would be visible from scenic roadways, parks, and other public access points, including the Lāhainā Pali Trail and coastal sections of Honoapi‘ilani Highway, as well as from Kīhei and Wailea. During continued operations, visual impacts would remain unchanged, as there would be no significant changes to the turbines, facilities, or O&M activities. There would be moderate, temporary adverse impacts to visual resources during decommissioning activities and long-term, beneficial impacts once KWP 1 equipment is removed and the Project Area restored.

See Section 3.12, *Visual Resources* for additional information.

Land Use

Land within the Project Area is within the State Conservation District. KWP 1 currently operates under the terms and conditions of CDUP No. MA-3103. Since the approval of the 2003 CDUP, the Project has continually complied with the permit’s 44 conditions, as detailed in Appendix B. The lowest portion of the existing Kaheawa Pastures access road (approximately 1,200 feet of the roadway) and the existing parking lot/staging area are also within the SMA. In February 2005, Maui County issued a SMA minor permit (SMA 2005/0029) for construction of driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapi‘ilani Highway. The Project has complied with the permit’s seven conditions since Project inception. The Proposed Action does not propose any “development” within the SMA and would continue to use the driveway / access road under its existing SMA permit

The Proposed Action is the continuation of an existing land use for an additional 20-years. No changes in the current land use, land ownership, or the land use district or zoning classifications are required for Project implementation. No modification to KWP 1’s existing CDUP or the SMA would be required for the Proposed Action. While the decommissioning phase would involve a change in land use within the Project Area from wind farm operations to open space, the resulting use would be a negligible change that is consistent with adjacent land uses as well as state and county land use designations and community plans.

See Section 3.13, *Land Use* for additional information.

Transportation and Traffic

The Proposed Action would not generate significant amounts of passenger or cargo traffic on Maui’s roads, harbors, or airports. Road conditions, bicyclists, and pedestrians are unlikely to be affected. Initial

maintenance and decommissioning/restoration of the KWP 1 facility would generate vehicle and truck traffic on area roadways (see traffic estimates in the maintenance and decommissioning descriptions above). Most of these trips would be associated with employee commute trips to and from KWP 1 and with the transport of materials, equipment, and waste. Even during a peak decommissioning day, traffic from KWP 1 would make up less than 1% of the 25,800 vehicles traveling on Honoapi'ilani Hwy daily. Heavy or oversized loads may be required to transport some heavy equipment (i.e., cranes) and larger debris from WTG components. Oversize vehicles may slow traffic from the posted speed limit to about 25 miles per hour. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network. Heavy or oversized loads would be scheduled outside of peak traffic hours when practicable. No work is anticipated to be required in existing highway rights-of-ways. Overall, the Proposed Action would have negligible to minor adverse impacts on transportation and traffic.

See Section 3.13, *Transportation and Traffic* for additional information.

Public Infrastructure and Services

The continued operation of KWP 1 for an additional 20-year period would have beneficial impacts on electric services and negligible to minor adverse impacts other public infrastructure and services, including telecommunications, water, wastewater, solid waste, police and fire protection, healthcare and emergency medical services, and recreational facilities.

Debris generated during decommissioning of the KWP 1 facility would temporarily increase solid waste streams from current levels but would not cause significant impacts to the existing solid waste management facilities or exceed the capacity of the facilities.

The increased presence of personnel and equipment during decommissioning would also temporarily increase the potential for injury, illness, and fires; the Site Safety Handbook and Emergency Response Plan (Brookfield 2022) would be implemented to avoid and minimize these risks. The existing police, fire, and emergency medical services would be adequate to respond should an emergency arise.

Vehicle traffic from decommissioning and restoration activities would increase along the Kaheawa Pastures access road, which intersects with the Lāhainā Pali Trail as it passes south of KWP 1. For safety purposes, it may be necessary to interrupt use of this portion of the trail for short periods during decommissioning; in most cases the interruption would be for no more than fifteen minutes at a time. In addition, noise from decommissioning activities (during permitted hours of the day) may be heard from some portions of the trail.

See Section 3.15, *Public Infrastructure and Services* for additional information.

Socio Economic Resources

The Proposed Action would have a long-term, beneficial impact on the local economic welfare. Continued operation of KWP 1 would allow for continued supply of local, renewable energy to the Maui

grid at a low, fixed price and reduce Maui's exposure to fossil fuel price volatility. During the extended operational lifespan of the facility, KWP 1 would continue to contribute direct, indirect, and induced economic benefits to the Maui economy. KWP 1 would provide direct benefits in the form of employment and wages to employees, purchasing goods and services from other local industries, funding conservation efforts in compliance with the Proposed HCP, and funding distributed by the CBP. During the initial maintenance and decommissioning/restoration periods, there would be a temporary increase in project expenditures for professional and technical services, contractors, materials, and equipment, which would have induces benefits to the local economy.

The Proposed Action is not anticipated to have an adverse effect on local or regional population or demographics. Continued operations are not expected to induce changes in the pattern of land use, population density, or growth rate. KWP 1 would not markedly promote or discourage economic activity that would induce changes to the population or require an increase in demand for public services, utilities, or housing beyond existing capacity.

See Section 3.16, *Socioeconomic Characteristics* for additional information.

No Action Alternative

Under the No Action Alternative, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. As a result, the impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential impacts from decommissioning and restoration activities would be as described above, but would occur immediately, rather than at the end of the 20-year extended operational period. Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions.

The No-Action Alternative would result in the loss of power produced by the KWP 1 facility as well as loss of other Project benefits. If the KWP 1 facility is decommissioned, Maui County would forfeit approximately 6 percent of its current energy generation supply (almost 36 percent of wind energy supplied to the Maui grid) and the Maui Electric grid would need to source 30 MW of energy from alternative providers. Hawaiian Electric customers would lose around $10 million in annual savings compared to fossil fuel-generated energy and residents would be subject to increased power shortages (KWP 2024b). Consequently, under the No-Action Alternative, Hawaiian Electric would require replacement with other resources that would involve building new generation facilities. Due to the time it takes to develop and permit new renewable energy facilities, it is assumed that if KWP 1 were immediately decommissioned, the power currently generated by the facility would be replaced with power generated by Maui Electric's existing fossil-fuel-fired power plants. The displacement of GHG emissions associated with generating power via wind instead of burning fossil fuels would not occur. In the long term, the construction of a new solar energy facility would require new land disturbance and significantly more land to produce the same amount of energy.

Economically, approximately five full-time, good-paying, Maui-based skilled local jobs would be at risk if no longer required to support KWP 1. Hawaiian Electric customers would lose around $10 million in annual savings compared to fossil fuel-generated energy. Since the existing KWP 1 infrastructure components still have significant remaining service life, decommissioning the KWP 1 facility would mean that Hawaiian Electric and its customers would forfeit the ongoing benefits derived from this investment. Upon decommissioning, the Project would no longer contribute to its community benefits program or contribute to HCP-related mitigation activities.

Regulatory Context/Consistency with Plans and Policies

In accordance with the requirements of HAR §11-200.1-24(j), the Section 4, *Regulatory Context/Consistency with Plans and Policies* of the EIS discusses the relationship of the Proposed Action to land use and natural and cultural resource plans, policies, and controls for the affected area and how the Proposed Action may conform or conflict with objectives and specific terms of approved of proposed land use and resource plans, policies, and controls, if any, for the affected area. A list of the most applicable federal, state, and county regulations, policies, and resource plans to the Proposed Action and a list of the permits and approvals that would be obtained pursuant to those regulations and policies is provided below.

- Applicable federal, state, and county regulations, policies, and resources plans:
    - Endangered Species Act and State Endangered Species Act (HRS Chapter 195D)
    - Migratory Bird Treaty Act
    - National Environmental Policy Act
    - National Historic Preservation Act and Historic Preservation (HRS Chapter 6E)
    - State and County Land Use Designations
    - Maui County Special Management Area (for portion of Kaheawa Pastures access road driveway)
    - Kīhei-Mākena/South Maui Community Plan
- Required Permits for the Proposed Action
    - Public Utility Commission approval of Power Purchase Agreement
    - Hawai'i Board of Land and Natural Resources approval of a land lease
    - Habitat Conservation Plan; State Incidental Take License from Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW); and Federal Incidental Take Permit (ITP) from U.S. Fish and Wildlife Service (USFWS)
    - National Environmental Policy Act Compliance by USFWS for Federal Action of Issuance of an ITP

- National Historic Preservation Act Section 106 Compliance by USFWS for the Federal Action of Issuance of an ITP
- Hawai'i Revised Statutes (HRS) Chapter 6E Compliance (Historic Preservation Review)
- Hawai'i Department of Health Community Noise Permit (TBD)
- Hawai'i Department of Transportation Permit to Operate or Transport Oversize and/or Overweight Vehicle and Loads (TBD)
- National Pollutant Discharge Elimination System Permit (TBD)

See Section 4, *Regulatory Context/Consistency with Plans and Policies* of the EIS for a detailed discussion of the Proposed Actions compliance with federal, state, and county regulations, policies, and resources.

Unresolved Issues

HAR § 11-200.1-24(q) calls for a discussion of issues that remain unresolved at the time of publication of the EIS, along with "a discussion of how such issues will be resolved prior to commencement of the action, or what overriding reasons there are for proceeding without resolving the problems."

There are no significant issues related to Proposed Action that remain unresolved. However, the following issues are still under discussion with the relevant regulatory agencies.

- Wildlife Resources:
  - Because the Proposed Action is likely to impact federal and state listed endangered and threatened species, the Applicant is preparing a Proposed HCP to accompany its application for an ITP from USFWS, and an ITL from the DLNR DOFAW. The Proposed HCP for the Proposed Action was referenced throughout this Draft EIS and is subject to change.
  - Proposed mitigation for the nēnē (Hawaiian goose), 'ua'u (Hawaiian petrel), and 'a'o (Newell's shearwater) is described in detail in the Proposed HCP. Proposed mitigation for the 'ōpe'ape'a (Hawaiian hoary bat), 'akē'akē (band-rumped storm petrel), and assimulans yellow-faced bee is outlined in the Proposed HCP but additional details are still being determined and will be provided as available in the Final HCP. All mitigation is subject to change pending ongoing consultation with USFWS and DOFAW or through adaptive management.
- Archaeological and Cultural Resources:
  - The Applicant is in coordination with SHPD. This consultation and, if required, completion of the 6E process, would be completed under the Proposed Action.

Consulted Parties

Section 6, *Consulted Parties* of this EIS summarized consultation efforts conducted as part of the Proposed Action including: consultation during the Maui Electric Company's Stage 3 RFP process, cultural

consultation completed as part of the CIA (ASM 2025, Appendix C), and consultation completed as part of the HRS Chapter 343 process.

As part of the Maui Electric's Stage 3 RFP process, KWP LCC began community outreach with pre-development activities beginning in 2022 extending through 2023, followed by formal consultations and permitting starting in 2024. In 2022 and 2023, the Applicant consulted with stakeholders, knowledgeable local leaders, and government agencies. The Applicant held a public outreach meeting on August 14, 2024, to discuss the proposed Community Benefits Plan and considerations for the upcoming HRS Chapter 343 analysis. Leading up to the start of the HRS 343 process with the publication of the EISPN in October 2024, meetings and coordination with DLNR Land Division and DLNR OCCL were conducted to coordinate on the appropriate level of HRS Chapter 343 review and on who would serve as the primary contact for the Accepting Authority (the BLNR). Coordination with DLNR DOFAW and USFWS also occurred in 2024 and 2025 on the Proposed HCP and ITL and ITP.

The EISPN was published in *The Environmental Notice* on October 23, 2024 (https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf), marking the beginning of a 30-day public review (scoping) period aimed at facilitating early identification of data gaps and public concerns to be addressed in the Draft EIS. An article in the Maui News on October 24, 2024, highlighted the EISPN and provided information about the public comment period. The EISPN was distributed to approximately 133 stakeholders via the United States Postal Service and electronic mail, including community groups, government agencies, and elected officials. Information about the EISPN and scoping meeting were also published on the Project's website[5].

A public scoping meeting took place on October 29, 2024, from 5:30 to 7:30 PM at the Malcom Center (1305 N. Holopono Street, Suite 5, Kihei, HI 96753), in which 6 community members and other interested parties attended. Appendix A, *Public Scoping Documen*ts includes the presentation and outreach materials used during the meeting. No comments were received from the public scoping meeting. At the end of the public scoping period, a total of 35 comments were received from 13 parties and agencies via letter or electronic mail. A Comment Response Matrix is provided in Appendix B, which lists the comments received during public scoping, along with responses and explanations of how these comments were addressed in the Draft EIS.

As part of the CIA conducted in support of this EIS, ASM Affiliates carried out targeted community consultation efforts. These efforts aimed to identify and engage knowledgeable individuals and organizations with cultural, historical, or ancestral ties to the Project Area.

The Draft EIS was published in *The Environmental Notice* on August 8, 2025, marking the beginning of a 45-day public comment period extending from August 8, 2025 to Sept 22, 2025. The Proposed HCP is anticipated to be published in the same issue of *The Environmental Notice* as this Draft EIS. Approximately 145 stakeholders were provided with a notice of availability letter containing information

[5] https://www.kaheawawind.com/environmental-review/

on how to obtain a copy of the Draft EIS. Hard copies of the Draft EIS were deposited at the Kihei Public Library and the Hawai‘i State Library, Hawai‘i Documents Center.

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1.0 Introduction, Purpose, and Need for the Action

1.1 Project Introduction and Overview

Kaheawa Wind Power, LLC (Applicant) proposes the Kaheawa Wind Power 1 (KWP 1) Continued Use Project (Project or Proposed Action), which seeks to extend the operations of the existing KWP 1 wind generation facility, located on state land in West Maui, Hawai'i, for a 20-year period. KWP 1 is an existing 30-megawatt (MW) wind energy generation facility located in the Kaheawa Pastures area of West Maui, Hawai'i within the Ukumehame ahupua'a (traditional land division spanning from the mountains to the sea). Continuing operations of the KWP 1 facility would contribute to Maui County's energy affordability, grid reliability, economic development, and environmental protection. The Proposed Action would require the use of state-owned lands and use within the State Conservation District (general and protective subzones), which triggers Hawai'i Environmental Policy Act (HEPA) environmental review per Hawai'i Revised Statues (HRS) Section (§) 343-5(a)(1) and HRS § 343-5(a)(2), respectively.

This Environmental Impact Statement (EIS) was prepared pursuant to the State of Hawai'i environmental review process, as defined and required by HRS Chapter 343 and Hawai'i Administrative Rules (HAR) Chapter 11.200.1. The Board of Land and Natural Resources (BLNR) is the accepting authority for the Proposed Action and the Department of Land and Natural Resources (DLNR) has determined that an EIS is required. This EIS was prepared to disclose any potential impacts on the environment and proposes best management practices (BMPs) and mitigation measures to reduce these potential impacts. This EIS provides a detailed description of the Applicant's Proposed Action and the alternative to the Proposed Action (i.e., No Action Alternative). It also presents the existing environmental setting for the full range of potentially affected resources and the analysis of potential impacts to those resources.

Because the Proposed Action is likely to impact species listed under the Federal Endangered Species Act (ESA) and protected under the State of Hawai'i's endangered species law under HRS Chapter 195D, the Applicant is preparing a Habitat Conservation Plan (HCP) to accompany its application for an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS), and an Incidental Take License (ITL) from the DLNR Division of Forestry and Wildlife (DOFAW). The purpose of the HCP is to outline the measures to minimize and mitigate the adverse effects of the Proposed Action on the Covered Species in support of applications for the ITP and ITL. The Proposed HCP is anticipated to be published in the same issue of *The Environmental Notice* as this Draft EIS.

The BLNR would use this EIS in consideration of the Applicant's request for a 20-year state land lease from the DLNR Land Division authorizing continued commercial operation of the KWP 1 wind generation facility on State of Hawai'i lands. Because operation of the Proposed Action requires an ITP/ITL from USFWS and DOFAW, respectively, this EIS evaluates the potential impacts related to ongoing operations of the existing KWP 1 wind generation facility as well as the potential impacts associated with the issuance of the ITP/ITL and implementation of the associated HCP. Issuance of the ITP would be subject

to further environmental review in a National Environmental Policy Act (NEPA) document, as well as USFWS analysis in a Biological Opinion.

1.1.1 Brief Description of the Proposed Action

As noted above, the Project or Proposed Action seeks to extend the operation of the existing KWP 1 wind generation facility for a 20-year period. The KWP 1 facility, operational since 2006, consists of 20 General Electric (GE) 1.5-MW wind turbines arranged in a single articulated row on the slopes of the West Maui Mountains at elevations between approximately 2,000 and 3,000 feet in an area known as Kaheawa Pastures. The wind turbine generators (WTG) and ancillary facilities (e.g., substation, operations and maintenance (O&M) building, access roads, and transmission interconnection) are located on portions of Tax Map Key (TMK) (2) 4-8-001:001; the use of which is secured through a long-term lease of approximately 200-acres from the State of Hawai'i DLNR (General Lease No. S-5731[6])[7]. The KWP 1 facility is accessed by an existing four-wheel-drive gravel roadway (i.e., Kaheawa Pastures access road or primary access road) that leads from Honoapi'ilani Highway mauka (towards the mountains) to the KWP 1 turbines and crosses portions of TMKs (2) 3-6-001:014 and (2) 4-8-001:001. An existing, less than one acre gravel parking area/staging area is located at the entrance of the access road at Honoapi'ilani Highway. To proceed, the Proposed Action would require a new 20-year lease from the State of Hawai'i BLNR as the current DLNR land lease (General Lease No. S-5731) is anticipated to expire January 31, 2026[8].

The Project Area described in this EIS includes the 200-acre KWP 1 wind facility lease area as well as the existing footprint of the primary access road and staging areas. The location of the Project Area is shown in Figure 1-1 and the KWP 1 existing facilities, lease area, and associated TMK boundaries are shown in Figure 1-2. In addition to the wind turbines, the Proposed Action's existing facilities include an O&M building, a warehouse storage facility, a substation, access roads, and an underground power collector system. Power generated by KWP 1 connects to the existing Hawaiian Electric Company (Hawaiian Electric) 69-kilovolt (kV) transmission line that runs through KWP 1 lease area, immediately south of the existing KWP 1 substation and adjacent Hawaiian Electric switchyard, which serve as the point of

[6] General Lease No. S-5731 describes the lease area as containing an area of 200.00 acres, more or less, together with, non-exclusive access easement 1 for the use of Kaheawa Pastures access road.

[7] Note that in the EIS Preparation Notice (EISPN) published on October 23, 2024 (https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf), portions of TMKs (2) 4-8-001:010 and (2) 3-6-001:052 were identified as being included in the Project Area. However, upon further investigation of legal descriptions of the boundaries of these two TMKs (see State of Hawai'i Survey Division map C.S.F. No. 19186) and the legal description of the boundary of the Project's lease area, the Applicant confirmed the 200-acre lease area associated with the Proposed Action only includes acreage on TMK (2) 4-8-001:001 and the Kaheawa Pastures access road easement on TMKs (2) 4-8-001:001 and (2) 3-6-001:014. Therefore, the two TMKs involved with the Project Area are TMKs (2) 4-8-001:001 (200-acre lease area) and 3-6-001:014 (Kaheawa Pastures access road).

[8] A one-year holdover of General Lease No. S-5731 was approved by the BLNR on December 13, 2024, thus extending the lease term to January 31, 2026.

interconnection (Figure 1-2). The existing (separate) Kaheawa Wind Power 2 (KWP 2) wind facility is located makai (towards the ocean) of KWP 1 (KWP 2 is further described in Section 1.1.1.1, *Location and Land Ownership*).

The KWP 1 facility has been operating under a 20-year Power Purchase Agreement (PPA) that is set to expire in 2026. The KWP 1 Continued Use Project was selected by Hawaiian Electric as part of the Maui Stage 3 Request for Proposals (RFP), a competitive bidding process developed by Hawaiian Electric in coordination with the Public Utilities Commission (PUC) to procure renewable energy sources for Maui's electric grid in response to anticipated energy resource shortfalls (PUC 2022). The Proposed Action would continue to use the existing interconnection with Hawaiian Electric's island-wide grid and the power would be sold to Hawaiian Electric under a new 20-year PPA that would be approved by the PUC. The Proposed Action entails no new construction or physical modifications beyond the maintenance activities described in Section 2.1.2.2, *Maintenance Activities*. The Proposed Action would continue to deliver clean, locally generated energy at substantially less than the cost of fossil fuels, provide essential energy resource diversity, and establish a new community benefits program. More information on the costs and resource diversity of the energy provided to the Maui grid by the Proposed Action is included in Section 1.3.1, *State Energy Goals and Power Production* and more information on the Proposed Action's proposed community benefits program is included in Section 2.1.2.3, *Community Benefits Program*.

The KWP 1 facility has been operating under its current ITP from the USFWS and ITL from DLNR DOFAW. These permits cover the incidental take of four federally and state-listed threatened and endangered species, collectively referred to as the Covered Species. The Covered Species include the ʻōpeʻapeʻa (Hawaiian hoary bat; *Lasiurus cinereus semotus*), nēnē (Hawaiian goose; *Branta sandvicensis*), ʻuaʻu (Hawaiian petrel; *Pterodroma sandwichensis*), and ʻaʻo (Newell's shearwater; *Puffinus newelli*).

The Proposed Action would require a new ITP from USFWS, a new ITL from DLNR DOFAW, and approval of an associated HCP to cover incidental take of threatened and endangered species that may occur during the Proposed Action's 20-year extended operation period. The Covered Species for the Proposed Action include the four species covered in KWP 1's current HCP/ITP/ITL as well as the ʻakēʻakē (Band-rumped storm petrel; *Oceanodroma castro*) and assimulans yellow-faced bee (*Hylaeus assimulans*). More information on the existing lease, permits, and approvals for KWP 1 are provided in Section 1.2.1, *History of Permitting and Contruction* and a list of required permits and approvals is included in Section 4.4, *Required Permits for the Proposed Action*.

Once the required environmental review is completed and required permits and land approvals obtained, the Proposed Action would be implemented immediately upon expiration of the current lease and hold over to meet the anticipated electric grid demands.

1.1.1.1 Location and Land Ownership

Project Area

KWP 1 is located on the boundary of the Wailuku and the Lāhainā judicial districts of Maui within the Kealaloloa moku (district) and Ukumehame ahupua'a. The Project Area is bordered by Pāpalaua Gulch to the northwest, the West Maui Mountains to the north, Manawainui Gulch to the east, and the Pacific Ocean to the south. The entire Project Area is located within the State Conservation District (Figure 1-3). The Project Area includes the approximate 200-acre lease area associated with the existing KWP 1 wind turbines and ancillary infrastructure located on a portion of TMK (2) 4-8-001:001. The Project Area also includes the existing Kaheawa Pastures access road which is located on portions of TMKs (2) 4-8-001:001 and (2) 3-6-001:014. The existing Kaheawa Pastures access road is a four-wheel-drive gravel road that begins at Honoapi'ilani Highway and extends north to the conservation lands mauka of the KWP 1 facility. The road was upgraded in conjunction with the development of KWP 1 and KWP 2. The Applicant shares responsibility for the road's upkeep with Kaheawa Wind Power II, LLC (KWP II LLC). Along the Kaheawa Pastures access road, at the KWP 2 Turbine 12 turbine pad, is an existing less than one acre staging area that may be utilized by KWP 1 for temporary equipment staging during KWP 1 maintenance activities. At the makai-most area of the Kaheawa Pastures access road, a small parking and staging area (less than one acre) is located at the access road entrance off Honoapi'ilani Highway. This parking/staging area and a portion of the Kaheawa Pastures access road are located within the Maui County Special Management Area (SMA) (Figure 1-3). In total, the Project Area is approximately 217 acres.

The land within the Project Area is owned by the State of Hawai'i and administered by the DLNR. As noted earlier, the use of the Project Area is secured through a long-term lease from the DLNR (General Lease No. S-5731). The lease was issued January 19, 2005 and expires (with the approved holdover lease) January 31, 2026. The lease also includes a non-exclusive access easement for the Kaheawa Pastures access road and is subject to perpetual non-exclusive easements for existing Hawaiian Electric transmission lines that cross through the lease area and non-exclusive easements associated with KWP 2 facilities located within the lease area (see details below regarding KWP 2 facilities in KWP 1 lease area).

KWP 2 is a 21 MW wind energy facility that was commissioned in July 2012 and is owned by KWP II LLC. KWP 2 is a separate wind facility from KWP 1 and operates under a separate PPA, HCP/ITL/ITP, and lease. The KWP 2 facility includes 14 GE 1.5-MW WTGs, located at elevations ranging from approximately 1,800 to 2,700 feet, southeast of the KWP 1 facility and adjacent to the Kaheawa Pastures access. The WTGs at KWP 2 have a hub height of approximately 212 feet and rotor diameters of approximately 253 feet, resulting in a total height of about 340 feet at the maximum blade tip height.

The Project Area also contains some of the supporting infrastructure for the KWP 2 wind energy facility (i.e. the KWP 2 substation, battery energy storage system (BESS) facility, and electrical collection system) and KWP 2 shares the use of the KWP 1 O&M building and warehouse storage facility and associated access roads (Figure 1-2). KWP 2 is a separate wind facility from KWP 1 – it is owned by KWP II LLC and has a separate state land lease (General Lease No. S-6003). As part of that lease, KWP 2 has easements

for: 1) the KWP 2 facilities located within the KWP 1 lease area (i.e., the KWP 2 substation and switchyard and BESS facility)[9]; 2) the use and access to buildings shared with KWP 1[10]; 3) portions of the KWP 1 access roads where KWP 2 collector lines are buried and require O&M[11]; and 4) the utility pole located at the southernmost portion of the KWP 1 lease area which is the western terminus of the KWP 2 overhead collector line.[12]

Although KWP 1 and KWP 2 share some facilities, the two wind projects are separately permitted, have separate HCPs, and have separate land entitlements. If KWP 1 were to be decommissioned prior to KWP 2, the shared facilities and access roads associated with KWP 2's access and utility easements would remain and continue to be operated and maintained as part of the KWP 2 facility.

In addition to the KWP 1 and KWP 2 facilities, a few other uses are present within or near the Project Area:

- The West Maui Forest Reserve is located mauka and west of the Project Area with a small portion of the reserve being located mauka and east of the northern most portion of the Project Area (Figure 1-4).
- The Lahaina Pali Trail traverses the Project Area at an elevation of approximately 1,500 feet, which is south of the KWP 1 200-acre lease area but crosses the Kaheawa Pastures access road (Figure 1-4). The trail passes through the upper portion of the adjacent KWP 2 facility, and turbines from KWP 1 are visible from the trail.
- Two Hawaiian Electric transmission line rights-of-way cross the Project Area in a southwesterly direction from Māʻalaea. The mauka-most right-of-way contains two 69- kV overhead electric

[9] KWP 2 holds "Non-exclusive Substation Easements B-1 and C-1" for a combined 3.3-acre area containing the KWP 2 substation, Hawaiian Electric switchyard, and KWP 2 BESS facility. These easements are depicted in H.S.S. Plat 1004-J available at https://dags.hawaii.gov/maps/search/files/pm/Plat1004-J.pdf.

[10] KWP 2 holds a "Non-exclusive Maintenance Building Easement A-A" for a 2.7-acre area containing the shared KWP 1/KWP 2 O&M building and warehouse storage facility. KWP 2 holds "Non-exclusive Access Easements A-1 and A-2" for use of the access road to these buildings (including use of Kaheawa Pastures access road). These easements are depicted in H.S.S. Plat 1004-J available at https://dags.hawaii.gov/maps/search/files/pm/Plat1004-J.pdf.

[11] KWP 2 holds "Non-exclusive Access and Utility Easements AU-1-A and AU-2" for use of the KWP 1 turbine access roads makai of the shared O&M building as the KWP 2 collector lines are buried below these roads and require O&M. These easements are depicted in H.S.S. Plat 1004-J available at https://dags.hawaii.gov/maps/search/files/pm/Plat1004-J.pdf.

[12] KWP 2 holds "Non-exclusive Overhead Electrical Line Easement OE-2-A" which overlaps with the southernmost portion of the KWP 1 200-acre lease area. This easement includes a utility pole which is the western terminus of the KWP 2 overhead collector line that crosses Manawainui Gulch, at which point the KWP 2 electrical line is undergrounded below the KWP 1 turbine access roads to eventually connect to the KWP 2 substation (see Access Easement AU-1-A discussed above). This easement is depicted in H.S.S. Plat 1004-J available at https://dags.hawaii.gov/maps/search/files/pm/Plat1004-J.pdf.

transmission lines[13] that cross the Project Area at an elevation of approximately 2,300 feet. The makai-most Hawaiian Electric transmission line right-of-way includes one 69-kv transmission line that crosses the Project Area at an elevation of approximately 2,000 feet, makai of the southernmost extent of the 200-acre lease area, and then crosses Manawainui Gulch and the Kaheawa Pastures access road (Figure 1-2). Hawaiian Electric also owns two switchyards, one adjacent to the KWP 1 substation and one adjacent to the KWP 2 substation, both within the KWP 1 lease area. The switchyard adjacent to the KWP 2 substation is within the KWP 2 substation easement area[14].

There are no residential uses within the Project Area. The nearest settlements are Olowalu, which is approximately five miles to the southwest, and Māʻalaea, which is approximately two miles to the east. Māʻalaea encompasses a diverse mix of land uses, including residential, business, and resort.

HCP Mitigation Sites

As described in detail in Section 2.1.3, *HCP Compliance Activities* below, the Applicant is preparing an HCP, which outlines the measures to minimize and mitigate the adverse effects of the Proposed Action on the Covered Species (Tetra Tech 2025a). The Proposed HCP proposes mitigation programs to offset the take of and provide a net benefit[15] to Covered Species. Mitigation would take place at the following locations:

- Identified mitigation sites, including existing mitigation facilities at:
    - Haleakalā Ranch: The Haleakalā Ranch mitigation area includes an approximately 1.3-acre nēnē release pen located at an elevation of 2,550 feet on the southern slopes of Mt. Haleakalā on Maui (Figure 1-5). This mitigation area is within portions of TMK (2) 1-9-001:001 and (2) 1-9-001:003, which are owned by the Haleakalā Ranch Company and Department of Hawaiian Home Lands (DHHL), respectively. The pen was constructed by DOFAW in 2011 with funding from KWP.
    - Puʻu O Hoku Ranch: The Puʻu o Hōkū Ranch mitigation area includes an approximately 2.8-acre nēnē release pen located at an elevation of 350 to 400 feet on the east end of Molokaʻi (Figure 1-5). This mitigation area is within a portion of TMK (2) 5-8-015:001,

[13] Perpetual Non-exclusive Easement (60.00 Ft Wide) For Electrical Transmission Lines Section 1, Grant of Easement: State of Hawaiʻi to Maui Electric Co., Ltd. Dated March 2, 1962 and recorded in Liber 4250 Pg. 232 (L.O.D. S-18671)(C.S.F. 12,983). Perpetual Non-exclusive Easement For Electrical Transmission Line Easement A, Grant of Easement: State of Hawaiʻi to Maui Electric Co., Ltd. Dated August 15, 1988 and recorded in Liber 22246 Pg. 142 (L.O.D. S-27700)(C.S.F. 19,080).

[14] KWP 2 holds "Non-exclusive Substation Easements B-1 and C-1" for a combined 3.3-acre area containing the KWP 2 substation, Hawaiian Electric switchyard, and KWP 2 BESS facility. These easements are depicted in H.S.S. Plat 1004-J available at https://dags.hawaii.gov/maps/search/files/pm/Plat1004-J.pdf.

[15] Net benefit to Covered Species means achieving mitigation that result in a net increase in individuals compared to the permitted amount of take of the Covered Species (i.e., mitigation offset is greater than permitted take).

which is owned by Puʻu o Hōkū Ranch Ltd. The pen was originally constructed in 2001 and rebuilt during 2024-2025.

- Greater Hiʻi Area: The Pūlama Lānaʻi mitigation area is located in the Greater Hiʻi area in central Lānaʻi (Figure 1-6). This mitigation area is within a portion of TMK (2) 4-9-002:001 (por), which is owned by Lanai Resorts, LLC.
- Makamakaʻole: The Makamakaʻole mitigation area consists of two 4.5-acre fenced enclosures (total of 9 acres) at an elevation of approximately 1,850 to 2,050 feet within the West Maui Natural Area Reserve and the West Maui Forest on Maui (Figure 1-7). This mitigation area is within portions of TMK (2) 3-1-006:001, (2) 3-1-006:003, and (2) 3-1-006:005 (por), which is owned by the State of Hawaii. The pen was constructed in 2013.
- Kaheawa Pastures (Project Area and Adjacent Lands): The assimulans yellow-faced bee mitigation area would be located within the Project Area or on adjacent, DNLR-owned lands on Maui. This mitigation would take place within the same TMKs as the Project Area (i.e., TMK (2) 4-8-001:001 (por) and (2) 3-6-001:014 (por).

- Future mitigation sites that have not yet been identified (e.g., ʻōpeʻapeʻa [hawaiian hoary bat] and ʻakēʻakē [band-rumped storm petrel] mitigation sites); all mitigation actions are currently anticipated to occur within the geographic region of Maui Nui which includes the islands of Maui, Molokaʻi, Lānaʻi, and Kahoʻolawe, though other locations within the Hawaiian Islands may be considered for certain seabird species if appropriate and consistent with conservation objectives.

1.1.1.2 Identification of Applicant

The Applicant is Kaheawa Wind Power, LLC (KWP LLC), a Delaware limited liability company registered to do business in Hawaiʻi.

Contact: Kaheawa Wind Power, LLC
200 Liberty Street, 14th Floor
New York, NY 10281
Phone: (612) 451-4175

1.1.1.3 Identification of Accepting Authority

The accepting authority is the BLNR, as KWP 1 is located on DLNR-owned land and BLNR would issue the requested 20-year lease as well as the requested ITL.

Contact: Board of Land and Natural Resources
1151 Punchbowl Street, Room 325
Honolulu, HI 96813

Phone: (808) 347-6869

1.1.1.4 Identification of the Planning and Environmental Consultant

The planning and environmental consultant is Tetra Tech

Contact: Tetra Tech

737 Bishop Street, Suite 2000

Honolulu, HI 96813

Phone: (503) 222-4536

1.1.2 Compliance with HRS Chapter 343 and Determination to Prepare an EIS

The Proposed Action would require the use of state-owned lands and use within the State Conservation District, which triggers HEPA environmental review per HRS § 343-5(a)(1) and HRS § 343-5(a)(2), respectively. HEPA is codified in HRS Chapter 343 and its implementing rules, HAR Chapter 11-200.1.

HAR § 11-200.1-14(b), states that an approving agency, through its judgment and experience, shall assess the significance of the potential impacts of the Proposed Action to determine the level of environmental review necessary for the action. The Proposed Action has the potential to have significant effects on wildlife because the requested authorizations would allow the incidental take of species listed as endangered or threatened under the federal ESA and HRS Chapter 195D. Therefore, pursuant to HAR § 11-200.1-14(d)(2), BLNR has determined at the outset that an EIS is likely to be required for the Proposed Action and the applicant can proceed direct-to-EIS preparation notice (EISPN), without preparing an Environmental Assessment (EA).

Tetra Tech was hired by the Applicant to prepare the EIS in compliance with HRS Chapter 343 and HAR § 11-200.1. On October 23, 2024, an EISPN[16] was published in *The Environmental Notice*, beginning a 30-day public scoping period (Tetra Tech 2024). A public scoping meeting took place on October 29, 2024, at the Malcolm Center in Kihei, Hawaii. Appendix A, *Public Scoping Documents* includes the presentation and outreach materials used during the meeting. At the end of the public scoping period, a total of 35 comments were received via letter or electronic mail. A Comment Response Matrix is provided in Appendix B, which lists the comments received during public scoping, along with responses and explanations of how these comments were addressed in the Draft EIS. Section 6, *Consulted Parties* includes more information on the public and agency consultation conducted to date and comments received on the EISPN.

[16] https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf.

1.2 Background and History

1.2.1 History of Permitting and Construction

The history of the KWP 1 wind energy generation facility spans nearly three decades and involves multiple stakeholders. KWP 1 was originally developed by Zond Pacific, a division of Enron Wind Corporation, which initiated the project development by preparing an EA for installation of temporary meteorological towers (met towers) on TMK 4-8-001:001. DLNR accepted the Final EA for the met towers in February 1996 (Zond Pacific 1996).[17] In March 1996, Zond Pacific obtained approval from DLNR for a Conservation District Use Permit (CDUP) to install six temporary met towers for wind data collection at the site.

In April 1998, Zond Pacific prepared a Draft EA to construct a 20-MW windfarm in the Kaheawa Pastures area of West Maui. The Final EA was published in March 1999 (Zond Pacific 1999a).[18] However, results of the Final EA indicated possible significant impacts to avifauna in the study area, and thus DLNR required that Zond Pacific prepare an EIS. A Draft EIS was prepared for construction and operation of a 20-MW wind energy generation facility consisting of 27 Zond Z-48 wind turbines and was published in June 1999. The Final EIS was published in October 1999 and was accepted and approved by DLNR (Zond Pacific 1999b).[19] Subsequently, GE Wind Energy acquired Zond Pacific's assets and submitted an application for a new CDUP (MA-3103) for a 20-MW windfarm involving 30 Vestas V-47 wind turbines. The CDUP was approved by DLNR on January 24, 2003.

In June 2004, KWP LLC acquired the project and proposed to develop a 30-MW facility using 20 GE 1.5-MW wind turbines. This change in ownership and project layout represent the current project owner and final project design. In 2004, following consultations with DLNR and the Office of Environmental Quality Control (OEQC), an EA was conducted to assess the visual impacts of the revised design that were different from what was evaluated in the 1999 EIS. This included a decrease in wind turbines from 27 to 20 and an increase in total turbine height from 243 feet to 296 feet. This assessment culminated in a Finding of No Significant Impact (FONSI) issued by DLNR in November 2004 (KWP 2004).[20]

A 20-year land lease (with an option to extend for an additional 20 years subject to approval and conditions) dated January 19, 2005 was approved by the BLNR (S-5731) and issued to KWP LLC. On June 24, 2005, a modification to CDUP MA-3103 was approved by the BLNR to include conditions related to the draft HCP, which was also approved by the BLNR in the same meeting for publication for public review. In February 2005, Maui County issued a SMA minor permit (SM2 2005/0029) for construction of

[17] https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/1996-03-08-MA-FEA-Zond-Pacific-Kaheawa.pdf

[18] https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/1999-03-DD-MA-FEA-Kaheawa-Pastures-20-Mw-Windfarm.pdf

[19] https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/1999-10-08-MA-FEIS-Kaheawa-Pastures-20mw-Windfarm.pdf

[20] https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2004-11-23-MA-FEA-Kaheawa-Pastures-Wind-Energy.pdf.

driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapi‘ilani Highway.

A PPA between Maui Electric Company (Maui Electric) and the Applicant was approved by the PUC on March 18, 2005[21]. The PPA pricing structure was established through negotiations aimed at creating a long-term, economically viable wind farm project. Under the agreement, the Applicant was required to supply energy to Maui Electric depending on the availability of energy from the wind farm. The term of the PPA is for an initial period of 20 years, continuing thereafter until terminated by either party. The PPA is expected to expire on June 21, 2026.

In January 2006, DLNR DOFAW and the USFWS approved the final HCP for KWP 1 (KWP 2006)[22]. USFWS issued a Final EA and FONSI under the NEPA (USFWS 2006) and granted KWP 1 a federal ITP (ITP-TE118901-1) on January 30, 2006. DLNR DOFAW granted a state ITL (ITL-08) on the same day. These permits were amended in 2012 to reduce the permitted take of seabirds and then again in 2015/2016 to increase the permitted take of bats. KWP 1 issued a letter of intent in April 2024 to amend and extend both permits to cover the Proposed Action. More information about the history of KWP 1’s current HCP, ITL, and ITP is provided in Section 1.2.2, *History of Project HCP, ITL, and ITP*.

The KWP 1 facility was constructed between 2005 and 2006 and involved installing 20 GE 1.5-MW WTG, arranged in a single articulated row, positioned at elevations between approximately 2,000 and 3,200 feet. In addition to the turbines, an underground power collector system, a substation, and an O&M building and warehouse storage facility (both shared with the KWP 2 facility) were constructed near the turbines and the existing access road. A more detailed description of the KWP 1 facility is included in Section 2.1.1, *Description of the Existing KWP 1 Facility*.

Table 1-1 summarizes KWP 1’s history of existing environmental reviews, permits and approvals.

Table 1-1. KWP 1 History of Environmental Reviews, Permits, and Approvals

Year	Event
1996	February, DLNR accepts final EA for installation of six temporary met towers.
	March, Zond Pacific obtains a CDUP from DLNR for six temporary met towers.
1999	March, Zond Pacific publishes Final EA for 20-MW Kaheawa Pastures Wind Farm (27 turbines), DLNR determines an EIS to be needed due to potential significant impacts.
1999	October, DLNR approves Final EIS for the 20-MW Kaheawa Pastures Wind Farm (27 turbines).
2002	GE Wind Energy acquires Zond Pacific.
2003	January, BLNR approves CDUP for 20-MW Kaheawa Pastures Wind Farm (30 turbines).
2004	June, Kaheawa Wind Power, LLC acquires project.
	November, DLNR issues FONSI and Final EA for 30-MW Kaheawa Pastures Wind Farm (20 turbines)

[21] PUC Docket No. 04-0365, Decision and Order No. 21701, Filing No. F-065632.

[22] https://dlnr.hawaii.gov/wildlife/files/2013/10/Final-KWP-I-HCP.pdf

Year	Event
	(Note: this EA analyzed the turbine type and number of turbines that were ultimately constructed, i.e. the existing KWP 1 facility.)
2005	January, BLNR approves 20-year land lease for Kaheawa Wind Power, LLC.
	February, Maui County approves SMA minor permit for access road driveway improvements off Honoapi'ilani Highway.
	March, PPA with Maui Electric approved by the PUC.
	June, BLNR approves modification to CDUP MA-3103.
	October, KWP 1 begins construction.
2006	January, USFWS issues NEPA Final EA and FONSI and ITP, BLNR approves HCP, DLNR DOFAW issues ITL.
2006	June, KWP 1 finishes construction and begins operations.
2012	April, ITL & ITP amended to reduce permitted take of seabirds.
2015	October, ITP amended to increase permitted take of bats.
2016	April, ITL amended to increase permitted take of bats.
2024	May, KWP 1 submitted letter of intent to draft a new HCP in support of ITP and ITL to cover an additional 20 years of operations (i.e. Proposed HCP).
2024	October, HEPA Environmental Impact Statement Preparation Notice (EISPN) published in *The Environmental Notice*, beginning the 30-day public scoping period. Public scoping meeting held in Kihei.

1.2.2 History of Project HCP, ITL, and ITP

Pursuant to HRS § 195D-4(g), the BLNR, after consultation with the State's Endangered Species Recovery Committee (ESRC), may issue a temporary license (an ITL) as a part of a HCP to allow take otherwise prohibited if the take is incidental to the carrying out of an otherwise lawful activity. The HCP describes the anticipated effects of the proposed taking, how those impacts will be minimized and mitigated, and how those actions will be funded.

As discussed in Section 1.2.1, *History of Permitting and Construction*, KWP 1 was issued an ITP by USFWS and an ITL by DOFAW on January 30, 2006. The associated KWP 1 HCP had been approved (with amendments) by BLNR on January 13, 2006. The Covered Species include the ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), and ʻaʻo (Newell's shearwater). The ITP and ITL each have a term of 20 years and were amended in 2012 to reduce the permitted take of seabirds, and then again in 2015/2016 to increase the permitted take of ʻōpeʻapeʻa (Hawaiian hoary bat). Table 1-2 summarizes the tiers of take outlined in the HCP and subsequent amendments for each of the Covered Species.

Since issuance of the ITP and ITL in January 2006, the KWP 1 facility has operated under the terms of the current HCP and associated permits. KWP 1 implements a year-round fatality monitoring program to document downed (i.e., injured or dead) wildlife incidents resulting from facility operation. This monitoring is used to estimate impacts to Covered Species, ensure KWP 1 is within the permitted take amount for each species, and trigger adaptive management, if needed.

As of June 30, 2025 (end of the 2025 fiscal year (FY) reporting period), a total of 35 nēnē (Hawaiian goose), 13 ʻōpeʻapeʻa (Hawaiian hoary bat), and 8 ʻuaʻu (Hawaiian petrel) carcasses have been detected as Covered Species fatalities, either through standardized searches conducted as part of post-construction monitoring or incidentally (Tetra Tech 2025a). No carcasses of ʻaʻo have been detected.

KWP 1 calculates the total estimated take of Covered Species, which accounts for factors such as unobserved take and estimated indirect take using fatality modeling tools[23] (Dalthorp et al. 2017). USFWS and DOFAW require the 80 percent upper credible limit (UCL) of take be used to conservatively represent the estimate of direct take. Use of the 80 percent UCL for take estimation means that there is an 80 percent probability that actual mortality is equal to or less than the predicted mortality. The mortality is estimated from three components: 1) observed direct take detected during standardized fatality monitoring; 2) estimated unobserved direct take; and 3) estimated indirect take to account for the loss of potential future offspring.

Based on analysis in Evidence of Absence (EoA) and accounting for indirect take, the total adjusted take through FY 2025 is equal to or less than (≤) 56 nēnē (Hawaiian goose), ≤ 32 ʻōpeʻapeʻa (Hawaiian hoary bat), and ≤ 24 ʻuaʻu (Hawaiian petrel). Therefore, the ʻōpeʻapeʻa is currently estimated to be within Tier 2, the nēnē and ʻua'u are both estimated to be within Tier 1 (though have triggered Tier 2 planning based on reaching 75 percent of the Tier 1 take), and the ʻa'o is within Tier 1, as defined in the current HCP (see Table 1-2) (Tetra Tech 2025a).

Mitigation obligations have been met or exceeded for 50 ʻōpeʻapeʻa (Tier 2), 38 ʻua'u (Tier 2), and 4 ʻa'o (Tier 1). As of end of FY 2025, mitigation has offset approximately 50.3 nēnē but the Tier 1 obligation (60 nēnē, plus lost productivity[24]) has not yet been met (KWP 2025). Mitigation for nēnē was delayed for several years despite KWP 1 funding beginning in December 2007. Offsets began accruing only in 2012 after DOFAW constructed the release pen at Haleakalā Ranch and initiated translocations (KWP 2024a). Annual credits also vary with natural fluctuations in breeding, nesting, and fledgling success, contributing to the lag in meeting nēnē obligations. KWP 1 remains fully committed to satisfying Tier 1 and lost productivity obligations. KWP 1 continues working with DOFAW and USFWS to adaptively manage the nēnē mitigation program, implementing habitat and infrastructure improvements at Haleakalā Ranch since assuming management in December 2023. KWP 1 is also collaborating with DOFAW and USFWS to manage a second release pen following a recent DOFAW translocation of 24 nēnē to the island of Molokaʻi. While annual variations in breeding, nesting, and fledgling success makes nēnē mitigation difficult to predict, KWP 1 anticipates fully offsetting the obligations within the next several years through efforts at these two release pens.

[23] KWP 1 uses the evidence of absence (EoA) estimation tool to estimate actual take, factoring in the number of carcasses found and detection bias (i.e., searcher efficiency, carcass persistence relative to search intervals).

[24] Lost productivity was defined as follows: direct take may result in the loss of productivity of the individual that is taken between the time the take occurs and the time that mitigation is provided.

Table 1-2. Summary of Covered Species Take at KWP 1 and Mitigation Completed

Covered Species	Level of Take			Number Detected[1]	Total Adjusted Take through FY 2025 (80% UCL)[2]	Mitigation
	Baseline Tier (Tier 1)	Higher Tier (Tier 2)	Notably Higher Tier (Tier 3)			
Nēnē (Hawaiian goose)	60	80-100	100-200	35	≤ 56	50.3[3] (Mitigation Ongoing)
ʻŌpeʻapeʻa (Hawaiian hoary bat)	20	50	100-200	13	≤ 32	50 (Completed)
ʻUaʻu (Hawaiian petrel)	25	38	n/a	8	≤ 24	59.22[4] (Completed); Management actions at Makamakaʻole continue
ʻAʻo (Newell's shearwater)	4	8	n/a	0	No take observed	5.03[5] (Completed); Management actions at Makamakaʻole continue

1. Includes standardized finds and incidental finds.

2. UCL = Upper Credibility Limit; adjusted take includes indirect take.

3. Mitigation credits include the allocation from the FY 2025 breeding season based on 8 fledglings and 16 adult breeding nēnē from the Haleakala Ranch, pending concurrence of USFWS and DOFAW.

4. USFWS and DOFAW mitigation letters combined the mitigation offset for KWP I and KWP II, therefore, this number is based on the proportion of the permitted take attributed to KWP I (38 petrels + 4.78 lost productivity out of total obligation of 64.48 = 66 percent); 66 percent of the 89.72 total offset = 59.22.

5. USFWS and DOFAW mitigation letters combined the mitigation offset for KWP I and KWP II, therefore, this number is based on the proportion of the permitter take attributed to KWP I (4 shearwater out of the total obligation of 6.681): 59 percent of the 8.53 total offset = 5.03.

Source: Tetra Tech 2025a; KWP 2025

1.2.3 Hawaiian Electric's Request for Renewable Energy Supply

In January 2017, Hawaiian Electric filed a letter with the PUC requesting to open a docket to solicit proposals for new renewable dispatchable generation. The PUC subsequently issued Order No. 34856 and opened Docket No. 2017-0352 to receive filings, review approval requests, and resolve disputes, if necessary, related to the plan to proceed with competitive procurement of this generation (Hawaiian Electric 2024c). RFPs for this docket were separated into three stages: Stage 1, Stage 2 and Stage 3. Based on responses to the Stage 3 RFP, Hawaiian Electric (and its subsidiaries Maui Electric and Hawaiʻi Electric Light) selected five projects on Maui to move forward with in negotiations: three solar plus storage projects, a biofuel internal combustion project, and the Proposed Action (KWP 1 Continued Use) (Hawaiian Electric 2024c). Each of these projects would require approval of a PPA by the PUC.

The PPA for the Proposed Action is currently under negotiation with Hawaiian Electric. KWP 1 would supply energy to Maui Electric on an unscheduled basis, depending on the availability of energy from the wind farm. The term of the PPA is for an initial period of twenty years.

1.3 Project Purpose and Need

The purpose of the Proposed Action is to utilize the existing wind energy infrastructure on land owned by DLNR to continue to provide 30-MW of clean, renewable energy to the island of Maui, thus contributing to the State of Hawai'i's RPS energy goals of generating 100 percent of the state's energy from renewable sources by 2045. The Proposed Action also would:

- Contribute to Maui's energy affordability;
- Contribute to Maui's grid reliability;
- Contribute to Maui's economic development through the provision of full-time local jobs, use of local contractors, and provision of a community benefits program; and
- Provide environmental benefits including decreasing dependence on fossil fuels, enhancing air quality, and contributing to habitat conservation through implementation of an HCP with a net conservation benefit for protected species.

The need for the Proposed Action is established by Hawaiian Electric's competitive procurement process for locally produced renewable energy (Maui Stage 3 RFP) which responds to the HCEI and the State of Hawai'i's RPS which requires that electric utility companies use renewable energy for the equivalent of 100 percent of net electricity sales by 2045. The need is also established by Hawaiian Electric's reliance on the existing KWP 1 facility to provide resource adequacy, grid reliability, and energy affordability (see Section 1.3.1, *State Energy Goals and Power Production*).

1.3.1 State Energy Goals and Power Production

Hawai'i currently depends on importing fossil fuels for two-thirds of its electric power, making it the most fossil fuel dependent state in the nation (EIA 2024). As one of the world's most remote island chains with no fossil fuel resources of its own, Hawai'i is vulnerable to resource availability and price fluctuations as well as unintended fuel releases into marine environments and harmful impacts of climate change. In 2008 the State of Hawai'i and the Department of Energy signed a memorandum of understanding to establish the Hawai'i Clean Energy Initiative (HCEI) to reduce the state's dependence on imported fossil fuels and optimize the use of locally produced renewable energy. The HCEI is a regulatory framework that is supported by a diverse group of stakeholders working to transform various systems that govern energy planning and delivery within Hawai'i (DBEDT 2025). In 2015, as part of the HCEI, the State increased the Renewable Portfolio Standard (RPS)[25] to require electric utility companies that sell electricity for consumption in Hawai'i to use renewable energy for the equivalent of 30 percent

[25] The RPS is codified in HRS Chapter 269-92.

of net electricity sales by 2020, 40 percent by 2030, 70 percent by 2040, and 100 percent by 2045. Hawai‘i became the first state in the nation to have a 100 percent RPS by the year 2045 and recently in January 2025, Hawai‘i’s governor issued Executive Order 25-01 which further accelerates the timeframe for Maui to reach 100 percent RPS by 2035.

According to Hawaiian Electric’s 2024 RPS Status Report (Hawaiian Electric 2025a), Maui County has a total of 16 percent of its power generation supplied by wind energy (total of 222,639 net MWh). The KWP 1 facility’s 30 MW production capacity plays an important role in the existing renewable energy supply to the Maui grid not only by helping the state reach its RPS goals but also in providing resource adequacy and affordable energy for the Maui Electric service territory. For example, in 2024, KWP 1 provided 79,792 MWh, which was 6 percent of the total power generation supplied to the Maui grid and almost 36 percent of the total wind energy supplied on the Maui grid in 2024 (Hawaiian Electric 2025a, EIA 2025a, EIA 2025b). More information about KWP 1’s contribution to resource adequacy and grid reliability is provided in Section 1.3.1.1, *Maui Grid Reliability and Resource Adequacy*. Information about KWP 1’s contribution to energy affordability is provided in Section 1.3.1.2, *Low-Cost Energy*.

1.3.1.1 Maui Grid Reliability and Resource Adequacy

KWP 1 is located on a highly productive wind site and is capable of producing enough clean energy to power the equivalent of an estimated 17,000 homes annually[26] on the island of Maui, or roughly 23 percent of all Maui housing units (Census Bureau 2020). It has been a reliable energy generator on the Maui Electric grid since it began operating in 2006 and Maui Electric relies upon this facility to address its energy generation needs on the island of Maui.

Hawaiian Electric has demonstrated that the KWP 1 facility plays an important role in supporting Maui grid reliability, which is extremely critical due to the increasing risk of rolling outages in the near term.[27] These risk factors include more frequent problems with Maui’s aging conventional generating units, upcoming planned retirement of multiple generating units in Kahului and Mā‘alaea, and further delays or withdrawals of new energy projects. Under all the scenarios Hawaiian Electric analyzed in its Integrated Grid Plan, extending the life of the KWP 1 facility reduced risks of future rolling outages on Maui (Hawaiian Electric 2024a).[28] The KWP 1 facility is an essential contributor to resource diversity, generating power during the day and night as well as when it is cloudy.

[26] Based on average Maui household consumption and average KWP 1 generation.

[27] Hawaiian Electric’s reliability analyses use a Loss of Load Expectation (“LOLE”) of 0.1 days /year as a reference value for acceptable system reliability. This value reflects a power system that would on average experience 1 day every 10 years with unserved power, which is a commonly accepted reliability criteria for the U.S. power industry.

[28] Updated grid reliability analysis based on Integrated Grid Plan 2024 Annual Update (Hawaiian Electric 2024a) - see pp. 132-169 for discussion of Maui grid reliability. New analyses quantified reliability risks of aging conventional generation fleet, decreases in generating capacity with upcoming retirements, and potential delays/withdrawals of Stage 3 renewable energy projects.

The PUC's 2024 Adequacy of Supply Report for Maui Electric (Hawaiian Electric 2024b) indicates that some shortfalls existed in Maui's energy reserve margins for 2024[29], highlighting the need for existing energy sources on Maui (such as KWP 1) to continue to produce electricity to meet power supply demands. The PUC Adequacy of Supply Report forecasts that from 2025 to 2028 Maui's reserve margins should be sufficient *if* the anticipated additions from projects come online as scheduled and if some of the current generation, such as KWP 1, remains (Hawaiian Electric 2024b). Approximately 50 percent of Maui's current fossil-fueled generation fleet will need to retire by 2030 as estimated in Hawaiian Electric's Integrated Grid Planning Report and 2024 annual update (Hawaiian Electric 2023, Hawaiian Electric 2024a).[30]

Given the Maui grid's reliance on the KWP 1 facility, decommissioning the KWP 1 facility would require replacement with other resources that would involve building new generation facilities. New solar facilities would require significantly more land to produce the same amount of energy, and would also take years for siting, permitting and construction. Likewise, the siting, permitting, and construction of new combustion-based generation sources on Maui would take substantial time and resources. Generation sources that combust fossil fuels are likely to worsen the State's and the County of Maui's exposure to volatile fuel prices, increase greenhouse gas emissions, and result in air quality impacts as compared to retaining the KWP 1 project.

1.3.1.2 Low-Cost Energy

The existing KWP 1 facility is among the lowest cost electricity generators in the State and saves customers approximately $10 million per year compared to fossil fuels, a savings that would otherwise come as an immediate cost to consumers if the facility ceased operation.[31] In 2024, the KWP 1 facility provided energy at 15 to 30 percent below the cost of fossil-fueled generators on Maui.[32] KWP 1 delivers energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility, a cost that is otherwise directly passed along to consumers and contributes to unpredictable electricity costs. The cost to replace energy from KWP 1 would be passed immediately to consumers and would disproportionately

[29] Per PUC General Order No. 7, Hawaiian Electric is required to employ an Energy Reserve Margin criteria to ensure there is enough energy generation capacity to meet the reasonable expectable demands for service and to provide reasonable reserve for emergencies.

[30] See Integrated Grid Planning Report, Maui Grid Needs Assessment, at p. 173 (Hawaiian Electric 2023), and IGP 2024 Annual Update at p. 135 (Hawaiian Electric 2024a). The analyses assume retirement of four generating units at the Maalaea Power Plant in 2027 (49 MW), all four units at the Kahului Power Plant (32.5 MW), and nine additional units at the Maalaea plant in 2030 (40.5 MW). Collectively, these total 122 MW of generating capacity. According to Hawaiian Electric's Sustainability Map for Maui, Maui has 253.7 MW of firm generating capacity.

[31] Since January 2023, Hawaiian Electric's "Schedule Q" avoided energy costs for the Maui Division has averaged ~$200 / MWh (Hawaiian Electric 2013).

[32] Energy cost comparison based on avoided energy costs and energy cost recovery filings for Maui (Hawaiian Electric 2013, Hawaiian Electric 2025b).

impact lower income households because those customers already bear the highest relative electricity cost burdens[33] (U.S. Department of Energy 2018).

The reliability and cost-effectiveness of wind energy, coupled with its ability to complement increasing energy demand and support the clean energy transition, underscores why there is a need to sustain continued production of critical renewable energy resources such as KWP 1.

1.4 Project Objectives

In light of the established need for renewable energy projects in the state of Hawai‘i and the objectives of the Proposed Action, along with the recognized environmental and infrastructure constraints (specifically the existing electrical grid) on Maui, the Applicant has set forth the following objectives for the Proposed Action, in accordance with HAR § 11-200-17(e)(2):

- Continue operating the existing KWP 1 facility within an area with sufficient wind resources to deliver reliable, efficient, and economically viable renewable energy.
- Address potential electricity supply shortages on Maui due to aging infrastructure and retiring facilities.
- Ensure a stable electricity supply to prevent outages and maintain service reliability.
- Provide cost-effective energy solutions for Maui Electric customers, particularly those overly burdened by energy costs.
- Shield consumers from the volatility of fossil fuel markets.
- Support the local economy through sustained local jobs and lease revenue provided to the state.
- Promote Hawai‘i's energy independence by preserving a consistent source of renewable energy.
- Mitigate negative impacts on threatened and endangered species and promote habitat conservation.
- Reduce environmental impacts by leveraging existing infrastructure and implementing innovative mitigation strategies.
- Mitigate the potential air quality impacts of fossil fuel-based electricity generation, with its concomitant effects on respiratory health.
- Contribute to broader initiatives aimed at combating climate change.

[33] Nationally, low-income households allocate a greater share of their income to home energy expenses (such as electricity, natural gas, and various heating fuels) compared to other households. This phenomenon is known as a household's "energy burden."

1.5 Scope and Organization of the Document

The scope of the EIS has been informed by comments received in response to the EISPN in accordance with HAR § 11-200.1-23. The Draft EIS was prepared to address the comments received on the EISPN and to fully disclose any potential impacts on the environment and proposed BMPs and mitigation measures to reduce these potential impacts.

Section 2, *Project Description and Alternatives* of this EIS provides a detailed description of the Applicant's Proposed Action and a No Action Alternative.

Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures* presents the existing environmental setting for the full range of potentially affected resources and evaluates the potential effects of the Proposed Action and No Action Alternative. The analysis of potential impacts encompasses both direct impacts—those occurring simultaneously and in the same location as the specific action—and indirect impacts—those arising from an action but occurring later or being geographically separated yet foreseeable within a reasonable timeframe as well as short- and long-term impacts on the human, natural, and built environments. Fifteen resource areas are evaluated in Section 3, as follows:

3.2 – Air Quality

3.3 – Climate and Climate Change

3.4 – Geology, Topography, and Soils

3.5 – Water Resources

3.6 – Natural Hazards

3.7 – Hazardous and Regulated Materials and Wastes

3.8 – Vegetation

3.9 – Wildlife

3.10 – Cultural and Archaeological Resources

3.11 – Noise

3.12 – Visual Resources

3.13 – Land Use

3.14 – Transportation and Traffic

3.15 – Public Services and Utilities

3.16 – Socioeconomic Characteristics

Section 3.17, *Cumulative Impacts* evaluates the potential impacts of the Proposed Action in the context of past, present, and reasonably foreseeable future actions. Where appropriate, the EIS identifies actions and measures that could mitigate these impacts.

Section 4, *Regulatory Context/Consistency with Plans and Policies* outlines the regulatory context and assesses the Proposed Action's consistency with relevant plans and policies, discussing the regulatory framework that governs it.

Section 5, *Other HRS Chapter 343 Requirements* covers additional requirements under HRS 343, including the relationship between local short-term uses and long-term productivity, the irreversible and irretrievable commitment of resources, unavoidable environmental effects, and unresolved issues.

Section 6, *Consulted Parties* lists the parties consulted during the planning stages of the Project.

Section 7, *References* provides references cited throughout the EIS.

Section 8, *List of Prepares* provides a list of individuals that contributed to the development of this EIS.

1.5.1 Site-Specific Studies Contributing to the EIS

Data has been compiled from various environmental studies, permits, and assessments to inform the Draft EIS. The Project is supported by a comprehensive body of environmental documentation that spans nearly 30 years, including 19 years of site-specific data collected under the requirements of the current HCP. Table 1-3 lists the key studies that have contributed to the EIS.

Table 1-3. Key Site-Specific Studies Evaluated in EIS

Authors	Year	Title
Tomonari-Tuggle and Tuggle	1991	Archaeological Survey of Two Demonstration Trails of the Hawai'i Statewide Trail and Access System, Lahaina Pali Trail, Island of Maui/Kaiolohia Kahue Trail, Island of Lana'i, International Archaeological Research Institute, Inc., Honolulu
Robins et al.	1994	An Archaeological Inventory Survey of an Approximately 14.7 Mile Proposed Transmission Line, from Mā'alaea to Lahaina, Maui, Hawai'i. Revised 1994. Cultural Surveys Hawai'i.
Tomonari-Tuggle	1995	A Cultural Resource Management Plan for the Lahaina Pali Trail. International Archaeological Research Institute, Inc. Honolulu. Prepared for the Department of Land and Natural Resources, State of Hawai'i, Honolulu
Zond Pacific	1996	Final Environmental Assessment for a Proposed Action: Temporary Installation, Periodic Maintenance, and Collection of Data from Wind Resource Monitoring Stations at Kaheawa/Ukumehame, Maui.
Hammatt et al.	1996	Archaeological Survey of Access Roads Adjacent to the Mā'alaea-Lahaina Third 69KV Transmission Line Corridor. Cultural Surveys Hawai'i
Tomonari-Tuggle	1998	An Archaeological Reconnaissance Survey for 27 Wind Turbines in the Ukumehame Uplands, Island of Maui
Zond Pacific	1999a	Final Kaheawa Pastures 20 MW Wind Farm Environmental Assessment
Zond Pacific	1999b	Final Kaheawa Pastures 20 MW Wind-Farm Environmental Impact Statement
Athens	2002	An Upland Heiau Site, Ukumehame Ahupua'a, Maui. International Archaeological Research Institute, Inc. Prepared for GE Wind Energy, LLC

Authors	Year	Title
Magnuson	2003	Supplemental Archaeological Survey of Turbine Pad Alignments, Kaheawa Pastures, Upland Ukumehame Ahupuaʻa. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power, LLC
KWP	2004	Kaheawa Pastures Wind Energy Generation Facility: Final Environmental Assessment
Athens	2004	Supplemental Archaeological Survey of Turbine Pad Alignments, Kaheawa Pastures, Upland Ukumehame Ahupuaʻa. International Archaeological Research Institute, Inc., Prepared for Kaheawa Wind Power, LLC
USFWS	2005a	Draft Environmental Assessment for the Issuance of an Endangered Species Act Section 10(a)(1)(B) Incidental Take Permit for the Hawaiian Petrel (*Pterodroma sandwichensis*), Newell's (Townsend's) Shearwater (*Puffinus auricularis newelli*), Hawaiian Goose or Nēnē (*Branta sandvicensis*), and Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) to the Kaheawa Pastures Wind Energy Generation Facility, Ukumehame, Maui, Hawaiʻi
Rasmussen	2005a	Supplemental Archaeological Reconnaissance Survey of the Southern Portion of the New Low Impact Road for the Wind Turbine Project at Kaheawa Pastures, Upland Ukumehame Ahupuaʻa, Maui (TMK 3-6-01:14). International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC
Rasmussen	2005b	Supplemental Archaeological Reconnaissance Survey within the SMA Zone for the Wind Turbine Project at Ukumehame Ahupuaʻa, Maui (TMK 3-6-01:14). Draft. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC
Rasmussen	2005c	Field Inspection Letter for the SMA Portion of the New Low-Impact Road for the Wind Turbine Project at Kaheawa Pastures, Ukumehame Ahupuaʻa, Maui. Letter report. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC
Clark and Rechtman	2005	An Archaeological Inventory Survey of the Proposed Kaheawa Wind Farm Project Area. Rechtman Consulting, LLC. Prepared for Kaheawa Wind Power, LLC
Tomonari-Tuggle and Rasmussen	2005	Preservation Plan for Site 50-50-09-5232, An Upland Heiau in Ukumehame Ahupuaʻa, Island of Maui. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC, Honolulu.
USFWS	2006	Finding of No Significant Impact (FONSI) for Proposed Issuance of Section 10(a)(1)(B) Permit (TE118901-0) Under the Endangered Species Act to Authorize Incidental Take of the Hawaiian Petrel, Newell's Shearwater, Nēnē, and Hawaiian Hoary Bat by Kaheawa Wind Power, LLC for the Kaheawa Pastures Wind Energy Generation Facility, Maui, Hawaiʻi
KWP	2006	Kaheawa Pastures Wind Energy Generation Facility Habitat Conservation Plan, Ukumehame, Maui, Hawaiʻi
Clark et al.	2006	An Archaeological Inventory Survey of 333 Acres for the Proposed Expansion of the Kaheawa Wind Farm (TMK: 2-4-8-01: por. 001), Ukumehame Ahupua'a, Lahaina District, Island of Maui
Clark and Rechtman	2008	An Archaeological Inventory Survey of 333 Acres for the Proposed Expansion of the Kaheawa Wind Farm (TMK: 2-4-8-01: por. 001), Ukumehame Ahupua'a, Lahaina District, Island of Maui. Prepared for Mike Gresham, Kaheawa Wind Power, LLC

Authors	Year	Title
Ah Sam et al.	2009	A Cultural Impact Assessment for the Proposed Kaheawa Wind Power (KWP) Phase 2 Project Area (TMKs: 2-3-6-001: por. 014 and 2-4-8-01: por. 001), Ukumehame Ahupua'a, Wailuku and Lahaina Districts, Island of Maui
Rechtman et. al	2009	An Archaeological Inventory Survey for the Kaheawa Wind Power (KWP) Phase 2 Project Area. Rechtman Consulting, LLC. Prepared for First Wind Energy, LLC
Planning Solutions, Inc.	2010	Final Environmental Impact Statement: Kaheawa Wind Power II Wind Energy Generation Facility, Ukumehame, Maui, Hawai'i
Rechtman Consulting, LLC	2010	A Preservation Plan for SIHP Site 50-50-09-5648 within the Kaheawa Wind Power Phase 2 Project Area (TMK: 2-3-6-001), Ukumehame Ahupua'a, Wailuku District, Island of Maui. Prepared for First Wind
ASM Affiliates	2025	Cultural Impact Assessment for the Continued Operation of the Kaheawa Wind Power I Facility. Ukumehame Ahupua'a, Lahaina Districts, Island of Maui (Appendix C)[34]
Tetra Tech	2025a	Draft Kaheawa Wind Power I Habitat Conservation Plan, Maui, Hawai'i[35]
Tetra Tech	2025b	Phase 1 Environmental Site Assessment, Maui, Hawai'i
Tetra Tech	2025c	Kaheawa Wind Power 1 Continued Use Project Botanical Survey Report, Maui, Hawai'i (Appendix D)
Tetra Tech	2025d	Kaheawa Wind 1 Continued Use Project Acoustic Assessment Report, Maui, Hawai'i (Appendix E)
KWP LLC	2006 to Present	Kaheawa Wind Power Habitat Conservation Plan Annual Reports
KWP II LLC	2012 to Present	Kaheawa Wind Power II Habitat Conservation Plan Annual Reports

In addition to these site-specific studies and reports, a number of KWP 1 operational plans were referenced in the development of this EIS and are listed in Table 1-4.

Table 1-4. KWP 1 Operational Plans Evaluated in EIS

Authors	Year	Title
Tetra Tech	2021	Nēnē-specific Vegetation Management Memo
Brookfield	2022	Emergency Response Plan – Wind Operations
WSP USA Environment and Infrastructure, Inc.	2023	Kaheawa Wind Power Spill Prevention, Control, and Countermeasure Plan
TerraForm Power	2025	Wildfire Prevention Plan

[34] In addition to complying with H.B. 2895, Act 50 (which mandates that state agencies and developers evaluate the impacts of proposed land use developments on the cultural practices of the community and the State as part of the environmental review process outlined in HRS Chapter 343), the Cultural Impact Assessment (Appendix C) includes a Ka Pa'akai Analysis.

[35] The Proposed HCP is anticipated to be published in the same issue of *The Environmental Notice* as this Draft EIS.

Authors	Year	Title
Tetra Tech	2025e	KWP 1 Vegetation Management Plan (Appendix F)
Tetra Tech	2025f	KWP 1 Invasive Species Prevention Plan (Appendix G)

2.0 Project Description and Alternatives

This section provides a detailed description of the Proposed Action and No-Action Alternative. No other alternatives were identified that would meet the purpose and need of the Proposed Action, which is to utilize the existing wind energy infrastructure to provide 30-MW of clean, renewable energy to the island of Maui in response to Hawaiian Electric's Maui Stage 3 RFP, the HCEI, and the State of Hawai'i's RPS.

2.1 Proposed Action (Continued Use)

The Proposed Action involves continuing use of the existing KWP 1 wind generation facility for an additional 20 years. The Proposed Action consists of three components/phases: 1) continued operation and maintenance, 2) HCP compliance activities, and 3) decommissioning and restoration. A detailed description of the existing KWP 1 facility and each phase/component of the Proposed Action is provided below.

2.1.1 Description of the Existing KWP 1 Facility

The existing KWP 1 facility comprises 20 WTGs, one substation, one O&M building, one warehouse storage facility, access roads, power collector system, communication systems, and transmission interconnections. The limits of disturbance (LOD) associated with these facilities is approximately 41 acres all located within the 200-acre lease area on TMK (2) 4-8-001:001 (Figure 2-1). The LOD associated with the Kaheawa Pastures access road and parking area on TMK (2) 3-6-001:014 is approximately 17 acres, for a total Project LOD of 58 acres (Figure 2-1). Representative photos of the existing KWP 1 facility are provided in Figure 2-2. Figure 2-3 shows a schematic drawing of a typical wind turbine.

The KWP 1 WTGs are GE 1.5se turbine models rated for 1.5 MW each and are arranged in a single articulated row. Each WTG consists of four principal elements:

- A three-bladed rotor (comprised of three blades, pitch controls, and a rotor hub) attached to the nacelle, which converts the wind's energy into rotational shaft energy;
- A nacelle that houses a generator (which converts the rotational shaft energy into an electrical current), controller (which starts and stops the turbine depending on conditions), yaw system (which controls the turbines orientation), and the main mechanical components of the WTG (i.e., gearbox, main driveshaft and bearings, and power electronics);
- A tower that holds the rotor and nacelle above the ground; and
- Electronic equipment at the base of the turbine such as controls, electrical cables, and a transformer.

Each turbine tower reaches a height of 180 feet (i.e. hub height), with rotor diameters of 231 feet, resulting in a total structural height of about 296 feet at the maximum blade tip. The nacelles are mounted on the towers with a yaw system that enables them to rotate 360 degrees about a vertical axis

so that they can always be oriented into the wind. Each WTG is equipped with meteorological sensors that monitor wind speed and direction. When the wind speed picks up to within operating range, the sensors cue the WTG's yaw system to orient itself to face the wind and to use the WTG's pitch system to turn the blades on the rotor from a dormant (i.e., feathered) position to an active position, and to commence generating power. The rotor speed is variable at 11-20 rotations per minute. The towers are conical tubular steel towers that taper from a diameter of approximately 15 feet at the base to approximately 10 feet at the top. Each tower contains an internal ladder that allows access to the nacelle and a 450-pound capacity load-lifting system that allows work equipment and parts to be hoisted from the ground to the nacelle. The reinforced concrete foundation supporting each tower is approximately 1,750 square feet. The depth of the WTG foundations are approximately 11 feet below surface and the total volume of concrete estimated in each foundation is 290 cubic yards.

The intra-turbine power collection system includes 34.5-kV collector lines that carry the power produced from the transformers at the base of each WTG to the KWP 1 substation (Figure 2-2, Photos 2 and 5). The collector lines are buried approximately 4 feet below grade. Fiber optic communication cables and supervisory control and data acquisition (SCADA) components that transmit data from the WTG controllers to the substation and O&M building are also buried with the power collection system. Power generated by KWP 1 is integrated into the Hawaiian Electric island-wide grid through the existing Hawaiian Electric switchyard which is located immediately adjacent to the KWP 1 substation. The Hawaiian Electric switchyard connects to the 69-kV transmission line that runs through the Project Area immediately south of the KWP 1 substation and Hawaiian Electric switchyard (Figure 1-2).

The existing O&M building and warehouse storage facility serve both the KWP 1 and KWP 2 wind facilities[36]. These two buildings and their associated parking areas are located adjacent to one another directly south of KWP 1 WTG 7 with approximately 100 feet spacing and a stairway between them. The O&M building is approximately 50 feet wide and 60 feet long and provides two large maintenance bays as indoor work areas, shop facilities to facilitate large equipment repair, and a storage area for spare parts (Figure 2-2, Photo 3). The warehouse storage facility is a clear span steel building that is approximately 60 feet wide and 80 feet long and provides two large maintenance bays as indoor work areas, shop facilities to facilitate large equipment repair, and a storage area for spare parts (Figure 2-2, Photo 4). The O&M building also has two bathrooms and office space to support onsite O&M personnel. Wastewater is managed through an existing onsite septic system. Non-potable water for the O&M building is supplied by an existing rain catchment system consisting of three 500-gallon tanks. When the catchment system does not provide sufficient water, additional water is purchased and delivered to the site by a third-party vendor. Drinking water is trucked to the site for O&M personnel needs.

A non-operational steel lattice, guyed meteorological tower, approximately 175 feet tall and supported by a 1.5-square-foot concrete base, is located directly south of the KWP 2 BESS facility (Figure 2-2, Photo

[36] As discussed in Section 1.1.1.1, *Location and Land Ownership*, the O&M building and warehouse storage facility are within the KWP 1 lease area; however, KWP 2 has easement rights to use and access these facilities as well as the access roads leading to these buildings.

7). The existing met tower guy lines are equipped with bird diverters. The meteorological tower became non-operational after it sustained damage from a 2019 wildfire (history of wildfires in Project Area discussed further in Section 3.6.1, *Natural Hazards, Existing Environment*).

The Kaheawa Pastures access road is an existing four-wheel-drive roadway that extends from Honoapi'ilani Highway, passing through the KWP 2 wind facility and leading directly to the KWP 1 turbines (Figure 2-2, Photos 9 and 10). The access road has a porous gravel surface and is approximately 20 feet wide. Along the Kaheawa Pastures access road, at the KWP 2 Turbine 12 turbine pad, is an existing less than one acre staging area that may be utilized by KWP 1 for temporary equipment staging during KWP 1 maintenance activities. An existing parking/staging area is located at the entrance of the road for equipment staging and employee parking and is less than 1 acre (Figure 2-2, Photo 11). Both staging/parking areas have porous gravel surfaces.

Approximately five O&M personnel are generally present at the KWP 1 facility on a daily basis during project operations to ensure the turbines and supporting facilities are operating properly, to monitor the condition of the internal roadways, to conduct vegetation management, and to conduct any needed maintenance. Generally, two additional personnel are present daily to conduct HCP compliance activities.

KWP 1 operations includes regular inspection and maintenance of the WTGs, supporting infrastructure and facilities, and grounds including:

- Inspection and servicing of all major mechanical components of the WTG and substation including lubrication systems, generators, blades, electrical and transformer components, communication and SCADA components, and meteorological instrumentation, as required by manufacturer specifications. More details regarding activities related to inspection and servicing of major mechanical components is provided in Section 2.1.2.2. *Maintenance Activities*.
- Maintaining the primary access road to provide access for KWP 1 personnel as well as Hawaiian Electric and DLNR personnel and access to the Hawaiian Electric switchyard and transmission lines.
- Maintaining graded, vegetation free roads and pads out to 230 feet (70 meters) of each WTG with the goal of maximizing searcher efficiency for finding any potential downed wildlife as part of post construction mortality monitoring (see Section 2.1.3, *HCP Compliance Activities*).
- Maintaining vegetation free 30- foot buffers around the substation and switchyard, and O&M building. These buffers are maintained to provide fire breaks and defensible space in accordance with the Project's Wildfire Prevention Plan (TerraForm 2025).

  Managing vegetation within vegetation free buffers through a combination of mechanical, chemical, and manual methods, including but not limited to spot herbicide spraying and periodic weed whacking. Certain timing restrictions and other vegetation management restrictions to minimize impacts to listed species are included in the KWP 1 Vegetation Management Plan in Appendix F.

2.1.2 Continued Operations

The Proposed Action involves continuing operation of the existing KWP 1 facility for an additional 20 years. The existing 20 WTGs would continue to operate, generating up to 30 MW of renewable energy. The substation, switchyard, and interconnection equipment would remain in place, allowing the energy generated by the turbines to be transmitted to the Hawaiian Electric island-wide grid. The O&M building and warehouse storage facility would continue to be used to support KWP 1 operations. The Proposed Action would require no construction or physical improvements beyond the maintenance activities described in Section 2.1.2.2, *Maintenance Activities*. Throughout the 20-year operational period, KWP 1 would implement operational controls and industry standard BMPs, including those summarized in Section 2.1.6, *Best Management Practices*, to avoid and minimize adverse impacts to the community or environment.

2.1.2.1 Operational Activities

KWP 1 would continue to employ approximately five O&M personnel and two HCP compliance personnel on a daily basis for routine O&M and HCP compliance monitoring.

KWP 1 would continue to be accessed by the Kaheawa Pastures access road. During a normal day of operation, the KWP 1 facility would typically generate approximately seven round trip vehicle-trips along Honoapi‘ilani Hwy (five O&M personnel plus up to two personnel related to HCP compliance activities).

Wastewater would continue to be managed through an existing onsite septic system. Non-potable water would be supplied by the existing rain catchment system or by delivered to the site by a third-party vendor. Drinking water would continue to be trucked to the site for O&M personnel needs. KWP 1 would produce a small amount of municipal solid waste, which would be collected weekly by a private waste disposal contractor and hauled to Central Maui Landfill. Hazardous and petroleum-based waste would be stored, transported, and disposed of in accordance with federal, state, and county regulations.

Operation of the existing KWP 1 facility requires the use and storage of small quantities of several materials that require special handling and storage. These include mineral oil, lubricating oils, waste oil, cleaner/degreaser, waste aerosols, combustible liquids, chemicals, paint, and herbicides. Most of these materials are stored in small quantities, primarily within the O&M building. However, mineral and lubricating oils are used and stored in sufficient quantities to maintain the operations of the facility in the following areas[37]: the O&M building; the 20 WTG sites; and the KWP 1 substation. A Spill Prevention, Control, and Countermeasure (SPCC) Plan is in place for the facility and is updated every 5 years (WSP 2023).

HCP compliance activities, including vegetation maintenance, monitoring for take of Covered Species, and scavenger control, would continue within the Project Area as described in Section 2.1.3, *HCP*

[37] Data on oil storage and secondary containment obtained from KWP 1’s SPCC plan (WSP 2023).

Compliance Activities. Vegetation management activities would be conducted in compliance with the KWP 1 Vegetation Management Plan (Appendix F)

2.1.2.2 Maintenance Activities

WTGs, Electrical Infrastructure, and Facilities

Routine maintenance of WTGs and ancillary infrastructure at a wind facility is necessary to ensure safe and reliable operations. As part of regular O&M, KWP 1 personnel complete annual inspections of each major structural component and remediation of any issues found to ensure the integrity of those components. Additionally, condition monitoring systems are integrated into the WTGs and used to regularly monitor the health of major components. Inspections and any necessary remediation would continue to be performed throughout the continued use operational period and condition monitoring systems would be used to monitor the health of replaceable parts and would help to further formulate enhanced inspection and replacement plans as needed.

The Applicant anticipates that WTG components such as blades, hubs, nacelles, generators, electrical cables and components, towers, and foundations would likely require some level of maintenance or refurbishment as is typical of commercial wind farm O&M activities. Other WTG components that incur more rotational wear, such as pitch and yaw systems, main shafts and bearings, and gearboxes may need to be replaced, as is typical of wind farm O&M activities and as has already occurred at some of the KWP 1 WTGs during the current operation period.

The Proposed Action includes an initial maintenance period where maintenance activities would occur on multiple WTGs at once. This initial maintenance is anticipated to occur over an approximate 6 to 9 month period prior to the start of the Proposed Action's commercial operations under a new 20-year PPA. During this time, the WTGs would not be producing power for the Maui Electric grid, thus allowing all the WTGs to be taken off-line and be available for maintenance work.

In addition to the initial maintenance activities, some components are expected to need replacement or refurbishment periodically during the 20-year continued use operational period. Regular inspections and maintenance over the course of the 20-year continued use operational period would ensure that the WTGs continue to operate in a safe and reliable manner.

Maintenance activities associated with the component replacement would be conducted within the extent of the previous ground disturbance areas from original construction activities. Contractors would utilize the existing turbine pad beneath each turbine to perform the major component exchange and maintenance activities for each WTG. The WTG specifications in regard to tower height, diameter, and blade length are anticipated to remain the same over the 20-year extension period. A more detailed description of proposed maintenance activities for each major WTG component is included below.

WTG External Refurbishment and Maintenance

External components of the WTGs may need refurbishment or maintenance. External components include the fiberglass exterior shell of the rotor hub and nacelle, fiberglass turbine blades, and steel tower structure.

Upon inspection, the nacelle and hub fiberglass shell and turbine blades may require fiberglass repair. Fiberglass repair on WTGs is a typical O&M practice and involves removing the damaged parts of the blade, such as fiberglass layers and other inner core materials. The affected area is reshaped using the same types of materials and uses resins and adhesives to harden it either naturally, applying heat from a special heated blanket, or using UV lights. A completed repair is finished with a surface filler, sanded to match the blade's shape, and painted to match the original finish. Repair sizes vary but typically occur within a small area—about 1 to 3 square feet. Any fiberglass refurbishment or maintenance is anticipated to occur on site. Blades may be removed from the hub using crane technology and lowered onto the ground at the turbine pad to facilitate inspection and repair. No blades are anticipated to be replaced during the initial maintenance period; however, it is possible one or more blades may need replacement during typical maintenance during the 20-year operational period. The nacelle may also be lowered to the ground for yaw bearing replacements.

The steel tower structures may require preventive/corrective measures including corrosion mitigation and associated sealing activities. Any refurbishment or maintenance on the WTG towers is anticipated to occur in place and no tower structures are expected to be replaced or dismantled.

Other exterior infrastructure such as safety and security systems installed on the exterior of the WTGs may also need replacement or repair. Pad-mounted transformers at the base of the WTGs may be replaced.

WTG Component Replacement

It may be necessary to replace some of the WTG components that incur more rotational wear, such as pitch and yaw systems, main shafts and bearings, and gearboxes. Component replacements may be carried out in situ or the rotor would be lowered to facilitate the completion of replacements at the ground surface, as practical. Components within the nacelle would be replaced using a conventional crane or a specialized lifting system to lift new components and lower removed components.

WTG Foundations

The WTG foundations would remain in place with no significant structural retrofits anticipated. Field assessments would be conducted that include routine visual inspections of all foundations and monitoring foundations, as necessary, to track structural conditions and load bearing performance.

During the 20-year life extension period KWP 1 may undertake below-grade foundation inspection, potentially including concrete coring. In the event that this occurs, KWP 1 would secure the appropriate permits and institute necessary environmental precautions.

Utility Interconnection and Substation System Upgrades

The Applicant anticipates that certain equipment at Hawaiian Electric's switchyard and KWP 1's substation would require refurbishment and/or upgrades as part of Hawaiian Electric's requirements for the Proposed Action's PPA. All of these activities would occur within the existing footprint of the switchyard and substation and may include upgrades to the telecommunications and SCADA equipment within the substation/switchyard, installation of equipment to regulate voltage levels and maintain power quality, upgrades to heating, ventilation, and air conditioning equipment, and select upgrades to Hawaiian Electric controls.

Other Support Infrastructure

Other support infrastructure including underground electrical collection lines, fiber optic lines and SCADA systems, the O&M building, and warehouse storage facility are not anticipated to require refurbishment or replacement.

The existing met tower would either be removed or replaced under the Proposed Action. If the met tower were to be replaced it would be similar in height as the existing met tower and if any guy wires were installed, they would be equipped with bird diverters to increase visibility. If the met tower is removed, all existing infrastructure would be removed from the site and the Applicant may employ alternative weather monitoring systems, such as Light Detection and Ranging (LiDAR), to fulfill the same purpose. LiDAR systems are typically smaller and more compact, generally occupying an area of a few square yards and requiring much less vertical space than a standard met tower with no need for guy wires.

Road and Site Maintenance

No significant ground disturbance is anticipated to occur during the continued use operational period. However, minor grading or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities, to maintain the primary and secondary access roads for service vehicles, and to maintain vegetation free buffers to provide fire breaks and assist with HCP compliance monitoring. Ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint as shown in Figure 2-1. The total LOD is approximately 58 acres. Within the LOD, approximately 35 acres (60 percent) are impervious and semi-impervious surfaces (e.g., buildings, turbine pads, and gravel laydown areas and roadway) and 23 acres (40 percent) is vegetated / pervious surfaces.

Site Preparation for Equipment Transport and Maintenance Activities

Site preparation for equipment transport and maintenance activities may involve civil work including recontouring the existing onsite access roads, turbine pads, crane paths, and/or onsite staging areas.

Portions of the existing access roads may be re-established to a similar condition as existed during the original KWP 1 construction. In particular, the corners may be resurfaced as needed to provide adequate turning radii for equipment delivery to the individual turbine sites. No new roads would be developed.

All existing drainage features would be maintained as necessary. Once the site has been adequately prepared, geotextile materials and compacted gravel would be installed. Possible equipment that could be used for the site civil improvements include, but would not be limited to, bulldozers, excavators, pay loaders, motor graders, skid steers, vibratory rollers, dump trucks, and pickup trucks.

Heavy equipment, such as specialized self-hoisting crane systems, may be utilized if turbine blades or the main bearings need to be refurbished or if heavy components within the nacelle such as the generators or gearbox require replacement. These specialized crane systems may serve as an alternative to conventional large cranes, with lifting equipment mounted directly to the nacelle which would reduce the required turbine pad area needed to perform maintenance activities. Disassembled components of self-hoisting lifting equipment may be transported to the site on a series of heavy-duty commercial trucks with tractor trailers; other ancillary components may be delivered with lighter duty trucks, as necessary. Other equipment that would be used for the turbine component replacement may include smaller support cranes, a skid steer, telehandler, wheeled man-lift, and various trucks. Original crane/lift equipment paths between turbine pads may be graded and graveled, if required, to accommodate the maintenance equipment and maintenances processes (e.g., laying turbine blades on turbine pads for inspection and repair).

Vehicle Trip Estimates from Maintenance Activities

While typical maintenance activities are not anticipated to generate vehicle trips beyond normal operational levels, additional vehicle trips may be generated during the initial maintenance period when maintenance activities would occur on multiple WTGs at once.

During the initial maintenance period, on-site employment is expected to average 15 workers on a typical maintenance day, which is estimated to generate an average of 15 round-trip vehicle trips per day to and from the highway/access road intersection. There may be short periods of time when multiple activities occur simultaneously and require more workers on site such as during mobilization, civil preparation, and start and stop periods of turbine maintenance. These occurrences may peak up to 50 workers on site, resulting in up to 50 round-trip vehicle trips per day to and from the highway/access road intersection. Peak activity days are anticipated to only occur periodically, (i.e., on and off during the initial maintenance period) and would typically be less than two weeks in duration. Material, equipment, and waste from maintenance activities would also be transported to and from the Project Area via traditional sized transport trucks. The number of round-trip truck trips is anticipated to average 5 per day with occasional days reaching up to 20 round-trip truck trips during peak maintenance activities. Nearly all vehicle and truck trips are expected to be to and from Central Maui, although a few may be to and from West and South Maui. Employees and transport trucks would use existing state and county roadways to access the Project Area, including Honoapiʻilani Highway (Route 30), N. Kihei Road, and Piʻilani Highway (Route 31). Nearly all vehicle and truck trips would occur during daytime, work hours (6:00 a.m. to 5:00 p.m.).

No turbine blades or tower components are anticipated to be replaced during the initial maintenance period and therefore not anticipated to be transported to or from the Project Area. However, other

heavy or oversized loads for equipment such as cranes, grading equipment, or heavy trucks may be needed to transport equipment to the Project Area. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network. The plan would be submitted to the appropriate agencies for review and approval, including the State of Hawai'i Department of Transportation (HDOT) and County of Maui.

Waste from Maintenance Activities

Old components that are replaced would be hauled offsite and recycled or disposed of at a Hawai'i processing or disposal facility. Any facility selected to receive discarded components would be fully licensed to accept such material. Removal of the turbine components would be conducted in accordance with industry standards. The turbine components and associated materials would be salvaged or recycled to the extent feasible and in coordination with qualified sub-contractors, local waste haulers, and/or other facilities that recycle similar types of waste materials. Any remaining materials may be disposed of at authorized sites, in accordance with applicable laws. All waste requiring special disposal would be handled according to applicable regulations.

2.1.2.3 Community Benefits Program

The Maui Stage 3 RFP required RFP proposers to provide a community benefits program that addresses needs in the community to benefit community members and required the fund amount to be a minimum of $3,000 per MW per year (PUC 2022)[38]. For the Proposed Action, this would be a minimum of $90,000. The Maui Stage 3 RFP also required that the proposers determine the allocation/distribution of funds based on community consultation and input. Examples of benefits described in the RFP include, but are not limited to creation of local jobs, payment of prevailing wages, or improvement of community infrastructure.

Kaheawa Wind 1 is committed to providing a community benefits program valued at $300,000 per year for the 20-year PPA term of the Proposed Action, or $6 million for the term of the Stage 3 PPA. This is three times more than the annual community benefit funding guidance provided by Hawaiian Electric in the Maui Stage 3 RFP process. The Applicant has conducted outreach to obtain the community's input on the community benefits program, and this outreach is ongoing, with the goal of tailoring the program to address the needs and choices identified by the community. The community is being further defined through public consultation and outreach. But the Applicant anticipates the boundaries of the community to include and prioritize those communities and census tracts who are located most closely to the Proposed Action and those who have the most visibility of the KWP 1 wind turbines.

The community benefits program would be implemented starting from the commencement of the Stage 3 PPA, which is anticipated to begin in December 2026. The Applicant anticipates partnering with one or

[38] https://www.hawaiianelectric.com/documents/clean_energy_hawaii/selling_power_to_the_utility/competitive_bidding/20230228_hawaii_stage_3/20230322_appx_b_proposers_resp_pkg.pdf

more local, 501(c)(3) non-profit organizations to administer the benefits program over the lifetime of the project.

2.1.3 HCP Compliance Activities

As discussed in Section 1.1.1, *Brief Description of the Proposed Action*, the Applicant is preparing an HCP (Tetra Tech 2025a) to accompany its application for an ITP from USFWS and ITL from DLNR DOFAW as the Proposed Action is likely to impact species listed under the Federal ESA and protected under the State of Hawai‘i’s endangered species law under HRS Chapter 195D (i.e. Proposed HCP). The Covered Species in the Proposed HCP include the four species covered in KWP 1’s current HCP/ITP/ITL as well as the ‘akē‘akē (Band-rumped storm petrel) and assimulans yellow-faced bee. The ‘akē‘akē has been added as a Covered Species following comments received during public scoping (Appendix B). Although no ‘akē‘akē have been observed as fatalities at the existing KWP 1 facility, a fatality has been documented at another wind farm on Maui and suspected breeding in the vicinity of the Makamaka‘ole Mitigation Area has been recently identified (Maui Nui Seabirds, pers comm., February 20, 2025). Recently, yellow-faced bee surveys were conducted from 2022 to 2025 on DLNR lands near the KWP 1 facility. Ground nests of the assimulans yellow-faced bee were documented within the vicinity of KWP 1 and individual bees have also been recorded visiting ‘ilima within the Project Area (Tetra Tech 2025a). Therefore, KWP 1 determined in coordination with DOFAW and USFWS that risk may exist to these species and is seeking take coverage for these species.

The Proposed HCP and new ITP/ITL, would cover incidental take that is anticipated to occur due to the continued operation of the KWP 1 facility. The Applicant is requesting that the permit term of the ITP and ITL provide take coverage through December 2048. As described in the Proposed HCP, the 23-year permit term is comprised of 0.5 years of planned initial maintenance activities when no operations would occur, 20.5 years of continued operations (including approximately 6 months under the current PPA), and 2 years of decommissioning.

The Proposed HCP Permit Area includes the following:

- The Project Area, which is approximately 217 acres and includes the existing 20 turbines, turbine pads, ancillary facilities, and access roads;
- Identified mitigation sites, including existing mitigation facilities at:
    - Haleakalā Ranch
    - Pu‘u O Hoku Ranch
    - Greater Hi‘i Area
    - Makamaka‘ole
    - Kaheawa Pastures (Project Area and Adjacent Lands)
- Future mitigation sites that have not yet been identified (e.g., ‘ōpe‘ape‘a [hawaiian hoary bat] and ‘akē‘akē [band-rumped storm petrel] mitigation sites); all mitigation actions are currently

anticipated to occur within the geographic region of Maui Nui which includes the islands of Maui, Molokaʻi, Lānaʻi, and Kahoʻolawe, though other locations within the Hawaiian Islands may be considered for certain seabird species if appropriate and consistent with conservation objectives.

2.1.3.1 Summary of Requested Take

The Proposed Action is anticipated to result in the take of up to 69 nēnē (Hawaiian goose), 38 ʻōpeʻapeʻa (Hawaiian hoary bat), 29 ʻuaʻu (Hawaiian petrel), 10 ʻaʻo (Newell's shearwater), and 10 'akē'akē (Band-rumped storm petrel) over the 20.5-years of continued operations covered under the ITP/ITL permit terms (Tetra Tech 2025a)[39]. No take of these five Cover Species is anticipated during initial maintenance activities or decommissioning.

For the listed assimulans yellow-faced bee, habitat is used as a surrogate for take estimation. Direct take of assimulans yellow-faced bee would be avoided through avoidance of documented nest locations and foraging resources (e.g., ʻilima) during the active season. Avoidance of impacts to nest locations or foraging bees would be accomplished though seasonal timing restrictions on ʻilima removal (or other species identified as a foraging resource) and use of a biological monitor to identify nest locations within areas of disturbance, if they occur. Habitat impacts is a surrogate metric to both quantify take and the mitigation necessary to offset take and to provide a next conservation benefit. Using habitat as a surrogate metric for take is a common practice for species that are elusive or otherwise hard to study based on their life histories and would also account for any indirect take occurring due to herbicide use or through the transplanting of foraging resources (ʻilima plants, or other species identified). Of the 217-acre Project Area, a maximum of 23.2 vegetated acres may experience ground disturbance. Although yellow-faced bee habitat is likely scattered and found within a subset of the overall acreage, the Proposed HCP conservatively estimated that all 23.2 acres may be used for foraging, nesting, or both. Therefore, the potential direct or indirect impacts to assimulans yellow-faced bee may occur on up to 23.2 acres. This number will be refined for the final Proposed HCP following site surveys.

Table 2-1 shows a comparison of the authorized take of Covered Species under the KWP 1's current HCP and the requested take for the Proposed Action.

[39] To assess the anticipated level of take for each Covered Species, the Applicant used fatality data collected under the current ITP and ITL and modelled using the EoA program to project future take for an additional 20.5-year period at the 80 percent upper credibility limit (Tetra Tech 2025a). See Section 3.9, *Wildlife* for more information.

Table 2-1. Summary of Current HCP Requested Take and Proposed Requested Take

Covered Species	Current KWP 1 HCP Tiers of Requested Take			Total Adjusted Take through FY 2025 (80% UCL)[1]	Proposed Action Requested Level of Take
	Baseline Tier (Tier 1)	Higher Tier (Tier 2)	Notably Higher Tier (Tier 3)		
Nēnē (Hawaiian goose)	60	80-100	100-200	≤ 56	69
ʻŌpeʻapeʻa (Hawaiian hoary bat)	20	50	100-200	≤ 32	38
ʻUaʻu (Hawaiian petrel)	25	38	n/a	≤ 24	29
ʻAʻo (Newell's shearwater)	4	8	n/a	No take observed	10
ʻAkēʻakē (Band-rumped storm petrel)	n/a	n/a	n/a	No take observed	10
Assimulans yellow-faced-bee	n/a	n/a	n/a	n/a	Up to 23.2 acres of habitat[2]

1. Includes direct take (e.g., standardized finds and incidental finds) and indirect take. UCL = Upper Credible Level.
2. Will be refined in the final Proposed HCP following site surveys.

2.1.3.2 HCP Compliance Monitoring

A series of HCP compliance activities would be implemented within the Project Area as part of the Proposed HCP (Tetra Tech 2025a). This monitoring would be used to estimate impacts to Covered Species, ensure KWP 1 is within the permitted take amount for each species, and trigger adaptive management, if needed. Compliance monitoring activities include:

- Fatality Monitoring: KWP 1 would continue to implement year-round fatality monitoring program when turbines are operational (i.e., not during periods of turbine shut-down such as decommissioning) to document downed (i.e., injured or dead) wildlife incidents involving Covered Species and other species. Fatality monitoring includes:
    - Weekly searches using trained detector dogs and their handlers (with backup visual surveys by HCP compliance staff if needed) to search graded WTG pads and access roads within a 230-foot radius circular search plots centered on each of the 20 WTGs.
    - Quarterly carcass persistence and searcher efficiency trials using surrogate carcasses (e.g., rats wedge-tailed shearwaters, or chickens).

- Scavenger Trapping/Predator Control: Quarterly intensive trapping followed by ongoing biweekly efforts targeting mongooses (*Herpestes auropunctatus*) and feral cats (*Felis catus*) to support high carcass detection rates and provide protection to nēnē utilizing the site.
- Vegetation Management: Maintaining the graded vegetation-free roads and pads out to 230 feet (70 meters) of each turbine with the goal of maximizing searcher efficiency for finding any potential downed wildlife. Vegetation management would occur through a combination of mechanical, chemical, and manual methods, including but not limited to spot herbicide spraying and periodic weed whacking in accordance with the Vegetation Management Plan (Appendix F).

An average of two staff members would be on-site daily to conduct compliance activities. The activities are designed to minimize and mitigate the impact on the Covered Species and to determine whether the biological objectives identified in the HCP are being met. A more detailed description is included in the Proposed HCP (Tetra Tech 2025a).

In addition to the HCP compliance monitoring activities, KWP 1 would implement species specific avoidance and minimization measures to minimize the take of Covered Species. Those measures are listed in Section 3.9, *Wildlife*.

The wildlife education and observation program (WEOP) would continue to be implemented for all regular on-site staff to minimize project-related impacts to listed species and other wildlife. Staff would be trained to identify listed and non-listed species of birds and other wildlife that may be found on-site, to record observations of native species protected by the ESA and/or federal Migratory Bird Treaty Act (MBTA), and to take appropriate steps when and if dead or downed wildlife is found. Additionally, staff and contractors would be trained to identify specific plants (i.e., ʻilima, ʻōhiʻa, tree tobacco) that are associated with vegetation management goals. As part of their safety training, temporary employees, contractors, and any others that may drive project roads would be educated on speed limits, the possibility of downed wildlife being present on roads, and the possibility of nēnē presence on the ground or flying low across roads.

Mitigation would continue to be implemented as part of the HCP compliance with the intent to fully offset the impact of the taking and provide a net conservation benefit. More details regarding proposed mitigation actions is described in Section 2.1.3., *HCP Mitigation* and in the Proposed HCP (Tetra Tech 2025a). Mitigation effectiveness monitoring would be conducted for each Covered Species in accordance with the Proposed HCP (Tetra Tech 2025a).

2.1.3.3 HCP Mitigation

The Proposed HCP (Tetra Tech 2025a) proposes mitigation programs to provide a net benefit to Covered Species. The mitigation proposed is for future efforts but builds off of historic and ongoing mitigation efforts associated with KWP 1's current HCP (KWP 2006). Generally, mitigation for nēnē (Hawaiian goose), ʻua'u (Hawaiian petrel), and ʻaʻo (Newell's shearwater) would be continuations of past or current mitigation efforts focused on protection of breeding areas and use of propagation facilities to increase population numbers. Mitigation for ʻōpeʻapeʻa (Hawaiian hoary bat) and assimulans yellow-faced bee

would include new mitigation efforts, including habitat protection and/or management. Mitigation for ʻōpeʻapeʻa (Hawaiian hoary bat) would build off of research conducted and previously funded under the KWP 1 facility's existing ITP/ITL.

Mitigation for each Covered Species is described in detail below and summarized in Table 2-2.

Table 2-2. Summary of KWP 1 Mitigation under the Proposed Action

Covered Species	Offset Requirement and Type	Mitigation Location	Mitigation Timing and Notes
ʻŌpeʻapeʻa (Hawaiian hoary bat)	> 38 ʻōpeʻapeʻa, which would be offset through habitat restoration efforts or habitat protection or through removal of hazards (e.g., barbed wire)	TBD location(s) on Lanaʻi, Molokaʻi or Maui	Acoustic surveys began in April 2025 on Lanaʻi and Molokaʻi. KWP would work with USFWS and DOFAW, along with landowners, on potential actions that could be taken at potential sites, and potential sites would be chosen after six months of acoustic data are collected (scheduled for April – October 2025). If no appropriate plan can be developed or if acoustic surveys do not indicate either site to be a viable option, the Applicant would adaptively manage to other sites on Lanaʻi or Molokaʻi or begin surveys at locations on Maui.
Nēnē (Hawaiian goose)	> 69 adult equivalent nēnē, which would be offset through direct replacement at propogation pens through fledglings and increased adult survival through trapping efforts, maintenance of predator fencing, and other management efforts.	Haleakalā Ranch Nēnē Pen (Maui) Puʻu o Hōkū Nēnē Pen (Molokaʻi)	Sites currently exist and are already being utilized to propagate nēnē; offsets for the new ITP and ITL would begin upon permit issuance concurrent with the current (2006-2026) ITP and ITL mitigation obligations. Mitigation actions would continue until a net benefit has been achieved relative to the permitted amount of take (and any accrued lost productivity).
ʻUaʻu (Hawaiian petrel)	> 29 ʻuaʻu, which would be offset through direct replacement through fledglings and increased adult survival through trapping efforts.	Greater Hiʻi Area (Lanaʻi)	Mitigation would be funded upon permit issuance for the following breeding season(s) and continue until the net benefit had been achieved.
ʻAʻo (Newell's shearwater)	> 10 ʻaʻo, which would be offset through direct replacement through fledglings and increased adult survival through trapping efforts, maintenance of predator fencing, and other management efforts.	Makamakaʻole (Maui)	Mitigation would be funded upon permit issuance for the following breeding season(s) and continue on an annual basis until the net benefit had been achieved.
ʻAkēʻakē (Band-rumped storm petrel)	> 10 ʻakēʻakē, which would be offset through metrics determined by USFWS and DOFAW and funded through NFWF.	TBD location(s)	Mitigation would be funded upon permit issuance or at a point in time agreed upon by DOAFW and USFWS.

Covered Species	Offset Requirement and Type	Mitigation Location	Mitigation Timing and Notes
Assimulans yellow-faced bee	Habitat mitigation to offset indirect and temporary impacts on up to 23.2 acres.	Project Area and Adjacent Lands within the same TMK (Maui)	Mitigation would be funded upon permit issuance, and is anticipated to begin after an assimulans yellow-faced bee survey occurs in early 2026. Mitigation would continue until the net benefit has been achieved.
1. Acreage for assimulans yellow-faced bee mitigation will be refined in the final Proposed HCP following site surveys.			

Nēnē (Hawaiian Goose)

The primary mitigation strategy for the nēnē involves investing in propagation projects, such as release pens, to increase the number of fledglings and adult survival in Maui Nui. The Applicant would manage existing release pens at Haleakalā Ranch on Maui and at Pu'u o Hōkū Ranch on Moloka'i (Figure 2-4)[40].

Nēnē mitigation is already occurring at both sites. The release pen management is anticipated to produce fledglings and enhance the survival of breeding adults through predator trapping, fence maintenance (to keep predators out), vegetation management (to keep habitat suitable for nēnē), and supplemental feeding and watering of the nēnē. Activities include regular monitoring of pen conditions (i.e., confirming that fences are secure, predator trapping is sufficient, water and supplemental feed are available and vegetation remains appropriate to the habitat needs) and regular monitoring of nēnē activity (i.e., conducting a census of individuals on site inside and outside of the release pen during each visit, including locations and status of any nests found). Further mitigation actions such as satellite tagging and predator trapping outside the release pens may also be warranted. Monitoring obligations for each release pen would be outlined in a site-specific Scope of Work developed in coordination with DOFAW and USFWS, and may vary based on the landowner and/or other permit requirements (e.g., a safe harbor agreement). The monitoring regime may alter over time in response to site conditions and needs.

Due to the location of these facilities on private land and voluntary involvement in safe harbor agreements and memorandum of understandings (MOUs)[41], the location and design of nēnē mitigation may need to be adaptively managed over time in coordination with USFWS and DOFAW (i.e., the management of nēnē pens described here may end at some point, and additional pens or trapping efforts at alternate locations [e.g., construction and management of a pen at Kamehamenui has been identified as a potential future option] may be implemented). The Applicant would manage release pens

[40] Under the Proposed Action, KWP LLC would assume the management of these pens from DOFAW. A site-specific memorandum of understanding (MOU) / scope of work would be developed in coordination with DOFAW and USFWS.

[41] Current MOUs in place for existing release pens both require at least 90 days' notice of any party to withdraw. Both landowners have shown their commitment to nēnē conservation through continued voluntary involvement in the respective release pens by entering into MOUs with DOFAW and KWP.

and trapping programs within Maui Nui (or other identified mitigation projects) until mitigation offsets have exceeded the requested take of 69 nēnē (plus any lost productivity; see Proposed HCP) by at least 1 nēnē (i.e., >69 adult equivalent nēnē). Overall, mitigation for nēnē would provide a net conservation benefit to the species. Indirectly, this mitigation may also benefit other native species through predator control and through increasing populations of nēnē in Maui Nui.

ʻŌpeʻapeʻa (Hawaiian Hoary Bat)

Mitigation for the ʻōpeʻapeʻa would focus on habitat protection and restoration and may also include threat reduction (e.g., predator control, barbed wire removal). As more information becomes available about ʻōpeʻapeʻa and based on the agency preference of land-based mitigation, multiple mitigation opportunities are being sought. In April 2025, KWP deployed eight acoustic bat detectors, four on the island of Lanai and four on the island of Molokai, to aid in identification of potential bat mitigation locations (Figure 2-4). Preliminary data analysis has confirmed bat presence on Moloka'i; data analysis has not yet occurred for the data from Lānaʻi; preliminary results will be provided in the final HCP as available.

The mitigation would be developed based on the ESRC and DOFAW guidance (ESRC and DOFAW 2015, 2024) and would prioritize implementation in the areas on Molokaʻi and/or Lānaʻi where acoustic monitoring is currently occurring. Mitigation actions may occur within a single area on one island, or through a combination of areas either on one or both of the islands.

Mitigation would focus primarily on habitat restoration and enhancement. Preferred sites would contain or have the potential to support native or mixed forest with vertical structure (e.g., trees exceeding 15 feet in height). Restoration actions may include, but are not limited to, the removal of invasive plant species, replanting or natural regeneration of native species such as ʻōhiʻa lehua, and/or measures to reduce ungulate impacts through fencing or other controls, depending on the needs of the final site(s) selected. Additionally, restoration efforts may include areas with existing or restorable water sources (e.g., natural seeps or troughs), which can improve insect abundance and diversity.

The amount of habitat restored would be scaled to align with recommended mitigation crediting assumptions as detailed in the Proposed HCP (Tetra Tech 2025a). Mitigation for 38 bats would aim to improve approximately 1,558 acres of suitable habitat. Land availability, habitat quality, mitigation actions, and expected conservation benefit would all be considered in determining the appropriate mitigation site boundaries.

To ensure effectiveness, an adaptive management approach would be employed. If monitoring shows limited or no increase in bat activity following mitigation actions, mitigation measures would be re-evaluated and adjusted. Potential adjustments may include supplemental planting, modified maintenance practices, or expansion to additional areas. The goal is to ensure that mitigation sites not only sustain but demonstrably support increased bat activity over time.

Although mitigation details for the ʻōpeʻapeʻa are still in coordination with DOFAW and USFWS, the Proposed HCP would commit the Proposed Action to conducting mitigation that would offset more than

the 38 ʻōpeʻapeʻa. In addition, protection and restoration of ōpeʻapeʻa habitat is anticipated to benefit other native species.

ʻUaʻu (Hawaiian Petrel)

The primary means of mitigation for ʻuaʻu is to invest in propagation projects and/or protections of existing breeding colonies that would increase the number of ʻuaʻu fledged in Maui Nui. Mitigation would build on previous efforts at the ʻuaʻu breeding colony on Lānaʻi (Figure 2-5). The Applicant would provide funding to Pūlama Lānaʻi to conduct the mitigation work and funds would be used for predator control and burrow monitoring.

Mitigation would continue until the calculated mitigation offsets exceed 29 ʻuaʻu, resulting in a net conservation benefit for the species. Indirectly, this mitigation may also benefit other native species through predator control and through increasing populations of ʻuaʻu in Maui Nui.

ʻAʻo (Newell's Shearwater)

Similar to the ʻuaʻu, mitigation for ʻaʻo focuses on propagation projects and/or protections of existing breeding colonies that would increase the number of ʻaʻo fledged on Maui. Mitigation would build off previous and ongoing efforts at Makamakaʻole on Maui (Figure 2-6). The Applicant would provide funding for the management and monitoring effort at Makamakaʻole, which include the following:

- Inspections and maintenance (repair) of the fence to assure exclusion (to the extent possible) of ingress by small mammalian predators (i.e., mice, rats, mongoose and cats);
- Predator monitoring within the exclosure;
- Predator trapping around the perimeter and within the exclosure in vicinity to the known ʻaʻo colonies;
- Maintenance of bait boxes and assessment of rodent populations;
- Maintenance and deployment of social attraction playback system and decoys; and
- Burrow monitoring using game cameras, burrow scoping, and/or checking for evidence of visitation.

The detailed Scope of Work outlining these activities is included in the Proposed HCP (Tetra Tech 2025a) Mitigation for the ʻaʻo would offset more than the 10 ʻaʻo, providing a net conservation benefit for the species. Indirectly, this mitigation may also benefit other native species through predator control and increasing populations of ʻaʻo in Maui Nui.

'Akē'akē (Band-rumped Storm Petrel)

While a specific ʻakēʻakē mitigation project similar to those described for the other seabirds may be considered, there are no known confirmed breeding colonies within Maui Nui, and of those suspected, they are located in inaccessible gulches. While social attraction projects for ʻakēʻakē have begun within Maui Nui, the timeline for colony establishment is not known or predictable. Therefore, at this time,

KWP proposed to fund the National Fish and Wildlife Foundation (NFWF) "Hawaiian Seabird Conservation Account" as the mitigation for the ʻakēʻakē. The NFWF fund was created by USFWS to fund larger conservation projects for the ʻuaʻu, ʻaʻo, and ʻakēʻakē. When funding is provided as a result of HCPs, USFWS coordinates with DOFAW and other appropriate partner organizations to determine how the funds are to be spent and to create a conservation plan and implement the planned activities.

Activities for which funds from the Account can be used include, but are not limited to the activities below:

- Management of known breeding colonies, including:
    - predator fencing and predator control, including potential barn owl removal
    - social attraction and/or translocation of Hawaiian seabirds into protected areas
    - removal of invasive plant species
    - seabird reproductive monitoring
- Surveys to locate and protect new breeding colonies;
- Funding of programs that retrieve, rehabilitate, and release seabird fledglings disoriented by artificial lights;
- Adaptive management designed to mitigate the impact of various activities on listed Hawaiian seabirds.

USFWS and DOFAW estimated that it takes $28,000 to mitigate for one ʻaʻo (Tetra Tech 2016). Adjusting for inflation, that should be approximately $37,500 in today's dollars. Adding 20 percent for administrative costs results in an estimate of $45,000 per seabird. At the requested take of 10 ʻakēʻakē, this would require a total estimated contribution of $450,000.

Because the management of the species implemented from the funding would improve habitat used by the ʻakēʻakē, this mitigation would provide a net benefit to the species. Information developed through these efforts would fill in data gaps and contribute to the ability to adaptively manage mitigation efforts in the future.

Assimulans Yellow-faced Bee

Mitigation for the assimulans yellow-faced bee would focus on habitat protection and restoration. As described above, potential direct or indirect impacts to assimulans yellow-faced bee may occur on up to 23.2 acres within the Project Area. Impacts to habitat would be temporary as no permanent structures to impervious surfaces would be constructed with the Proposed Action; no permanent loss of habitat is anticipated.

If all vegetated areas within the limits of disturbance (23.2 acres) are identified as suitable habitat for the assimulans yellow-faced bee (i.e., foraging, nesting, or mixed) and are assumed to be impacted by Covered Activities, this would require approximately 24 acres of mitigation, which would result in a

greater than one-to-one ratio. Actual requested take and the resulting mitigation obligation may be refined for the final HCP pending a site survey to classify the limits of disturbance.

Based on an estimated cost of $8,700 per acre for site preparation and out planting (Wada et al. 2017)[26], this would result in a maximum mitigation obligation of approximately $208,800 if solely focused on land management activities (and if the permitted amount is the full 23.2 acres; this value, and the corresponding mitigation obligation and costs, may be reduced pending a site-specific habitat assessment). Enhancement or restoration activities may include, but are not limited to:

- Additional foraging resources.
- Invasive species control.
- Creation of ground nesting opportunities (e.g., ironwood removal).

Final mitigation actions, and the allocation of the $208,800 in mitigation funding, would be determined in coordination with USFWS and DOFAW and informed by input from species experts. Final acreage may be reduced if it is determined that funding of targeted assimulans yellow-faced bee research has a greater benefit to the species. In that case, a portion of the mitigation funding may be allocated to research or monitoring efforts rather than land management activities.

Mitigation activities would occur within the Project Area or on the adjacent state lands [i.e., TMK (2) 4-8-001:001 (portion) or TMK (2) 3-6-001:014 (portion)]. KWP would work with DOFAW and USFWS to identify areas for mitigation, which would provide the greatest benefit to the population (e.g., areas with potential for future nesting or areas within foraging distance of known nest locations).

The intention is to fully offset take and provide a net conservation benefit to the species by replacing any temporary (direct) or indirect habitat impacts during implementation of covered activities. In addition, KWP I is required to transplant any native plants that are going to be disturbed by Project-related activities per the CDUP. Therefore, any native plants (including ʻilima and other known foraging resources) that would be removed would be transplanted.

As possible, mitigation would be implemented upon permit issuance. However, delays may occur if additional surveys for assimulans yellow-faced bee are needed (i.e., prior to outplanting or to identify locations for mitigation activities) or if plants (e.g., ʻilima) are not readily available at a USFWS and DOFAW-approved nursery in time for the outplanting. In these instances, KWP would work with a qualified contractor to initiate propagation of ʻilima from the onsite stock, including potential seed collection or to conduct assimulans yellow-faced bee surveys as needed.

2.1.3.4 HCP Adaptive Management

KWP 1 would employ an adaptive management strategy to address biological uncertainty and devise alternative strategies as needed. This involves analyzing current take levels and updating projections of mitigation credits compared to estimated take levels. If necessary, the Applicant would implement changes in vegetation management, mitigation, turbine operations, post-construction monitoring, or other measures to meet the biological objectives.

2.1.3.5 HCP Reporting

The Applicant would continue to provide detailed annual and quarterly reports to DOFAW and USFWS. These reports would document fatalities of the Covered Species, update take estimates, summarize mitigation accrual compared to estimated take, highlight notable mitigation milestones and ongoing activities, and outline any challenges encountered and adaptive strategies used. Annual reports are publicly available on DOFAW's website[42].

2.1.4 Decommissioning and Restoration

Based on the anticipated length of the new land lease and new PPA under the Proposed Action, the KWP 1 facility would operate for 20 years (approximately 2026 to 2046) and at the end of this period the facility would be evaluated for either extension or decommissioning. If the facility were decommissioned, the goal of decommissioning would be to remove the power generation equipment and return the site to a condition as close to its preconstruction state as possible within approximately two years (approximately 2046 through 2048), or as otherwise required by the Proposed Action's land lease with DLNR.

Decommissioning would include the dismantling and removal of the WTGs, KWP 1 substation (unless deemed beneficial to leave in place by DLNR and Hawaiian Electric), foundations, and all associated aboveground equipment along with below-ground equipment to a depth required by DLNR in the land lease. The O&M building, warehouse storage facility, and portions of access roads within the KWP 1 lease area that provide access to the KWP 2 substation and BESS and contain KWP 2 buried collector lines would be left in place if the KWP 2 Project is still within its operational period. The primary Kaheawa Pastures access road would be left for use by DLNR and Hawaiian Electric. Secondary access roads or other select portions of the access roads may be left or removed per DLNR direction.

2.1.4.1 Decommissioning Activities

Major activities required for decommissioning would typically occur in reverse order to the original construction activities and are listed below:

- Disassembly and removal of WTGs would include removal of the rotor (hub and blades) from the nacelle with a crane and turned horizontally and set on the ground. Once the turbine rotor has been removed, a crew and small crane would disassemble it into the hub and three loose turbine blades. When the rotor is disassembled, the blades would be sized for subsequent transport by trucks. The hub can also be removed once it is disassembled from the blades. Next, the nacelle would be removed from the top of the tower, followed by each portion of the tower. Turbine tower portions would be sized onsite for transport by trucks.
- Turbine foundations would be removed to a depth as specified by DLNR up to complete removal. The concrete would be reduced in size by excavator attachments and transported for disposal

[42] https://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/

offsite. Concrete and steel would be hauled off-site. Foundations would be filled with reclaimed onsite cut and fill material, and if offsite material would be needed, native weed-free aggregate and soils would be utilized.

- Excavation work related to removal of turbine foundations will be required and will vary based on the depth of removal agreed upon with DLNR. This process would generally consist of peeling back the backfill material from over the top of the foundation, utilizing heavy equipment and specialty attachments to demolish the concrete foundation portions, cutting the foundation "can" section and reinforcement sections, removing the demolished concrete and steel, and finally replacing the previously removed backfill material and adding additional fill material as required.
- Electrical collection system removal would be completed for above-ground structures and decommissioning in place for below-ground cables, or otherwise required by DLNR.
- The O&M building and warehouse would be retained for KWP 2 facility use.
- Access roads would be removed only as required by and in accordance with lease agreement with DLNR. Access roads associated with the KWP 2 easements would be left for KWP 2 facility use. Road disturbances would be re-graded to original contours to the extent possible where cut and fill made recontouring feasible. Any roads left in place would become the responsibility of the DLNR or easement holder.
- Disturbed areas would be graded to preconstruction contours where feasible unless directed otherwise by DLNR or if doing so would present greater risk of environmental degradation via erosion or other mechanism.
- Revegetation of disturbed areas would be completed with approved native or pasture grass species to promote establishment of natural vegetation to the extent possible.
- Recycling and disposal of materials, WTG components, and any hazardous and regulated materials and wastes would be conducted per applicable local, state, and federal regulations.
- Decommissioning would largely restore the visual and ecological character of the landscape and also remove effects to other environmental and public resources that may have occurred as a result of facility operations.
- The Hawaiian Electric equipment located at the KWP 1 substation may be decommissioned based on Hawaiian Electric's future needs of the site.

Prior to decommissioning, the Applicant would develop and implement an Erosion and Sediment Control Plan (ESCP) and a Stormwater Pollution and Prevention Plan (SWPPP) to submit for a National Pollutant Discharge Elimination System (NPDES) permit and any other relevant permits and authorizations based on the anticipated disturbances for both demolition and ground disturbance required for component removal (see Section 2.1.6, *Best Management Practices* for a summary of BMPs that KWP 1 would implement with the Proposed Action).

Salvage and Disposal

All decommissioning- and restoration-related waste would be properly handled in accordance with county, state, and federal policies and permit or lease requirements and removed from the area for recycling or disposal as appropriate.

Concrete from foundations would be evaluated for best use, including onsite recycling as fill as permissible, or transported to a concrete recycling vendor or disposal vendor that may recycle the concrete into construction materials to meet industry standard specifications.

After dismantling the facility, components would be reused or recycled to the extent practical. Where possible, turbines, transformers, electrical components, and towers are refurbished and resold or are recycled for scrap. The Applicant would prioritize the re-use and recycling of decommissioned project components over direct disposal in approved landfill sites. If re-use, recycling, or scrap disposal options prove to be unfeasible, the Applicant would seek out appropriate industrial disposal sites, waste to energy facilities, or landfills that are authorized to accept the project components. All waste requiring special disposal would be handled according to applicable regulations.

Hazardous Materials

During decommissioning, hazardous materials would be temporarily stored and utilized. These hazardous materials may consist of fuel, lubricating oil, hydraulic oil, propylene glycol, and other materials required for or derived from the decommissioning. Also, decommissioning would require the removal of mineral oil contained in pad-mounted transformers and main power transformer. Due to the presence of hazardous materials during decommissioning, there is the potential for spills and/or leaks. The primary concerns associated with these spills and/or leaks are the potential impacts to surface and ground water resources and the potential for soil contamination. A SPCC Plan would be created prior to start of decommissioning and would detail the appropriate storage, cleanup, and disposal of hazardous wastes to ensure potential impacts are avoided. Any wastes generated would be handled and disposed of in accordance with state and local rules and regulations, and the site-specific SPCC Plan. Any monitoring, transportation, or handling of materials would be conducted by trained and qualified personnel utilizing established procedures and proper equipment.

Decommissioning Vehicle Trip Estimates

Decommissioning of the KWP 1 facility would generate vehicle and truck traffic on area roadways throughout the approximately 2-year decommissioning and restoration period. Most of these trips would be associated with employee commute trips to and from KWP 1 and with the delivery of decommissioning materials to off-site areas.

Nearly all vehicle and truck trips are expected to be to and from Central Maui, although some may be to and from West and South Maui. Employees and transport trucks would use existing state and county roadways to access the Project Area, including Honoapi'ilani Highway, N. Kihei Road, and State Highway 31 (i.e. Pi'ilani Highway). Nearly all vehicle and truck trips would occur during daytime, work hours (6:00 a.m. to 5:00 p.m.).

No work is anticipated to be required in existing highway rights-of-ways to accommodate decommissioning, however the transport of large pieces of equipment may cause temporary traffic delays and may require traffic control measures to minimize disruption.

The following describes the specific types of vehicles and the anticipated level of activity associated with decommissioning:

- Decommissioning Worker Vehicles:
    - During much of the decommissioning period on-site employment is expected to average 40 workers per day and peak at 60 workers per day.
    - Employees would generate an average of 40 round trip vehicle trips per day to and from the highway/access road intersection with occasional days reaching up to 60 round trip vehicle trips during peak decommissioning activities. Peak decommissioning activities are not likely to occur more than six months out of the two-year decommissioning period.
    - Assuming typical work schedules, most of the "to-work" trips would be between 6:30 and 7:00 a.m.; most of the "from-work" trips would be between 3:30 and 4:00 p.m.
- Decommissioning Trucks
    - Most material, equipment, and decommissioning wastes would be transported via traditional sized transport trucks. Concrete debris from foundations would make up a large volume of decommissioning waste; the number of concrete disposal truck trips would depend on the extent of the concrete removed from the turbine foundations.[43] To the extent practical, disassembled WTG components would be processed into smaller pieces on site in order to transport via traditional sized transport trucks to recycling or disposal facilities.
    - Heavy or oversized loads may be required to transport some heavy equipment (i.e., cranes) and larger debris from WTG components. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network. Heavy or oversized loads would be scheduled outside of peak traffic hours when practicable.
    - Project-related truck-traffic would vary over the course of decommissioning with respect to the number and timing of trips made each day and the kinds of vehicles that would be

[43] The number of concrete disposal trucks needed would depend on the extent of the concrete removed from the turbine foundations. The foundations would be removed to a depth specified by DLNR (i.e. in accordance with typical wind farm decommissioning plans). If foundations are removed to in their entirety, the anticipated amount of concrete to be removed at each turbine foundation is 289 cubic yards. The approximate number of concrete disposal trucks would vary between 14 trucks per WTG (typical decommissioning) to 60 trucks per WTG (a-typical decommissioning where entire foundation is removed).

involved. The number of round-trip truck trips is anticipated to average 20 trips per day with occasional days reaching up to 50 round-trip truck trips during peak decommissioning activities. Peak decommissioning activities are not likely to occur more than six months out of the two-year decommissioning period.

2.1.4.2 Restoration Activities

Following the dismantling and removal of KWP 1 infrastructure, the Applicant would return the Project site to preconstruction conditions to the extent practicable and as required by lease agreement.

Reclamation would take place as soon as practicable following equipment removal, following the completion of ground-disturbing activities, to minimize the spread and establishment of invasive weed species in affected areas. Reclamation would be carried out to address disturbances caused by infrastructure after the project's decommissioning phase. Post-disturbance efforts would primarily focus on stabilizing and reclaiming disturbed areas to facilitate the reestablishment of vegetation. Reclamation actions that would be implemented are summarized below.

- Earthworks: These activities may involve recontouring, soil decompaction, and applying erosion control as needed. Earthmoving equipment would be used to fill in removed materials to help the disturbed area blend with the landscape. Soil decompaction may involve ripping or scarifying the ground surface to enhance water infiltration. Excess subsoil would be evenly spread, moistened, and compacted to match the density of nearby undisturbed soil before adding topsoil, and would only be used in designated areas affected by infrastructure.
- Topsoil Replacement: Topsoil would be replaced as required without mixing it with subsoil to keep fertile, shallow soils separate from deeper, less productive soils that may contain rocks, gravel, or other harmful materials. The topsoil would be spread evenly over the disturbed area. Importation of topsoil from off site is not expected. Additional erosion control and stabilization may be needed, especially in steep or fine-textured areas. KWP 1 would follow the erosion and stormwater control measures specified in the SWPPP.
- Seeding: Reseeding entails planting new seeds of appropriate species to restore vegetation in impacted areas. Seed mixtures would be approved by the DLNR before reclamation activities to ensure that the selected species align with the site’s objectives.
- Signage and Fencing: Reclamation areas may need informational signs to inform the public about reclamation efforts and to minimize further human disturbance in these recovering zones. Grazing and unauthorized off-trail activities can impede reclamation; for example, livestock may trample or graze on newly established vegetation, while off-trail users can unintentionally harm plants and disturb the soil. If needed, temporary fencing may be set up until reclamation goals are met and the site is fully restored.

2.1.5 Schedule

Major milestones associated with the Proposed Action are anticipated as follows:

- Complete HEPA review process: Q4 2025
- PUC approval of PPA: Q1/Q2 in 2026
- Obtain and begin new land lease: Q1 2026
- Obtain ITL and ITP: Q1 2026
- Initial Maintenance Period: Q3/Q4 2026
- Begin new Stage 3 PPA: Q4 2026
- Continued Operations: Q4 2026 – Q4 2046
- Decommissioning and Restoration: Q4 2046 – Q4 2048

2.1.6 Best Management Practices

O&M activities and decommissioning activities would incorporate BMPs to avoid and minimize potential impacts to the surrounding environment. BMPs would include various procedures, practices, treatments, structures and/or devices designed to eliminate and minimize the potential discharge of pollutants to downstream waters. Table 2-3 lists industry standard BMPs, Project-specific design features, and Project plans that together reduce potential impacts to environmental resources. Avoidance and minimization measures specific to each resource area are discussed in Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures*.

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Table 2-3. Best Management Practices that Avoid, Minimize, or Mitigate Impacts to Environmental Resources

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
Existing Avoidance, Minimization, and Mitigation Measures															
Maintain permanent landscaping and stabilizing all disturbed soil areas not subject to re-vegetation with gravel.	X		X	X					X		X	X			X
Minimize the extent of disturbed area where possible.	X		X	X					X		X	X			X
Keep access roads in good working condition.	X		X	X							X	X	X		X
Limit vehicle speed on all unpaved access roads to 10 miles per hour.	X		X	X				X	X	X	X	X	X		X
Maintain all vehicles and heavy equipment in proper tune according to manufacturer's specifications. Suitable mufflers or air-inlet silencers are installed on all internal combustion engines and certain compressor components.	X	X								X			X		
Cover all trucks hauling dirt, sand, soil, or other loose materials.	X			X							X	X	X		X
Use a water truck or sprinklers to minimize the amount of airborne dust leaving the Project Area, when necessary.	X		X	X							X	X	X		X
Apply herbicide in accordance with manufacturer's instructions and industry BMPs.	X		X	X							X	X			X
Maintain onsite drainage features (e.g., culverts, swales, and drainage ditches) to control erosion, prevent damage to downstream properties and have waters follow to the natural drainage course in a manner which minimizes sedimentation or other pollution to the maximum extent practicable.			X	X					X			X			X
Implement an Emergency Response Plan (Brookfield 2022), which includes safety measures and precautions as well as response protocol to minimize risks to people and property in the event of a natural hazard or emergency.			X		X	X								X	
Implement a SPCC Plan (WSP 2023) that identifies potential spill sources, preventive measures, control and response procedures, inspection programs, and required training of personnel to prevent the discharge of oil and hazardous substances from the KPW 1 facility. Ensure proper use and storage of hazardous material and implementation of BMPs to prevent spills and contamination of soils and water resources.			X	X	X	X			X					X	
Minimize the movement of plant or soil material between worksites to prevent the spread of detrimental pathogens and invasive species.			X				X	X	X						
Implement BMPs to minimize the introduction and spread of pathogens and invasive species.			X				X	X	X						
Regularly service and maintain turbines, reducing the potential for damage or failure.					X	X	X	X	X	X		X		X	X
Follow the standard operating procedure in the event of a weather emergency. If the National Weather Service issues a severe weather watch for the site (for events such as a hurricane or a severe thunderstorm), the operations manager or designee determines if the warning affects the site location, and if so, immediately warns employees of the pending emergency and implements precautions.					X										
WTGS are equipped with an IEC Class 2 lightning protection system and are grounded to mitigate the effects of a lighting strike.					X										

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
WTGs automatically cut out and the blades feather to an inactive position (i.e., perpendicular to the wind) when winds speeds exceed 56 mph. The structural design of the WTGs allows them to withstand winds of at least 156.5 mph when the blades are in the feathered position.					X										
Ensure that all structural elements on the Project Area were constructed in accordance with building code requirements at the time of construction (i.e., 2006) to prevent damage from earthquakes.					X										
The KWP 1 facility is designed with fire prevention elements. Facility components were constructed with noncombustible materials. The towers supporting the turbines are steel, mounted on concrete foundations; the interconnecting electrical systems are below ground. The auxiliary operations and maintenance facilities are constructed of noncombustible construction and exterior finishes.					X									X	
Maintain graveled, vegetation free buffers around buildings and the WTG foundation pads, which act as fire breaks.					X		X	X	X					X	
Implement a Fire Contingency Plan (DLNR 2005) and Wildfire Prevention Plan (TerraForm 2025).					X		X	X	X					X	
Maintain onsite fire-fighting resources including fire extinguishers in the O&M building, at the substation, and in all project vehicles, as well as shovels and backpack pumps in the O&M building and maintenance vehicles.					X		X	X	X					X	
Maintain a fire-suppression system within the BESS facility.					X		X	X	X					X	
Educate all onsite contractors and personnel on fire prevention and emergency response policies.					X		X	X	X					X	
Conduct routine checks of electrical connections, washing substation equipment as outlined in the final design specifications and periodic infrared reconnaissance of electrical components to identify potential faults before they lead to a failure.					X		X	X	X					X	
Monitor 24/7 live streams of the Project Area with ALERTWest camera systems to detect smoke and other early indications of fire in real time.					X		X	X	X					X	
Inspect and maintain containment and diversionary structures regularly.						X									
Use available spill equipment to prevent discharged oil from leaving the Project Area.						X									
Ensure that all personnel who handle or could come into contact with hazardous and regulated materials and waste are sufficiently trained in the proper way to use and dispose of these materials.						X									
Use chemicals in accordance with manufacturer's instructions and industry BMPs including: keep materials in their original containers with the original manufacturer's label; seal containers whenever they are not in use; procure and store only the amount of chemicals needed for the job; and follow the manufacturer's recommendation for proper handling and disposal.						X									
Implement a Site Safety Handbook and posts Safety Data Sheets for all hazardous materials stored and used onsite. The Site Safety Handbook addresses proper hazardous materials management and worker training procedures to minimize the risk of worker exposure.						X								X	
Ensure the proper use of personal protective equipment.						X								X	
Maintain site security to prevent unauthorized personnel from accessing KWP 1 facilities.						X								X	

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
Revegetate areas that have been temporarily cleared of vegetation within thirty days of the completion of the ground clearing activity.							X	X	X						
Crew members receive training for endangered species awareness (WEOP), health and safety covering personal protective equipment, proper use of tools and equipment, and herbicide application and decontamination protocols.							X	X	X						
Inform KWP 1 personnel and contractors about the presence of endangered and threatened species on-site and advised them not approach, feed, or disturb wildlife.								X	X						
Implementing stop work requirements if a listed species is observed on-site during ground disturbance activities.								X	X						
Limit the opportunity for habitat attractants such as mice and rats.								X	X						
KWP 1 Design Features to Reduce Impacts on Wildlife • Equip the existing KWP 1 met tower guy lines with bird diverters to minimize bird collisions. • Employing relatively few turbines situated in a single row, rather than a large number of turbines in multiple rows. • Using “monopole” steel tubular towers, rather than lattice towers, to eliminate perching and nesting opportunities. The tubular towers may also reduce collision risk because they are considerably more visible. • Using a smaller tower (55 meters) than is typically used with the GE 1.5 turbine (65 meters or greater), to potentially reduce the risk of collision for birds and bats, even though such risk is not demonstrably related to the tower height. • Utilizing a rotor with a significantly slower rotational speed (11-20 rpm), which makes the rotor much more visible during operation (previous designs had 28.5 and 34 rpm rotors). • Choosing a site in proximity to existing electrical transmission lines to eliminate the need for an overhead transmission line from the project to the interconnect location; placement of all new power collection lines underground to eliminate the risk of collision with new wires; • Designing and installing the site substation and interconnect to Maui Electric’s transmission lines using industry-standard measures to reduce the possibility of wildlife electrocutions.								X	X						
Conduct post-construction fatality monitoring to monitor potential impacts to non-listed and listed wildlife as a result of KWP 1 operations.								X	X						
Adaptively manage the minimization and mitigation measures described herein and in the current KWP 1 HCP (KWP 2006), as needed, in coordination with USFWS and DOFAW.								X	X						
ʻŌpeʻapeʻa • Avoid trimming or removal of vegetation taller than 15 feet between June 1 and September 15, when juvenile ʻōpeʻapeʻa that are not yet capable of flying may be roosting in the trees. If tree removal is needed during the pupping season (due to a conflict with nēnē breeding season or for a site safety issue), a biological monitor would evaluate the trees first for roosting bats. • Implement LWSC below 5.5 m/s from sunset to sunrise from February 15 through December 15.								X	X						

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
• Conduct acoustic monitoring for bat activity at KWP 1.															
Nēnē • Implement the vegetation management goals outlined in the nēnē-specific vegetation management memo (Tetra Tech 2021a) to limit favorable habitat on site. • Avoid creating areas with standing water and managing woody vegetation to minimize attracting nēnē. • Monitor nēnē activity on site to inform areas of vegetation management needs and successes. • Routinely inspect the Project Area for nēnē nests during the breeding season (September through April) and communicate observed nest and fledging to DOFAW Maui. • Vegetation management is limited to time periods outside the nēnē nesting season and accompanied by a biological monitor for nēnē.								X	X						
Seabirds (ʻAʻo, ʻUaʻa, and ʻAkēʻakē) • Fully shield all outdoor lights to the bulb can only be seen from below. • Install automated motion sensor switched and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area. • Avoid nighttime construction during the seabird fledgling period (September 15 to December 15) that could attract or disorient seabirds.								X	X		X				
Blackburn's sphinx moth • Project biologist is trained in tree tobacco survey methods and would report any observations of Blackburn's sphinx moth larval host plants during weekly HCP compliance monitoring and if observed, KWP 1 would coordinate removal of any non-native host plants under 3 feet.								X	X						
Implement mitigation measures to offset unavoidable take of Covered Species, as summarized in Table 3-13.								X	X						
Provides access to the wind farm site for cultural groups seeking access to the natural resources on site or mauka of the site.									X						
Originally site the KWP 1 facility away from residences and other sensitive sound and visual receptors.										X	X	X			X
WTGs were placed in uniform layouts to present a trim, uncluttered, aesthetically attractive appearance.											X	X			X
WTGs were painted with white, non-reflective paint to minimize the need for daytime aviation lighting and eliminate glare from the turbines.											X	X			X
Auxillary structures were sited where natural topography features largely impede their view from public places and residences and collector lines were buried whenever possible.											X	X			X
The KWP 1 facility maintains a clean-looking facility, free of debris and unused or broken-down equipment; equipment and supplies are stored in designated areas within the O&M facility, and damaged or unusable equipment is promptly removed from the site.									X		X	X			X
Maintain open communication with the community and respond appropriately and promptly to community concerns and complaints.									X						X

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
Developed a Community Outreach and Communications Plan (KWP 2023) to inform the public and gather feedback from target communities and stakeholders during the planning, development, and execution of the Proposed Action.									X						X
Proposed Action's Avoidance, Minimization, and Mitigation Measures															
General Dust Control Measures • Design, develop and implement a dust control plan for maintenance and decommissioning activities. • Apply water, dust suppressants, or suitable compounds in the demolition of existing structures, grading or clearing of land, and on roads and material stockpiles. • Clean up material spills as soon as possible. • Install dust screens or wind barriers around demolition sites, as needed. • Implement permanent dust control measures identified in the project landscape plans as soon as possible following completion of any soil disturbing activities.	X		X	X							X	X	X		X
Earthmoving Activities and Stockpiles • Pre-apply and re-apply water as necessary to maintain soils in a damp condition. • Limit the amount of exposed areas through planning and timing of project phases. • Cover temporarily exposed areas with mulch. • Stabilize stockpile materials. • Keep stockpiles wet or damp as needed • Cover stockpile when not in use. Use mulch or synthetic cover based on usage of stockpile. • Keep drop or pile height as low as possible.	X		X	X							X	X	X		X
Trucks and Vehicles • Maintain all construction equipment in proper tune according to manufacturer's specifications. • Maximize to the extent feasible, the use of diesel construction equipment meeting the latest certification standard for off-road heavy-duty diesel engines. • Provide water while loading and unloading to prevent fugitive dust. • Maintain at least six inches of freeboard on haul vehicles. Level the height of load. • Cover all trucks hauling dirt, sand, soil, or other loose materials. • Install a gravel pad and grizzly at exit and use a tire wash or spray system, as needed.	X											X	X		X
Prior to the initial maintenance and decommissioning and restoration periods, obtain a National Pollution Discharge Elimination System (NPDES) permit (as needed) and develop and implement an ESCP and SWPPP setting forth ground disturbance limits and BMPs. The ESCP and SWPPP would contain a description of the characteristics of the Project Area such as nearby surface waters, topography, and storm water runoff patterns; identification of potential pollutants such as sediment from disturbed areas, and stored wastes or fuels; and identify BMPs that would be used to minimize or eliminate the potential for these pollutants to reach surface waters through storm water runoff.			X	X			X		X			X			X

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
Stage maintenance and decommissioning activities to minimize the amount of disturbed area at any given time.			X	X			X	X	X		X	X			X
During the initial maintenance and decommissioning and restoration periods, stabilize all disturbed areas with temporary erosion control measures that may include: • locating potential nonpoint pollutant sources away from steep slopes, water bodies, and critical areas; • protecting and retaining natural vegetation; • stockpiling topsoil, covering the stockpile to prevent dust, and reapplying the topsoil; • covering or stabilizing all soil stockpiles; • using wind erosion control; • intercepting runoff above disturbed slopes and conveying it to a permanent channel or storm drain; • constructing benches, terraces, or ditches at regular intervals to intercept runoff on long or steep disturbed or man-made slopes; • providing linings or other method to prevent erosion of storm water conveyance channels; • using check dams where needed to slow flow velocities; • using seeding and fertilizing, mulching, sodding, matting, blankets, bonded fiber matrices, or other effective soil erosion control technique; and • providing vehicle wheel wash facilities for vehicles before they leave the Project Area.			X	X			X	X	X		X	X			X
During the initial maintenance and decommissioning and restoration periods, capture sediment that is transported in runoff to minimize the sediment from leaving the Project Area. Sediment control measures may include sediment basins; sediment traps; filter fabric silt fences; straw bale, sandbag, or gravel bag barriers; inlet protection; stabilized construction entrances, and other measures to minimize offsite tracking of sediment by construction vehicles; and vegetated filter strips.			X	X			X		X			X			
Commence reclamation as soon as practicable following equipment removal, ideally before the next growing season following the completion of ground-disturbing activities, to minimize the spread and establishment of invasive weed species in affected areas.			X	X			X		X		X	X			
Implement permanent erosion control measures, which may include: recontouring, soil decompaction, designing final onsite drainage to control erosion and minimizes sedimentation, topsoil replacement, seeding, and signage and fencing to minimize further human disturbance in these recovering zones.			X	X			X		X		X	X			
Implement any additional control measures set forth in the ESPC and SWPPP.			X	X			X		X		X	X			
Direct stormwater runoff to vegetated areas by means of vegetated stormwater infiltration basins, water detention basins, and planned vegetation management.				X			X		X			X			
Develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities and the use, storage, and handing of petroleum-based products used for decommissioning equipment.				X	X	X							X	X	

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
Prior to decommissioning, revise and implement the Emergency Response Plan (Brookfield 2022) and Site Safety Handbook and update safety measures and precautions to minimize risks during decommissioning.					X	X								X	
Limit ground disturbance to areas within the LOD to the extent practicable.			X	X			X	X	X		X	X			X
Implement the KWP 1 Vegetation Management Plan (Appendix F).			X	X			X	X	X		X	X			X
Implement the Invasive Species Prevention Plan (Appendix G) to minimize the introduction and spread of invasive species associated with the Proposed Action.							X	X	X						
Prior to commencement of ground disturbing activities, all on-site Project staff and contractors would be provided the WEOP training. The training would include information on the sensitive native botanical resources and invasive species prevention protocols.							X	X	X						
Vegetation removal/management would be completed by a qualified vegetation management company.							X	X	X						
If vegetation removal is needed in areas outside of the existing maintained areas (i.e., around WTGs, roads, structures), a plant expert/botanist would be hired to determine if any areas with native plants should be avoided. Any areas to be avoided should be flagged with highly visible tape or temporary perimeter fencing should be installed to prevent disturbance. The plant expert/botanist may also supervise removal work, if needed. If removal is required, native plants may be translocated or replaced.							X	X	X						
Removal/disturbance of ilima would be avoided to the maximum extent practicable.							X	X	X						
Conduct post-construction fatality monitoring to monitor potential impacts to non-listed and listed wildlife as a result of continued KWP 1 operations.								X	X						
Adaptively manage the minimization and mitigation measures described herein and in the Proposed HCP, as needed, in coordination with USFWS and DOFAW.								X	X						
Ōpeʻapeʻa • Continue to implement existing avoidance and minimization measures. • Barbed wire within the Project area would be minimized to the maximum extent practicable.								X	X						
Nēnē • Continue to implement existing avoidance and minimization measures. • Traffic signage would be used in areas of higher nēnē use for general awareness, and the locations of this signage may be increased and/or updated over time in conjunction with the location(s) nēnē use observations. • During fatality monitoring, precautions would continue to be taken to prevent potential canine interactions with the nēnē. If nēnē are present in a search area, the canine handler would immediately retrieve and restrain the dog, avoid disturbing the birds, and would postpone searching in the vicinity of the birds, worked on leash away from wildlife and/or temporarily skipping canine searches in the proximity of the nēnē. • Engage with DOFAW Maui to band nēnē within the Project Area to track individual nēnē, better understand their movements, nesting location fidelity, and provide insight to nēnē mortality at KWP 1.								X	X						

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
Seabirds (ʻAʻo, ʻUaʻa, and ʻAkēʻakē) • Continue to implement existing avoidance and minimization measures. • If nighttime construction (i.e., for maintenance or for decommissioning) during this period is unavoidable, KWP I would utilize a biological monitor during nighttime activities. This monitor would observe construction activities between approximately 0.5 hour before sunset to 0.5 hour after sunrise (i.e., when lighting is used) to be on lookout for wildlife species that appear to be disoriented or attracted to the lighting, or grounded by lighting, and facilitate corrective actions to be taken with the construction crew so as to avoid or minimize potential issues. If any Covered Species are observed being affected by the lighting, the biological monitor would immediately notify the construction manager that wildlife have been observed reacting to the lighting and that lighting may need to be reduced or turned off until the observed wildlife leave the area. If the individual(s) do not exit the construction area, the biological monitor would direct the construction manager to reduce lighting as soon as it is safe to do so. If the reduction in lighting does not appear to be sufficient (i.e., the individuals do not leave the area), lighting should be turned off as soon as it is safe to do so.								X	X						
Assimulans Yellow-faced Bee • ʻIlima Protection and Timing: ○ Avoid removal or disturbance of ʻilima to the maximum extent practicable. ○ If vegetation management affecting ʻilima must occur, schedule work between July and November, or when ʻilima is confirmed to not be flowering, corresponding with a presumed period of dormancy for yellow-faced bees. ○ If work must occur during the active season (December–June), a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for listed yellow-faced bees in the impact area and a 50-foot buffer around any ʻilima. ○ Any ʻilima plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional ʻilima may also be planted to supplement the translocated plant(s). • Other foraging resources (natives): ○ Avoid removal of the native ʻuhaloa and ʻūlei to the maximum extent practicable ○ If vegetation management of these species must occur, schedule work when the species are not flowering or have a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer. ○ And native plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional outplantings may also be used to supplement the translocated plant(s).								X	X						

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
• Other foraging resources (non-natives: kiawe [*Neltuma pallida*] and koa haole [*Leucaena leucocephala* subsp. *Leucocephala*]): ○ Vegetation management of these species would be scheduled for when the species are not flowering or a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer. • Additional Measures: ○ Restrict vehicle use to existing roads, and enforce the posted speed limit of 10 mph. ○ Include ‘ilima and assimulans yellow-faced bees (including nests) in onsite environmental awareness training. ○ Limit herbicide use to periods between July and October, which is outside the active period for assimulans yellow-faced bees, and implement the following BMPs related to the use of herbicides (adapted from McKnight et al. 2018): ▪ Conduct herbicide applications on calm days when wind speed is <10 mph (avoid applications during gusty or sustained high winds) ▪ When available, use selective herbicides that are targeted to the species that need treating ▪ Use targeted application techniques ▪ Selectively control undesirable plants with spot treatments, frill treatment, weed wipe, or other well-targeted techniques to avoid non-target species ▪ Avoid broadcast applications of herbicides ▪ Keep applications on target and minimize drift • Carefully choose and calibrate your spray nozzles to minimize drift, ensuring only target plants are treated • When possible, utilize spatial or vegetative buffers around pollinator habitat ▪ Apply herbicide during the plant life stage when a weed is most vulnerable • Plants should not be sprayed when they are in flower or after they have gone to seed. This practice alone can greatly reduce herbicide exposure for the local pollinator community ▪ When possible, apply in the early morning or in the evening when pollinators are less active, and not during mid-day when bees and other pollinators are most active, especially if the optimal time to spray the target plant is when it is flowering • Assimulans Yellow-faced Bee Surveys ○ Surveys for YFB and their nests would be conducted by a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience), and would be developed in consultation with entomologists. These surveys would occur during															

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the active assimulans yellow-faced bee period, prior to initial maintenance activities, and again at the end of the operational life prior to decommissioning. Surveys in the interim years would be conducted on an as-needed basis (i.e., if there is a need to disturb areas off the main roads and pads during the following year). ○ Following the guidelines in Blackburn et al. (2021), and adapted based on consultation with DOFAW entomologists, the surveys would be conducted during the following environmental conditions (if possible): ▪ Minimum temperature: Above 60° F (~15°C) ▪ Cloud cover: partly sunny or better. On cooler days the sun can play a very important role in bee activity ▪ Wind: less than 20 mph ▪ Precipitation: No rain and dry vegetation; wait three days after moderate to heavy rain which can remove nesting signs (e.g., expelled dirt) ▪ Time of day: target between 930am and 230pm ▪ Time of year: target the ▪ period of adult bee nest-building activity, roughly February through April. ○ Surveyors would walk the limits of disturbance, marking on a GPS any locations where YFB are observed on flowers, around nest sites, or over the ground. Nests would also be physically marked for avoidance.														
Blackburn's Sphinx Moth • Continue to implement existing avoidance and minimization measures. • Site staff would be trained to identify tree tobacco and would report any sighting of tree tobacco to the onsite biologist or site manager; signage would be added to the O&M building illustrating different stages of tree tobacco for identification. • If tree tobacco less than 3 feet in height is observed within areas with potential vegetation disturbance, the plants would be removed immediately to prevent attracting Blackburn's sphinx moth. DOFAW recommends this removal occur during the dry season (usually May to October). • If tree tobacco over 3 feet in height is observed in an area requiring disturbance, a qualified biologist would thoroughly search the plant(s) for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). DOFAW and USFWS may be contacted for additional guidance. • Should any major ground disturbance occur within the Project Area, regular surveys for tree tobacco may occur in those areas to confirm tree tobacco is not present and there no impacts to the listed Blackburn's sphinx moth.								X	X						
Pueo • Provide $11,000 in funding to the Hawai'i Wildlife Center as voluntary mitigation for the Pueo. • Before any ground disturbing activities that may disturb potential pueo nesting habitat, a qualified biologist would conduct surveys for pueo. Surveys should be done for 2-3 nights prior								X	X						

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
to ground disturbing activities during crepuscular hours from vantage points where the entire disturbance area can be observed. If any pueo breeding displays are observed, it is likely there could be a nest. • If pueo nests are detected in the Project Area at any time, a 328-foot (100 meters) buffer should be established in which no activity occurs until the nesting cycle is complete and the chicks are capable of flight. • As part of the WEOP Program, all construction and regular on-site staff would be trained to identify pueo and if pueo or a pueo nest are observed, staff would stop work and coordinate with onsite biologist to determine appropriate steps. • DOFAW staff should be notified of any nests or adult breeding behavior. • Where fences extend above the vegetation, KWP I would integrate three strands of polytape into the fence to increase visibility where feasible.														
Implement mitigation measures to offset unavoidable take of Covered Species, as described in Section 2.1.3.3, HCP Mitigation and summarized in Table 2-2.								X	X						
Educate Project operations and maintenance staff regarding the presence of valued cultural resources located within and adjacent to the Project Area, so they may understand the cultural significance of the area and the importance of ensuring that all operations and decommissioning activities, especially those conducted in the Project Area's upper elevations and in the general vicinity of the heiau, are carried out respectfully and with proper decorum.									X						
Provide access to cultural practitioners to lands above and adjacent to KWP 1's wind farm operations.									X						
Coordinate with SHPD to provide measures to address previously recorded historic properties, as needed.									X						
Coordinate with the DLNR and provide the necessary funding to repair or replace the signs where the Lāhainā Pali Trail crosses the Kaheawa Pastures access road. The signs would remain in place for the duration of the Proposed Action.									X						
continue to contribute $1,500 annually to the Na Ala Hele program as mitigation for visual impacts to the Old Lahaina Pali Trail (in compliance with the Project's CDUP conditions).									X						
Ensure compliance with the SHPD-approved preservation plan for Site 05648 by consulting with SHPD to confirm the informational/cautionary signs were installed, assess whether they are visible and clear of vegetation, and to improve or replace the signs if they are illegible or damaged.									X						
Support a curation agreement for the upland heiau (Site 50-50-09-05232). The Curation agreement would be between DLNR and a community group such as Maui Cultural Lands, to manage the heiau site. The Applicant would support the curator community group with the following activities: • Confirming the location of permanent makers identifying the perimeter of a 200-foot buffer from the heiau and if necessary, replace install markers if not easily visible. • Replacing the current educational signs with new ones identifying the heiau and non-disturbance buffer. Signage text would be determined by the curator group. • Managing vegetation within the heiau.									X						

Best Management Practice (BMP)	Air Quality	Climate and Climate Change	Geology, Topography, and Soils	Water Resources	Natural Hazards	Hazardous and Regulated Materials and Waste	Vegetation	Wildlife	Cultural and Archaeological Resources	Noise	Visual Resources	Land Use	Transportation and Traffic	Public Infrastructure and Services	Socio-Economic Characteristics
• Onsite employees and contractors (when appropriate) would be notified regarding the location of the heiau and the requirement to avoid impacts within a 200-foot buffer of the site. • Prior to any ground disturbing maintenance activities occurring within 500 feet of the heiau, ensure a cultural/archaeological monitor is onsite to monitor work within 500 feet of the heiau.															
In the event that human remains are discovered, all construction activities in the immediate vicinity would be halted, and the SHPD staff would be notified in accordance with HAR §13-300-40. The final disposition of any discovered human remains would be determined by SHPD staff. Possible treatments for inadvertent discoveries may include preservation in place or disinterment followed by reburial near the original find location.									X						
Document, investigate, evaluate, and resolve project-related noise complaints, if any arise.										X		X			X
Maintain all maintenance and decommissioning equipment in good working order in accordance with manufacturer specifications. Suitable mufflers or air-inlet silencers should be installed on all internal combustion engines and certain compressor components.										X		X			X
Obtain a noise permit or community noise variance, as needed, prior to maintenance and decommissioning activities.										X		X			X
Limit noisy maintenance and decommissioning activities to the least noise-sensitive times of day (daytime only, between 7:00 a.m. and 7:00 p.m.) and weekdays.										X		X			X
Post-decommissioning, restore the Project Area to as close to pre-construction conditions as feasible, to promote the open space characteristic of the area.												X			X
Prior to the initial maintenance and decommissioning/restoration periods, post signage at the intersection of the Kaheawa Pastures access road and the Lāhainā Pali Trail to advise hikers of the traffic on the access road.												X	X	X	X
Develop and implement a Traffic Control Plan for decommissioning and restoration activities. The Traffic Control Plan may include: • A police escort while transporting large WTG pieces during decommissioning. The escort would ride ahead of the truck warning other traffic of the oncoming load and stopping other vehicles for the few turns that are required; and • Traffic control at Honoapi'ilani Highway/Access Road Intersection. The entrance to the access road would be staffed by two people during working hours to stop other traffic for the 1-2 minutes that are needed for the large trucks to turn into and out of the site access road.												X	X	X	X
Encourage employees to carpool whenever possible to minimize vehicle trips, road dust, and greenhouse gas emissions.												X	X	X	X
Contribute $300,000 annually to a community benefits program for the 20-year PPA term of the Proposed Action Implement. The community benefits program is anticipated to be delivered and administered through a local, Maui-based 501(c)(3) non-profit organization for community benefits.															X

2.2 No-Action Alternative

2.2.1 Decommissioning Activities

Under the No-Action Alternative, the existing KWP 1 facility would not continue operations and would instead be decommissioned. Should a new lease term not be granted by the DLNR, decommissioning would commence after the end of the current lease term in Q1 2026 (or at a time determined by DLNR and the Applicant). Decommissioning of the facility would return the Project site to pre-Project conditions as agreed upon with the DLNR and BLNR. This would involve removing infrastructure specifically related to the KWP 1 facility, including the 20 turbines and their pads, and site restoration and revegetated to reflect pre-Project conditions. However, the access road, O&M building, warehouse, and KWP 2 BESS and substation would remain, as they also support the KWP 2 facility, which is expected to still be operational at that time. As discussed in Section 1.1.1.1, *Location and Land Ownership*, KWP 2 has easement rights to use and access these facilities as well as the access roads leading to these facilities.

Decommissioning activities would be completed within a timeframe as agreed upon with DLNR up to an approximate maximum of 2 years, and would follow a similar process as decommissioning of the Proposed Action described in Section 2.1.4, *Decommissioning and Restoration* above.

2.2.2 Connected Activities to Decommissioning

The No-Action Alternative also includes various related activities that would arise from the loss of power produced by the KWP 1 facility as well as loss of other Project benefits.

If the KWP 1 facility is decommissioned, the Maui grid would lose power supply for an equivalent of approximately 17,000 homes each year, and Hawaiian Electric customers would lose around $10 million in annual savings compared to fossil fuel-generated energy[44]. The Maui electric grid would not receive reliable energy from KWP 1, and residents would be subject to increased power shortages (KWP 2024b).

Economically, approximately five full-time, good-paying, Maui-based skilled local jobs would be at risk if no longer required to support KWP 1, along with numerous contractor roles that support the facility's operations. Since the existing KWP 1 infrastructure components still have significant remaining service life, decommissioning the KWP 1 facility would mean that Hawaiian Electric and its customers would forfeit the ongoing benefits derived from this investment.

Maui County would forfeit approximately 6 percent of its current energy generation supply (almost 36 percent of wind energy supplied to the Maui grid), and the Maui Electric grid would need to source 30 MW of energy from alternative providers. Consequently, under the No-Action Alternative, Hawaiian Electric would require replacement with other resources that would involve building new generation

[44] Since January 2023, Hawaiian Electric's "Schedule Q" avoided energy costs for the Maui Division has averaged ~$200 / MWh. KWP's current rate is ~$136 / MWh (Hawaiian Electric 2013).

facilities. New solar facilities would require new land disturbance and significantly more land to produce the same amount of energy. New combustion-based generation sources on Maui would need to be sited and permitted and are likely to worsen the State's and the County of Maui's exposure to volatile fuel prices and greenhouse gas emissions as compared to retaining the KWP 1 project.

Upon decommissioning, the Project would no longer contribute to its community benefits program (Section 2.1.2.3, *Community Benefits Program*) or contribute to HCP-related mitigation activities (Section 2.1.3, *HCP Compliance Activities*).

3.0 Existing Environment, Potential Impacts, and Mitigation Measures

3.1 Introduction

Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures* describes the environmental setting as it exists before commencement of the action, and the potential effects or impacts of the Proposed Action and No Action Alternative on environmental, cultural, and socioeconomic resources. "Effects" or "impacts" as used in this document are synonymous and effects or impacts can be adverse or beneficial. Where applicable, the discussions in this section draw from experience and data gained during construction and operation of the existing KWP 1 facility.

3.1.1 Organization of Section 3

This section is organized by resource (e.g., air quality, climate and climate change, etc.). Each resource section includes two subsections: 1) a description of the existing environment/existing conditions, and 2) an analysis of potential impacts to that resource from the Proposed Action and No-Action Alternative, including a description of proposed resource-specific avoidance, minimization, mitigation measures (including existing avoidance, minimization, and mitigation measures that would be continued under the Proposed Action). A brief description of each subsection follows.

- **Existing Environment/Existing Conditions**: This subsection includes a description of the environmental setting, including a description of the environment in the vicinity of the action, as it exists before commencement of the action. Pursuant to HAR § 11-200.1-24 (i), special emphasis is placed on environmental resources that are rare or unique to the region and the Project Area. The existing environment/existing conditions description is comprised of several components:
    - Definition of the resource and the geographic extent of the analysis.
    - Description of the regulatory framework governing the resource, as applicable. (Additional regulatory context provided in Section 4, *Regulatory Context/Consistency with Plans and Policies*).
    - Description of existing environmental conditions.
- **Potential Impacts of the Proposed Action and No Action Alternative**: This subsection includes several components:
    - ***Factors Considered for Impacts Analysis*.** Brief description of the methods for this impact analysis, including factors considered in determining whether the Proposed Action and No Action Alternative would have a significant impact on the resource. Pursuant to HAR §11-200.1-24(b), data and analyses commensurate with the importance of the impact is included and less important material is summarized, consolidated, or simply referenced. Resource impacts are quantified, where applicable.

- ***An evaluation and description of the potential impacts of the Proposed Action and No Action Alternative relative to existing conditions.*** The phases for the Proposed Action include: 1) continued operations of the KWP 1 facility for an additional 20-year period, 2) HCP compliance activities, including offsite mitigation, and 3) decommissioning and restoration period of approximately two years. The No Action Alternative is comprised of only the decommissioning and restoration phase. Each of the phases are analyzed separately for potential direct and indirect impacts (beneficial and adverse) with consideration of the type, duration, intensity, and geographic extent of the impact. Section 3.1.2, *Impact Definitions* further defines the types, duration, and nature of impacts analyzed in this EIS. Potential cumulative impacts are analyzed in Section 3.17, *Cumulative Impacts.*
- ***Avoidance, Minimization, and Mitigation Measures.*** This subsection describes BMPs and Project-specific plans that would be implemented to avoid and minimize impacts to each resource. Where major impacts cannot be avoided, mitigation measures are proposed to reduce or offset the adverse impact caused by the Proposed Action.
- ***Summary of Impacts.*** This subsection includes a concise summary of impacts in tabular format.

3.1.2 Impact Definitions

The potential impacts for each resource are discussed based on type, duration, intensity (magnitude), extent, and context of the impact. Impacts may be adverse and beneficial. Definitions are provided below.

Impact Type:

- **Direct impacts:** Direct impacts (or primary impacts) occur at the same time and same place as the action (HAR § 11-200.1-2).
- **Indirect impacts:** Indirect impacts (or secondary impacts) are caused by the action and are later in time or further removed in distance, but still reasonably foreseeable (HAR § 11-200.1-2). An indirect impact may include a growth-inducing effect, and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems, including ecosystems.
- **Cumulative impacts**: Cumulative impact means the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes the other actions (HAR § 11-200.1-2). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (HAR § 11-200.1-2). Cumulative impacts are addressed in Section 3.17, *Cumulative Impacts*.
- **Other impacts**: Other impacts, such as relationship between short-term uses and long-term productivity, irreversible and irretrievable commitment of resources, and environmental effects which cannot be avoided, are addressed in Section 5, *Other HRS Chapter 343 Requirements*.

Duration:

- **Short-term**: Short-term impacts are temporary and may be related to a specific event (e.g., heavy rainfall) or phase of development (e.g. decommissioning).
- **Long-term**: Long-term impacts may be temporary or permanent and are generally associated with the operations phase, which, for the Proposed Action, begins at the renewal of the 20-year lease with DLNR and ends with the decommissioning of KWP 1.

Intensity:[45]

- **No Impact**: No impact is anticipated.
- **Negligible**: The impact is barely perceptible or not measurable.
- **Minor**: The impact is slightly detectable and measurable but is either localized or would not adversely affect resources.
- **Moderate**: The impact is clearly detectable and could have appreciable adverse effect on resources.
- **Major**: The impact is substantial and highly noticeable or measurable.

Geographic Extent:

- **Isolated**: Impacts would be limited to the Project Area.
- **Local**: Impacts would be limited to the area immediately surrounding the Project Area; impacts would not extend to a broad or a broad sector of the population.
- **Regional**: Impacts would extend beyond a local area, potentially affecting resources or populations throughout the Island of Maui.
- **State-wide**: Impacts would extend beyond the Project Area or region, potentially affecting resources or populations throughout the State.

Nature:

- **Beneficial:** Impacts that are generally positive.
- **Adverse**: Impacts that are generally negative.

The impact analysis will also determine whether an action may have a significant impact:

- **Significant impact**: HAR § 11-200.1-2 defines significant impacts as the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals and guidelines as established by law, adversely affect the economic welfare, social welfare, or cultural practices of the community and State, or are otherwise set forth in HAR § 11-200.1-13. Each resource section defines “significant impact” for

[45] Pursuant to HAR § 11-200.1-24(p) the EIS describes measures proposed to avoid, minimize, rectify, or reduce impacts. Implementation of avoidance and minimization measures may reduce the severity of the impact. Where major impacts cannot be avoided, mitigation measures are proposed to reduce or offset the adverse impact caused by the Proposed Action.

that specific resource. Section 4, *Regulatory Context/Consistency with Plans and Policies* evaluates the Proposed Action, in its entirety, against the significance criteria set forth in HAR § 11-200.1-13.

3.2 Air Quality

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on air quality. Air quality is the degree to which the ambient air is pollution-free and is assessed by measuring a number of indicators of pollution. Air quality is influenced by a complex mix of factors, including weather patterns, human activities, and natural sources of pollution. Weather conditions like rain, temperature, and wind speed play a role in how pollutants disperse and react in the atmosphere. The Region of Influence (ROI) for air quality used in this analysis is the Project Area and immediate surrounding areas and the HCP mitigation sites (for direct impacts) and Maui Nui (i.e., Maui, Molokaʻi, and Lānaʻi) (for indirect impacts).

Data used in this analysis comes from state air quality monitoring stations and peer-reviewed literature. Traffic levels were estimated as detailed in Section 2.1, *Proposed Action (Continued Use)*. Impacts are described qualitatively.

3.2.1 Existing Environment

3.2.1.1 Regulatory Framework

Federal and State Ambient Air Quality Standards

Air quality is regulated under the Clean Air Act. Under the authority of the Clean Air Act, the Environmental Protection Agency (EPA) has established nationwide air quality standards to protect public health and the environment. These federal standards, known as National Ambient Air Quality Standards (NAAQS), represent the maximum allowable atmospheric concentrations for six criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (inhalable particulate matter [PM10] and fine particulate matter [PM2.5]). NAAQS are stated in terms of both primary and secondary standards for most of the regulated air pollutants. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare, which includes protection against decreased visibility, and damage to animals, crops, vegetation, and buildings (HDOH CAB 2015).

The EPA requires that States monitor the ambient air to determine compliance with the NAAQS and to regulate both stationary and mobile sources that emit these and other pollutants. The State of Hawaiʻi Department of Health (HDOH) Clean Air Branch (CAB) is responsible for implementing air pollution control in Hawaiʻi and has established State Ambient Air Quality Standards (SAAQS). In contrast to the NAAQS, SAAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality."

The maximum allowable atmospheric concentrations set forth by the NAAQS and SAAQS are described in Table 3-1.

Table 3-1. State and Federal Ambient Air Quality Standards (Maximum Allowable Atmospheric Concentrations)

Air Pollutant	Hawai'i Standard	Federal Primary Standard	Federal Secondary Standard
Carbon Monoxide			
1-hour average	9 ppm	35 ppm	None
8-hour average	4.4 ppm	9 ppm	None
Lead			
3-month average	1.5 µg/m^3 (calendar quarter)	0.15 µg/m^3 (running 3-month)	Same as primary
Nitrogen Dioxide			
1-hour average	None	100 ppb	None
Annual average	0.04 ppm	53 ppb	Same as primary
Particulate Matter (PM10)			
24-hour block average	150 µg/m^3	150 µg/m^3	Same as primary
Annual average	50 µg/m^3	None	None
Particulate Matter (PM2.5)			
24-hour block average	None	35 µg/m^3	Same as primary
Annual average	None	12 µg/m^3	15 µg/m^3
Ozone			
8-hour rolling average	0.08 ppm	0.070 ppm	Same as primary
Sulfur Dioxide			
1-hour average	None	75 ppb	None
3-hour block average	0.5 ppm	-	0.5 ppm
24-hour block average	0.14 ppm	None	-
Annual average	0.03 ppm	None	-
Hydrogen Sulfide			
1-hour average	25 ppb	None	None

Source: HDOH 2015.
ppb = parts per billion by volume
ppm = parts per million by volume
µg/m^3 = micrograms per cubic meter of air

Based on measurements of ambient criteria pollutant data, EPA designates areas of the United States as having air quality equal to or better than NAAQS (i.e., attainment) or worse than NAAQS (i.e., non-attainment). The Clean Air Act general conformity rule requires that projects occurring in nonattainment and maintenance areas be consistent with the applicable State Implementation Plan. Hawai'i is, and always has been, in attainment for all NAAQS pollutants (see Section 3.2.1.2, *Regional Air Quality*).

Fugitive Dust

Fugitive dust emissions are governed by HDOH CAB. HAR § 11-60.1-33, Fugitive Dust states, in part, that no person shall cause or permit visible fugitive dust to become airborne without taking reasonable precautions and that no person shall cause or permit the discharge of visible fugitive dust beyond the property lot line on which the fugitive dust originates. Reasonable precautions to control fugitive dust are determined on a case-by-case basis.

3.2.1.2 Regional Air Quality

In general, air quality in the State of Hawai'i is among the best in the nation, primarily because of consistent trade-winds and limited emission sources. HDOH maintains monitoring stations throughout the State in order to measure ambient air concentrations of the six criteria pollutants regulated by the NAAQS and of the state's hydrogen sulfide standard. There are two monitoring stations on Maui Nui are at Kīhei[46] and Kahului on Maui, located approximately 6.5 miles southeast and 5 miles northeast of the KWP 1 facility, respectively. These stations monitor $PM_{2.5}$ only. The most recent publicly available information for Hawai'i regarding air quality is from 2023 (HDOH CAB 2024). In the 5-year period from 2019 to 2023, the State of Hawai'i was in attainment of all NAAQS (HDOH CAB 2024). The State of Hawai'i was in attainment of all SAAQS, except for exceedance of the carbon monoxide maximum 1-hour average in 2022, which was attributed to a fire located directly next to the monitoring station (HDOH CAB 2023a).

3.2.1.3 Local Air Quality

Project Area

The existing air quality in the vicinity of the Project Area and HCP mitigation sites is generally well below regulatory limits because of the low levels of development and automobile emissions and exposure to prevailing trade winds that help disperse the emissions.

There are few sources of air pollutants at and near the Project Area. The most significant is the fugitive dust that naturally arises when strong winds sweep across the open fields or exposed slopes during dry weather. Other sources of pollutant air emissions in the vicinity include vehicle exhaust from Honoapi'ilani Hwy/Hawai'i Route 30, dust from agricultural cultivation and construction, occasional smoke from wildfires, and emissions from the Maui Electric's Ma'alaea Generating Station located approximately 4 miles east-southeast of the Project Area.

HCP Mitigation Sites

The five mitigation sites at Makamaka'ole, Haleakalā Ranch, Pu'u o Hōkū Ranch, Pūlama Lāna'i, and Kaheawa Pastures (Project Area and Adjacent Lands) are located in remote areas far from air pollution sources. Potential sources of air pollutants include dust, occasional wildfire smoke, and exhaust

[46] The Kīhei station was discontinued in March of 2022 but restarted on August 22, 2023 for purposes of monitoring the impacts from wildfires. Data is incomplete.

emissions from nearby ranch and land management activities. Air quality within these areas are generally well below regulatory limits.

3.2.1.4 Impacts from Existing KWP 1 Operations

Operation of the KWP 1 facility over the previous 20 years has resulted in an overall beneficial impact to air quality. Generation and integration of wind energy into the electric grid has reduced fossil fuel consumption, thereby reducing greenhouse gas emissions, particulate-related health effects, and other forms of pollution associated with fossil fuel electric generation. Burning fossil fuels at power plants create emissions of sulfur dioxide, nitrogen oxides, particulate matter, carbon dioxide, mercury, and other pollutants, which negatively impact environmental and human health. For example, according to the American Wind Energy Association, one MWh of wind energy avoids 0.75 tons of carbon dioxide emissions on average (AWEA 2014); therefore, during its 20-years of operation, KWP 1 avoided approximately 60,000 tons of carbon dioxide annually[47].

KWP 1 operations generate air emissions from O&M activities including exhaust from vehicle-trips made by staff and vendors traveling to and from the Project Area, fugitive dust from routine maintenance work, and emissions from gas-powered equipment such as mowers, generators, etc[48]. Vehicle emissions from personnel driving to and from the facility is limited as only seven personnel are generally present at the KWP 1 facility on a daily basis. Occasionally, heavy equipment and vehicles are used during routine O&M, which generates temporary emissions and fugitive dust. KWP maintains graveled, vegetation free buffers around the WTG foundation pads, the substation and switchyard, the O&M building, and graveled access roads and parking/staging area. Occasionally new gravel is laid in the vegetation-free areas. Vegetation management within the Project Area includes the use of herbicides along roadways to minimize vegetation regrowth. Herbicides are applied in accordance with the manufacture's instruction and BMPs are used to avoid herbicide from becoming airborne. The rest of the Project Area is naturally vegetated. BMPs are utilized to minimize fugitive dust from O&M activities (See Section 3.2.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*).

3.2.1.5 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on air quality, KWP LLC requires operational staff and contractors to take the following measures to avoid or minimize air emissions and fugitive dust:

[47] Assumes that in the absence of KWP 1, the power produced by KWP 1 would have been produced by fossil fuel combustion.

[48] DLNR, Hawaiian Electric, and others occasionally conduct activities within or in the vicinity of the Project Area to maintain their equipment and/or manage their lands (e.g., vegetation management, ungulate control, etc.). The resource sections do not describe nor assess the impact of activities performed by DLNR, Hawaiian Electric, or others within or in the vicinity of the Project Area as they are not connected to KWP 1 operations. Potential cumulative impacts from these activities are described in Section 3.17, *Cumulative Impacts*.

- Maintain landscaping and stabilizing all disturbed soil areas not subject to re-vegetation with gravel.
- Minimize the extent of disturbed area where possible.
- Keep access roads in good working condition.
- Limit vehicle speed on all unpaved access roads to 10 miles per hour (mph).
- Maintain all vehicles and heavy equipment in proper tune according to manufacturer's specifications.
- Cover all trucks hauling dirt, sand, soil, or other loose materials.
- Use a water truck or sprinklers to minimize the amount of airborne dust leaving the Project Area, when necessary.
- Apply herbicide in accordance with manufacturer's instructions and industry BMPs.

3.2.2 Potential Impacts and Mitigation Measures

3.2.2.1 Factors Considered in the Impact Analysis

Issues related to air quality that have been identified during the scoping process for the Proposed Action and addressed in this subsection include 1) air emissions that would be generated by the continued operations, HCP mitigation, and decommissioning and restoration phases of the Project, 2) whether the Proposed Action would contribute to nonattainment of Federal and State air quality standards, and 3) whether the Proposed Action would be in compliance with HAR § 11-60.1-33, Fugitive Dust; and 4) avoidance, minimization, and mitigation measures to reduce air emissions generated by the Proposed Action. These issues are addressed in this section.

A significant impact on air quality would result if any of the following were to occur as a direct or indirect result of the Proposed Action or No Action Alternative:

- Predicted concentrations of Criteria Air Pollutants would exceed state and/or federal ambient air quality standards; or
- The action does not comply with HAR § 11-60.1-33, Fugitive Dust (i.e. KWP 1 does not take reasonable precautions to prevent fugitive dust from becoming airborne and discharge visible fugitive dust beyond the property lot).

3.2.2.2 Proposed Action

Continued Operations

Continued operation of the KWP 1 facilities have limited potential to affect air quality. Direct impacts from continued operations would be similar to those described for the existing operations in Section 3.2.1.4, *Impacts from Existing KWP 1 Operations*. KWP 1 operations would continue to generate

emissions from O&M-related activities such as vehicle-trips made by staff and vendors traveling to and from the Project Area, fugitive dust from routine maintenance work, and the operation of gas-powered equipment such as mowers, generators, etc. These emissions are negligible to minor, temporary, and, except for the vehicles traveling to and from the site, isolated to the Project Area. With the continued use of BMPs (see Section 3.2.1.5, *Existing Avoidance, Minimization, and Mitigation Measures)*, KWP 1 operations would not be anticipated to exceed State and Federal ambient air quality standards and would limit fugitive dust emissions in compliance with HAR § 11-60.1-33.

The Proposed Action includes an initial maintenance period where maintenance activities would occur on multiple WTGs at once. During the initial maintenance period, air emissions would increase compared to typical O&M activities but would still be negligible. Onsite employment is expected to average 15 workers on a typical maintenance day (compared to 5 staff during normal O&M), which would slightly increase exhaust emissions to and from the Project Area. Site preparation for equipment transport and maintenance activities may involve civil work including recontouring the existing access roads, turbine pads, crane paths, and/or staging areas. These ground disturbing activities would temporarily increase heavy equipment exhaust and fugitive dust emissions within the Project Area. If necessary, KWP 1 would develop and implement a dust control plan prior to the commencement of maintenance activities. As discussed in Section 2.1.2, *Continued Operations*, minor fiberglass repair may occur onsite on the nacelle, hub, and turbine blades. Fiberglass repair may require sanding along repair areas to match the blade's shape but this activity would produce very small amounts of dust that would have no measurable impact on the surrounding environment. With implementation of BMPs, KWP 1's maintenance activities would not exceed State and Federal ambient air quality standards and would limit fugitive dust emissions in compliance with HAR § 11-60.1-33.

The continued operation of KWP 1 over an additional 20-year period would result in a long-term reduction in emissions by offsetting electricity that would otherwise be produced by Maui Electric's existing fossil-fuel-fired power plants or greenfield renewable energy projects. Continued operation of the existing KWP 1 facility would avoid carbon dioxide and other emissions associated with the creation of a new facility to replace it, even if that facility were renewable energy. Due to the time it takes to develop and permit new renewable energy facilities, it is assumed that if KWP 1 were decommissioned, the power currently generated by the facility would be immediately replaced with power generated by Maui Electric's existing fossil-fuel-fired power plants. Approximately 60,000 tons of carbon dioxide would be avoided each year that clean, renewable energy is produced by KWP 1. KWP 1 would also offset pollution and the particulate-related health effects associated with sulfur dioxide, nitrogen oxides, particulate matter, and mercury emissions. The potential offset of emissions would have a moderate, long-term beneficial impact to air quality.

While it is estimated that KWP 1 would continue to provide electricity that is equal to or less than the cost of the electricity that Maui Electric would otherwise have available for sale to its customers, any potential change in electric rates resulting from KWP 1 would not markedly promote or discourage economic activity. Consequently, it would not lead to growth or changes in the character of economic

activity (e.g., the opening of new industries not previously practical) that might have secondary air quality impacts.

HCP Compliance

HCP compliance and mitigation activities would have short-term, negligible impacts on air quality within the ROI. Mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites would temporarily generate negligible air emissions from gas-powered equipment used for vegetation management, vehicles traveling to and from the sites, and fugitive dust from limited ground disturbing activities.

Decommissioning and Restoration

Decommission activities would generate exhaust emissions from vehicles and heavy machinery and fugitive dust from earthmoving related to removal of project components and restoration activities. Air pollutant emissions and fugitive dust levels would be highest near the KWP 1 WTGs and substation (where the majority of activities would occur); however, lower levels of emissions and fugitive dust would also occur along travel routes to and from the Project Area.

Project decommissioning would generate exhaust emissions from vehicles and heavy machinery. Decommissioning is anticipated to generate an average of 40 round trip vehicle trips and 20 round trip truck trips per day on Honoapiʻilani Hwy to transport workers, equipment, and materials to and from the Project Area. Decommissioning activities would also require the use of heavy equipment to remove project components and may require recontouring roads and other previously disturbed areas to preconstruction contours. The types and number of heavy equipment used would depend on the selected contractor. All of the decommissioning-related exhaust emissions would be negligible, temporary and limited to the decommissioning period. Exhaust emissions from the Proposed Action and are not anticipated to exceed State and Federal ambient air quality standards.

Nearly all the fugitive dust emissions would be limited to the area in and around the existing infrastructure being removed from the Project Area such as the WTGs, underground power collector system, KWP 1 substation, and access roads. Turbine foundations would be removed to a depth specified by DLNR. The concrete would be reduced in size by excavator attachments and transported for disposal offsite. BMPs would be implemented to reduce dust generated from concrete removal activities. Decommissioning activities would also include recontouring roads and other disturbed areas to preconstruction contours, where feasible. Small quantities of decommissioning-related fugitive dust emissions would also result from heavy equipment and vehicles carrying equipment and workers up and down the existing Kaheawa access road. KWP 1 would limit fugitive dust emissions in compliance with HAR 11-60.1-33 through the use of BMPs (see Section 3.2.2.4, *Avoidance, Minimization, and Mitigation Measures*). Overall, increased fugitive dust levels would be minor, temporary, and in a localized area. Dust emissions are not anticipated to exceed State and Federal ambient air quality standards. Restoration activities include revegetating these disturbed areas with native or pasture grass species, which would have a long-term, beneficial impact on fugitive dust.

3.2.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 project would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the emissions and air quality impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The potential air quality impacts from decommissioning and restoration activities would be as described in Section 3.2.2.2, *Proposed Action, Decommissioning and Restoration*, but would occur immediately, rather than at the end of the 20-year extended operational period.

Due to the time it takes to develop and permit new renewable energy facilities, it is assumed that if KWP 1 were immediately decommissioned, the power currently generated by the facility would be replaced with power generated by Maui Electric's existing fossil-fuel-fired power plants. The displacement of air emissions associated with generating power via wind instead of burning fossil fuels would not occur. In the long term, the construction of a new renewable energy facility would also result in air emissions and fugitive dust. Therefore, the No Action Alternative would result in a long-term, moderate, adverse impact on air quality.

3.2.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on air quality, KWP 1 would continue to implement the BMPs outlined in Section 3.2.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential air impacts from the Proposed Action and No Action Alternative:

- General Measures
    - Design, develop and implement a dust control plan for maintenance and decommissioning activities.
    - Apply water, dust suppressants, or suitable compounds in the demolition of existing structures, grading or clearing of land, and on roads and material stockpiles.
    - Clean up material spills as soon as possible.
    - Install dust screens or wind barriers around demolition sites, as needed.
    - Implement permanent dust control measures identified in the project landscape plans as soon as possible following completion of any soil disturbing activities.
- Earthmoving Activities and Stockpiles
    - Pre-apply and re-apply water as necessary to maintain soils in a damp condition.
    - Limit the amount of exposed areas through planning and timing of project phases.
    - Cover temporarily exposed areas with mulch.
    - Stabilize stockpile materials.

- Keep stockpiles wet or damp as needed
- Cover stockpile when not in use. Use mulch or synthetic cover based on usage of stockpile.
- Keep drop or pile height as low as possible.

- Trucks and Vehicles
  - Maintain all construction equipment in proper tune according to manufacturer's specifications.
  - Maximize to the extent feasible, the use of diesel construction equipment meeting the latest certification standard for off-road heavy-duty diesel engines.
  - Provide water while loading and unloading to prevent fugitive dust.
  - Maintain at least six inches of freeboard on haul vehicles. Level the height of load.
  - Cover all trucks hauling dirt, sand, soil, or other loose materials.
  - Install a gravel pad and grizzly at exit and use a tire wash or spray system, as needed.

3.2.2.5 Summary of Potential Impacts

Neither alternative would result in significant adverse air quality effects so long as appropriate dust control measures are implemented. The Proposed Action would have negligible to minor direct impacts to air quality from emission and fugitive dust, but would provide a moderate, indirect beneficial impact to air quality by displacing fossil fuel-generated electricity on the island of Maui. Under the No Action Alternative, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The power that would have been generated by the continued operation of KWP 1 would instead be produced by Maui's existing fossil fuel-burning power plants or new renewable energy projects resulting in a moderate, long-term, adverse impact to air quality. Table 3-2 summarizes potential impacts to air quality from the Proposed Action and the No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on air quality based on the criteria listed in Section 3.2.2.1, *Factors Considered in the Impact Analysis*.

Table 3-2. Summary of Potential Impacts to Air Quality

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Generation of Air Emissions	Negligible (short-term) Beneficial (long-term)	Negligible	Negligible	Negligible (short-term) Moderate (long-term)
Generation of Fugitive Dust	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Violations of State or Federal Air Quality Standards	No Impact	No Impact	No Impact	No Impact
Violation of HAR § 11-60.1-33, Fugitive Dust	No Impact	No Impact	No Impact	No Impact

3.3 Climate and Climate Change

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on climate and climate change. Climate refers to the average weather conditions in a region over a long period of time. The climate of a location is affected by its latitude, elevation, and proximity to the ocean and are typically characterized by temperature, humidity, wind patterns, and rainfall. Greenhouse gases are chemical compounds found in the earth's atmosphere that can trap heat. The ROI for this climate change analysis is Maui County (i.e., Maui, Molokaʻi, and Lānaʻi) because climate acts on a regional scale.

Data used in this analysis comes from historic records regarding Maui's climate conditions, as well as current research on possible changes that could occur to Maui's climate. Impacts are described qualitatively.

3.3.1 Existing Environment

3.3.1.1 Regional Climate

The Hawaiian Islands have a tropical climate, characterized by relatively mild temperatures and moderate humidity throughout the year (except at high elevations), persistent northeasterly trade winds, notable differences in rainfall across short distances, and infrequent, severe storms. Two primary seasons are recognized: a 5-month summer season between May and September and a winter period between October and April (Giambelluca and Schroeder 1998). Summer is typically warmer and drier than winter, with few storm events. Winter is characterized by more frequent cloud cover and rainfall, as well as southerly and westerly winds (Giambelluca and Schroeder 1998). Due to the tempering influence of the surrounding Pacific Ocean and their low-latitude location, the Hawaiian Islands experience extremely small diurnal and seasonal variations in ambient temperature.

3.3.1.2 Local Climate

Project Area

Local climate conditions in Hawai‘i are influenced by its rugged, mountainous topography and the persistent flow of the trade winds (Giambelluca and Schroeder 1998). The KWP 1 facility is located on the leeward side of the island of Maui within the West Maui Mountain range. The topography of Maui and the West Maui Mountains is largely responsible for the heightened wind velocity and power at Kaheawa Pastures. The prevailing northeasterly trade winds tend to be split by Haleakalā, and the northern stream whips over the southwest flank of the West Maui Mountains while attempting to regain uniform flow, making that location the best wind resource on the island (Planning Solutions 2010). The deep gulches and ravines that exist in the area can create additional acceleration of the wind speeds in the downslope direction, thereby increasing wind velocity on the ridges immediately above these gulches. Prevailing surface winds in the Project Area are the northeasterly trade winds, with an average wind speed of 12.8 mph (WRCC 2025). During January and February, the prevailing trade winds change to a south/southwesterly direction (WRCC 2025). When the trade winds are weak or absent, a land-sea breeze pattern sometimes develops. When this occurs during the day, winds blow on shore toward the warmer land mass. At night, the reverse occurs, as breezes blow toward the relatively warm ocean.

Mean annual rainfall in the Project Area ranges from 14.23 inches to 71.91 inches, from the lower elevation entry point off Honoapi‘ilani Highway to the uppermost portion of Project Area, respectively (Giambelluca et al. 2014). Relatively higher rainfall occurs in winter months, between November and March (Giambelluca et al. 2014). In this vicinity, moisture zones are described as ranging from arid at the lowermost point of the Project Area (i.e., the access road driveway) to very dry, dry, and seasonal mesic, in ascending order with increasing elevation throughout the Project Area (Price et al. 2012).

HCP Mitigation Sites

The Makamaka‘ole mitigation area is located in northwest Maui within the West Maui Mountain Range. Mean annual rainfall is approximately 80 to 90 inches (Giambelluca et al. 2014) and its moisture zone is described as moderately wet (Price et al. 2012). The mean annual wind speeds are approximately 6 to 8 mph (Giambelluca et al. 2014).

The Haleakalā Ranch mitigation area is located in southeast Maui on the southern slope of Haleakalā. Mean annual rainfall is approximately 35 to 40 inches (Giambelluca et al. 2014) and its moisture zone is described as seasonal mesic (Price et al. 2012). The mean annual wind speeds are approximately 3.5 to 6.5 mph (Giambelluca et al. 2014).

The Pu‘u o Hōkū mitigation area is located on the far eastern tip of Moloka‘i within the foothills of the East Moloka‘i Volcano. Mean annual rainfall is approximately 30 to 40 inches (Giambelluca et al. 2014) and its moisture zone is described as moderately dry (Price et al. 2012). The mean annual wind speeds are approximately 6 to 9 mph (Giambelluca et al. 2014).

The Pūlama Lāna‘i mitigation area is located in central Lāna‘i and has a mean annual rainfall of approximately 35 to 45 inches (Giambelluca et al. 2014). Its spans the moist mesic, moderately wet, and

seasonal mesic moisture zones (Price et al. 2012). The mean annual wind speeds are approximately 2 to 6 mph (Giambelluca et al. 2014).

The climate in the Kaheawa Pastures mitgation area is the same as the Project Area, as decribed above.

The daytime temperatures vary within Maui Nui but average from the 70s to 80s degrees Fahrenheit (°F), with nighttime temperatures in the 60s to 70s °F (Giambelluca et al. 2014).

3.3.1.3 Regional Climate Change

The global scientific community is in general agreement that human activities, specifically those resulting in the emission of greenhouse gases, are contributing to a rise in average global temperatures (IPCC 2023). The greenhouse gases associated with human activities that are of greatest concern are carbon dioxide from the combustion of fossil fuels and industrial processes, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Of these six gases, carbon dioxide is the most prevalent.

The State of Hawai‘i is committed to reducing its contribution to global climate change and has taken efforts to measure and reduce statewide greenhouse gas emissions. In 2019, total greenhouse gas emissions in Hawai‘i were 22.01 million metric tons of carbon dioxide equivalent (HDOH CAB 2023b). Emissions from the Energy sector accounted for the largest portion (88.4 percent) of total emissions in Hawai‘i and carbon dioxide was the largest single contributor to statewide greenhouse gas emissions in 2019, accounting for roughly 91.4 percent of total emissions (HDOH CAB 2023b). Hawai‘i’s contribution to carbon dioxide emissions is declining due, in part, to legislation for zero emissions by 2045 (Act 15, Session Laws of Hawai‘i 2018).

Like other small islands, Hawai‘i is vulnerable to global climate change and associated changes in temperature and precipitation, and sea level rise. Records indicate that global surface air temperatures have increased at an average rate of 0.13°F per decade since 1880, with more rapid warming at 0.3°F per decade since 1970 (IPCC 2023). In the Hawaiian Islands, similar rates have been observed with records indicating that air temperatures have increased 0.36 °F per decade since 1975 (Giambelluca et al. 2008). Precipitation is also greatly impacted by global warming. Since 1920, precipitation has decreased across the Hawaiian Islands, with the strongest drying trends occurring over the last 30 years (Frazier et. al. 2016, Frazier & Giambelluca 2017). In Maui, both dry season and wet season precipitation have declined, particularly on the leeward side of the island. Since 1980, there has also been an overall decrease in the frequency of moderate to high-intensity extreme precipitation events and storms (Chu et al. 2010). Future projections of precipitation and storms in the Hawaiian Islands are highly uncertain.

Warming air and ocean temperatures also cause rising sea levels due to melting glaciers and ice sheets and increased heat uptake and thermal expansion of the oceans. The global sea level has risen by 8 inches between 1901 and 2018 (IPCC 2023). In the Hawaiian Islands, extreme sea level rise events (a combination of sea level rise, tides, and storms) have increased in frequency. Models indicate the sea level is expected to rise around Hawai‘i between 0.7 and 1.5 feet by 2050 (PacIOOS 2021) and that

Hawai‘i and other tropical Pacific sites will experience sea level rise that is 16 to 20 percent higher than the global average (Sweet et al. 2022).

3.3.1.4 Impacts from Existing KWP 1 Operations

The KWP 1 facility has had a negligible effect on temperature, rainfall, humidity, or other meteorological parameters. While wind farms can have a small, localized impact on weather patterns[49], the relatively few existing WTGs at Kaheawa are far below the threshold at which such an effect could occur.

KWP 1 operations generate greenhouse gas emissions from certain O&M activities, including carbon dioxide from the operation of gas-powered vehicles and equipment (e.g., employee vehicles traveling to and from the Project Area, equipment for maintenance activities, generators, etc.). These greenhouse gas emissions are negligible, temporary, and except for the vehicles traveling to and from the site, isolated to the Project Area.

The operation of KWP 1 has provided power for a 20-year period that would, presumably, have otherwise be provided by the island's existing fossil fuel-fired generating units. One MWh of wind energy avoids 0.75 tons of carbon dioxide emissions on average (AWEA 2014); therefore, during its 20-years of operation, KWP 1 avoided approximately 60,000 tons of carbon dioxide annually[50], resulting in a net benefit on carbon emissions.

Section 3.2.1.4, *Impacts from Existing KWP 1 Operations* provides more information on air emissions from existing KWP 1 operations.

3.3.1.5 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on climate and climate change, KWP LLC requires operational staff and contractors to take the following measures to avoid or minimize greenhouse gas emissions:

- Limit vehicle speed for all vehicles moving on unpaved access roads to 10 mph.
- Maintain all vehicles and heavy equipment in proper tune according to manufacturer's specifications.
- Keep access roads in good working condition.

[49] Modeling and observations of wind farms have shown: 1) a reduction of wind speeds within the wake of the turbine, creating a localized area of lower wind velocity; and 2) additional turbulence in the air by the wind turbine blades, which can lead to enhanced vertical mixing of air (i.e., warmer air from higher altitudes is mixed downward towards the surface, leading to a warming effect) (Roy et al 2004; Roy & Traiteur 2010). The wake and turbulence created by the turbines may cause local increases in near-surface air temperatures, particularly at night (Roy et al 2004; Roy et al 2010) and modify the evening transition of temperature (i.e., wind farm flow causes a small difference (±30 min) to the transition) (Rajewski et al 2020). While wind farms can influence local weather conditions, their impact on broader weather patterns is considered negligible due to the small area they cover compared to the overall atmospheric dynamics and when compared to the effects of greenhouse gases.

[50] Assumes that in the absence of KWP 1, the approximately 80,000 MWh/yr of electric power produced by KWP 1 would have been produced by fossil fuel combustion.

3.3.2 Potential Impacts and Mitigation Measures

3.3.2.1 Factors Considered in the Impact Analysis

Issues related to climate and climate change that have been identified during the scoping process and that are addressed in this subsection include: 1) greenhouse gas emissions that would be generated by the Proposed Action, 2) the effect of the Proposed Action on local weather and climate conditions, 3) the vulnerability of KWP 1 to changes in climate; and 4) avoidance, minimization, and mitigation measures to reduce greenhouse gas emissions generated by the Proposed Action.

A significant impact on climate or climate change would result if any of the following were to occur as a direct or indirect result of the Proposed Action or No Action Alternative:

- Changes in regional temperature, rainfall, humidity, or other meteorological parameters; or
- Substantial increases in greenhouse gas emissions.

3.3.2.2 Proposed Action

Continued Operations

Continued operation of the KWP 1 facilities would have a negligible effect on climate and climate change. Direct impacts from continued operations would be similar to those described for the existing operations in Section 3.3.1.4, *Impacts from Existing KWP 1 Operations*. The Proposed Action's principal effect on climate and climate change would be through the long-term reduction in greenhouse gas emissions by offsetting electricity that would otherwise be produced by fossil fuel combustion. KWP 1 operations would continue to generate minor greenhouse gas emissions from O&M activities, including carbon dioxide from operation of gas-powered vehicle and equipment. These greenhouse gas emissions are negligible, temporary, and, except for the vehicles traveling to and from the site, would be isolated to the Project Area.

The Proposed Action includes an initial maintenance period where maintenance activities would occur on multiple WTGs at once. During the initial maintenance period, greenhouse gas emissions would increase compared to typical O&M activities. Onsite employment is expected to average 15 workers on a typical maintenance day, which would slightly increase exhaust emissions to and from the Project Area. Site preparation for equipment transport and maintenance activities may involve civil work including recontouring the existing access roads, turbine pads, crane paths, and/or staging areas. These ground disturbing activities would temporarily increase heavy equipment exhaust within the Project Area. Greenhouse gas emissions from the initial maintenance period would be negligible, temporary, and, except for the vehicles traveling to and from the site, isolated to the Project Area.

The continued operation of KWP 1 over an additional 20-year period would result in a long-term reduction in greenhouse gas emissions by offsetting electricity that would otherwise be produced by Maui Electric's existing fossil-fuel-fired power plants or greenfield renewable energy projects. Continued operation of the existing KWP 1 facility would avoid carbon dioxide and other emissions associated with

the creation of a new facility to replace it, even if that facility were renewable energy. Due to the time it takes to develop and permit new renewable energy facilities, it is assumed that if KWP 1 were decommissioned, the power currently generated by the facility would be immediately replaced with power generated by Maui Electric's existing fossil-fuel-fired power plants. Approximately 60,000 tons of carbon dioxide would be avoided each year that clean, renewable energy is produced by KWP 1. The potential offset of carbon dioxide that would be generated by the Proposed Action compared to an oil-burning facility would have a long-term beneficial impact.

Continued operation of KWP 1 would not markedly promote or discourage economic activity or result in population changes that might have secondary climate or climate change impacts.

HCP Compliance

HCP compliance and mitigation activities are expected to have negligible impact on climate and climate change. Mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites would temporarily generate greenhouse emissions from gas-powered equipment used for vegetation management and vehicles traveling to and from the sites. However, the protection and/or restoration of foraging, roosting, and nesting habitats for ʻōpeʻapeʻa and assimulans yellow-faced bee are anticipated to have a net benefit as a carbon sink.

Decommissioning and Restoration

Project decommissioning would generate minor greenhouse gas emissions from vehicles and heavy machinery. Decommissioning is anticipated to generate an average of 40 round trip vehicle trips and 20 round trip truck trips per day on Honoapiʻilani Hwy to transport workers, equipment, and materials to and from the Project Area. Decommissioning activities would also require the use of heavy equipment to remove project components and regrade roads and other previously disturbed areas to preconstruction contours. The types and number of heavy equipment used would depend on the selected contractor. All of the decommissioning-related greenhouse gas emissions would be negligible, temporary and limited to the decommissioning period.

3.3.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 facility would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the greenhouse gas emissions associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential greenhouse gas emissions from decommissioning and restoration activities would be as described in Section 3.3.2.2, *Proposed Action, Decommissioning and Restoration*, but would occur immediately, rather than at the end of the 20-year extended operational period.

Due to the time it takes to develop and permit new renewable energy facilities, it is assumed that if KWP 1 were immediately decommissioned, the power currently generated by the facility would be replaced

with power generated by Maui Electric's existing fossil-fuel-fired power plants. The displacement of greenhouse gas emissions associated with generating power via wind instead of burning fossil fuels would not occur. In the long-term, the construction of a new renewable energy facility would also result in greenhouse gas emissions. Therefore, the No Action Alternative would result in a long-term, moderate, adverse impact on greenhouse gas emissions.

3.3.2.4 Avoidance, Minimization, and Mitigation Measures

Under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.3.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*.

3.3.2.5 Summary of Potential Impacts

The Proposed Action would have a negligible direct impact to greenhouse gas emissions but would provide a moderate, indirect beneficial impact in terms of greenhouse gas emissions by displacing fossil fuel-generated electricity on the island of Maui. Under the No Action Alternative, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The power that would have been generated by the continued operation of KWP 1 would instead be produced by Maui's existing fossil fuel burning power plants or new renewable energy projects resulting in a moderate, long-term, adverse impact to greenhouse gas emissions. Table 3-3 summarizes potential impacts to climate and climate change from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on climate or climate change based on the criteria listed in Section 3.3.2.1, *Factors Considered in the Impact Analysis*.

Table 3-3. Summary of Potential Impacts to Climate and Climate Change

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Changes in Regional Temperature, Rainfall, or Humidity	No Impact	No Impact	No Impact	No Impact
Generation of Greenhouse Gas Emissions	Negligible (short-term) Beneficial (long-term)	Negligible	Negligible (short-term) Moderate (long-term)	Negligible (short-term) Moderate (long-term)

3.4 Geology, Topography, and Soils

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on geology, topography, and soils. Geology describes the structure of the Earth on and beneath its surface and the materials and processes (e.g., landslides, earthquakes, floods, and volcanic eruptions) that shape that structure. Topography refers to an area's surface features including its shape, height, and depth. Soils are unconsolidated surface

materials that form from the weathering of underlying bedrock or other parent material. Soil drainage, texture, strength, shrink and swell potential, and rates of erosion affect the suitability of the ground to support manmade structures and facilities. In combination with other factors (e.g., climate and terrain), these characteristics are also important considerations for soil productivity and suitability for cultivation.

The ROI for geology, topography, and soils is the Project Area, areas immediately surrounding the Project Area, and the HCP mitigation sites. Data used in this analysis comes from U.S. Geological Survey (USGS) peer reviewed studies, U.S. Department of Agriculture (USDA) National Resource Conservation Service (NRCS) soil surveys (NRCS 2023), Soil Survey of the State of Hawai'i (Foote et al. 1972), and the Hawai'i Statewide geographic information system (GIS) Program. Impacts are described qualitatively.

3.4.1 Existing Environment

3.4.1.1 Geology

Project Area

The evolution of Hawaiian volcanoes is characterized by four eruptive stages: preshield, shield, postshield, and rejuvenated (Sherrod et al. 2021).

Maui is a two-volcano island, West Maui volcano in the west and Haleakalā volcano in the east. The Project Area is located on the southwestern slope of the extinct West Maui shield dome volcano on the dry, leeward side of the island of Maui. The West Maui shield dome volcano evolved through shield (1.6 to 2.0 million years old), post-shield (1.5-1.2 million years old), and the rejuvenated stages. While each of the flows was relatively thin, the accumulation during each stage was thousands of feet thick. Nearly a half-million years passed between the post-shield and rejuvenated phases with no evidence of volcanic activity. The rejuvenated stage is represented by only a handful of vents and flows. All the eruptions in the rejuvenated phase were from small cinder cones that grew briefly and then died. Lava flows were extruded from each, but the area covered by lava was generally only a few acres. West Maui's rejuvenated-stage eruptions ended over 385,000 years ago. The great age and limited extent of lava from these late-phase eruptions indicate that even if the volcano is not extinct, it poses little danger to development in West Maui.

The Project Area and vicinity is underlain by basaltic and silicious rocks known as the Wailuku Volcanics (1.3 – 2.0 million years old) and Honolua Volcanics (1.1 – 1.3 million years old), respectively (Stearns and Macdonald 1942). The majority of the KWP 1 facility is underlain by lava flows of the Wailuku Basalt, consisting of tholeiitic basalt of the shield stage (Sherrod et al. 2021) (Figure 3-1). The Wailuku basalts are highly permeable and characterized by swarms of dikes that confine water at higher elevations (Stearns and Gordon 1942). The access road is underlain by lava flows of the Honolua Volcanics, a postshield-stage sequence that contains alkalic lava flows composed of benmoreite and trachyte (Sherrod et al. 2021) (Figure 3-1). The Honolua rocks are relatively less porous and poor conductors of water (Stearns and Gordon 1942). There are no unique geologic features in the Project Area.

HCP Mitigation Sites

The Makamakaʻole mitigation area is located on the northeast slope of the West Maui volcano. It is underlain by postshield, ʻaʻā lava flows of the Honolua Volcanics (1.1 – 1.3 million years old) (Stearns and Macdonald 1942, Sherrod 2021).

The Haleakalā Ranch mitigation area is located on the southern slope of the Haleakalā volcano. It is underlain by postshield lava flows (ʻaʻā and pahoehoe) of the Kula Volcanics (140,000 to 780,000 years old) (Stearns and Macdonald 1942, Sherrod 2021).

Molokaʻi is built by lava flows assigned to two major volcanoes, East Molokaʻi and West Molokaʻi. The Puʻu o Hōkū mitigation area is underlain by postshield, ʻaʻā lava flows in the upper member of the East Molokaʻi Volcanics (1.3 – 1.5 million years old) (Stearns and Macdonald 1942, Sherrod 2021).

Lānaʻi is a one-volcano island, built up by shield stage volcanic rocks. The Pūlama Lānaʻi mitigation area is underlain by lava flows (lesser ʻaʻā and pahoehoe) of the Lānaʻi Basalt stratigraphic unit (1.25 – 1.51 million years old) (Stearns and Macdonald 1942, Sherrod 2021).

The geology of the Kaheawa Pastures mitgation area is the same as the Project Area, as decribed above.

3.4.1.2 Topography

Project Area

The Project Area is located along Hanaʻula Ridge, a narrow band of land running mauka to makai between Papalaua Gulch to the west and Manawainui Gulch to the east. The terrain within the Project Area slopes downward, an average of 8 percent, toward the coastline (WSB-Hawaii 1999). The KWP 1 WTGs and auxiliary facilities are positioned at elevations between approximately 2,000 and 3,200 feet whereas the staging area/parking lot is located at approximately 100 feet (USGS 2025a).

Notable topographic features in the vicinity of the Project Area are Kealaloloa Ridge and two dome-shaped hills, or puʻu, located to the east (Puʻuanu and Puʻumoe), Puʻuluau and Pōhakuloa to the south, and the gulches and ridges of West Maui Forest Reserve to the west (Figure 3-2). The Cultural Impact Assessment (CIA) developed for the Proposed Action (ASM 2025; Appendix C) identifies the exposed red soil along Hanaʻula Ridge, where the KWP 1 facility is located, as a culturally significant landform. Impacts to this landform is discussed in Section 3.10, *Cultural and Archaeological Resources*.

HCP Mitigation Sites

The Makamakaʻole mitigation area is located on the slopes of the West Maui Mountains at elevations ranging from 1,400 feet to 1,100 feet (USGS 2025a).

The Haleakalā Ranch mitigation area is located on a ridge of the Haleakalā volcano between Manawainui Gulch to the west and Poopoo Gulch to the east; elevations range from 2,900 feet to 2,700 feet (USGS 2025a).

The Pu‘u o Hōkū mitigation area is located on flat lands just east of Hālawa at elevations ranging from 400 feet to 300 feet (USGS 2025a).

The Pūlama Lāna‘i mitigation area is located on the slopes of Pu‘uali‘i at elevations ranging from 2,800 feet to 1,900 feet (USGS 2025a).

The topography of the Kaheawa Pastures mitgation area is the same as the Project Area, as decribed above.

3.4.1.3 Soils

Project Area

Soils in the Project Area are derived from the volcanic history of the island and subsequent erosional processes. According to the USDA NRCS Web Soil Survey [NRCS 2023], there are five soil associations in the area of the Proposed Action facilities: Naiwa silty clay loam, 13 to 45 percent slopes (50.5 percent of the Project Area); Olelo silty clay, 15 to 50 percent slopes (13.2 percent); Oli medial silt loam, 13 to 45 percent slopes (23.3 percent), rock land and rock outcrop (2.5 percent), and rough broken and stony land (10.3 percent) (Figure 3-3).

According to the Soil Survey of the State of Hawai‘i (Foote et al. 1972), these soil types are generally not suited to mechanized production of common field crops without special management; hence their agricultural usefulness is largely limited to pasture and wildlife habitat. In addition, the lands in the Project Area exhibit properties such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, and drought that exclude them from being classified by the NRCS as prime or unique agricultural land. Table 3-4 details the type, slope, permeability, rate of runoff, erosion hazard, and land uses of soils in the Project Area.

Table 3-4. Characteristics of Soil Types within the Project Area

Soil Type	Slope %	Permeability	Runoff	Erosion Hazard	Land Uses	% of Project Area
Naiwa silty clay loam	13-45	Moderately rapid	Medium	Moderate to severe	Pasture, woodland, and wildlife habitat	50.5
Olelo silty clay lome	15-50	Moderately rapid	Slow	Slight	Pasture and woodland	13.2
Oli medial silt lome	13-45	Moderately rapid	Medium	Moderate to severe	Pasture and wildlife habitat	23.3
Rock land and rock outcrop	N/A	N/A	N/A	N/A	Pasture, wildlife habitat, water supply, recreation	2.5
Rough broken and stony land	N/A	N/A	Rapid	Active geologic erosion	Pasture, wildlife habitat, watershed	10.3
Source: Foote et al. 1972.						

HCP Mitigation Sites

The soils within the Makamakaʻole mitigation area are characterized as: rough broken land, rough mountainous land, and Honolua silty clay, 15 to 25 percent slopes. These soils are generally well drained with high to very high runoff (NRCS 2023).

The soil within the Haleakalā Ranch mitigation area is Puu Pa very stony medial silt loam, 15 to 50 percent slopes, which is characterized as well drained, with medium runoff (NRCS 2023).

The soil within the Puʻu o Hōkū mitigation area is Halawa silty clay, 3 to 25 percent slopes. Halawa soils are characterized as well drained, with medium runoff. The small portion of area along the southern boundary is characterized as rough broken land (NRCS 2023).

The majority of the soils within the Pūlama Lānaʻi mitigation area are characterized as rough mountainous land. Soils along the north boundary are Kahanui silty clay, 3 to 20 percent slopes and along the southwest boundary are rough broken land. These soils are generally well drained with high to very high runoff (NRCS 2023).

The soil within the Kaheawa Pastures mitgation area would be the same or simular to the Project Area, as decribed above.

3.4.1.4 Impacts from Existing KWP 1 Operations

Geology, topography, and soils within the Project Area have been disturbed from previous land uses including the construction and operation of the existing KWP 1 facility. During construction, vegetation was cleared and the upper layer of soil was removed to grade and excavate the site for tower foundations, the O&M facility, and the KWP 1 substation. The Kaheawa access road was widen and secondary access roads constructed to support KWP 1 construction and operations. Subsequently, as part of KWP 2 construction, a second substation and a BESS building was constructed within the KWP 1 Project Area. The total impervious (concrete) and semi-impervious (aggregate) surfaces within the Project Area are approximately 1.5 acres and 33.5 acres, respectively[51]. Drainage was designed and constructed to control erosion, prevent damage to downstream properties and have waters flow to the natural drainage course in a manner which minimizes sedimentation or other pollution to the maximum extent practicable. In addition, O&M of the KWP 1 facility causes minor soil disturbance from limited ground disturbance, vehicle traffic, and altered stormwater flows around site structures. As described in Section 3.4.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*, the applicant implements BMPs to control erosion and prevent damage and sedimentation to downstream areas.

There have been no geologic hazards such as major earthquakes or landslides in the Project Area since KWP 1 began operations (KWP LLC, personal communication, April 17, 2025). An Emergency Response

[51] Impervious (concrete) surfaces include the turbine pedestals (1.2 acres), O&M building (0.1 acres), warehouse (0.15 acres) and substations (0.05 acres). The semi-impervious (aggregate) surfaces include the turbine pads (14 acres), primary and secondary access roads (17 acres), O&M, warehouse, and substation yards (1.5 acres), and laydown area (1 acre).

Plan (Brookfield 2022) is implemented in the event of an emergency to protect human health and safety. KWP 1 operators also implement a SPCC Plan (WSP 2023) to ensure proper storage of hazardous material and implement BMPs to prevent spills and contamination of soils (See Section 3.7, *Hazardous and Regulated Materials and Wastes*).

Previous land uses including livestock grazing, fires, the construction and operation of the existing KWP 1 facility may have introduced invasive species into the Project Area. Staff and vehicles may also carry pathogens and invasive species into the Project Area during normal O&M activities. However, foot and vehicle traffic are very limited (typically seven people per day) and maintenance activities typically take place within previously disturbed areas. Additionally, KWP 1 operators minimize the movement of plant and soil materials to, from, and within the Project Area to prevent the spread of pathogens and invasive species. However, it should be noted that KWP 1 shares access to the Project Area with users such as the State of Hawai'i, the County of Maui, Hawaiian Electric, and does not have control over their protocols or actions. More information on invasive species is provided in Section 3.8, *Vegetation*.

Overall, the construction and operation of KWP 1 has likely had a negligible to minor impact on geology, topography, and soils within the ROI.

3.4.1.5 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on geology, topography, and soils, KWP LLC requires operational staff and contractors to take the following measures:

- Maintain permanent erosion control measures through landscaping and stabilizing all disturbed areas not subject to re-vegetation with gravel.
- Regularly manage vegetation around turbines and access roads to maintain soil stability and prevent erosion.
- Minimize the extent of disturbed area where possible.
- Minimize wind erosion through common dust suppression techniques (See Section 3.2, *Air Quality*).
- Keep access roads in good working condition.
- Maintain onsite drainage features (e.g., culverts, swales, and drainage ditches) to control erosion, prevent damage to downstream properties and have waters follow to the natural drainage course in a manner which minimizes sedimentation or other pollution to the maximum extent practicable.
- Implement an Emergency Response Plan (Brookfield 2022) in the event of a geologic hazard to protect human health and safety.
- Implement a SPCC Plan (WSP 2023) to ensure proper use and storage of hazardous material and implementation of BMPs to prevent spills and contamination of soils (See Section 3.7, *Hazardous and Regulated Materials and Wastes*).

- Minimize the movement of plant or soil material between worksites to prevent the spread of detrimental pathogens and invasive species.
- Implement BMPs to minimize the introduction and spread of pathogens and invasive species (See Section 3.8, *Vegetation*).

3.4.2 Potential Impacts and Mitigation Measures

3.4.2.1 Factors Considered in the Impact Analysis

Issues related to geology, topography, and soils that have been identified during the scoping process for this Project and addressed in this subsection include: 1) erosion or soil disturbance that would be generated by Proposed Action, 2) potential damage or restriction of access to unique geologic or topographic features, 3) potential of the Proposed Action to increase exposure of people or structures to geologic hazards, 4) potential of the Proposed Action to introduce or spread pathogens or invasive species, and 5) avoidance, minimization, and mitigation measures to reduce impacts to geology, topography, and soils generated by the Proposed Action.

This analysis also considers public comments submitted during the KWP 1 Continued Use scoping phase. In a letter to the Applicant, the DOFAW recommended minimizing the movement of plant or soil material between worksites to prevent the spread of detrimental pathogens and invasive species. DOFAW also recommended that BMPs are employed at all times during operation in efforts to contain any soils and sediment with the purpose of preventing damage to near-shore waters and marine ecosystems (Appendix B). These suggestions were integrated into the Proposed Action and included in the analysis below.

Direct and indirect factors considered in determining whether the Proposed Action or No Action Alternative would have a significant impact on geology, topography, and soils include the extent to which the alternative would:

- Increase the probability or magnitude of mass soil movement through erosion or slope failure;
- Increase soil loss due to disturbance causing the formation of rills or gullies, and deposition of sediment in down-gradient areas or water bodies;
- Damage or prevent access to unique geologic or topographic features;
- Increase exposure of people or structures to geologic hazards; or
- Cause the introduction or spread of pathogens or invasive species.

3.4.2.2 Proposed Action

Continued Operations

Because the Proposed Action would utilize the existing turbines and auxiliary facilities, short and long-term impacts to topography and soils are expected to be negligible to minor. The Proposed Action would

result in small increase in the amount of new semi-pervious surfaces (i.e. aggregate) in the Project Area, primarily from recontouring and resurfacing the gravel WTG pads, crane pads, and access roads. No new impervious surfaces (i.e. concrete) are anticipated.

Most ground disturbance would take place within the initial maintenance period in which multiple WTG components would be inspected, repaired and/or replaced. Civil work including recontouring the existing access roads, turbine pads, crane paths, and/or staging areas may be required to prepare the site for equipment transport and maintenance activities. These ground disturbing activities would occur entirely within areas previously disturbed during the initial construction of the KWP 1 facility. The full extent of the potential LOD is shown in Figure 2-1. Within the LOD, approximately 35 acres (60 percent) are impervious and semi-impervious surfaces (e.g., buildings, turbine pads, and gravel laydown areas and roadway) and 23 acres (40 percent) is vegetated / pervious surfaces. If necessary, KWP 1 would obtain a NPDES permit and develop and implement an ESCP and SWPPP setting forth ground disturbance limits and BMPs prior to the initial maintenance activities.

There would be some continued risk of erosion during KWP 1 operations resulting from the limited ground disturbance as well as changes in stormwater runoff around new semi-pervious surfaces and existing structures. In general, BMPs are and would continue be implemented to reduce soil loss and erosion. Temporary erosion and sedimentation controls would be used during any ground disturbance and disturbed areas would be permanently stabilized or revegetated upon completion. Therefore, disturbance to soil and increases in erosion and sedimentation would be minor during KWP 1's 20-year additional operational period.

As noted above, there are no unique geologic features identified within the Project Area. The continued operation of KWP 1 is not anticipated to alter the natural topography through soil erosion or mass soil movement nor would it alter the major topographic features named in Section 3.4.1.2, *Topography*. Therefore, O&M of the KWP 1 facility would have no impact on these resources.

Geologic hazards are adverse geologic conditions capable of causing damage or loss of property or life and include earthquakes, landslides, and volcanic eruptions. Section 3.6, *Natural Hazards* discusses geologic hazards in more detail, but potential impacts are summarized here. The KWP 1 WTGs and auxiliary facilities were designed and constructed in accordance with the seismic building standards for Maui. Structural analyses conducted by the manufacturer suggest that the WTGs are capable of withstanding seismic forces well above those that the standards are intended to protect against (Planning Solutions 2010). Landslides and mass soil movement are possible within the Project Area but would be caused by natural conditions rather than KWP 1 operations. Volcanic eruptions are highly unlikely within the Project Area. In the event of an earthquake or landslide, KWP 1 operators would cease operations and implement emergency response procedures to protect human health and safety (Brookfield 2022). Therefore, continued operation of KWP 1 would not increase the exposure of people or structures to geologic hazards.

In addition, BMPs are implemented to prevent the spread of pathogens and invasive species through soils and would continue over KWP 1's lifespan. See Section 3.8, *Vegetation* for additional information. As such, long-term impacts to invasive species in the Project Area would be minor.

HCP Compliance

The HCP compliance and mitigation activities in the Proposed HCP are expected to have negligible to minor impact on geology, topography and soil within the ROI.

KWP 1 conducts vegetation management within the Project Area to enhance fatality monitoring efficiency. Vegetation management would continue to be conducted in a manner that minimizes impacts on native plants and does not compromise soil stability. Invasive species protocols are followed during HCP compliance and mitigation activities.

Offsite mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites may require limited ground disturbance at the respective mitigation sites and may temporarily increase the risk of soil loss, erosion, and sedimentation of surface waters. In the long term, the protection and/or restoration of foraging, roosting, and nesting habitats for ʻōpeʻapeʻa and assimulans yellow-faced bee could have the benefit of stabilizing soil and reducing risk of erosion.

Overall, the measures implemented in the Proposed HCP are designed to achieve conservation goals while minimizing adverse effects on soils and chances of erosion. These measures are not likely to damage or prevent access to unique geologic features or cause the introduction or spread of pathogens and invasive species. Based on this analysis, the avoidance, minimization, and mitigation measures proposed under the Proposed HCP are anticipated to have a negligible impact on geology, topography, and soils.

Decommissioning and Restoration

Decommissioning activities are expected to have short- and long-term, minor impacts on geology, topography and soils, from the dismantling and removal of the WTG, pads, and auxiliary structures, regrading to preconstruction contours (where feasible), and the movement of heavy equipment and vehicles used to dismantle and transport infrastructure.

In the short-term, dismantling and removal of KWP 1 structures, grading and re-contouring efforts would expose bare soil, making it susceptible to erosion by wind and water, and temporarily change onsite drainage and stormwater runoff patterns. Excavation and movement of heavy machinery during these activities would cause soil disturbance and compaction, which affects the soil's structure, porosity, and drainage. Excavated foundations would be filled with aggregate and soils, primarily sourced from within the Project Area. If needed, native weed-free aggregate and soils would be sourced from offsite and transported to the Project Area. Ground disturbing activities would occur within the 58-acre LOD (see Figure 2-1).

To minimize potential impacts, KWP 1 operators would develop an ESCP and SWPPP and apply for a NPDES permit. The ESCP and SWPPP would include procedures to phase decommissioning and reduce the amount of disturbed area at any given time, measures to temporarily stabilize disturbed areas and capture sediment that is transported in runoff, and plans to permanently stabilize and revegetate disturbed areas. With implementation of a site-specific ESCP and SWPPP, decommissioning activities are anticipated to have a temporary, minor impact on soil erosion and increase sedimentation in down-gradient areas or water bodies.

Following the dismantling and removal of KWP 1 infrastructure, restoration activities would take place to return the Project Area to preconstruction conditions to the extent practicable. Restoration actions include recontouring, soil decompaction, erosion control, seed bank topsoil replacement, seeding, and installing signage and fencing. These reclamation activities would have a long-term, beneficial impact on soils, as they primarily focus on stabilizing and reclaiming disturbed areas to facilitate the reestablishment of vegetation. In addition, restoring the Project Area to its original conditions prevents significant damage or change to the geology and topography of the Project Area.

3.4.2.3 No Action Alternative

Under the No Action Alternative, KWP 1 would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential impacts to geology, topography, and soil from decommissioning and restoration activities would be as described above, but would occur immediately, rather than at the end of the 20-year extended operational period. Decommissioning activities would cause soil disturbance from removal of the WTG, pads, and auxiliary structures, increased vehicular traffic, and the movement of heavy equipment and vehicles used to dismantle and transport infrastructure. Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions.

3.4.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on geology, topography, and soils under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.4.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, the applicant would implement the following additional measures to avoid or minimize potential impacts from the Proposed Action and No Action Alternative:

- Prior to the maintenance and decommissioning and restoration periods, develop an ESCP and SWPPP and apply for an NPDES permit (as needed).
- Stage maintenance and decommissioning activities to minimize the amount of disturbed area at any given time.

- During the maintenance and decommissioning and restoration periods, stabilize all disturbed areas with temporary erosion control measures that may include:
    - locating potential nonpoint pollutant sources away from steep slopes, water bodies, and critical areas;
    - protecting and retaining natural vegetation;
    - stockpiling topsoil, covering the stockpile to prevent dust, and reapplying the topsoil;
    - covering or stabilizing all soil stockpiles;
    - using wind erosion control;
    - intercepting runoff above disturbed slopes and conveying it to a permanent channel or storm drain;
    - constructing benches, terraces, or ditches at regular intervals to intercept runoff on long or steep disturbed or man-made slopes;
    - providing linings or other method to prevent erosion of storm water conveyance channels;
    - using check dams where needed to slow flow velocities;
    - using seeding and fertilizing, mulching, sodding, matting, blankets, bonded fiber matrices, or other effective soil erosion control technique; and
    - providing vehicle wheel wash facilities for vehicles before they leave the Project Area.
- During the maintenance and decommissioning and restoration periods, capture sediment that is transported in runoff to minimize the sediment from leaving the Project Area. Sediment control measures may include sediment basins; sediment traps; filter fabric silt fences; straw bale, sandbag, or gravel bag barriers; inlet protection; stabilized construction entrances, and other measures to minimize offsite tracking of sediment by construction vehicles; and vegetated filter strips.
- Commence reclamation as soon as practicable following equipment removal, ideally before the next growing season following the completion of ground-disturbing activities, to minimize the spread and establishment of invasive weed species in affected areas.
- Implement permanent erosion control measures, which may include: recontouring, soil decompaction, designing final onsite drainage to control erosion and minimizes sedimentation, topsoil replacement, seeding, and signage and fencing to minimize further human disturbance in these recovering zones.
- Implement any additional control measures set forth in the ESPC and SWPPP.

3.4.2.5 Summary of Potential Impacts

The Proposed Action has the potential for negligible to minor impacts to geology, topography, and soils, so long as avoidance, minimization, and mitigation measures continue to be implemented. If the No Action Alternative is taken, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The KWP 1 facility would cease operation and be decommissioned, which would lead to immediate minor impacts to geology, topography, and soil. Table 3-5 summarizes potential impacts to soils from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on geology, topography, or soils based on the criteria listed in Section 3.4.2.1, *Factors Considered in the Impact Analysis*.

Table 3-5. Summary of Potential Impacts to Geology, Topography, and Soils

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Soil movement or erosion	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)
Increase sedimentation in down-gradient areas or water bodies	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)
Damage to unique geologic or topographic features	No Impact	No Impact	No Impact	No Impact
Exposure to geologic hazards	Negligible	Negligible	Negligible	Negligible

3.5 Water Resources

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on groundwater, surface water, and marine waters. Groundwater refers to subsurface hydrologic resources, such as water occurring in subsurface geological formations like aquifers. Surface water features include lakes, rivers, streams, and wetlands. Marine waters include seas and oceans. The ROI for water resources is the Project Area, the area immediately surrounding (and particularly downstream of) the Project Area, and the HCP mitigation sites.

Data used in this analysis comes from USGS, USFWS, the State of Hawai‘i Commission on Water Resource Management (CWRM), HDOH, and the Hawai‘i State Office of Planning. Impacts are described qualitatively.

3.5.1 Existing Environment

3.5.1.1 Regulatory Framework

Hawai‘i State Water Quality Standards

The State of Hawai‘i’s water quality standards can be found in HAR 11-54. All activities in the state must comply with HAR 11-54, including the Antidegradation Policy (HAR § 11-54-1.1); designated uses as determined by the classification of the receiving state waters (HAR § 11-54-3); and Water Quality Criteria (HAR § 11-54-4 through HAR § 11-54-8).

The State of Hawai‘i's water antidegradation policy (HAR § 11-54-1.1) states that existing water quality levels and uses must be maintained and protected, with a focus on preserving high-quality waters and ensuring any degradation is minimized to protect current uses; essentially, preventing any decline in water quality from its current state.

HAR § 11-54-3 classifies water uses for inland and marine waters. These classifications determine the designated uses for the waters and the quality parameters that protect them. Inland waters are designated as Class 1 or Class 2 and Marine waters as Class AA or Class A. Class 1/Class AA designated uses refer to waters intended to remain in their most natural state, with the highest level of protection, while Class 2/Class A waters are generally intended for a wider range of activities and allow for some level of human impact, as long as these impacts do not degrade the aquatic ecosystem or its inhabitants. Both classifications restrict discharges and require the highest level of treatment for any permitted discharges.

Water Quality Criteria are listed in HAR § 11-54-4 through HAR § 11-54-8. The general water quality criteria states:

> ***§ 11-54-4 Basic water quality criteria applicable to all waters.***
>
> *(a) All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including:*
>
> *(1) Materials that will settle to form objectionable sludge or bottom deposits;*
>
> *(2) Floating debris, oil, grease, scum, or other floating materials;*
>
> *(3) Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity, or other conditions in the receiving waters;*
>
> *(4) High or low temperatures, biocides, pathogenic organisms, toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water;*

(5) Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life; and

(6) 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.

Rivers and Harbors Act (Section 10) and Clean Water Act (Section 404)

The U.S. Army Corps of Engineers (USACE) regulates navigable waters and Waters of the U.S. (WOTUS) pursuant to both Section 10 of the Rivers and Harbors Act (RHA) of 1899 and Section 404 of the Clean Water Act (CWA) of 1972. Section 10 of the RHA requires approval from the USACE for any work in, over, or under navigable waters of the United States. Section 404 of the CWA requires USACE authorization for discharge of dredged or fill materials into WOTUS. Waters subject to Section 404 jurisdiction include traditional navigable waters, territorial seas, and certain wetlands, tributaries, and other waters as outlined by the 2023 "Revised Definition of 'Waters of the United States'" and the "Conforming Rule" (EPA 2024b). USACE authorizes activities subject to both Section 10 of the RHA and Section 404 of the CWA through Individual Permits or General Permits, depending on the type of activity and level of impact.

Clean Water Act (Section 401 and 402)

Sections 401 and 402 of the CWA require permits for actions that involve wastewater discharge or discharge of dredged or fill material into certain waters. The EPA has delegated responsibility for implementing these sections of the CWA to the states. HDOH Clean Water Branch is responsible for issuing or denying Section 401 Water Quality Certifications if the action may result in a discharge of a pollutant into state waters. Section 402 of the CWA established the NPDES program. The purpose of the NPDES program is to implement federal and state water pollution control requirements to help protect human health and the environment. As specified in HAR § 11-55-04, an NPDES permit is required before discharging any pollutant or beginning construction activities that would disturb a total of one or more acres of land.

3.5.1.2 Groundwater

Project Area

Groundwater resources in Hawai'i have been delineated into a series of hydrologic units. The Project Area is primarily within the boundaries of the Ukumehame aquifer system (aquifer code 60206, as designated by the CWRM) (Figure 3-4). The upper portion of the Ukumehame aquifer system is a high level (i.e., freshwater not in contact with sea water), unconfined, dike aquifer. It contains freshwater (salinity < 250 milligrams of chloride ions per liter [mg/l Cl-]) that is currently used for drinking water and has a high vulnerability to contamination (HDOH 2024). The lower portion the Ukumehame aquifer is a basal (i.e., freshwater in contact with sea water), unconfined, dike aquifer. It has low salinity (250 – 1,000 mg/l Cl-), can potentially be used as drinking water (but is not currently) and also has a high vulnerability

to contamination (HDOH 2024). The Ukumehame aquifer system is located in the Lāhainā Aquifer Sector, which since 2022 has been designated by CWRM as a Groundwater Management Area (CWRM 2022). The Lāhainā aquifer water budget is reliant on rain and fog for about 96 percent of groundwater recharge, with the remainder from irrigation and other activities. Outflow is comprised of runoff and evapotranspiration (County of Maui 2019).

The access road is within the Waikapū aquifer system (aquifer code 60101, as designated by CWRM) (HDOH 2024). The upper Waikapū aquifer system is a high level, unconfined, dike aquifer. The groundwater within this aquifer system is fresh and is designated as having potential use as drinking water and high vulnerability to contamination. The lower Waikapū aquifer system is a basal, unconfined, flank aquifer. It has low salinity (250 – 1,000 mg/l Cl-), has the potential to be use as drinking water, and has a high vulnerability to contamination (HDOH 2024). The Waikapū aquifer system is located in the Wailuku Aquifer Sector (HDOH 2024). Groundwater recharge for the Waikapū Aquifer Sector comes from rain, fog, irrigation, and streamflow infiltration. Outflow is comprised of runoff, evapotranspiration, and groundwater withdrawals from pumped wells (Gingerich 2008).

The Underground Injection Control (UIC) line is the designated boundary that divides protected inland areas situated over drinking water sources from seaward areas located over non-potable water sources (HDOH 2023). The majority of the Project Area, including the WTGs, substation, and ancillary facilities are located mauka of the UIC line. The lower portion of the Kaheawa Pastures access road and the staging /parking area are makai of the UIC line. There are no groundwater wells associated with the KWP 1 operations within the Project Area.

Groundwater recharge and quality is largely affected by surface conditions. Surface soils in the ROI consist of very deep to moderately deep, well-drained soils and exposed rock and stony land as detailed in Section 3.4, *Geology, Topography, and Soils*. These soils, as well as the limited amount of impervious and semi-impervious surfaces within the Project Area, allow for precipitation to infiltrate into the groundwater system.

There are few potential sources of groundwater pollutants in the Project Area. Wastewater is managed through an onsite septic system. Non-potable water for the O&M building is supplied by a rain catchment system or, when the catchment system does not provide sufficient water, purchased and delivered to the site by a third-party vendor. Drinking water is trucked to the site for O&M personnel needs. A site-specific SPCC Plan (WSP 2023) includes measures for the safe transport, handling, and storage of hazardous materials within the Project Area. There have been no documented Occupational Safety and Health Administration (OSHA) recordables, including major spills or releases (See Section 3.7, *Hazardous and Regulated Materials and Wastes*). Therefore, existing KWP 1 operations have had a negligible impact on groundwater.

HCP Mitigation Sites

The Makamakaʻole mitigation area on West Maui is located within the Waiheʻe aquifer system (aquifer code 60103, as designated by CWRM). The upper Waiheʻe aquifer system is a high level, unconfined, perched (aquifer on impermeable layer) aquifer. The groundwater within this aquifer system is fresh (<

250 mg/l Cl-) and is designated as drinking water with high vulnerability to contamination. The lower Waiheʻe aquifer system is a high level, unconfined, dike aquifer. It is fresh, has the potential to be used as drinking water, and has a high vulnerability to contamination (HDOH 2024).

The Haleakalā Ranch mitigation area on East Maui is located with the Nakuula aquifer system (aquifer code 60602, as designated by CWRM). The upper Nakuula aquifer system is a high level, unconfined, perched aquifer. The groundwater within this aquifer system is fresh (< 250 mg/l Cl-), has the potential to be used as drinking water, and has a high vulnerability to contamination. The lower Nakuula aquifer system is a basal, unconfined, flank aquifer. It has low salinity (250 – 1,000 mg/l Cl-), the potential to be used as drinking water, and has a moderate vulnerability to contamination potential (HDOH 2024).

The Puʻu o Hōkū mitigation area on Molokaʻi is located within the Waialua aquifer system (aquifer code 40304, as designated by CWRM). The Waialua aquifer system is a basal, unconfined, flank aquifer. The groundwater within this aquifer system is currently used and is fresh (< 250 mg/l Cl-), drinking water, and has a high vulnerability to contamination (HDOH 2024).

The Pūlama Lānaʻi mitigation area on Lānaʻi is located with the Leeward aquifer system (aquifer code 50102, as designated by CWRM). The Leeward aquifer system is a high level, unconfined, dike aquifer. The groundwater within this aquifer system is fresh (< 250 mg/l Cl-) and is designated as drinking water with a high vulnerability to contamination (HDOH 2024).

The Makamakaʻole, Haleakalā Ranch, and Pūlama Lānaʻi mitigation areas are all located mauka of the UIC. The Puʻu o Hōkū mitigation area is makai of the UIC.

The groundwater resources underlying the Kaheawa Pastures mitgation area is the same as the Project Area, as decribed above.

3.5.1.3 Surface Water

Project Area

The Project Area is primarily within the Pāpalaua watershed, and the access road is within the Pōhākea watershed (CWRM 2008). There are no perennial streams or wetlands within the Project Area. Two non-perennial streams intersect portions of the Project's access road—Malalowaiaʻole Gulch and an unnamed stream. Several additional non-perennial streams (Kaalaina Gulch, Makahuna Gulch, Mokumana Gulch) occur to the south and west of the Project Area. The locations of these streams according to the National Hydrography Dataset (NHD) (USGS 2022) and National Wetlands Inventory (NWI) data (USFWS 2025) are shown in Figure 3-5. Malalowaiaʻole Gulch parallels a portion of the Project's access road (east of the access road) and passes under the access road near the road's entry point off Honoapiʻilani Highway. According to the Pōhākea Watershed Plan (MEC and Central Maui SWCD 2023), Malalowaiaʻole Gulch only flows ephemerally, or during stormwater events, discharges into coastal waters east of McGregor Point beyond the highway. An unnamed stream in Manawainui Gulch originates northeast of the Project Area, parallels a portion of its eastern boundary and passes under the Project's access road, and continues southwest to Honoapiʻilani Highway before connecting to the Pacific

Ocean. NHD characterizes both streams within the Project Area as intermittent (USGS 2022), and NWI classifies them as riverine, intermittent, seasonally flooded (USFWS 2025). In 2004, the USACE provided confirmation that there were no WOTUS within the Project Area, including the access roads (Young, November 8, 2004 as cited in Planning Solutions 2010). The CWRM also determined that Manawainui Gulch does not have sufficient water to support instream uses and is therefore not considered a stream and, consequently, is not subject to CWRM regulation (CWRM, October 27, 2004 as cited in Planning Solutions 2010). Inland waters within the Project Area (i.e., Malalowaiaʻole Gulch and the unnamed gulch) are largely classified as Class 2 by the HDOH (HDOH 2015a) with a small portion of the Project Area near WTG 6 is designated as Class 1 inland waters by HDOH.

As described above, the existing KWP 1 facility includes impervious and semi-impervious surfaces, which contributes to a minor increase in stormwater runoff. The total impervious (concrete) and semi-impervious (aggregate) surfaces within the Project Area are approximately 1.5 acres and 33.5 acres, respectively. The impervious and semi-impervious surfaces are widely scattered and stormwater runoff from them is not concentrated and flows onto adjacent permeable areas with sufficient infiltration. Runoff from the turbine pads, access roads, and other auxiliary structures discharge over land into drainage features (i.e., ditches or swales) that divert runoff into the numerous small, unnamed dry gulches developed by the natural contours of the surrounding land. Runoff flows downstream through its natural drainage course and eventually discharges into the Pacific Ocean.

The KWP 1 facility employs stormwater BMPs and vegetation management to minimize erosion and sedimentation (See Section 3.5.1.5*, Existing Avoidance, Minimization, and Mitigation Measures*). The Applicant adheres to the site-specific SPCC Plan (WSP 2023) and has had no reportable OSHA releases including spills or discharges into surface waters (KWP LLC, personal communication, April 17, 2025). Existing KWP 1 operations have and continue to be in compliance with the federal CWA and Hawaiʻi water quality standards, including the Antidegradation Policy (HAR § 11-54-1.1); designated uses as determined by the classification of the receiving state waters (HAR § 11-54-3); and Water Quality Criteria (HAR § 11-54-4 through HAR § 11-54-8).

HCP Mitigation Sites

According to NHD (USGS 2022) and NWI data (USFWS 2025), there are no streams, wetlands, or other surface waters within the Makamakaʻole, Haleakalā Ranch, and Puʻu o Hōkū mitigation sites.

At the Pūlama Lānaʻi mitigation area, four branches of Kapohaku Gulch cross through the area. Kapohaku Gulch is considered non-perennial by DLNR Division of Aquatic Resources (DAR) (DAR 2008), and intermittent by NHD and NWI (USGS 2023, USFWS 2025). Inland waters within the Pūlama Lānaʻi mitigation area are largely classified as Class 2 by the HDOH with a small portion at the southern end of the mitigation area designated as Class 1 inland waters by HDOH (HDOH 2015a).

The surface waters within the Kaheawa Pastures mitgation area would be the same or siumlar to the Project Area, as decribed above.

3.5.1.4 Marine Waters

Project Area

The Project Area is approximately 200 feet from the shoreline of the Pacific Ocean at its lowest elevation at the Project's entry point near McGregor Point and is approximately four miles from the shoreline at its uppermost elevation. Near shore marine waters off the coast outside the Project Area near McGregor Point are classified as Class "A" by the HDOH (HDOH 2015b). According to HAR § 11-54-3, "it is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters".

HCP Mitigations Sites

The Makamakaʻole, Haleakalā Ranch, and Pūlama Lānaʻi mitigation sites are located between 1.7 to 4.5 miles from the shoreline. The closest marine waters to these mitigation sites are designated Class "AA" by the HDOH, which are intended to remain in their most natural state, with the highest level of protection (HDOH 2015b).

The Puʻu o Hōkū mitigation area is approximately 0.25 miles from the shoreline. Nearshore marine waters adjacent to this mitigation site are designated Class "A" by the HDOH (HDOH 2015b).

The Kaheawa Pastures mitgation area would be located over 1 mile from the shoreline of the Pacific Ocean. Nearshore marine waters adjacent to this mitigation site are designated Class "A" by the HDOH (HDOH 2015b).

3.5.1.5 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effects on surface and groundwater resources, operational staff and contractors adhere to the following mitigation measures for the existing KWP 1 facility:

- Minimize wind erosion through common dust suppression techniques (See Section 3.2, *Air Quality*).
- Implement BMPs to maintain soil stability and prevent erosion and sedimentation (See Section 3.4, *Geology, Topography, and Soils*).
- Maintain onsite drainage features (e.g., culverts, swales, and drainage ditches) to control erosion, prevent damage to downstream properties, and have waters follow to the natural drainage course in a manner that minimizes sedimentation or other pollution to the maximum extent practicable.
- Follow protocols laid out in the SPCC Plan (WSP 2023), which includes measures for the safe transport, handling, and storage of hazardous materials (See Section 3.7, *Hazardous and Regulated Materials and Wastes*).

3.5.2 Potential Impacts and Mitigation Measures

3.5.2.1 Factors Considered in the Impact Analysis

Issues related to surface and groundwater resources that have been identified during the scoping process for the Proposed Action and addressed in this subsection include: 1) direct impacts to water resources including groundwater and surface water quality and quantity, 2) impacts of soil erosion and sedimentation on downstream water resources and nearshore marine waters, 3) significant alterations to stormwater drainage and permeability; and 4) avoidance, minimization, and mitigation measures to reduce impacts to water resources generated by the Proposed Action and No Action Alternative.

This analysis also considers public comments submitted during the KWP 1 Continued Use scoping phase. In a letter to KWP LLC, DOFAW recommended that BMPs are employed at all times during operation in efforts to contain any soils and sediment with the purpose of preventing damage to nearshore waters and marine ecosystems (Appendix B). These suggestions were integrated into the Proposed Action and included in the analysis below and in Section 3.4, *Geology, Topography, and Soils*.

Direct and indirect factors considered in determining whether the Proposed Action and No Action Alternatives would have a significant impact on water resources include:

- Contamination or degradation of groundwater quality that would be a violation of state or federal standards;
- Groundwater depletion or interference with groundwater recharge that adversely affects existing or proposed uses of the groundwater aquifer;
- Contamination of surface water from erosion or stormwater runoff that would be a violation of federal or state water quality standards;
- Alteration of the existing drainage pattern of the Project Area that would cause offsite erosion or siltation, adversely affecting adjacent properties; and
- Contamination of marine waters from erosion or stormwater runoff that would be a violation of federal or state water quality standards.

3.5.2.2 Proposed Action

Continued Operations

Groundwater

As stated above, construction and operation of the existing KWP 1 facility had a negligible impact on groundwater. Continued operation of the KWP 1 facility and maintenance under the Proposed Action is also anticipated to result in negligible impacts.

No subsurface work would occur under the Proposed Action and ground disturbance would be limited to the original KWP 1 construction and operations footprint (Figure 2-1). Water consumption would be

minimal and would be addressed by water catchment and trucking water to the Project Area. The Proposed Action may result in small increases in the amount of new semi-pervious surfaces (i.e., aggregate) in the analysis area, primarily from regrading and resurfacing the gravel WTG pads, crane pads, and access roads. No new impervious surfaces (i.e., concrete) are anticipated. The possible increases in semi-pervious surfaces would not measurably decrease the potential for groundwater recharge. As such, the project is expected to have a negligible impact on groundwater availability.

The types and sources of pollutants within the Project Area would not change with continued operations. Wastewater would continue to be managed through an onsite septic system. Maintenance activities would require the use of some hazardous materials which, if handled inappropriately, could affect groundwater quality. However, appropriate management practices, including preparation and implementation of a SPCC Plan, would be in place throughout construction and operation to avoid and minimize impacts associated with these materials. With implementation of these measures, impacts to groundwater quality are expected to be negligible.

Surface Water

As stated above, the KWP 1 facility employs stormwater BMPs and vegetation management to minimize erosion and sedimentation, and the operation of the facility is in compliance with state and federal regulations. It is not anticipated that the non-perennial Malalowaia‘ole Gulch and an unnamed stream in Manawainui Gulch within the Project Area would be altered by operations or maintenance activities.

Minor, indirect impacts to surface waters could include slight changes in drainage patterns, decreased infiltration and increased volume or velocity of stormwater runoff, and/or discharge of pollutants to downstream waters as a result of ground-disturbing activities. As stated above, the Proposed Action would result in small increases in the amount of new semi-pervious surfaces, which can increase stormwater runoff. Precipitation falling on these new semi-pervious surfaces is expected to drain to adjacent pervious surfaces, allowing for sufficient infiltration, and would not measurably alter existing drainage patterns. Ground disturbance would increase the potential for discharge of sediment and pollutants to downstream gulches and streams. The majority of ground disturbance would take place within the initial maintenance period; civil work including recontouring the existing access roads, turbine pads, crane paths, and/or staging areas may be required to prepare the site for equipment transport and maintenance activities. Potential indirect impacts would be minimized by implementing BMPs prior to any ground disturbing activities. If maintenance activities are anticipated to disturb more than one acre of land, the applicant would obtain a NPDES permit and develop and implement an ESCP and SWPPP setting forth ground disturbance limits and BMPs.

The types and sources of pollutants within the Project Area would not change with continued operation of KWP 1. KWP 1 operators would continue to implement the BMPs listed in Section 3.5.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* to avoid erosion and sedimentation as well as protect water resources from hazardous materials that are transported, stored, and used at the Project Area. Given the relatively minimal increase in semi-impervious surfaces, coupled with the Project BMPs, continued O&M activities are anticipated to have a minor impact on surface water in the ROI.

Marine Waters

As stated above, the KWP 1 facility employs stormwater BMPs and vegetation management to minimize erosion and sedimentation. Additionally, ground disturbance would be limited to the original KWP 1 construction and operations footprint. Small increases in the amount of new semi-pervious surfaces may increase stormwater runoff. Given the relatively minimal increase in stormwater runoff, the distance of the Project Area from the marine environment, and coupled with the Project BMPs, continued operations and maintenance of KWP 1 are anticipated to have a negligible impact on marine waters downstream of the Project Area.

HCP Compliance

Overall, HCP compliance and mitigation activities would have a negligible impact on water resources within the ROI. KWP 1 would continue to conduct vegetation management within the Project Area to enhance fatality monitoring. BMPs would continue to be implemented such that vegetation management does not compromise soil stability or increase erosion or sedimentation; thus, no significant adverse impacts to surface water, groundwater, or marine waters within and downstream of the Project Area are anticipated.

Mitigation programs at the offsite HCP mitigation sites to benefit listed species would have no direct impacts on water resources. There are no streams or wetlands within the Haleakalā Ranch, Pu‘u o Hōkū Ranch, or Makamaka’ole mitigation areas. The four branches of the Kapohaku Gulch within the Pūlama Lāna‘i mitigation area would be avoided; no work within these streams is anticipated as part of the mitigation efforts. Likewise, the streams located within or adjacent to the Kaheawa Pastures mitgation area would not be directly impacted.

Short-term, indirect impacts to water resources are anticipated to be negligible. Mitigation activities at these sites may require limited ground disturbance at the respective mitigation sites and may temporarily increase the risk of soil loss, erosion, and sedimentation of surface waters; however, BMPs would be implemented to avoid erosion and sedimentation to nearby waters. Hazardous materials required for construction equipment that may be used for mitigation activities include antifreeze, diesel fuel, gasoline, hydraulic oil, lube oil, and grease. BMPs would be implemented to ensure the safe use, storage, and transport of these materials within the HCP mitigation sites.

In the long-term, protection and/or restoration of foraging, roosting, and nesting habitats for ‘ōpe‘ape‘a and assimulans yellow-faced bee would have the benefit of stabilizing soil and reducing risk of erosion, which may have beneficial impacts on surface water quality and groundwater recharge.

Decommissioning and Restoration

No direct interaction with surface water, groundwater, or marine water is anticipated from the decommissioning activities. Potential ground disturbance activities during decommissioning include removal of the WTGs, turbine foundations (including excavation with heavy machinery), and auxiliary facilities (including potential removal of subsurface cables), potential demolition of the O&M building, and re-grading access road disturbances. In the short-term, dismantling and removal of KWP 1

structures, grading and re-contouring efforts would expose bare soil, making it susceptible to erosion by wind and water, and temporarily change onsite drainage and stormwater runoff patterns. Excavation and movement of heavy machinery during these activities would cause soil disturbance and compaction, which affects the soil's structure, porosity, and drainage. These ground disturbances would temporarily increase the potential for sediment and other pollutants present onsite to become entrained in stormwater runoff and flow into receiving surface waters. Prior to decommissioning, KWP 1 would prepare a site-specific ESCP and SWPPP and obtain an NPDES permit to reduce impacts to hydrology, drainage, and surface waters.

During decommissioning, hazardous materials would be temporarily stored and utilized. These hazardous materials may consist of fuel, lubricating oil, hydraulic oil, propylene glycol, and other materials required for the decommissioning. Decommissioning would also require the removal of pad-mounted transformers that contain large quantities of cooling fluids, likely consisting of mineral oil (See Section 3.7, *Hazardous and Regulated Materials and Waste*). Due to the presence of hazardous materials during decommissioning, there is the potential for spills and/or leaks that would enter surface or groundwater through stormwater runoff. Prior to decommissioning, KWP 1 would develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities and the use, storage, and handing of petroleum-based products used for decommissioning equipment.

With implementation of the ESCP, SWPPP, and hazardous and regulated wastes BMPs, the decommissioning phase of the Proposed Action would have minor, temporary adverse impacts to surface water quality and drainage patterns. Decommissioning is anticipated to have a negligible impact on groundwater quality, availability or recharge and marine water quality.

Following the completion of ground disturbing activities, restoration activities would commence to return the Project Area to preconstruction conditions to the extent practicable and as required by lease agreement. Impervious and semi-pervious surfaces would be returned to a pervious condition (except those necessary for KWP 2 operations). Post-disturbance efforts would primarily focus on stabilizing and reclaiming disturbed areas to facilitate the reestablishment of vegetation. Restoration actions include recontouring, soil decompaction, erosion control, topsoil distribution, seeding, and installing signage and fencing. In the long-term, the final restoration of the Project Area would have an overall long-term, beneficial impact on surface water and groundwater quality, availability, flow and drainage patterns in the Project Area and surrounding areas compared to existing conditions.

3.5.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 facility would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential impacts to water resources from decommissioning and restoration activities would be as described above in Section 3.5.2.2, *Proposed Action, Decommissioning and Restoration* but would occur immediately, rather than at the end of the 20-year

extended operational period. Decommissioning activities would result in ground disturbance, increased vehicle and equipment movement, and the use and storage of hazardous materials, which would temporarily increase the potential for contamination of water, primarily from erosion and stormwater runoff. BMPs would be implemented to minimize adverse impacts of these activities on water resources including those listed in Section 3.5.2.4, *Avoidance, Minimization, and Mitigation Measures*. Following the dismantling of infrastructure, restoration activities would take place return the Project Area to preconstruction conditions to the extent practicable, resulting in an overall long-term, beneficial impact on water resources compared to existing conditions.

3.5.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effects on surface water and groundwater resources, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.5.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential impacts to surface and groundwater resources from the Proposed Action and No Action Alternative:

- Prior to the initial maintenance and decommissioning and restoration periods, obtain a NPDES permit and develop a site-specific ESCP and SWPPP to reduce impacts to hydrology, drainage, and surface waters. The ESCP and SWPPP would contain a description of the characteristics of the Project Area such as nearby surface waters, topography, and storm water runoff patterns; identification of potential pollutants such as sediment from disturbed areas, and stored wastes or fuels; and identify BMPs that would be used to minimize or eliminate the potential for these pollutants to reach surface waters through storm water runoff.
- During the initial maintenance and decommissioning and restoration periods, stabilize all disturbed areas with temporary erosion control measures, minimize runoff, and implement sediment control measures as detailed in Section 3.4, *Geology, Topography, and Soils*.
- Post decommissioning, implement permanent erosion control measures, as detailed in Section 3.4, *Geology, Topography, and Soils*.
- Direct stormwater runoff to vegetated areas by means of vegetated stormwater infiltration basins, water detention basins, and planned vegetation management.
- Prior to decommissioning, develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities and the use, storage, and handing of petroleum-based products used for decommissioning equipment.

3.5.2.5 Summary of Potential Impacts

With the implementation of avoidance, minimization, and mitigation measures, the Proposed Action is expected to have negligible to minor impacts to water resources. Under the No Action Alternative, the

KWP 1 facility would cease operation and be decommissioned, which, with the implementation of the mitigation measures and BMPs described above, would have temporarily minor impacts and long-term beneficial impacts to water resources. Table 3-6 summarizes potential impacts from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on water resources based on the criteria listed in Section 3.5.2.1, *Factors Considered in the Impact Analysis*.

Table 3-6. Summary of Potential Impacts to Water Resources

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Groundwater quality degradation	Negligible	Negligible	No Impact	No Impact
Groundwater depletion or interference with groundwater recharge	Negligible	Negligible	Negligible (short-term); Beneficial (long-term)	Negligible (short-term); Beneficial (long-term)
Reductions in surface water quality or quantity	Minor	Negligible	Minor (short-term); Beneficial (long-term)	Minor (short-term); Beneficial (long-term)
Alteration of existing drainage patterns	Minor	Negligible	Minor (short-term); Beneficial (long-term)	Minor (short-term); Beneficial (long-term)
Reductions in marine water quality	Negligible	Negligible	Negligible	Negligible

3.6 Natural Hazards

This section discusses the existing environment and potential impact of natural hazards on the Proposed Action and No Action Alternative. A natural hazard is a naturally occurring event that could negatively affect people, infrastructure, and/or the environment. Many natural hazards can be triggered by another event, though they may occur in different geographical locations; for example, an earthquake can trigger a tsunami in an entirely different geographic area. Natural hazards that can affect Hawai‘i include flooding, tsunamis, severe weather, earthquakes, volcanic eruptions, and wildfire. The ROI for natural hazards is the Project Area, the immediate vicinity around the Project Area, and the HCP mitigation sites.

Data used in this analysis comes from the Federal Emergency Management Agency (FEMA), National Oceanic and Atmospheric Administration (NOAA), USGS, DLNR, Hawaiian Electric, and peer reviewed research publications. Information on existing operational BMPs are sourced from the Emergency Response Plan (Brookfield 2022), Fire Mitigation Plan (DLNR 2005), Wildfire Prevention Plan (TerraForm 2025). Impacts are described qualitatively.

3.6.1 Existing Environment

3.6.1.1 Flooding

Potential flood hazards are identified by the FEMA National Flood Insurance Program (NFIP) and are mapped on Flood Insurance Rate Maps. The maps classify land into zones depending on the potential for damage and inundation during flood events. Certain zones are designated as Special Flood Hazard Areas, which is an area having special flood, mudflow or flood-related erosion hazards where NFIP floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. As shown in Figure 3-6, the Project Area is mapped by Flood Insurance Rate Maps as being located entirely within Zone X, a zone that is not a Special Flood Hazard Area and identified as an "area of minimal flood hazard" (FEMA 2021). Zone X includes areas determined to be outside the 0.2 percent annual chance (or 500-year) floodplain. No base flood elevations or depths are shown within this zone.

The KWP 1 facility is located along Hana'ula Ridge, a narrow band of land running mauka to makai between Manawainui Gulch and Papalaua Gulch. Stormwater runoff from the turbine pads, access roads, and other auxiliary structures discharge over land into drainage features (i.e., ditches or swales) that divert runoff into the numerous small, unnamed dry gulches developed by the natural contours of the surrounding land. Onsite drainage features (e.g., culverts, swales, and drainage ditches) are maintained to control erosion, minimize sedimentation, and prevent damage to downstream properties to the maximum extent practicable. Flooding has not been an issue at the KWP 1 facility over its nearly 20 years of operation.

The five HCP mitigation sites are mapped by Flood Insurance Rate Maps as being located entirely within Zone X, which are "areas of minimal flood hazard" that are determined to be outside the 0.2 percent annual chance (or 500-year) floodplain (FEMA 2021).

3.6.1.2 Tsunamis

Tsunamis are large, rapidly moving ocean waves triggered both by disturbances around the Pacific Rim (i.e., teletsunamis) and by earthquakes and landslides near Hawai'i (i.e., local tsunamis). All low-lying coastal areas, harbors, streams, and rivers in Hawai'i are vulnerable to tsunami impacts. NOAA has a tsunami evacuation map that categorizes land as a Tsunami Evacuation Zone, Extreme Tsunami Evacuation Zone, and Safe Zone. The area along the coast leading up to Honoapi'ilani Highway, adjacent to the entrance to the access road, is in a Tsunami Evacuation Zone (Figure 3-7) (NOAA 2015). However, the entirety of the Project Area, including the access road and parking/staging area, is higher-lying land that is categorized as a Safe Zone. No tsunamis have impacted the KWP 1 facility over its 20 years of operation.

The five HCP mitigation sites are located outside of the Tsunami Evacuation Zone and Extreme Tsunami Evacuation Zone (NOAA 2015).

3.6.1.3 Severe Weather

Rare, severe weather events that could potentially impact the KWP 1 facility includes hurricanes, tropical storms, and lightning. Hurricanes develop over warm tropical oceans and have sustained winds that exceed 119 kph (74 mph). The Saffir-Simpson Hurricane Wind Scale ranks hurricanes into five categories. Category 1 is sustained winds between 74 and 95 mph; Category 2 is sustained winds between 96 and 110 mph; Category 3 is sustained winds between 111 and 131 mph; Category 4 is sustained winds between 131 and 155 mph; and Category 5 is sustained winds greater than 155 mph (NOAA n.d.). The Hawaiian Islands are seasonally affected by Pacific hurricanes with the Central Pacific Hurricane season running from June 1 to November 30. Hurricanes are relatively rare in Hawai‘i; only five hurricanes have caused serious damage to the main Hawaiian Islands since 1950 (NOAA 2023). No recorded hurricane has made landfall on Maui nui, although Hurricane Estelle (in 1986) affected Maui through high winds and surf (Businger 1998) and Hurricane Dora played an indirect meteorological role in the devastating wildfires on Maui in 2023 (NOAA 2023).

Tropical storms are similar to hurricanes, except that the sustained winds are below 74 miles per hour (Businger 1998). These events can also produce torrential rains. Tropical storms occur more frequently in Hawai‘i than hurricanes and typically pass sufficiently close to Hawai‘i every one to two years to affect the weather and cause serious damage in some part of the islands. In 2018, tropical storm Olivia was the first tropical storm to make landfall on Maui and Lanai since modern records began. No tropical storm has made landfall on Molokai since modern records began.

The existing WTGs at the Project Area are designed to operate (i.e., generate power) in wind speeds approximately between 7 and 56 mph. At winds above that velocity the WTGs automatically cut out and the blades feather to an inactive position (i.e., perpendicular to the wind). The structural design of the WTGs allows them to withstand winds at the extreme of 156.5 mph, when the blades are in the feathered position. Winds in excess of the design speed are extremely rare at the Project Area (Planning Solutions 2010).

Because of their height and location in generally open areas, WTGs are more susceptible to lightning strikes than other structures in the area. The frequency and severity of lightning tends to be lower in Hawai‘i than in many areas where WTGs have been erected, but it does occur (NOAA 2025a). To mitigate the effects of a lightning strike, WTGs are grounded and designed with an IEC Class 2 lightning protection system. In addition, the Applicant uses the Indji Watch weather system to monitor active weather conditions throughout the day. KWP 1 employs an alert system for any time lightning is detected in the Project vicinity. The alerts range on a scale of 1 to 3 and include the emergency protocols that onsite employees should take, depending on the distance of the lightning strike from the Project (Brookfield 2022).

Since it began operations in 2006, there have been no known major damage or operational impacts from severe storms and lightning).

3.6.1.4 Earthquakes

Thousands of earthquakes occur in the State of Hawai‘i every year. Most are so small that they can only be detected by seismometers. Earthquakes in Hawai‘i are often linked with volcanic activity and the majority occur on and around the Island of Hawai‘i associated with its presently active volcanoes of Kīlauea, Hualālai, and Mauna Loa, and Kama‘ehuakanaloa off the coast of the island (USGS 2023). Numerous small volcanic earthquakes are triggered by eruptions and magma movement within these active volcanoes.

Hawaiian earthquakes fall into three main classes: volcanic, tectonic, and mantle. Volcanic earthquakes originate from magma movement within and eruptions from active volcanoes. Tectonic earthquakes are caused by slippage along tectonic faults. Mantle earthquakes are caused by the flexing or bending of Earth's crust and upper mantle, known as the lithosphere, due to the weight of the islands above. This is the most common source of damaging earthquakes north of the Island of Hawai’i (USGS 2023).

NOAA classifies a “significant earthquake” as one that meets at least one of the following criteria: moderate damage (approximately $1 million, or more), 10 or more deaths, magnitude 7.5 or greater, Modified Mercalli Intensity X or greater[52], or the earthquake generated a tsunami. There have been 12 significant earthquakes originating on or around the islands of the State of Hawai’i, with the two most recent ones occurring in May 2018 and October 2006 (NOAA 2025b). Neither of these significant earthquakes resulted in damage to the KWP 1 facility.

Seismic design categories (SDCs) reflect the likelihood of experiencing earthquake shaking of various intensities. The entire island of Maui is within SDC D1, which is categorized as a zone that could experience very strong shaking. Potential impacts of shaking in this zone are listed by FEMA as “damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures” (FEMA 2020). All structures at the KWP 1 facility conform to building codes in effect at the time of original construction that use these SDCs to determine the level of seismic resistance required for building construction. In its 20 years of operation, there have been no known major damage or operational impacts from earthquakes.

3.6.1.5 Volcanic Eruptions

The Project Area is located on the southwestern slope of the West Maui shield dome volcano, an extinct volcano on the dry leeward side of the island of Maui. As discussed in Section 3.4, *Geology, Topography, and Soils*, West Maui’s rejuvenated-stage eruptions ended over 385,000 years ago. The great age and limited extent of lava from these late-phase eruptions indicate that even if the volcano is not extinct, it poses little danger on the Proposed Action (Planning Solutions, Inc. 2010). The Island of Maui has one intermittently active volcano, Haleakalā, which has erupted at least 10 times during the past 1,000 years.

[52] The Modified Mercalli Intensity Scale assigns intensity values in Roman numerals from I to XII (USGS 2019a), with I being a low intensity and XII of high intensity.

Haleakalā is a shield volcano located in East Maui, approximately 20 miles from the Project Area. The most recent eruptions occurred sometime between the years 1480 and 1600 (USGS 2025b).

Lava-flow hazard zone information is available for two islands in the State of Hawai'i – Hawai'i and Maui. On Maui, lava-flow hazards are rated on a scale of 1 through 4, with 1 being the zone of highest hazard and 4 being the zone of lowest hazard (USGS 2019b). As shown on Figure 3-8, Zone 1 encompasses the lower- and middle-altitude areas of the southwest (15 miles from the Project Area) and east (30 miles from the Project Area) rift zones, Haleakalā Crater (20 miles from the Project Area), and part of the northern flank of the east rift zone (35 miles from the Project Area)—all areas where eruptions have occurred frequently in the past 1500 years. Zone 2 encompasses the volcano's flanks downslope of the southwest (9 miles from the Project Area) and east (30 miles from the Project Area) rift zone axes, primarily areas where lava has encroached at least once in the last 13,000 years. Zone 3 encompasses the downslope areas on the Kaupō (28 miles from the Project Area) and Koʻolau (25 miles from the Project Area) lava fans. The area nearest to the Project Area is designated as Zone 4, which comprises the majority of the East Maui lava-flow hazard map, encompasses flanks that have been shielded from lava during the past 100,000 years, indicating essentially no hazard under most lava inundation conditions (Sherrod et al. 2006). Because of the distance from Haleakalā and the low hazard risk, lava-flow hazard zones have not been classified or mapped for West Maui (USGS 2019b).

The Haleakalā Ranch mitigation area is located on the slopes of the Haleakalā within Zone 4, which indicates essentially no hazard under most lava inundation conditions (USGS 2019b). The Makamakaʻole, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, and Kaheawa Pastures (Project Area and Adjacent Lands) mitigation sites are located outside of the mapped lava inundation zones.

Emissions of volcanic gases, such as sulfur dioxide, can react with oxygen and atmospheric moisture to produce volcanic smog (also known as vog) and acid rain (USGS 2017). Volcanic gases are emitted not only during all types of eruptions, but can also be released by inactive eruptive vents and fumaroles. Volcanic smog can increase air pollution, decrease visibility and pose a health hazard by aggravating pre-existing respiratory conditions. Emissions of volcanic sulfur dioxide can also combine with water to form sulfuric acid which poses hazards to human health and can harm structures made of metal and other materials (USGS 2017). Vog can occasionally impact the Project Area and mitigation sites but does not pose a significant human health or environmental risk.

3.6.1.6 Wildfire

Wildfires have resulted in extensive damage to life and property and pose an ecological threat to endemic flora and fauna in the Hawaiian Islands. Prior to human settlement, sources of wildfire ignition in Hawai'i was limited to volcanic activity and rare lightning strikes. Today, humans are the main cause of wildfires. Native ecosystems in Hawaiʻi are not adapted to wildfire, and therefore wildfires do not result in positive benefits for native plant and animal species (DLNR 2016). With the cessation of cattle-grazing in the West Maui Mountains, a number of grass and weed species have proliferated, creating a heightened fire hazard. High wind and low relative humidity can create dangerous conditions that can set the stage for wildfire events.

In the Project Area vicinity, a large fire swept across the mountain in 1999 and again in 2006 and 2019 (after the KWP 1 facility commenced operation), which affected a large portion of the West Maui Mountains from the coastal highway to the existing facility (Planning Solutions 2010). The 2019 fire burned a large portion of the Project Area from 100 feet in elevation along the primary access road up to the mid-elevation wind turbines at 2,700 feet. The existing KWP 1 turbines and substation were protected from damage by multiple firebreaks constructed by KWP 1 staff and by extensive watering. However, the KWP 1 existing meteorological tower (located directly south of the KWP 2 BESS facility) sustained damage and has since been non-operational. The roadways constructed for the KWP 1 project were instrumental in providing firefighting crews access to the fire line (Planning Solutions 2010).

In August 2023, four wildfires broke out on the Island of Maui: the Lāhainā Fire (approximately 6 miles from the Project Area), Pulehu Fire (approximately 8 miles from the Project Area), Upper Kula Fire (approximately 14 miles from the Project Area), and the Olinda fire (approximately 14 miles from the Project Area) (Maui Recovers 2023). The most prominent was the Lāhainā Fire, one of the deadliest wildfires in the U.S., which swept across the town of Lāhainā in West Maui. Factors that contributed to the fire were high winds and low humidity brought on by the pressure gradient created by Hurricane Dora, which approach from the south and passed approximately 500 miles offshore. Downed trees, powerlines, and utility poles created hazards that made evacuation and fire suppression challenging (Kerber and Alkonis 2024).

To address the ongoing risk of wildfires in Maui, state and local authorities have taken steps to prevent future disasters like the Lāhainā fire. At the state level, Hawai'i has established the State Fire Marshal position and installed sensors to send fire alerts to authorities. At the local level, the Maui Emergency Management Agency increased staff members and appointed a new administrator. Hawaiian Electric updated more than 2,000 utility poles and implemented a Public Safety Power Shutoff (PSPS) program, which would allow them to preemptively shut off power during times of increased fire risk (Abovyan 2025).

Hawaiian Electric has used data on fire history, wind patterns, vegetation, and evacuation routes to identify specific areas in Maui that have high wildfire risk and may be subject to a PSPS. The portion of Honoapi'ilani Highway adjacent to the main access road is designated as a PSPS Affected Area. The area surrounding Kahili Golf Course and King Kamehameha Golf Club, approximately two miles east of the Project Area, is also a PSPS Affected Area (Hawaiian Electric 2025c). In 2024, Hawaiian Electric signed a 5-year contract with the company ALERTWest, which installs and maintains AI-assisted camera stations to monitor electrical infrastructure for potential ignitions (Hawaiian Electric 2025d). There are two ALERTWest camera stations within the Project Area. 24-hour live feeds from these sites are available to the public on the ALERTWest website (ALERTWest 2025).

KWP also developed a Fire Contingency Plan in 2005 prior to the construction of the facility (DLNR 2005) and maintains a Wildfire Prevention Plan (TerraForm 2025). These plans describes potential ignition sources of accidental fires, existing firefighting resources onsite, accessibility of the Project Area for emergency response vehicles, and fire mitigation measures. Onsite fire-fighting resources at the existing

KWP 1 facility include fire extinguishers in the O&M building, at the substation, and in all project vehicles, as well as shovels and backpack pumps in the O&M building and maintenance vehicles. The BESS (used for KWP 2 operations but located within the Project Area) is equipped with an intelligent fire suppression system that can be controlled remotely. The existing facility also maintains graveled, vegetation free buffers around the O&M building, the substation, and the WTG foundation pads, which act as fire breaks. There is a minor risk of potential wildfires during operations due to the use of vehicles and electrical equipment. The turbines and other facilities that are present for the operating life of the facility do not contain equipment or involve activities that represent an unusual fire hazard. If a fire does occur on (or spreads to) the KWP 1 facility, some equipment damage is possible but is not expected to be significant. The towers supporting the turbines are steel, mounted on concrete foundations; the interconnecting electrical systems are below ground. The auxiliary operations and maintenance facilities are constructed of noncombustible construction and exterior finishes. Therefore, KWP 1 operations have posed a minor fire risk to the Project Area and vicinity.

3.6.1.7 Existing Avoidance, Minimization, and Mitigation Measures

KWP 1 currently implements the following measures to avoid, minimize, and mitigate impacts from natural hazards within the ROI:

- Regularly service and maintain turbines, reducing the potential for damage or failure.
- Implement an Emergency Response Plan (Brookfield 2022), which includes safety measures and precautions as well as response protocol to minimize risks to people and property in the event of a natural hazard or emergency.
- Follow the standard operating procedure in the event of a weather emergency. If the National Weather Service issues a severe weather watch for the site (for events such as a hurricane or a severe thunderstorm), the operations manager or designee determines if the warning affects the site location, and if so, immediately warns employees of the pending emergency and implements precautions.
- WTGS are equipped with an IEC Class 2 lightning protection system and are grounded to mitigate the effects of a lightning strike.
- WTGs automatically cut out and the blades feather to an inactive position (i.e., perpendicular to the wind) when winds speeds exceed 56 mph. The structural design of the WTGs allows them to withstand winds of at least 156.5 mph when the blades are in the feathered position.
- Ensure that all structural elements on the Project Area were constructed in accordance with building code requirements at the time of construction (i.e., 2006) to prevent damage from earthquakes.
- The KWP 1 facility is designed with fire prevention elements. Facility components were constructed with noncombustible materials. The towers supporting the turbines are steel, mounted on concrete foundations; the interconnecting electrical systems are below ground. The

auxiliary operations and maintenance facilities are constructed of noncombustible construction and exterior finishes.

- Maintain graveled, vegetation free buffers around buildings and the WTG foundation pads, which act as fire breaks.
- Implement a Fire Contingency Plan (DLNR 2005) and Wildfire Prevention Plan (TerraForm 2025).
- Implement operational BMPs to minimize and respond to fire risks:
    - Maintain onsite fire-fighting resources including fire extinguishers in the O&M building, at the substation, and in all project vehicles, as well as shovels and backpack pumps in the O&M building and maintenance vehicles.
    - Maintain a fire-suppression system within the BESS facility.
    - Educate all onsite contractors and personnel on fire prevention and emergency response policies.
    - Conduct routine checks of electrical connections, washing substation equipment as outlined in the final design specifications and periodic infrared reconnaissance of electrical components to identify potential faults before they lead to a failure.
    - Implement a SPCC Plan (WSP 2023) to prevent the discharge of and minimize the risk of fire from petroleum-based products.
- Monitor 24/7 live streams of the Project Area with ALERTWest camera systems to detect smoke and other early indications of fire in real time.

3.6.2 Potential Impacts and Mitigation Measures

3.6.2.1 Factors Considered in the Impact Analysis

Issues related to natural hazards that have been identified during the scoping process for the Proposed Action and addressed in this subsection include: 1) existing hazard risk designations of the area within and around the Project Area (e.g., flood zones, tsunami evacuation zones, and lava-flow hazard zones), 2) potential of the Proposed Action and No Action Alternative to increase the risk of natural hazards affecting the Project Area, 3) potential of the Proposed Action and No Action Alternative to increase the risk of harm to human life and property in the event of a natural hazard, and 4) avoidance, minimization, and mitigation measures to reduce risk of harm to human life and property from natural hazards to the Project Area.

This analysis also considers public comments submitted during the KWP 1 Continued Use scoping phase. There was one public comment mentioning natural hazards, submitted by the State of Hawai'i DLNR Engineering Division. The Division noted that the rules and regulations of the NFIP, Title 44 of the Code of Federal Regulations (44 CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). They also noted that the owner of the project property and/or their representative is

responsible for researching the Flood Hazard Zone designation for the Project (Appendix B). As mentioned in Section 3.6.1.1*, Flooding*, the Project Area located entirely within Zone X, an area of minimal flood hazard. This Flood Hazard Zone Designation, along with other site conditions related to natural hazards, has been taken into account in the analysis below.

The impact analysis below qualitatively examines the extent to which Proposed Action or No Action Alternative would increase risk of harm to human life and property associated with the following natural hazards: flooding, tsunamis, severe weather, earthquakes, volcanic eruptions, and wildfires. Factors considered in determining whether the Proposed Action or No Action Alternative would have a significant impact from natural hazards include the extent or degree to which its implementation would:

- Significantly increase the risk of natural hazards affecting the Project Area; or
- Significantly increase risk to human life and property in the event of a natural hazard.

3.6.2.2 Proposed Action

Continued Operations

The entire Project Area is located within Flood Hazard Zone X, which is defined by FEMA as an area of minimal flood hazard. Additionally, the KWP 1 facility was designed for stormwater to runoff into natural drainage features. Therefore, the continued operation of the KWP 1 facility for the next 20 years would not increase the Project Area's exposure to flood risks or increase risk to human life and property in the event of a flood.

Similarly, the entirety of the Project Area is on high-lying land that is categorized by NOAA as a Safe Zone, indicating low vulnerability to tsunami impacts. Access to the KWP 1 facility could be obstructed temporarily if Honoapi'ilani Highway were inundated. Continued operations of the facility would not increase risk of tsunami-related impacts to the Project Area or to human life and property.

As detailed in Section 3.6.1.3, *Severe Weather*, Hawai'i is periodically exposed to hurricanes and tropical storms that impose high wind loads on structures. The existing WTGs are designed to withstand winds up to 156.5 mph. Winds in excess of the design speed are extremely rare at the Project Area. In the unlikely event that wind speeds are high enough to damage a WTG and cause it to fall, the damage would likely be confined to the Project Area and areas immediately adjacent (which are mainly open areas). In any event, the current mitigation measures that are in place, coupled with the distance of the facility from residences and other public areas make it virtually certain that an equipment failure would not cause significant damage to human life or property (beyond the existing facilities within the Project Area). Lightning strikes are rare in the area, but there is a risk of lightning striking WTGs due to their height and location in open areas. These risks are minimized through existing mitigation measures, including grounding WTGs and fitting them with lightning receptors, active weather monitoring, and emergency alert systems. Therefore, continued operations of the facility would negligible impact risk from severe storms to the Project Area or to human life and property.

There is a risk of earthquakes that affect the Project Area during operations. Structures at the KWP 1 facility have been designed and constructed to confirm to building standards to withstand damage from earthquakes. No new structures would be constructed during continued operations and maintenance of the facility. As stated above, in the event of a significant earthquake, the current mitigation measures that are in place, coupled with the distance of the facility from residences and other public areas make it virtually certain that an equipment failure would not cause significant damage to life or property (beyond the existing facilities within the Project Area). Therefore, continued operations of the facility would negligible impact risk from earthquakes to the Project Area or to human life and property.

Due to the distance from Haleakalā and the low lava-flow hazard risk, no impacts to the Project Area from volcanic eruptions are expected nor does the Proposed Action impact existing risks to human life and property due to volcanic activity.

The WTGs and other facilities that would be present for the operating life of the facility do not contain equipment or involve activities that represent an unusual fire hazard. Nonetheless, the presence of electrical equipment, petroleum-fueled mobile equipment (trucks, cranes, etc.), petroleum-based lubricants, and other flammable materials means that there is a potential of fire. Overhead transmission lines (owned by Hawaiian Electric) and substations within the Project Area would continue to pose fire risks mainly due to electrical faults, equipment failures, and contact with nearby vegetation. Sparks or arcs from damaged lines or malfunctioning equipment can ignite fires, especially in dry, windy conditions. Proper vegetation management, regular maintenance, and protective equipment help reduce these risks and prevent fire outbreaks. Implementation of the Fire Contingency Plan (DLNR 2005), Wildfire Prevention Plan (TerraForm 2025), SPCC Plan (WSP 2023), and Emergency Response Plan (Brookfield 2022) would minimize fire risk. The access roads within the Project Area also allow for emergency response vehicles to access upland areas in the event of a wildfire. Therefore, wildfire-related impacts are expected to be minor with the continued operation of the KWP 1 facility.

HCP Compliance

Compliance with the goals, objectives, and conservation measures in the Proposed HCP are not anticipated to increase the risk of floods, tsunamis, severe weather, earthquakes, or volcanic eruptions. Improvements to offsite mitigation programs could require the temporary use of heavy equipment and vehicles, which would temporarily increase wildfire risk. BMPs would be implemented to ensure the risk of fire remains low within the HCP mitigation sites.

Decommissioning and Restoration

Decommissioning and restoration activities do not have the potential to increase the risk of flooding, tsunamis, severe weather, earthquakes, and volcanic eruptions. There would be a temporary, negligible risk of damage to people and property from high winds created by hurricanes and tropical storms, or from a significant earthquake and a temporary, minor risk from wildfire. However, implementation of the SPCC Plan (WSP 2023), Wildfire Prevention Plan (TerraForm 2025), Fire Contingency Plan (DLNR 2005), and Emergency Response Plan (Brookfield 2022) would mitigate this risk.

During decommissioning, hazardous materials would be temporarily stored and utilized. These hazardous materials may consist of fuel, lubricating oil, hydraulic oil, propylene glycol, and other materials required for the decommissioning. Decommissioning would also require the removal of pad-mounted transformers that contain large quantities of mineral oil. Due to the presence of hazardous materials during decommissioning, there is the potential for the ignition and spread of fire. Prior to decommissioning, KWP 1 would revise its SPCC Plan for decommissioning activities to ensure proper handling of materials and minimizing wildfire risk. Additional safety measures that would be taken include having firefighting resources onsite and keeping the Project Area accessible for emergency response vehicles.

In the rare event of high winds caused by hurricanes and tropical storms or a significant earthquake, there is a risk of damage to human life and property during decommissioning activities. However, these risk can be mitigating by following the standard operating procedures listed in the Emergency Response Plan (Brookfield 2022). Decommissioning activities would cease during a weather emergency and employees provided shelter.

3.6.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 project would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential impacts from decommissioning and restoration activities would be as described above in Section 3.6.2.2*, Proposed Action, Decommissioning and Restoration*, but would occur at the end of the current KWP 1 lease term, rather than at the end of the 20-year extended operational period. There would be negligible risks of harm caused by earthquakes and severe storms and minor risk of harm caused by wildfires. However, the risks would be minimized by the continued implementation of hazard mitigation measures.

3.6.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize harm to human life and property from natural hazards, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.6.1.7, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional measures to minimize potential impacts from the Proposed Action and No Action Alternative:

- Develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities.
- Prior to decommissioning, revise the Emergency Response Plan (Brookfield 2022) and Site Safety Handbook and update safety measures and precautions to minimize risks related to natural hazards during decommissioning.

3.6.2.5 Summary of Potential Impacts

The KWP 1 facility is outside flood hazard areas, tsunami inundation zones, and lava-flow hazard zones and therefore would not increase risks from these natural hazards. During the Proposed Action, facilities could be exposed to seismic, hurricane, high wind, lightning, and fire hazards, but minimal impacts are anticipated due to the planned preventive and response measures. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned, and the Project Area would be restored to pre-construction conditions. Table 3-7 summarizes potential impacts to the risk of natural hazard-related harm to the Project Area and human life and property from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact based on the criteria listed in Section 3.6.2.1, *Factors Considered in the Impact Analysis*.

Table 3-7. Summary of Potential Impacts Involving Natural Hazards

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Extent to which the Proposed Action or No Action Alt. may increase risk of natural hazards affecting Project Area.				
Flooding	No impact	No impact	No impact	No impact
Tsunamis	No impact	No impact	No impact	No impact
Severe Weather	Negligible	Negligible	Negligible	Negligible
Earthquakes	Negligible	Negligible	Negligible	Negligible
Volcanic Eruptions	No impact	No impact	No impact	No impact
Wildfire	Minor	Minor	Minor	Minor
Extent to which the Proposed Action or No Action Alt. may increase risk to human life and property in the event of a natural hazard.				
Flooding	No impact	No impact	No impact	No impact
Tsunamis	No impact	No impact	No impact	No impact
Severe Weather	Negligible	Negligible	Negligible	Negligible
Earthquakes	Negligible	Negligible	Negligible	Negligible
Volcanic Eruptions	No impact	No impact	No impact	No impact
Wildfire	Minor	Minor	Minor	Minor

3.7 Hazardous and Regulated Materials and Waste

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on hazardous and regulated materials and waste.

The Institute of Hazardous Materials Management (IHMM 2020) defines a hazardous material as a substance or material capable of posing an unreasonable risk to health, safety, and/or property when transported in commerce, and has been designated as hazardous (49 CFR 171.8). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR 173. The term may also have specific definitions for certain purposes, such as the definitions used by the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act. Hazardous materials and wastes are subject to many regulations at the Federal, State, and local levels. The primary Federal agencies responsible for regulating hazardous materials and wastes are EPA, OSHA, and the U.S. Department of Transportation. This section also includes a discussion of non-hazardous materials and petroleum products, including mineral oil, lubricating oils, gasoline, and diesel fuel, which could be harmful to the environment or human health.

The analysis area for hazardous and regulated materials and wastes includes the Project Area and area in the immediate vicinity of the Project Area, the routes of travel to and from the Project, as well as the HCP mitigation sites.

Data used in this analysis comes from Phase I Environmental Site Assessments (ESA) of the Project Area, which were completed in 2005, 2007, and 2025 (VEC 2005, Malama Environmental, LLC 2007, Tetra Tech 2025b) as well as the SPCC Plan (WSP 2023). Other data in this analysis comes from scholarly journal articles, government agency publications, and design and engineering data from the Applicant. Impacts are described qualitatively.

3.7.1 Existing Environment

3.7.1.1 Existing Contamination or Recognized Environmental Conditions

Recognized environmental conditions (RECs), as defined by the American Society for Testing and Materials Standard E1527-00, are the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property, or into the ground, groundwater, or surface water of the property.

The Phase I ESAs completed for the Project Area in 2005, 2007, and 2025 concluded that “no recognized environmental conditions” are present within the Project Area or in the surrounding area. There is no evidence of existing contamination or releases within the Project Area that pre-date KWP 1 construction and operations.

3.7.1.2 Routine Use, Storage, and Transport of Hazardous and Regulated Materials and Waste

Operation of the existing KWP 1 facility requires the use and storage of hazardous and petroleum-based materials including mineral oil, lubricating oils, waste oil, cleaner/degreaser, waste aerosols, combustible liquids, chemicals, paint, and herbicides. Most of these materials are stored in small quantities, primarily within the O&M building. However, mineral and lubricating oils are used and stored in relatively larger quantities in the following areas[53]:

- **Operations and Maintenance Building:** The O&M building stores products/materials needed for routine operations and maintenance, including approximately 10, 55-gallon drums containing new and used mineral and lubricating oils. These items are stored on a spill-retentive skid with a secondary containment capacity of 185 gallons. Used oil is temporarily stored in the O&M building and transported offsite and disposed of at an appropriately permitted waste disposal facility. An emergency transformer is also located within the O&M building, which contains 240 gallons of mineral oil. The emergency transformer is contained in a steel transformer cabinet on a concrete pad with a 120-gallon secondary containment system.
- **Wind Turbine Generators:** Each wind turbine site has two components that use and store oil: a gearbox and a step-up transformer. The gearbox, located within the nacelle at the top of the WTG tower, stores 84 gallons of lubricating oils. Nacelles have catch basins for small oil spills, while larger spills would overflow into the tower and be contained at the tower's sealed base, which has a secondary containment capacity of 84 gallons. Located adjacent to the base of each wind turbine is a pad-mounted step-up transformer, which contains approximately 523 gallons of mineral oil. Transformers are enclosed in steel transformer casings to prevent corrosion and stored on concrete pads. Passive secondary containment for the transformers located at the towers is impracticable due to the potential electrical hazards posed by the equipment, extensive area, and remote location of the property. An inspection program and active containment is used to identify and respond to spills for equipment without passive secondary containment.
- **Electrical Substations:** The KWP 1 substation includes a main transformer and spare pad mount transformer, which together store approximately 4,000 gallons of mineral oil. Both transformers are encased within a steel transformer cabinet on a concrete pad with a combined secondary containment capacity exceeding 4,300 gallons. The KWP 2 substation, also located within the Project Area, contains a main and emergency transformer, which store approximately 4,700 gallons of mineral oil. Both transformers are encased within a steel transformer cabinet on a concrete pad with a combined secondary containment capacity exceeding 5,000 gallons.
- **BESS Building:** The BESS is used to store energy produced by the KWP 2 facility but is located within the Project Area. Outside of the BESS building are a spar pad mount transformer, BESS transformer, and two auxiliary transformers, which together store approximately 6,200 gallons of

[53] Data on oil storage and secondary containment obtained from KWP 1's SPCC plan (WSP 2023).

mineral oil. All transformers are encased within a steel transformer cabinet on a concrete pad with a combined secondary containment capacity of approximately 5,300 gallons.

KWP 1 staff undergo periodic training sessions focused on oil pollution prevention, spill, and cleanup procedures. When transferring hazardous products to or from a storage container, personnel are instructed to load or unload only in approved locations, verify the remaining volume of the receiving container, allow sufficient volume (about 10 percent of the total capacity) for thermal expansion, and visually inspect all valves for leakage once the transfer is complete. Mineral and lubricating oils within the wind turbine and transformers are changed periodically based on results of laboratory testing and in accordance with the manufacturer's recommendations. Waste oil is collected, temporarily stored in the O&M building, and transported offsite and disposed of at an appropriately permitted waste disposal facility.

A SPCC Plan is in place for the facility and is updated every 5 years (WSP 2023). The SPCC plan identifies potential spill sources, preventive measures, control and response procedures, inspection programs, and required training of personnel to prevent the discharge of oil and hazardous substances from the KPW 1 facility (See Section 3.7.1.3, *Accidental Spills and Releases* below). The SPCC is maintained onsite and easily accessed by facility personnel who may handle or potentially be involved in handling oil or hazardous substances. This plan adheres to applicable federal, state, and local regulations governing the use of hazardous materials and the disposal of hazardous wastes. With implementation of the SPCC Plan, regulated wastes and petroleum products are used, managed, and stored effectively at the Project Area.

3.7.1.3 Accidental Spills and Releases

As hazardous and petroleum-based materials are used and stored as part of ongoing KWP 1 operations, there is a potential for accidental releases or spills. Incidental spills are small enough (i.e., less than 25 gallons) to be handled using personnel and equipment routinely located in the immediate area of the release. The normal course of action following an incidental spill is for appropriately trained personnel to contain and clean up the spill using available spill response equipment. A major spill may pose a risk to life, human health, or the environment and includes spill volumes above the reportable quantities included in Table 3-8.

Table 3-8. Major Spill Scenarios and Required Notifications

Spill Scenario	Agencies to be Notified
Any quantity of oil that discharged into or upon a navigable water (including storm water drains) in an amount that causes a visible film or sheen upon the surface of the water.	1. Local Emergency Agencies - 911 2. Hawai'i Hazard Evaluation &Emergency Response (HEER) Office 3. National Response Center
Any amount of oil released to the environment greater than 25 gallons; or Any amount of oil released to the environment which is less than 25 gallons, but which is not contained and remediated within 72 hours.	1. Local Emergency Agencies - 911 2. Hawai'i HEER Office

Spill Scenario	Agencies to be Notified
Non-petroleum Substances (i.e., hazardous substances, water treatment chemicals, hazardous waste).	Refer to 40 CFR 302 (hazardous substance reportable quantity table) and 40 CFR 355 (extremely hazardous substances) to identify whether a threshold has been exceeded for reporting to HEER and the National Response Center.
Source: WSP 2023	

As described in KWP 1's SPCC plan, the facility utilizes a variety of measures to prevent spills and releases of oil into the environment. Minor spills periodically occur during routine maintenance activities and are cleaned up immediately by KWP 1 staff. Containment and diversionary structures are regularly inspected. These containment systems and the use of readily available spill equipment prevent discharged oil from leaving the Project Area (WSP 2023). There have been no known major releases or spills of hazardous or petroleum products at the KWP 1 facility.

3.7.1.4 Worker Exposure to Chemicals Exceeding OSHA Limits

As hazardous materials are stored and used as part of ongoing KWP 1 operations, there is a potential for worker exposure in excess of the exposure limits specified by OSHA in 29 CFR Part 1910. To minimize this risk, KWP 1 operators implement a Site Safety Handbook and posts Safety Data Sheets for all hazardous materials stored and used onsite. The Site Safety Handbook addresses proper hazardous materials management and worker training procedures to minimize the risk of worker exposure. Workers and contractors use proper personal protective equipment onsite. There have been no documented OSHA recordables, including worker injuries or exposures to hazardous or regulated materials at the KWP 1 facility.

3.7.1.5 Vandalism

Site security at KWP 1 is sufficient to prevent inadvertent releases of hazardous materials or petroleum products from vandalism. The Project Area is situated in a remote area on State Conservation lands above McGregor Point in the West Maui Mountains. Access to these state lands is restricted by a locked gate and signage indicating that the Kaheawa Pastures access road is closed to the public. The Lāhainā Pali Trail intersects the access road, south of the Project Area. There is signage warning hikers to stay on the trail and that the access road is closed to the public.

As described above, hazardous materials and petroleum products are stored within O&M building, wind turbine generators, the electrical substations, and near the BESS building. The existing O&M is kept locked. The gearboxes are housed within the nacelle and do not require additional security. The step-up transformers at the individual wind turbine sites are located on access roads that are closed to the public and have pad-locked and wrench-locked cabinets to prevent access to the level gauges and valves that could cause oil discharge. There is also security fencing and gates are installed around the substations, where the largest oil-containing transformers are located, minimizing the risk of vandalism. As a result, the potential for vandalism that would result in spills or releases is low. KWP 1 has not experienced

vandalism that resulted in the inadvertent releases of hazardous materials or petroleum products in its 20 years of operations.

3.7.1.6 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effects from hazardous and regulated materials and wastes, KWP LLC requires operational staff and contractors to take the following measures:

- Regularly service and maintain turbines, reducing the potential for damage or failure.
- Implement a SPCC Plan (WSP 2023) that identifies potential spill sources, preventive measures, control and response procedures, inspection programs, and required training of personnel to prevent the discharge of oil and hazardous substances from the KPW 1 facility. The SPCC Plan is updated every 5 years.
- Inspect and maintain containment and diversionary structures regularly.
- Use available spill equipment to prevent discharged oil from leaving the Project Area.
- Ensure that all personnel who handle or could come into contact with hazardous and regulated materials and waste are sufficiently trained in the proper way to use and dispose of these materials.
- Use chemicals in accordance with manufacturer's instructions and industry BMPs including: keep materials in their original containers with the original manufacturer's label; seal containers whenever they are not in use; procure and store only the amount of chemicals needed for the job; and follow the manufacturer's recommendation for proper handling and disposal.
- Implement a Site Safety Handbook and posts Safety Data Sheets for all hazardous materials stored and used onsite. The Site Safety Handbook addresses proper hazardous materials management and worker training procedures to minimize the risk of worker exposure.
- Ensure the proper use of personal protective equipment.
- Maintain site security to prevent unauthorized personnel from accessing KWP 1 facilities.
- Implement an Emergency Response Plan (Brookfield 2022).

3.7.2 Potential Impacts and Mitigation Measures

3.7.2.1 Factors Considered in the Impact Analysis

Issues related to hazardous materials and petroleum products that have been identified during the scoping process for this Project and addressed in this subsection include: 1) measure to ensure safe use, storage, and transport of hazardous materials and petroleum products to and within the Project Area, 2) potential for the accidental release of hazardous materials or petroleum products into the environment and planned response, 3) potential to expose workers or the public to hazardous materials during

normal operations or decommissioning, 4) potential to expose people or the environment to significant hazards because of intentionally destructive acts (i.e., vandalism) or catastrophic failure of KWP 1 equipment, and 5) avoidance, minimization, and mitigation measures to reduce potential impacts from hazardous materials and petroleum products generated by the Project.

During the KWP 1 Continued Use scoping phase, the State of Hawai'i DLNR State Historic Preservation Division submitted a public comment stating that KWP 1 must clarify the process for decommissioning and removal if the lease extension is denied, as well as details regarding the disposal of Project materials. Details of decommissioning the Project under the Proposed Action and No Action Alternative, including the disposal of project materials, is discussed in the analysis below and in detail in Section 2.1.4, *Decommissioning and Restoration*.

Direct and indirect factors considered in determining whether the Proposed Action and No Action Alternatives would have a significant impact on hazardous or regulated materials and waste include the extent to which the alternative would:

- Increase a significant hazard to the public or the environment through routine use, storage or transport of hazardous materials or petroleum products;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or petroleum products into the environment;
- Expose workers or the public to hazardous materials at levels in excess of those permitted by OSHA in 29 CFR Part 1910; or
- Expose people or the environment to significant hazards from inadvertent release of previous contamination, intentionally destructive acts (i.e., vandalism) or catastrophic failure.

3.7.2.2 Proposed Action

Continued Operations

Use, Storage and Transport of Hazardous and Regulated Materials and Waste

With implementation of the Proposed Action, KWP 1 would continue over the 20-year additional operational period. As described in Section 3.7.1.2*, Routine Use, Storage, and Transport of Hazardous and Regulated Materials and Waste*, KWP 1 operations would continue to safely use, store, and transport hazardous materials and petroleum products within the Project Area. There is potential for the accidental release of these hazardous materials and petroleum products into the environment. The risk of inadvertent spills and releases would increase during the initial maintenance activities, when multiple wind turbine components are to be inspected, repaired and/or replaced. However, implementation of the control measures and BMPs described in the SPCC Plan are designed to prevent and respond to spills and releases would ensure that impacts remain less than significant.

Worker Exposure to Chemicals Exceeding OSHA Limits

With continued implementation of the Site Safety Handwork and operational BMPs, continued operation of the KWP 1 facility is not expected to expose workers and the public to hazardous materials in excess of those permitted by OSHA in 29 CFR Part 1910.

Inadvertent Release of Previous Site Contamination, Intentionally Destructive Acts, or Catastrophic Failure

As described in Section 3.7.1.1, *Existing Contamination or Recognized Environmental Conditions*, there is no known contamination within the Project Area. However, there is always some potential that contamination (such as an illegal dump site not previously identified) could be found during operations. Even though the risk of encountering unidentified contamination is low, workers would be trained to recognize signs of illegal dumping or subsurface contamination such as odors and soil discoloration. If such contamination were discovered, KWP 1 would work with the HDOH to take appropriate action, including characterizing the type, extent, and concentration of the contamination and removing contaminated soil. The impacts associated with disturbance of existing contamination would be minor with implementation of the Site Safety Handbook and SPCC plan.

The risk of major spills due to intentionally destructive acts (i.e., vandalism) would also be low. The security measures described above would continue to be in place to prevent unauthorized personnel from gaining access to the areas where hazardous materials and petroleum products are stored.

The likelihood of a catastrophic failure of the wind turbines or substation is extremely low. The WTG are designed with multiple safety systems and undergo rigorous maintenance to ensure reliability and ensure that even if failures occur, hazardous materials and petroleum products are not released into the environment. In this EIS, “catastrophic failure” is defined as an accident involving tower collapse, blade detachment or gearbox failure. Extreme wind conditions from hurricanes or typhoons are a major factor in these failures, accounting for about 55 percent of documented cases of turbine failure (Ma et al. 2019). Blade failure, fire, bolt failure, and fatigue are the next most common causes, making up about 6 percent of the cases. The third most frequent causes of failure are brake failure, lightning, and faulty construction, representing about 28 percent of the documented cases. As noted in Section 3.6, *Natural Hazards*, only one tropical storm has ever made landfall on Maui since reliable records began, although they occasionally pass close enough to affect Maui weather, and cause damage in other parts of Hawai‘i. Because of the low risk of extreme winds, inbuilt safety systems, and rigorous maintenance practices carried out at KWP 1, the risk of catastrophic failure involving tower collapse and a release of hazardous materials is extremely low. Similarly, the substations were built according to applicable electrical codes, with robust safety measures and regular inspections to minimize risks.

In the very rare event of a catastrophic failure, wind turbines and substation components could potentially release hazardous or regulated materials. For wind turbines, a tower collapse, mechanical failure, such as a blade detachment, or gearbox failure, could result in the release of lubricating oils and hydraulic fluids. These substances are used in the turbine's mechanical systems and can pose

environmental hazards if not contained. Electrical failures in wind turbines or substations may also lead to the release of insulating oils or other chemicals from transformers and converters, which can be hazardous to the environment and human health. Additionally, critically damaged substation components may pose fire risks, leading to the release of hazardous smoke and chemicals from burning materials.

KWP 1 has a comprehensive Emergency Response Plan (Brookfield 2022). The plan includes procedures for immediate containment and mitigation of hazardous material releases, clear guidelines for the safe evacuation of personnel and nearby residents if necessary, and collaboration with local emergency services and environmental agencies to manage the incident effectively. Regular emergency drills are and would continue to be conducted to ensure preparedness and swift action in the event of a real incident.

HCP Compliance

HCP compliance and mitigation activities proposed under the Proposed HCP are expected to have a negligible impact on hazardous and regulated materials and wastes within the ROI.

KWP 1 has conducted and would continue to conduct vegetation management within the Project Area to enhance fatality monitoring efficiency, which includes the use of herbicides. Herbicides would be applied in accordance with manufacturer's instructions and industry BMPs and are not anticipated to pose a risk to workers or the public.

Offsite mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites may require the temporary use of heavy equipment and vehicles. Hazardous materials required for construction equipment include antifreeze, diesel fuel, gasoline, hydraulic oil, lube oil, and grease. BMPs would be implemented to ensure the safe use, storage, and transport of these materials within the HCP mitigation sites.

Decommissioning and Restoration

Use, Storage and Transport of Hazardous and Regulated Materials and Waste and Accidental Spills

Decommissioning activities would involve the use, storage, transport, and disposal of hazardous and regulated materials including waste oil from the WTG turbines and transformers, hazardous materials and wastes required for and derived from the decommissioning of KWP 1 equipment and facilities, and hazardous materials and petroleum products used for heavy equipment and vehicles.

Prior to the disassembly of the turbines and transformers, mineral and lubricating oils would be drained and temporarily stored onsite within secondary containment structures. The waste oil would be transported offsite and disposed of at an appropriately permitted waste disposal facility. Substation components and transformers would be dismantled and hazardous and regulated wastes removed and disposed of by qualified contractors.

Other hazardous or regulated materials that would be handled during decommissioning include paints, adhesives, bentonite, soil stabilizers, and fertilizer. Decommissioning activities also require the use of heavy equipment and vehicles. Hazardous materials required for heavy equipment include antifreeze, diesel fuel, gasoline, hydraulic oil, lube oil, and grease. It may not be practical to remove heavy equipment from Project Area for refueling and general maintenance such as changing fluids and lubricating parts; therefore, these activities may take place onsite.

Regulatory requirements and standard industry BMPs for managing the routine transport, use, storage, and disposal of hazardous and regulated materials and waste would be implemented as described in Section 3.7.2.4, *Avoidance, Minimization and Mitigation Measures*. There is the potential for accidental releases or spills from the routine transport, use, storage, and disposal of hazardous materials during decommissioning. The SPCC plan would be updated prior to decommissioning activities. Implementation of the SPCC plan and industry BMPs to prevent and respond to spills and releases, would ensure that impacts remain minor.

Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions. Hazardous and regulated materials associated with KWP 1 operations would be removed from the Project Area, which would result in a long-term, beneficial impact.

Worker Exposure to Chemicals Exceeding OSHA Limits

During decommissioning and restoration activities, workers could potentially come into contact with hazardous materials in excess of the exposure limits defined by OSHA in 29 CFR Part 1910. To minimize this risk, the Site Safety Handbook would be implemented in accordance with 29 CFR 1926.65. All persons entering O&M work areas would be required to review and adhere to the Site Safety Handbook, and the SPCC Plan. KWP 1 would implement regulatory requirements and BMPs to prevent harmful exposure of workers. The potential for injury to workers from exposure to hazardous materials would be minor with the implementation of the Site Safety Handbook and the SPCC Plan.

Inadvertent Release of Previous Contamination, Intentionally Destructive Acts, or Catastrophic Failure

Potential impacts from the inadvertent release of previous contamination, intentionally destructive acts (i.e. vandalism), and catastrophic failure would persist, as described in the *Continued Operations* section above, until the KWP 1 WTGs and facilities are decommissioned and removed from the Project Area. Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions. In the long-term, removal of the KWP 1 WTGs and facilities would eliminate the risk of releases from intentionally destructive acts or catastrophic failure.

3.7.2.3 No Action Alternative

Under the No Action Alternative, KWP 1 would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the impacts from hazardous and regulated materials and waste associated with the continued operation of KWP 1 and HCP compliance activities would not occur. The potential impacts from decommissioning and restoration activities would be as described above in Section 3.7.2.2*, Proposed Action, Decommissioning and Restoration*, but would occur at the end of the current KWP 1 lease term in 2026, rather than at the end of the 20-year extended operational period. All decommissioning- and restoration-related hazardous and regulated materials and waste would be properly handled and disposed of in accordance with county, state, and federal policies.

3.7.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect from hazardous and regulated materials and waste, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.7.1.6, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, the applicant would implement the following additional measures to avoid or minimize potential impacts from the Proposed Action and No Action Alternative:

- Develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities and the use, storage, and handing of petroleum-based products used for decommissioning equipment.
- Prior to decommissioning, revise the Emergency Response Plan (Brookfield 2022) and Site Safety Handbook and update safety measures and precautions to minimize exposure risks during decommissioning.

3.7.2.5 Summary of Potential Impacts

The Proposed Action would have negligible to minor adverse impacts from hazardous and regulated materials and waste, so long as avoidance, minimization, and mitigation measures continue to be implemented. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned, which would lead to immediate minor, short-term impacts. Table 3-9 summarizes potential impacts to hazardous materials, petroleum products, and solid waste from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on hazardous and regulated materials and waste based on the criteria listed in Section 3.7.2.1, *Factors Considered in the Impact Analysis*.

Table 3-9. Summary of Potential Impacts to Hazardous and Regulated Materials and Wastes

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Routine use, storage or transport of hazardous materials or petroleum products	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)
Spills and released of the release of hazardous materials or petroleum products	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)
Expose workers or the public to hazardous exceeding OSHA standards	Negligible	Negligible	Negligible	Negligible
Expose people or the environment to significant hazards from vandalism or catastrophic failure	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)

3.8 Vegetation

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on vegetation communities and plant species present within the Project Area. The ROI for vegetation used in this analysis is the Project Area, area immediately surrounding the Project Area, and the HCP mitigation sites.

Data used in this analysis comes from previous plant surveys conducted within the Project Area (Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b), 19 years of post-construction monitoring and other HCP compliance activities in the Project Area (KWP 2025), and a botanical survey of the LOD within the Project Area conducted in April 2025 (Appendix D). Vegetation cover data for the HCP mitigation sites is sourced from the Carbon Assessment of Hawai'i Land Cover Map, which depicts the status, or degree of disturbance, to plant communities on the main Hawaiian Islands (Price et al. 2015). Site-specific botanical surveys were not conducted for the HCP mitigation sites. Impacts are described qualitatively.

3.8.1 Existing Environment

3.8.1.1 Regulatory Framework

Federal Endangered Species Act

Species that are federally listed as threatened or endangered, as well as areas that have been designated as "critical habitat" for those species, are protected under the ESA (16 United States Code [USC] 1531-1544), as amended. For projects on federal lands and when federal actions are involved, protections to

threatened and endangered plant species include protection from transport, trade, collecting, importing, exporting, damage, destruction, or the attempt to engage in any such conduct. These protections also prohibit any conduct that may cause degradation of these species' habitats.

Section 7 of the ESA requires a federal agency to consult with USFWS to ensure that any action authorized, funded, or carried out by the federal agency is not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat. Critical habitat includes specific geographic areas that contain the physical or biological features essential to the conservation of one or more listed species. Critical habitat may or may not be occupied by one or more of the listed species at the time of designation. Section 10(a) of the ESA allows, under certain terms and conditions, for the incidental take of species listed as threatened or endangered by non-federal entities that would otherwise be prohibited by the ESA. To obtain this incidental take authorization, the Applicant must develop, fund, and implement a USFWS-approved HCP to minimize and mitigate to the maximum extent practicable the impact to the proposed taking. Prior to issuing an incidental take authorization under Section 10(a) of the ESA, USFWS would conduct an internal Section 7 review to determine if the federal action (i.e., issuance of an incidental take permit) is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. While there are no federal prohibitions under the ESA for the take of listed plants on non-federal lands, the effects on listed plants are assessed because Section 7 of the ESA requires that issuing an incidental take permit may not jeopardize any listed species, including plants.

State Endangered Species Legislation - HRS Chapter 195D

The HRS Chapter 195D states that any endangered or threatened species recognized by the ESA shall be so deemed by state statute. HRS Chapter 195D also authorizes the state to list species that are not also listed under the ESA. In many cases these species' listings are island-specific, rather than statewide. Like the ESA, the unauthorized "take" of such endangered or threatened species is prohibited (HRS § 195D-4[e]). Protections for listed plants under HRS § 195D- extends to private lands. HRS Chapter 195D is administered by the State of Hawai'i DLNR DOFAW. Under HRS § 195D-4(g), the BLNR, after consultation with the State's ESRC, may issue an incidental take license (an ITL) to allow a take otherwise prohibited if the take is incidental to the carrying out of an otherwise lawful activity.

3.8.1.2 Existing Vegetation

Project Area

Vegetation in the Project Area has been disturbed from historic grazing, a recent wildfire in 2019 which burned portions of the Project Area (i.e., from 100 feet in elevation along the primary access road up to the mid-elevation wind turbines at 2,700 feet), and construction and operation of the wind facility. Within the 217-acre Project Area, approximately 58 acres were previously disturbed by the construction of KWP 1 and is defined as the Proposed Action's LOD. A large portion of the LOD (roughly 60 percent) is unvegetated or vegetation is regularly managed. Since operation of KWP 1 began in 2006, vegetation has been managed within portions of the LOD to increase searchability for downed wildlife as part of

HCP compliance, to minimize fire risks, and to reduce attractiveness of onsite habitat to listed wildlife. Vegetation management occurs through a combination of mechanical, chemical, and manual methods (KWP 2024a). Within the LOD, vegetation occurs along the edges of roads and the turbine pads, and within areas that were previously disturbed during KWP 1 construction where vegetation has regrown naturally or established through post-construction revegetation measures (e.g., temporary laydown areas and crane paths). Overall, vegetation within the Project Area is dominated by non-native species and consists of primarily non-native grassland in the lower elevation areas (below 2,000 feet), non-native grassland with patches of mixed non-native and native dry shrublands in the mid-elevation areas (2,000 to 3,000 feet), and predominately native mesic shrublands with patches of non-native grassland in the uppermost elevations (3,000 to 3,200 feet).

Listed Plant Species and Critical Habitat

No state or federally-listed plant species or otherwise rare plant species have been recorded in the Project Area in previous or recent surveys for KWP I (Appendix D; Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b). Additionally, no listed plant species or rare plants have been observed at the existing wind farm during operations or post-construction monitoring over the last 19 years (KWP 2024a).

Although no listed plant species are known to occur in the Project Area, USFWS has designated critical habitat for 28 listed plant species within two units within the Project Area. This critical habitat was designated after construction of KWP 1 (USFWS 2016a).

Montane Mesic – Unit 5 encompasses approximately 11 acres of the northernmost portion of the Project Area and is designated critical habitat for 10 listed plant species. The unit was only occupied by two of the species, *Remya mauiensis* and *Santalum haleakalae* var. *lanaiense*, at the time of designation (USFWS 2016a). None of the 10 listed species with critical habitat in Montane Mesic Unit 5 are known to occur in the Project Area (Appendix D; Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b).

Lowland Dry – Unit 5 encompasses approximately 98 acres of the Project Area and is designated critical habitat for 18 listed species. At the time of designation, this unit was occupied by nine of the species: *Asplenium dielerectum*, *Bidens campylotheca* subsp. *pentamera*, *Cenchrus agrimonioides*, *Gouania hillebrandii*, *Kadua coriacea*, *Remya mauiensis*, *Santalum haleakalae* var. *lanaiense*, *Spermolepis hawaiiensis*, and *Tetramolopium capillare* (USFWS 2016a). However, none of the 18 listed species with critical habitat in Lowland Dry Unit 5 are known to occur in the Project Area (Appendix D; Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b). The DOFAW Manawainui Plant Sanctuary, which is situated in Lowland Dry Unit 5 and located adjacent to the upper eastern boundary of the Project Area, harbored two listed plant species, *Remya mauiensis* and *Asplenium dielerectum*, at the time of critical habitat designation (USFWS 2016a).

Vegetation within the LOD

Eighteen plant species that are native to the Hawaiian Islands were observed during the April 2025 botanical survey of the LOD (Appendix D), including 7 species which are endemic to and found only in

the Hawaiian Islands (Table 3-10). None of these Native Hawaiian plant species are listed as threatened or endangered under the ESA or HRS 195, and the species are considered common throughout the Hawaiian Islands. Native plant species increase in dominance toward the uppermost turbine toward the summit of Mauna Kahālāwai. The following sections provide details of the vegetation within the Project's LOD based on the April 2025 botanical survey.

Upper Elevation:

Non-native grassland occurs as patches in the upper elevation portion of the LOD (above 3,000 feet in elevation) and is primarily comprised of kikuyu (*Cenchrus clandestinus*), broomsedge (*Andropogon virginicus*), and molasses grass (*Melinus minutiflora*). Native mesic shrubland vegetation primarily occurs around the upper four wind turbines, between 3,000 and 3,200 feet in elevation, and consists of low stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻulei (*Osteomeles anthyllidifolia*), and pūkiawe (*Leptecophylla tameiameiae*) with native ferns uluhe (*Dicranopteris linearis* f. *linearis*), palaʻā (*Odontosoria chinensis*), and kīlau (*Pteridium aquilinum* subsp. *decompositum*). These native species increase in dominance toward the uppermost turbine and are more prevalent on the eastern side of the access road. Other native species present in or along the edges of the mesic shrubland include ʻilima (*Sida fallax*), ʻuhaloa (*Waltheria indica*), and ʻākia (*Wikstroemia oahuensis* var. *oahuensis*), which are common in occurrence, and koʻokoʻolau (*Bidens micrantha* subsp. *micrantha*), kawelu (*Eragrostis variabilis*), *Morelotia gahniiformis*, koali ʻawa (*Ipomoea indica*), and *Nephroia orbiculata*, which are rare in occurrence. Common non-native species primarily growing along the disturbed edges of the road and wind turbine pads include fireweed (*Senecio madagascariensis*), hairy horseweed (*Conyza bonariensis*), narrow-leaved plantain (*Plantago lanceolata*), telegraph weed (*Heterotheca grandiflora*), spiny-bur (*Acanthospermum australe*), natal redtop (*Melinis repens*), partridge pea (*Chamaecrista nictitans* var. *glabrata*), bull thistle (*Cirsium vulgare*), balloon plant (*Asclepias physocarpa*), lantana (*Lantana camara*), and Christmas berry (*Schinus terebinthifolius*). Other non-native species present in the mesic shrubland but rare in occurrence are longleaf ironwood (*Casuarina glauca*), pukamole (*Lythrum maritimus*), Guinea grass (*Megathyrsus maximus*), sourbush (*Pluchea carolinensis*), Jamaican vervain (*Stachytarpheta jamaicensis*), and Philippine ground orchid (*Spathoglottis plicata*).

Mid-Elevation:

Around the mid-elevation area (between approximately 2,000 to 3,000 feet in elevation), the vegetation is characterized by non-native grasslands dominated by natal red top and broomsedge and edged or interrupted by patches of mixed non-native and native dry shrubland comprised of the natives ʻaʻaliʻi, ʻilima, and ʻākia, and non-native lantana and Christmas berry. Individuals of these species are also scattered within the grassland. Other native species present include ʻuhaloa, which was moderately common, and ʻōhiʻa lehua, ʻulei, pūkiawe, ʻiliahialoʻe (*Santalum ellipticum*), pili (*Heteropogon contortus*), and *Koeleria inaequalis*, which occur as lone to scattered individuals. Non-native weedy plants observed along the disturbed edges of the road and wind turbine pads in the mid-elevation area include fireweed,

partridge pea, bull thistle, hairy horseweed, indigo (*Indigofera suffruticosa*), narrow-leaved plantain, spiny-bur, and telegraph weed.

Longleaf ironwood is present throughout the mid-elevation portion of the LOD, ranging in occurrence from scattered individuals to dense patches with individuals up to approximately 20 feet in height. Scattered native plants, primarily ʻōhiʻa lehua and ʻilima, occur in understory gaps or along the edges of some of the patches of longleaf ironwood. Along the primary access road between approximately 2,000 – 2,700 feet in elevation, stands of longleaf ironwood dominate the road corridor edges. Disturbed edges of the road are sparsely vegetated with a few weed species, such as fireweed, hairy horseweed, indigo, and swollen fingergrass (*Chloris barbata*).

Low-Elevation:

In the lower elevation areas below 2,000 feet, vegetation along the primary access road is comprised of non-native grassland dominated by buffelgrass (*Cenchrus ciliaris*). A few individuals of the non-native kiawe (*Neltuma pallida*), koa haole (*Leucaena leucocephala* subsp. *leucocephala*), and klu (*Vachellia farnesiana*) as well as occasional scattered individuals of the native ʻuhaloa and ʻilima occur along road edges and within the grassland.

Table 3-10. Native Plant Species Recorded in the LOD During the April 2025 Botanical Survey

Scientific Name	Hawaiian/Common Name(s)	Status	Upper Elevation Non-native Grassland and Native Mesic Shrubland	Mid-Elevation Non-native Grassland and Dry Shrubland	Low-Elevation Buffelgrass Grassland
Bidens micrantha Gaudich. subsp. *micrantha*	koʻokoʻolau	E	✓		
Dicranopteris linearis (Burm. f.) Underw. f. *linearis*	uluhe	I	✓		
Dodonaea viscosa Jacq.	ʻaʻaliʻi	I	✓	✓	
Eragrostis variabilis (Gaudich.) Steud.	kawelu	E	✓		
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	pili	I		✓	
Ipomoea indica (Burm.) Merr.	koali ʻawa	I	✓		

Scientific Name	Hawaiian/Common Name(s)	Status	Upper Elevation Non-native Grassland and Native Mesic Shrubland	Mid-Elevation Non-native Grassland and Dry Shrubland	Low-Elevation Buffelgrass Grassland
Koeleria inaequalis (Whitney) Barberá, Quintanar, Soreng, & P.M. Peterson	no common name	E		✓	
Leptecophylla tameiameiae (Cham. & Schltdl.) C.M.Weiller	pūkiawe	I	✓	✓	
Metrosideros polymorpha Gaudich.[1]	ʻōhiʻa lehua	E	✓	✓	
Nephroia orbiculata (L.) L. Lian & Wei Wang	no common name	I	✓		
Morelotia gahniiformis Gaudich.	no common name	E	✓		
Odontosoria chinensis (L.) J. Sm.	palaʻā	I	✓		
Osteomeles anthyllidifolia (Sm.) Lindl.	ʻūlei	I	✓	✓	
Pteridium aquilinum (L.) Kuhn subsp. *decompositum* (Gaudich.) Lamoureux ex J. A. Thomson	kīlau	I	✓	✓	
Santalum ellipticum Gaudich.	ʻiliahialoʻe	E		✓	
Sida fallax Walp.	ʻilima	I	✓	✓	✓

Scientific Name	Hawaiian/Common Name(s)	Status	Upper Elevation Non-native Grassland and Native Mesic Shrubland	Mid-Elevation Non-native Grassland and Dry Shrubland	Low-Elevation Buffelgrass Grassland
Waltheria indica L.	ʻuhaloa	I	✓	✓	✓
Wikstroemia oahuensis (A. Gray) Rock var. *oahuensis*	ʻākia	E	✓		
Status: E = Endemic (native only to the Hawaiian Islands); I = Indigenous native to the Hawaiian Islands and elsewhere). 1. Represented by two varieties.					

HCP Mitigation Sites

The vegetation within the Makamakaʻole mitigation area is characterized as alien dry shrubland (Price et al. 2015). Approximately 3.8 acres of the southern portion of the Makamakaʻole mitigation area is within the Lowland Wet – Unit 4 critical habitat area. Lowland Wet – Unit 4 is designated critical habitat for 26 listed plant species. The unit was only occupied by two of these species, *Bidens conjuncta* and *Cyanea asplenifolia*, at the time of designation (USFWS 2016a). As part of the inspection and maintenance of predator resistant fencing, and predator monitoring and trapping, limited vegetation management may occur including activities such as weed whacking along the fence line to aid scavenger trapping.

The vegetation within the Haleakalā Ranch mitigation area is dominated by non-native plant species including non-native grasses as well as lantana (*Lantana camara*), strawberry guava (*Psidium cattleianum*), Bocconia (*Bocconia frutescens*), and fireweed (*Senecio madagascariensis*). The western half of the Haleakalā Ranch mitigation area is within the Lowland Dry – Unit 1. Lowland Dry Unit 1 is designated critical habitat for 19 listed plant species. This critical habitat unit was occupied by six of these species (*Bonamia menziesii, Cenchrus agrimonioides, Flueggea neowawraea, Melicope adscendens, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis*) at the time of designation (USFWS 2016a); however, no listed plants have been observed within the Haleakalā Ranch mitigation area during the previous mitigation efforts conducted since December of 2022. Vegetation management is conducted within the Haleakalā Ranch mitigation area as part of ongoing mitigation efforts and includes weed whacking along the fence line to aid scavenger trapping and regular mowing to maintain a low and lush grass status as preferred by the nēnē, and periodic removal of invasive species (such as Lantana camara)(KWP 2024a).

According to the Carbon Assessment of Hawaiʻi Land Cover Map, the vegetation within the Puʻu o Hōkū Ranch mitigation area is alien dry shrubland (Price et al. 2015). There is no designated critical plant habitat within the Puʻu o Hōkū mitigation area. The majority of vegetation within the Pūlama Lānaʻi

mitigation area is characterized as low-stature ʻōhiʻa wet forest, which is dominated by native vegetation (Price et al. 2015). Throughout the area are pockets of native and alien mesic shrubland. There is no designated critical habitat for plants within the Pūlama Lānaʻi mitigation area. The vegetation within the Kaheawa Pastures mitgation area would be the same or simular to the Project Area, as decribed above. A portion of the Kaheawa Pastures mitgation area may be within the Lowland Dry – Unit 5, which is designated critical habitat for 18 listed species.

3.8.1.3 Impacts from Existing KWP I Operations

Vegetation within the Project Area has been disturbed by the construction and operation of the existing KWP 1 facility. During construction, vegetation was cleared to grade and excavate the site for tower foundations, the O&M facility, and the KWP 1 substation. The Kaheawa access road was widened and secondary access roads were constructed to support KWP 1 construction and operations. Subsequently, the KWP 2 wind facility was constructed within the Project Area including 14 WTG, a second substation and a BESS building.

In addition to initial construction, ongoing operation of the KWP 1 facility has impacted vegetation in the Project Area, primarily due to vegetation management conducted in support of HCP compliance and its required post-construction mortality monitoring. Graveled, vegetation-free buffers are maintained within the graded areas of the turbine pads located within 230 feet of the base of the wind turbines, within a 30-foot buffer of the substation, switchyard, O&M building, and warehouse storage facility, and within the access roads (including a 3-foot buffer area on each side of the access roads. Since 2022, the KWP 1 has implemented the vegetation management goals outlined in the nēnē-specific vegetation management memo (Tetra Tech 2021a), developed with concurrence from DOFAW and USFWS, to reduce the amount of woody vegetation on site to minimize the attractiveness of onsite habitat to the nēnē in an attempt to minimize risk to the species (see Section 3.9.1.4*, Wildlife, Existing Environment, Listed Wildlife Species*). This program includes bi-annual herbicide treatments, and mechanical maintenance, as needed. The majority of vegetation management occurs within the LOD.

Impacts to plant critical habitat within the Project Area as a result of KWP I have been minimal. Critical habitat was designated after construction of KWP 1 and all vegetation management activities during operations remain among designated, previously disturbed areas. As part of commitments resulting from the construction of KWP 1, nearly 23,500 native plants were outplanted within the KWP area between 2007 and 2009 (KWP II 2010).

While activities during normal operations and maintenance have the potential to introduce or spread invasive species into the Project Area, foot and vehicle traffic are very limited (typically five people per day) and maintenance activities typically take place within previously disturbed areas. Additionally, KWP 1 implements a Wildfire Prevention Plan (TerraForm 2025) to minimize fire risk and subsequent impacts to vegetation and critical habitat. It should be noted that KWP 1 shares access to the Project Area with users such as the State of Hawaiʻi, the County of Maui, Hawaiian Electric, and does not have control over their protocols or actions.

3.8.1.4 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on vegetation and plant critical habitat, KWP LLC requires operational staff and contractors to take the following measures:

- Minimize the movement of plant or soil material between worksites to prevent the spread of detrimental pathogens and invasive species.
- Minimize the introduction and spread of invasive species associated with Project operations through the implementation of standard BMPs.
- Continue to implement the Project's Wildfire Prevention Plan (TerraForm 2025) to minimize fire impacts to vegetation.
- Revegetate areas that have been temporarily cleared of vegetation within thirty days of the completion of the ground clearing activity.

3.8.2 Potential Impacts and Mitigation Measures

3.8.2.1 Factors Considered in the Impact Analysis

Issues related to vegetation resources that have been identified during the scoping process for the Proposed Action and addressed in this subsection include: 1) direct impacts to native and rare plant species including those that may be host plants for listed animal species; 2) introduction of fungal pathogens (e.g., Rapid ʻŌhiʻa Death [ROD]), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coqui Frogs, etc.) or invasive plant parts (e.g., African Tulip, Octopus Tree, Trumpet Tree, etc.) that could harm native species and ecosystems; 3) use of native plant species for landscaping and revegetation that is appropriate for the area; 4) vegetation management to minimize attraction of Hawaiian goose to the Project Area and reduce the likelihood of nesting; and 5) avoidance, minimization, and mitigation measures to reduce impacts to vegetation and critical habitat generated by the Proposed Action.

Direct and indirect factors considered in determining whether the Proposed Action and No Action Alternatives would have a significant impact on vegetation resources include:

- Take of listed plant species;
- Loss to any population of plants that would result in a plant species being listed or proposed for listing as threatened or endangered;
- Degrading or destroying designated critical habitat;
- Introduction or increased spread of invasive species that would impact native vegetation; and
- Increased fire risk that would impact native vegetation.

3.8.2.2 Proposed Action

Continued Operations

As discussed above, no listed plant species have been documented within the Project Area prior to construction, throughout the life of KWP 1, or during a recent survey of the LOD (Appendix D). As such, the continued operation of the KWP 1 facility is anticipated to have no direct impact on listed plant species. However, the designated critical habitat for 28 species of listed plants within the Project Area could be directly and indirectly impacted by ground disturbance, personnel and equipment movement, and ongoing vegetation management activities. Most ground disturbance would take place within the initial maintenance period in which multiple WTG components would be inspected, repaired and/or replaced. These ground disturbing activities would occur entirely within areas previously disturbed during the initial construction of the KWP 1 facility. Vegetation management activities would also continue to occur during the 20-year additional operational period in areas where vegetation is currently managed. In addition to direct impacts, indirect impacts to designated critical habitat could result from the introduction or spread of invasive species and increased risk of fire during continued operations. These potential impacts to plant critical habitat would be avoided and minimized by implementing KWP 1's Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025). Because the plant critical habitat was designated after construction and initial operation of KWP 1, and given the Project would minimize impacts through appropriate plans and BMPs, continued operations would not have a significant adverse impact on plant critical habitat.

The continued operation of the KWP 1 facility may remove or disturb some native and non-native plant species within the LOD as a result of ground disturbance, personnel and equipment movement, and vegetation management activities. Similar to impacts to plant critical habitat, most ground disturbance would take place within the initial maintenance period. Civil works include recontouring the existing access roads, turbine pads, crane paths, and/or staging areas to prepare the site for equipment transport and maintenance activities. Ground disturbance and vegetation management activities during the initial maintenance period would be limited to previously disturbed areas and would involve removal/disturbance of no more than 23 acres of previously disturbed vegetation. Vegetation management activities would continue to occur during the 20-year additional operational period and could impact native plant species within the Project Area. Graveled, vegetation-free buffers would be maintained around each WTG, the substation and switchyard, the O&M building, and access roads (as described in Section 3.8.1.3, *Impacts from Existing KWP 1 Operations*). These activities could impact native vegetation, particularly in the upper elevations and mid-elevation areas where native vegetation is more common, though all native vegetation would be avoided to the extent practicable or translocated per the requirements of the CDUP.

None of the native plant species recorded within the LOD are considered rare throughout the Hawaiian Islands; thus, removal or disturbance of vegetation would not result in any plant species being listed or proposed for listing as threatened or endangered. Removal of the native ʻilima plant would be avoided to

the maximum extent practicable in order to avoid and minimize potential impacts to the endangered assimulans yellow-faced bee (see Section 3.9.2.2, *Wildlife, Proposed Action*). If vegetation removal is needed in areas outside of the existing maintained areas (i.e., outside of graded roads and pads, within 30 feet of buildings), a plant expert/botanist would be consulted, and any areas that are deemed appropriate to avoid would be flagged with highly visible tape or temporary perimeter fencing would be installed to prevent disturbance. Removed native plants may be translocated or replaced, if appropriate, as described in the KWP 1 Vegetation Management Plan (Appendix F). KWP would work with DOFAW and local experts to implement any native plant requirements as part of the Project's CDUP. This may include collecting native seeds and cuttings in the area, propagating native plants at local nurseries, and subsequently outplanting native plants at select locations within the site.

Indirect impacts to vegetation could result from the introduction or spread of invasive species and increased risk of fire during continued operations. Although non-native species (including some considered invasive) are already abundant within the Project Area, ground disturbance and the movement of KWP 1 personnel and equipment within the Project Area has the potential to introduce new invasive species to the area. Of particular concern is the introduction of ROD, vertebrate and invertebrate pests (e.g., little fire ants, coqui frogs) and certain invasive plants (e.g., African Tulip, Octopus Tree, Trumpet Tree, etc.) that could harm native species and ecosystems. ROD is not currently reported on Maui, but this fungal pathogen has the potential to impact ʻōhiʻa lehua, a biologically and culturally important tree that occurs within the Project Area. The risk of invasive species spread would be elevated during the initial maintenance period due to the presence of additional personnel and equipment within the Project Area. If revegetation is required following ground disturbance as part of the initial maintenance period, native species found in the area would be used for revegetation to the maximum extent practicable (e.g., pili grass, ʻaʻaliʻi). If it is not feasible to revegetate with native species, non-native plants may be used in coordination with DOFAW and local experts. To minimize the risk of introduction and spread of invasive species, KWP 1 would implement the protocols and BMPs described in the Invasive Species Prevention Plan (Appendix G).

In addition, wildfires can destroy native plant habitats and could create conditions that allow invasive species to outcompete native species that are less fire-adapted. KWP 1 would also continue to implement a Wildfire Prevention Plan (TerraForm 2025) to minimize the risk of fire during the extended 20-year operational period.

With the implementation of the KWP 1 Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025), continued operations would have minor, direct and indirect impacts to vegetation within the Project Area and Project vicinity.

HCP Compliance

As described above, KWP 1 conducts vegetation management within the Project Area to minimize attractiveness of onsite habitat to the nēnē and enhance fatality monitoring efficiency as part of HCP compliance. Vegetation management would continue to be conducted in a manner that minimizes impacts on designated critical plant habitat and native plants within the Project Area.

Offsite mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites may require limited ground disturbance at the respective mitigation sites, which could result in short-term, localized impacts on vegetation. As described in Section 3.8.1.2, *Existing Vegetation*, vegetation cover in the Makamakaʻole, Haleakalā Ranch, and Puʻu o Hōkū mitigation areas is characterized as alien dry shrubland, alien mesic grassland, alien dry grass land, and very sparse to unvegetated bare ground. Therefore, ground disturbance in these areas would primarily impact non-native species. However, most vegetation within the Pūlama Lānaʻi mitigation area is characterized as low-stature ʻōhiʻa wet forest, which is dominated by native vegetation. Precautions would be taken to avoid and minimize direct impacts to native vegetation within the Pūlama Lānaʻi mitigation area. In the long term, protection and/or restoration of foraging, roosting, and nesting habitats for ʻōpeʻapeʻa and assimulans yellow-faced bee would likely have a beneficial impact on native vegetation.

The movement of personnel, material, and equipment to and from the mitigation sites could also indirectly impact vegetation through the introduction and spread of invasive species. KWP 1 would draft and implement appropriate invasive species prevention measures to avoid the unintentional introduction or transport of new invasive species to HCP mitigation sites.

Overall, the measures implemented in the HCP are designed to achieve conservation goals while minimizing adverse effects on listed plant species and native vegetation. HCP compliance and mitigation activities proposed under the Project's HCP are expected to have negligible, short-term adverse impacts and long-term, beneficial impacts on vegetation within the ROI.

Decommissioning and Restoration

Decommissioning activities are expected to have short- and long-term, minor impacts on vegetation, from ground disturbance necessary for the dismantling and removal of the WTG, pads, and axillary structures, regrading to pre-construction contours (where feasible), and the movement of heavy equipment and vehicles used to dismantle and transport infrastructure.

In the short-term, dismantling and removal of above- and below ground structures, grading and re-contouring efforts and the movement of personnel and equipment would impact native vegetation and critical plant habitat. These impacts would result from decommissioning and removal of above-ground structures (e.g., turbines, substation, and the O&M building [if not left for KWP 2 use]) and below-ground structures (e.g., buried electric cables, WTG foundation pads). Decommissioning and ground disturbing activities would occur entirely within previously disturbed areas. To minimize impacts during decommissioning, KWP 1 would continue to implement relevant portions of its Vegetation Management Plan (Appendix F) and Invasive Species Prevention Plan (Appendix G), including procedures to avoid native plant species when possible, stabilize and revegetate disturbed areas, and prevent the introduction and spread of invasive species. With implementation of avoidance and minimization measures, decommissioning activities would have a minor, temporary impact on vegetation.

Following the dismantling and removal of KWP 1 infrastructure, restoration activities would take place to return the Project Area to preconstruction conditions to the extent practicable. Reclamation would take

place as soon as practicable following equipment removal, ideally before the next growing season following the completion of ground-disturbing activities, to minimize the spread and establishment of invasive weed species in affected areas. The WTG foundations would be filled with weed-free aggregate and soils. KWP would inspect potential off-site sources of materials (gravel, fill, etc.), and prohibit the import of materials from sites that are known or likely to contain seeds or propagules of invasive species. Disturbed areas would also be graded to preconstruction contours where feasible and revegetated per a decommissioning revegetation plan, which would be developed in consultation with DLNR. To protect the revegetated areas, signage would be established to provide the public with information about the reclamation efforts and further minimize human disturbance in the recovering revegetation zones. If needed, temporary fencing may be installed until reclamation goals are met and the site is fully restored. These reclamation activities are anticipated to have a long-term, beneficial impact on vegetation.

3.8.2.3 No Action Alternative

Under the No Action Alternative, KWP 1 would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential impacts to vegetation from decommissioning and restoration activities would be as described above, but would occur immediately, rather than at the end of the 20-year extended operational period. Decommissioning activities would directly disturb vegetation from removal of the above and below-ground structures, increased vehicular traffic, and the movement of heavy equipment and vehicles used to dismantle and transport infrastructure. Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions. Restoring the Project Area to its original conditions would likely result in a long-term beneficial impact on vegetation.

3.8.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on vegetation and critical plant habitat, under the Proposed Action, KWP 1 would continue to implement the measures outlined in Section 3.8.1., *Existing Avoidance, Minimization, and Mitigation Measures*. BMPs relevant to decommissioning would also be implemented under the No-Action Alternative. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential impacts from the Proposed Action and No Action Alternative:

- KWP 1 would implement the KWP 1 Vegetation Management Plan (Appendix F) and Wildfire Prevention Plan (TerraForm 2025).
- KWP 1 would implement the Invasive Species Prevention Plan (Appendix G) to minimize the introduction and spread of invasive species associated with the Proposed Action. This plan includes measures such as requiring any cutting or trimming of ʻōhiʻa be conducted by qualified personnel to ensure measures to reduce the risk of introducing ROD. The Maui Invasive Species Committee would be consulted, as appropriate.

- Prior to commencement of ground disturbing activities, all on-site Project staff and contractors would be provided the WEOP training. The training would include information on the sensitive native botanical resources and invasive species prevention protocols.
- Vegetation removal/management would be completed by a qualified vegetation management company.
- If vegetation removal is needed in areas outside of the existing maintained areas (i.e., around WTGs, roads, structures), a plant expert/botanist would be hired to determine if any areas with native plants should be avoided. Any areas to be avoided should be flagged with highly visible tape or temporary perimeter fencing should be installed to prevent disturbance. The plant expert/botanist may also supervise removal work, if needed. If removal is required, native plants may be translocated or replaced.
- Removal/disturbance of ilima would be avoided to the maximum extent practicable, as detailed in Section 3.9, *Wildlife*.
- Soil stabilization and erosion control measures would be executed following ground disturbance to avoid impacting native vegetation, particularly in the vicinity of the upper elevation turbine areas, as detailed in Section 3.4, *Geology, Topography, and Soils*.

3.8.2.5 Summary of Impacts

The Proposed Action would have no impact to minor adverse impacts on native vegetation and critical plant habitat, so long as avoidance, minimization, and mitigation measures are implemented as described above. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned, which would lead to immediate ground disturbance that would impact existing vegetation and habitat. However, restoration of the Project Area would result in long-term, beneficial impacts to vegetation. Table 3-11 summarizes potential impacts to vegetation and critical plant habitat from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on hazardous and regulated materials and waste based on the criteria listed in Section 3.8.2.1, *Factors Considered in the Impact Analysis*.

Table 3-11. Summary of Potential Impacts to Vegetation and Critical Plant Habitat

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning	
Take of listed plant species	No Impact	No Impact	No Impact	No Impact
Loss to any population of plants that would result in a plant species being listed or proposed for listed as threatened or endangered	No Impact	No Impact	No Impact	No Impact
Introduction or increased spread of invasive species	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)
Increased fire risk that would impact vegetation resources	Minor	Negligible	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)

3.9 Wildlife

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on terrestrial wildlife. Terrestrial wildlife include native and non-native bird, mammal, and invertebrate species. This section discusses common and rare wildlife species and their habitats, as well as state or federally-listed threatened or endangered species pursuant to the federal ESA or HRS Chapter 195D. The ROI for impacts to wildlife includes the Project Area and area in the immediate vicinity of the Project Area as well as the HCP mitigation areas.

On-site knowledge of wildlife species in the Project Area and immediate vicinity is well-known given 19 years of post-construction monitoring at KWP 1 (KWP 2025) and 13 years of monitoring at the nearby KWP 2 facility (KWP II 2025), as well as pre-construction surveys that occurred prior to facility construction (KWP 2006, SWCA 2011). Resources used to support the analysis of wildlife impacts include: KWP 1's current HCP (KPW 2006) and HCP annual reports (KWP 2024a; KWP 2025); KWP 2's HCP, as modified (SWCA 2011, SWCA 2019), and HCP annual reports (KWP II 2024; KWP II 2025); and KWP 1's Proposed HCP to support issuance of a new ITP and new ITL, which would cover incidental take that is anticipated to occur due to an additional 20.5 years[54] of Project operations (Tetra Tech 2025a). Impacts are described quantitatively for state or federally-listed threatened or endangered species, and qualitatively for all other wildlife species.

[54] KWP is requesting that the permit term of the ITP and ITL provide take coverage for approximately 23 years, though the Project would only be operational for up to 20.5 years within that period.

3.9.1 Existing Environment

3.9.1.1 Regulatory Framework

Federal Endangered Species Act

Species that are federally listed as threatened or endangered, as well as areas that have been designated as "critical habitat" for those species, are protected under the ESA (16 USC 1531-1544) as amended. Section 9 of the ESA prohibits take of any fish or wildlife species listed as endangered; take of threatened species is also prohibited, unless a species-specific exemption is granted. Take is defined as harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capturing, collecting, or the attempt to engage in any such conduct. The ESA also prohibits significant habitat modification or degradation where it kills or injures wildlife by significantly impairing essential behavioral patterns, such as breeding, feeding, or sheltering (50 CFR 17.3).

Section 10(a) of the ESA allows, under certain terms and conditions, for the incidental take of ESA-listed species by non-federal entities that would otherwise be prohibited by the ESA. Incidental take is defined as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity" (16 USC 1539 (a)(1)(B)). To obtain incidental take authorization, the Applicant must develop, fund, and implement a USFWS-approved HCP to minimize and mitigate to the maximum extent practicable the impact to the proposed taking. With approval of the HCP, USFWS also issues an ITP to allow for the incidental take of the species covered by the HCP.

Additionally, Section 7 of the ESA requires consultation with USFWS to ensure that any action authorized (permitted), funded, or carried out by a federal agency is not likely to result in the destruction or adverse modification of designated critical habitat. Critical habitat includes specific geographic areas that contain the physical or biological features essential to the conservation of one or more listed species. Critical habitat may or may not be occupied by one or more of the listed species at the time of designation. Prior to issuing an incidental take authorization under Section 10(a) of the ESA, USFWS would conduct an internal Section 7 review to determine if the federal action (i.e. issuance of an ITP) is likely to result in the destruction or adverse modification of designated critical habitat.

State Endangered Species Legislation - Hawai'i Revised Statutes Chapter 195D

HRS Chapter 195D states that any species recognized as endangered or threatened by the ESA shall be listed as such by state statute. HRS Chapter 195D also authorizes the state to list other species that are not also listed under the ESA. In many cases these species' listings are island-specific, rather than statewide. Like the ESA, the unauthorized "take" of such endangered or threatened species is prohibited (HRS §195D-4[e]).

HRS Chapter 195D is administered by the State of Hawai'i DLNR DOFAW. Under HRS §195D-4(g), the BLNR, after consultation with the State's ESRC, may issue an ITL to allow take otherwise prohibited if the take is incidental to the carrying out of an otherwise lawful activity. As part of the ITL application process, an applicant must develop, fund, and implement a BLNR-approved HCP to minimize and

mitigate the effects of the incidental take. The State of Hawai‘i also requires that all HCPs and their actions authorized under the HCP must result in an overall net benefit to the species being authorized for incidental take (HRS §195D-21).

Migratory Bird Treaty Act

Migratory birds, as well as some non-migratory birds that are endemic to the Hawaiian Islands, are protected under the federal MBTA (50 CFR Part 21). The MBTA prohibits the take (including killing, capturing, selling, trading, and transport[55]) of protected migratory bird species without authorization from USFWS. Many species that were intentionally introduced to the Hawaiian Islands from the continental United States are now protected under the MBTA despite being non-native. MBTA does not exclude a species from protection in designated parts of its range, so a species protected by the MBTA is protected anywhere it might occur nationwide, even in locations where they are non-native and introduced by humans. On January 7, 2021, the USFWS published a final rule providing that the scope of the prohibition of take under the MBTA applies “only to actions directed at migratory birds, their nests, or their eggs,” and does not prohibit incidental take (i.e., take that is not the purpose of an activity) (86 Fed. Reg. 1134 [January 7, 2021]). On April 11, 2025, the Acting Solicitor for the USFWS issued a one page legal opinion[56] concluding that the prohibitions of the MBTA do not apply to the accidental or incidental taking or killing of migratory birds.

3.9.1.2 Non-Listed Wildlife Species and MBTA-Protected Birds

Project Area

The grassland and shrublands within the Project Area provide habitat for both native and non-native wildlife. Wildlife species recorded in the Project Area and vicinity are generally those common in lowland and mid-elevation environments. The Project area is an operating wind facility and much of the area around the turbine pads and the site access roads is disturbed (e.g., graded and graveled) from the ongoing use. See Section 3.8, *Vegetation* and the Botanical Survey Report (Appendix D) for additional information on the vegetation found within the Project Area.

Both native and non-native birds are expected to occur within the Project Area and vicinity. Migratory and indigenous birds protected by the MBTA are known to or have the potential to occur in or fly through the Project Area; these include (but are not limited to) the kōlea (Pacific golden-plover; *Pluvialis fulva*), koa‘e kea (white-tailed tropicbird; *Phaethon lepturus*), ‘ewa‘ewa (sooty tern; *Onychoprion fuscatus*), ‘ua‘u kani (wedge-tailed shearwater; *Ardenna pacifica*), and ‘ūlili (wandering tattler; *Tringa incana*), as well as the endemic pueo (Hawaiian short-eared owl; *Asio flammeus sandwichensis*) and

[55] The MBTA statute does not define take. Regulations (50 CFR 10.12) define take to mean: “To pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.” This definition applies to the MBTA and regulations in 50 CFR Part 21.

[56] See: https://www.doi.gov/sites/default/files/documents/2025-04/m-37085.pdf

ʻapapane[57] (*Himatione sanguinea*) (Nishibayashi 1997, Nishibayashi 1998, First Wind 2013; KWP 2006, KWP 2024a, Tetra Tech 2025a). Additional non-native MBTA-protected species that have been introduced to the Hawaiian Islands and are known to occur in the Project Area include (but are not limited to) the barn owl (*Tyto alba*), cattle egret (*Bubulcus ibis*), house finch (*Haemorhous mexicanus*), and northern mockingbird (*Mimus polyglottos*). Several listed bird species are known to or have the potential to occur in or fly through the Project Area as further described in Section 3.9.1.4, *Listed Wildlife Species*.

Non-native mammals documented within the Project Area are all invasive species and include mice (*Mus musculus*), rats (*Rattus* spp.), small Indian mongoose (*Herpestes javanicus*), feral cats (*Felis catus*), dogs (*Canus familiaris*), and axis deer (*Axis axis*) (KWP 2006, KWP 2024a, Tetra Tech 2025a). The ʻōpeʻapeʻa (Hawaiian hoary bat; *Lasiurus semotus*) is the only extant native terrestrial mammal known to occur in Hawaiʻi and has also been documented within the Project Area as further described in Section 3.9.1.4, *Listed Wildlife Species*.

Native and non-native invertebrates may occur within the Project Area. Listed invertebrate species with the potential to occur in the Project Area are further described in Section 3.9.1.4, *Listed Wildlife Species* below.

HCP Mitigation Sites

Several of the HCP mitigation sites for Covered bird species are enclosed by predator-limiting fencing intended to have a positive impact on protected species within the enclosure. The Makamakaʻole area in West Maui is a managed seabird enclosure originally intended to promote breeding of two endangered seabird species: the ʻuaʻu (Hawaiian petrel) and ʻaʻo (Newell's shearwater). Although the ʻuaʻu has not been documented breeding within the enclosed mitigation area, breeding may occur in the vicinity. ʻAkēʻakē (Band-rumped storm petrel) breeding is also suspected to occur in the vicinity of the Makamakaʻole mitigation area (Maui Nui Seabirds, pers comm., February 20, 2025) and therefore both species (ʻuaʻu and ʻakēʻakē), as well as the ʻaʻo which has been documented breeding within the fenced enclosure, may utilize the airspace above and within the Makamakaʻole mitigation site for transiting and may nest within the Makamakaʻole mitigation site at some point during the proposed mitigation activities. Within and in the vicinity of the Haleakalā Ranch and Puʻu o Hōkū Ranch mitigation areas are managed populations of nēnē. Nēnē are therefore anticipated to utilize both sites, as well as any other nēnē mitigation site chosen through adaptive management. Within the Pūlama Lānaʻi mitigation area in the Greater Hiʻi area of Lānaʻi, breeding colonies of ʻuaʻu occur. Wildlife within the Kaheawa Pastures mitgation area would be the same or simular to the Project Area, as decribed above. See Section 3.9.1.4, *Listed Wildlife Species* for more information on the impacts of current KWP 1 operations and mitigation activities on these listed species.

Various invasive wildlife species are present in the vicinity of these mitigation areas including invasive feral cats, dogs, barn owls, rats, and mongoose. Feral pigs (*Sus scrofa*) may have range overlap with

[57] Generally occurs in native forests above 1,250 meters, however a single fatality was detected in 2012 at the KWP 2 wind facility.

mitigation areas, but are not known to be present. Mitigation activities are intended to suppress invasive wildlife through exclusion and removal with predator control efforts (see below section). Additionally, many species of non-native and native birds are known to occur within and transit through the mitigation areas. For example, pueo have been consistently documented at the Haleakalā Ranch mitigation area.

Impacts of the Existing KWP 1 Facility

Habitat Removal

As described in Section 3.8, *Vegetation*, habitat within the Project Area has been previously disturbed by historic grazing, wildfire, and the construction of the KWP 1 and KWP 2 facilities. Construction and operation of the KWP 1 facility resulted in loss of wildlife habitat where vegetation removal was required and permanent structures placed (e.g., WTG pads, substation, and access roads). The original construction of the KWP 1 facility disturbed approximately 58 acres of land within the KWP 1 lease area. However, since construction was completed in 2006, both native and non-native vegetation has reestablished in some previously disturbed areas, in part due to KWP 1 outplanting nearly 23,500 native plants between 2007 and 2009, as part of post-construction commitments (KWP II 2010). Within the 58 acres LOD, approximately 35 acres are maintained as vegetation free, impervious and semi-impervious surfaces (e.g., buildings, turbine pads, gravel laydown areas, and access roads). For more information on vegetation management occurring in the Project Area, see Section 3.8.1.3*, Vegetation, Existing Environment, Impacts from Existing KWP 1 Operations.* KWP 1 implements the avoidance, minimization, and mitigation measures listed in Section 3.8.1.4, *Vegetation, Existing Avoidance, Minimization, and Mitigation Measures* to minimize impacts to native vegetation which would also minimize impacts to native and non-native wildlife habitat.

With regard to the KWP 1 HCP Mitigation sites, existing mitigation activities at the Makamakaʻole and Pūlama Lānaʻi mitigation areas contributed to the conservation of native and listed Hawaiian seabirds through dedicated habitat management, predator control, and the creation of predator-excluded breeding environments using techniques like artificial burrows and social attraction (Makamakaʻole only). Both the Haleakalā Ranch and Puʻu o Hōkū Ranch mitigation areas are actively involved in nēnē conservation. Nēnē release pens are located at both sites and provide short-grass habitat, predator-resistant release pens for nēnē goslings to mature and fledge, and active predator trapping to support nesting. Habitat enhancement features also support nēnē adult survival and fledgling success including supplemental water, supplemental food during the breeding season, maintained vegetation creating protected areas from aerial predators, and mowing. Ongoing mitigation activities not only provide a benefit to listed species but provide a safe harbor for other native and MBTA-protected birds that may occur or transit through these sites. See Section 3.9.1.4*, Listed Wildlife Species*, for further details.

Behavioral Disturbance

The original construction of KWP 1 and ongoing O&M activities has resulted in low levels of noise and visual disturbance within the Project Area and vicinity. Noise during construction of KWP 1 was

temporary and localized. The presence of the turbines (and associated noise/motion) in the airspace above the Project Area, may have resulted in long-term alterations in habitat use and foraging activities by birds as they foraging in and transit through the Project Area. However, wildlife species have had over 19 years to adapt to their presence. Wildlife are expected to exhibit avoidance behavior and relocate to nearby areas when disturbed. As described in Section 3.11, *Noise*, KWP 1 implements BMPs to avoid and minimize noise impacts to wildlife.

Electric and magnetic fields (EMF) are invisible lines of force associated with the production, transmission, and use of electric power. EMFs associated with high-voltage alternating current power lines similar to the generator-tie line portion of KWP 1 are termed extremely low frequency because they are within the range of 3 to 3,000 hertz. Measurements of EMF recorded in wind farm sites have shown very low magnetic fields at the base of a WTG, and no detectable magnetic field at 25 feet (Windrush 2004 as cited in Tetra Tech 2011). The base of the WTG and up to 25 feet around its base is maintained as concrete or gravel road surface and would provide little wildlife habitat; thus, wildlife are not expected to be exposed to EMF in amounts that would cause adverse impacts.

Direct Mortality

Birds, including those protected by the MBTA, are susceptible to collisions with wind turbines, vehicles, and other structures (e.g., powerlines, met tower). KWP 1 has conducted post-construction fatality monitoring since 2006 to assess impacts on both listed and non-listed species as a result of their wind facility operations. Documented fatalities of non-listed avian species at the KWP 1 facility since 2006 are summarized in Table 3-12.

Table 3-12. Summary of Non-Listed Bird Fatalities Documented at KWP 1 through FY 2025

Common/Hawaiian Name	Scientific Name	Status	Number Documented Fatalities over 19 Years
Ring-necked Pheasant	*Phasianus colchicus*	NN	37
Gray Francolin	*Francolinus pondicerianus*	NN	32
Black Francolin	*Francolinus francolinus*	NN	27
Koaʻe kea (White-tailed tropicbird)	*Phaethon lepturus*	MBTA, I	25
Pueo (Hawaiian short eared owl)	*Asio flammeus sandwichensis*	MBTA, E	16
Japanese White-eye or Warbling White-eye	*Zosterops japonicus*	NN	12
Eurasian Skylark	*Alauda arvensis*	NN	11
Common Myah	*Acridotheres tristis*	NN	6
Kōlea (Pacific golden-plover)	*Pluvialis fulva*	MBTA, M	4
Spotted Dove	*Spilopelia chinensis*	NN	4
African Silverbill	*Lonchura cantans*	NN	4
Barn Owl	*Tyto alba*	MBTA, NN	2

Common/Hawaiian Name	Scientific Name	Status	Number Documented Fatalities over 19 Years
House Finch	*Haemorhous mexicanus*	NN	2
Nutmeg Manakin	*Lonchura punctulata*	NN	2
Northern Mockingbird	*Mimus polyglottos*	MBTA, NN	1
Rock Pigeon	*Columba livia*	NN	1
ʻEwaʻewa (Sooty Tern)	*Onychoprion fuscatus*	MBTA, I	1
ʻUaʻu kani (Wedge-tailed shearwater)	*Ardenna pacifica*	MBTA, I	1
House Sparrow	*Passer domesticus*	NN	1
Zebra Dove	*Geopelia striata*	NN	1
Status: I = Indigenous, E = Endemic, NN = Non-native established species, M = Migrant, MBTA= Protected under the MBTA.			

As noted in Section 3.9.1.1, *Regulatory Framework*, the current interpretation of the MBTA by the USFWS is the prohibitions of the MBTA do not apply to the accidental or incidental taking or killing of migratory birds. Furthermore, take permits for MBTA-protected species are not available. Therefore, the USFWS exercises discretionary prosecutorial authority in this respect where a wind facility demonstrates a good faith effort to avoid and minimize take of MBTA species. As of FY 2025, out of the 190 non-listed bird fatalities detected at the KWP 1 wind facility, 26 percent have been MBTA-protected species and 75 percent are non-native species. Non-protected species constitute the greatest proportion of fatalities detected at the facility.

As previously mentioned, predator trapping is conducted within the Project Area and the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch and Pūlama Lānaʻi mitigation areas to reduce predation of Covered Species. This has resulted in the direct fatality or removal of feral cats, rats, and mongoose (KWP 2024a)[58]. Barn owl control was also implemented at the Makamakaʻole site.

Invertebrates may be injured or killed by collisions with equipment and vehicles used as part of KWP 1 operations and mitigation activities. However, as on-site traffic is infrequent and low speed limits are observed, the likelihood of impacts to invertebrates is low.

3.9.1.3 Designated Critical Habitat for Listed Species

Project Area

In addition to the plant critical habitat (see Section 3.8.1.2, *Existing Vegetation*), critical habitat has been designated by the USFWS within the Project Area for two endangered forest bird species—the ʻakohekohe (crested honeycreeper; *Palmeria dolei*) and kiwikiu (Maui parrotbill; *Pseudonestor*

[58] Currently, there is no program in place for the removal of avian predators, including the pueo.

xanthophrys) (USFWS 2016a) (Figure 3-9)[59]. Montane Mesic – Unit 5 encompasses approximately 11 acres of the northernmost portion of the Project Area and is unoccupied critical habitat for the ʻakohekohe and kiwikiu. This critical habitat was designated in 2016, well after construction of KWP 1 in 2006. Neither of these forest bird species are known to occur within or near the Project Area and neither have been documented as fatalities (KPW 2024a). DOFAW also concurred that the KWP 1 footprint is most likely unoccupied critical habitat for the ʻakohekohe and kiwikiu (see Appendix B). Additional critical habitat for these two birds occurs in the vicinity of the Project Area including in Lowland Mesic – Unit 3 to the northwest and Wet Cliff – Unit 6 and Montane Wet –Unit 7 to the north (USFWS 2016a).

HCP Mitigation Sites

Two of the mitigation areas contain designated critical habitat for listed wildlife: Makamakaʻole and Haleakalā Ranch. Approximately 3.8 acres of the southern portion of the Makamakaʻole mitigation area is within Lowland Wet – Unit 4, designated critical habitat for ʻakohekohe and kiwikiu. Neither bird species was known to occur in the area at the time of designation (USFWS 2016a). The designation as critical habitat occurred after construction of the predator fencing and establishment of the artificial burrows.

Roughly 0.5 acres within the western half of the Haleakalā Ranch mitigation area is designated critical habitat for the endangered Blackburn's sphinx moth. This area represents 0.00004 percent of the total 11,858 acres that make up the Kahikinui – Unit 4 critical habitat area. Blackburn's sphinx moth were known to occur in this critical habitat unit (Unit 4: Kahikinui) during the time of designation (USFWS 2003); however, key habitat features such as tree tobacco (*Nicotiana glauca*) and other known food and nectar source plants are not present within the mitigation area limiting the ability of the species to be present.

Neither the Puʻu o Hōkū Ranch, Pūlama Lānaʻi nor the Kaheawa Pastures mitigation sites are within designated wildlife critical habitat.

Impacts of Existing KWP 1 Operations

Routine O&M activities including limited ground disturbance, personnel and equipment movement, and vegetation management activities occur within approximately 1 acre[60] of the Montane Mesic – Unit 5 designated critical habitat for the ʻakohekohe and kiwikiu. KWP 1 O&M activities take place in areas previously disturbed by the construction of KWP 1, which predates the designation of Montane Mesic – Unit 5. As described above, neither species are known to occur within or near the Project Area and neither species has been documented during the 19 years of post-construction monitoring (KWP 2024a). It is not expected that any KWP 1 Project operational activities that have occurred since designation as critical habitat have had an impact on any potentially suitable habitat, as no further habitat loss has

[59] Lowland Dry Unit 5 encompasses approximately 98 acres of the Project Area and is designated critical habitat for 18 listed plant species. Lowland Dry Unit 5 is not a designated critical habitat for avian or terrestrial wildlife.

[60] Project LOD within the Montane Mesic – Unit 5 designated critical habitat area. The majority of the 1 acre is heavily disturbed, semipervious, or impervious surfaces and is not high-quality habitat for ʻakohekohe and kiwikiu.

occurred, and neither species has been documented as a fatality from operations during 19 years of post-construction monitoring (KWP 2024).

As previously stated, mitigation activities occur within designated critical habitat for ʻakohekohe, kiwikiu, and Blackburn sphinx moth. As described above, neither ʻakohekohe nor kiwikiu are known to occur within the Makamakaʻole mitigation area (Lowland Wet – Unit 4). None of the activities occurring at the mitigation site since designation (e.g., predator trapping, social attraction) are expected to have had any negative impact on either species. Blackburn sphinx moth is not known to occur within the Haleakalā Ranch mitigation area (Kahikinui – Unit 4) due to a lack of host plants. It is not expected that the construction of the pen at Haleakalā Ranch, or management activities conducted since then, have had any impact on the Blackburn's sphinx moth. Mitigation activities have occurred in small portions of the designated critical habitat areas at both sites, and are designed to conserve listed species.

Indirect impacts to critical habitat from the introduction or spread of invasive species and increased risk of fire are minimized through the implementation of BMPs and invasive species management (see Section 3.8, *Vegetation*).

3.9.1.4 Listed Wildlife Species

The current HCP for KWP 1 included coverage for four federally and state-listed wildlife species: the ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), and ʻaʻo (Newell's shearwater) (KWP 2006). Table 1-2 provides a summary of the permitted and current level of take authorized in KWP 1's current HCP/ITL/ITP, for each of these four Covered Species.

The Covered Species for the Proposed Action include the four species covered in KWP 1's current HCP/ITP/ITL. Take coverage for two additional species, the ʻakēʻakē (Band-rumped storm petrel) and assimulans yellow-faced bee, is being sought based on discussions with DOFAW and USFWS (Tetra Tech 2025a). Of the Covered Species the nēnē and the assimulans yellow-faced bee are known to use habitat in the Project Area, the ʻōpeʻapeʻa is known to be active within the Project Area, and while the listed seabirds have the potential to occasionally transit through the Project Area, only ʻuaʻu has been documented as a fatality.

As described in Section 2.1.3.2, *HCP Compliance Monitoring*, KWP 1 implements a year-round fatality monitoring program to document downed (i.e., injured or dead) wildlife incidents resulting from facility operation. This monitoring is used to estimate impacts to Covered Species, ensure KWP 1 is within the permitted take amount for each species, and trigger adaptive management, if needed. KWP 1 calculates the total estimated take of Covered Species, which accounts for factors such as unobserved take and estimated indirect take using fatality modeling tools. USFWS and DOFAW require the 80 percent UCL of take be used to conservatively represent the estimate of direct take. Use of the 80 percent UCL for take estimation means that there is an 80 percent probability that actual mortality is equal to or less than the predicted mortality. The UCL of take is estimated from three components: 1) observed direct take detected during standardized fatality monitoring; 2) estimated unobserved direct take; and 3) estimated indirect take to account for the loss of future offspring.

Beyond the five Covered Species, one additional listed species, the Blackburn's sphinx moth, has the potential to occur in or transit the Project Area or its vicinity and was considered for coverage (Tetra Tech 2025a). One additional species of cultural significance in Hawai'i, the pueo, was also considered (Tetra Tech 2025a).

Covered Species

'Ōpe'ape'a (Hawaiian Hoary Bat)

Biology, Population, Distribution, and Threats

The 'ōpe'ape'a was listed as federally endangered in 1970 under the ESA and is listed as state endangered under HRS Chapter 195D. 'Ōpe'ape'a is the only extant native terrestrial mammal known to occur in the Hawaiian archipelago (DLNR 2024a). 'Ōpe'ape'a are endemic to the Hawaiian Islands, found on the islands of Hawai'i, Maui, Kaua'i, Moloka'i, Lāna'i, and O'ahu (USFWS 2021a). Historical observations of bats have occurred at all elevations across the six major Hawaiian islands, including up to 13,200 feet on Hawai'i Island (Baldwin 1950, Hawai'i Natural Heritage Program 1996). The movements of 'ōpe'ape'a across elevational gradients are influenced by seasonal variations in insect abundance, temperature, rainfall, and reproductive requirements (Menard 2001, Todd 2012, Gorresen et al. 2013).

The 'ōpe'ape'a is regarded as a habitat generalist and demonstrates considerable flexibility in its use of native and non-native habitats for roosting and foraging. 'Ōpe'ape'a roost alone or with dependent young in native and nonnative trees, typically more than 15 feet tall (Montoya-Aiona et al. 2023). The pupping season extends from June to September; the USFWS and DOFAW currently recommend avoiding trimming woody vegetation over 15 feet tall from June 1 to September 15 while pups are unable to fly (Amlin and Siddiqi 2015). 'Ōpe'ape'a primarily feed on nocturnal moths and beetles (Jacobs 1999), which they hunt in flight across a wide array of habitat types and plant communities from sea level to at least 11,800 feet above sea level (Todd 2012, Gorresen et al. 2013, Bonaccorso et al. 2015, Gorresen et al. 2015, Bonaccorso et al. 2016, Todd et al. 2016, Johnston et al. 2019).

The population status of 'ōpe'ape'a is currently unknown and it is not considered feasible to determine an actual population estimate for a single island at this time (ESRC and DOFAW 2024). Currently, the ESRC guidance suggests assuming that the population is not more than 1,500 individuals on Maui (ESRC and DOFAW 2024); however, the accuracy of this population assessment is questionable as it is based on "extremely limited information" (ESRC and DOFAW 2024). No island wide surveys have been conducted for the islands of Kaua'i and Maui. From the limited studies that have been conducted on Maui 'ōpe'ape'a appear to have a wide distribution and forage across the fragmented habitats on Maui (Todd et al. 2016, H.T. Harvey 2019). Population trends based on changes in estimates of annual rates of occupancy have been conducted on the islands of Hawai'i and O'ahu and suggest that the populations of bats on these islands are stable to increasing (Gorresen at al. 2013, Thompson and Starcevich 2022). When combined with the estimates from O'ahu and Hawai'i Island, the statewide population is estimated at 6,600 individuals, though this does not include estimates from other islands (ESRC and DOFAW 2024). Genetic analyses of 'ōpe'ape'a indicate that Maui harbors the highest per-island genetic

diversity compared to the islands of Hawai‘i, O‘ahu, and Kaua‘i, supporting the hypothesis that Maui may have been an original source population in the species’ colonization history (Pinzari et al. 2023).

Although the ‘ōpe‘ape‘a has shown remarkable flexibility in its use of habitats, the species’ adaptability does not make it immune to threats. Documented sources of direct mortality include wind energy infrastructure through collision with wind turbines and collision and impalement on barb wire fences (USFWS 2021a; Zimpfer and Bonaccorso 2010). Other threats or sources of pressure include food competition (Bernard et al. 2016) and the loss and degradation of habitat, particularly from development and agriculture, that contribute to the loss and availability of suitable foraging and roosting areas (USFWS 1998). Unfortunately, the full breadth of threats affecting the species are not well understood and require further investigation and study.

Occurrence in the Project Area and Impact of Current KWP 1 Operations

Occurrence in the Project Area is informed by on-going monitoring at KWP 1 and 2, and relevant research in Hawai‘i. Post-construction fatality monitoring has occurred at KWP 1 since operations began in 2006 and post-construction acoustic monitoring for bat activity at KWP 1 has been ongoing since August 2008 (KWP 2024a). However, due to technological updates in monitoring equipment and sampling periods, the acoustic monitoring data analyzed in the HCP and EIS begins in FY 2014 and runs through FY 2024. The objective of bat acoustic monitoring is to understand annual and seasonal variations in bat activity. Monthly bat detection rates from FY 2014 to FY 2024 are shown in Figure 3-10. From FY 2014 to FY 2024, there were marginal fluctuations in interannual detection rates, and acoustic activity follows a general trend of peaking during the lactation, a period of high energetic demand, and post-lactation periods (Tetra Tech 2025a). There has been a significant increasing trend in the annual bat detection rates at KWP 1 between FY 2015 and FY 2024 (KWP 2024a). Acoustic monitoring at the Project would continue under the Proposed Action.

Limited bat roosting habitat is present within the Project Area due to the minimal number of trees greater than 15 feet; however, some trees over 15 feet are present (e.g., Christmas berry, ironwood, and kiawe) and have the potential to be used for roosting (DOFAW 2015, USFWS 2022a).

‘Ōpe‘ape‘a are susceptible to collisions with wind turbines. As of the end of FY 2025 (i.e., June 30, 2025), a total of 13 ‘ōpe‘ape‘a fatalities have been observed at KWP 1 since operations began in June 2006. At the end of FY 2025, the estimated direct take of bats at KWP 1 was calculated as less than or equal to 28 bats (80 percent UCL) and estimated indirect take is 4 adults (rounded up to the nearest whole bat). Therefore, the UCL for cumulative Project take of the ‘ōpe‘ape‘a at the 80 percent credibility level is 32 adult bats (28 estimated direct take + 4 estimated indirect take). That is, there is an approximately 80 percent probability that cumulative take at KWP 1 at the end of FY 2025 is less than or equal to 32 bats (Tetra Tech 2025a). At KWP I, bat fatalities have been discovered in 8 of the 12 months. Spatially, fatalities have been documented at nine of the 20 turbines (Tetra Tech 2025a).

KWP currently implements measures to avoid and minimize impacts to the ‘ōpe‘ape‘a. The KWP 1 facility implemented low wind speed curtailment (LWSC) in 2014 to minimize bat fatalities and has been in place annually from February 15 through December 15 since the initial implementation. Of the 13 observed

fatalities at KWP 1, five have occurred since implementation of LWSC (Tetra Tech 2025a). Additionally, KWP 1 staff and contractors are advised to not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15). If tree removal is needed during the pupping season (due to a conflict with nēnē breeding season or for a site safety issue), a biological monitor would evaluate the trees first for roosting bats in coordination with USFWS and DOFAW.

Existing Measures to Mitigate Impacts from Unavoidable Take

Mitigation to offset take of 50 adult ʻōpeʻapeʻa authorized by the HCP has been completed. Mitigation for Tier 1 bat take of 20 bats was completed in 2006 and Tier 2 mitigation for the take of up to an additional 30 ʻōpeʻapeʻa was completed in 2020. Tier 1 and Tier 2 mitigation included funding ecological research by H.T. Harvey Ecological Consultants and USGS to inform future bat mitigation and conservation. In conjunction with the KWP 2 mitigation, a total of $1,831,500 was funded towards research as mitigation (KWP 2024a). KWP 1 has achieved a net benefit to the ʻōpeʻapeʻa based on mitigating for an additional 18 bats above the current take level (i.e., 50 bats minus 32 cumulative take) through this research funding (Tetra Tech 2025a). The long-term benefits have been realized through publication of the research, presentation of the research at conferences, and incorporation of the research into DOFAW and ESRC guidance (e.g., ESRC and DOFAW 2024), which would be used for future project siting and mitigation.

Nēnē (Hawaiian Goose)

Biology, Population, Distribution, and Threats

Nēnē are listed as federally threatened under the ESA and state endangered under HRS Chapter 195D. Nēnē, which evolved from Canada geese (*Branta canadensis*), are endemic to the Hawaiian Islands. Nēnē use various habitat types, including high-elevation lava flows, volcanic deserts, grasslands, and shrublands (Banko et al. 2020, Tetra Tech 2025a). Although they are not obligate waterbirds, nēnē also use surface waters, such as wetlands, reservoirs, and streams (USFWS 2022b). Nēnē are highly terrestrial and often exploit highly altered habitats such as pastures and golf courses (Banko et al. 2020). On Maui, they inhabit elevations of 5,500-8,000 feet on Haleakalā and 3,000-4,000 feet on Mauna Kahālāwai (West Maui Mountains) (NPS 2023). Nēnē are non-migratory but may move between elevations seasonally to access resources (USFWS 2022b). Seasonal movements are typically in response to seasonal changes in food availability, which is related to rainfall. On Maui, nēnē movements are primarily within mid- and high-elevation habitats (Banko et al. 2020).

Nēnē breed from August to April in various substrates ranging from coastal lowlands to alpine areas. Nests are placed on the ground hidden under shrubs or trees, with one to six eggs and a mean clutch size of 3.1 eggs (Banko et al. 2020). Incubation lasts about 30 days, with both parents involved. Shortly after hatching, the chicks are able to walk and feed, and fledge at 10 to 14 weeks of age (Banko et al. 2020).

Nēnē were once widely distributed among the main Hawaiian Islands, but populations declined significantly during the 19th and 20th centuries due to habitat loss, hunting, and the introduction of predators such as mongoose, rats, and cats. By the 1950's, fewer than 30 individuals remained in the wild (USFWS 2022b). Extensive conservation efforts began in the mid-20th century and included captive breeding programs and habitat restoration and led to the release of over 2,000 nēnē between 1960 and 1997 (USFWS 2022b). As a result, the nēnē was successfully reintroduced to several Hawaiian Islands, including Hawai'i, Maui, and Kaua'i (USFWS 2022b). The state population has since rebounded to around 3,800 individuals, with birds occurring on the islands of Hawai'i, Maui, and Kaua'i, Moloka'i (Nēnē Recovery Action Group 2024). On Maui, the estimated population grew from 236 nēnē in 1997 (Black et al. 1997) to 429 in 2023 (Nēnē Recovery Action Group 2024). The USFWS determined that populations on Maui are stable without external supplementation (84 CFR 69918-69947).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

DOFAW began establishing a population of nēnē in Mauna Kahālāwai (West Maui mountains) and released 104 nēnē from 1994 through 2006 at the Hanaula release pen (DOFAW 2009, as cited in KWP II 2019), which is located approximately 1,800 feet northeast of the nearest KWP 1 turbine (Turbine 01). The pen was managed through approximately 2018 (DOFAW HCP, pers. comm., February 13, 2025). The exact distribution and movements of the birds released at Hanaula are not well documented, although they have been recorded as far west as Lahaina and as far east as Haleakalā National Park, indicating that at least some birds from this release site move extensively around the island (KWP 2006). The Nēnē Recovery Action Group has stopped estimating a separate population for West Maui due to increased movements of many individuals across the island, and now only reports island-wide numbers (Nēnē Recovery Action Group 2024).

Nēnē were not believed to be nesting within the Project Area at the time of construction (J. Medeiros, Maui DOFAW, pers. comm., as cited in KWP 2006). A pre-construction nesting survey was conducted within the Project Area within a 328-foot (100-meter) buffer zone of turbine locations and found a single active nest 1,640 feet downslope from Turbine 20 and a family group with no goslings near Turbine 3 (KWP 2007). Subsequent observations at KWP 1 and KWP 2 during operations confirm that nēnē reside in and around the Project Area and utilize the site for foraging, socializing, and breeding. During post-construction monitoring surveys, nēnē are regularly seen on or near turbine pads and roads, and nēnē have also been documented nesting in the Project Area (Tetra Tech 2025a; Figure 3-11).

Nēnē fly at altitudes that are within the rotor swept area of the KWP 1 turbines. From FY 2007 through FY 2025, a total of 35 nēnē have been recorded as fatalities at the KWP 1 facility (Tetra Tech 2025a). The estimated direct take (i.e., observed and estimated unobserved take) at the end of FY 2025 was less than or equal to 54 geese (80 percent UCL) and the estimated indirect take is 2 birds (rounded up to the nearest whole bird). Therefore, the UCL for total Project take of nēnē at the 80 percent credibility level is 56 nēnē (54 estimated direct take + 2 estimated indirect take). That is, there is an approximately 80 percent probability that cumulative take at KWP 1 at the end of FY 2025 is less than or equal to 56 adult geese (Tetra Tech 2025a).

To minimize the attractiveness of onsite habitat to the nēnē and enhance fatality monitoring efficiency, KWP 1 conducts vegetation management within the Project Area (Tetra Tech 2021a). To minimize nēnē attraction, KWP 1 manages woody vegetation along the turbine pads and access roads and avoids creating areas with standing water. These activities began in 2011, and have evolved over time, and are restricted during the nēnē breeding season. KWP 1 monitors nēnē activity on site to inform vegetation management success, and works with USFWS, DOFAW, and technical experts to further reduce risk to the species. Project personnel and contractors are notified about the presence of nēnē on-site and are advised to not approach, feed, or disturb nēnē. As part of post-construction monitoring, the KWP 1 biologist, whom is familiar with nēnē nesting behavior, routinely inspects for nests around operational areas during the breeding season. Documented nests are communicated to DOFAW Maui; there have been 2 documented nests that have been within 150 feet of turbines. KWP 1 also limits vehicle speeds to 10 mph on access roads to avoid nēnē collisions.

Although KWP 1 conducts vegetation management within the Project Area to minimize the attractiveness of onsite habitat to the nēnē as part of its avoidance and minimization measures, nēnē habitat exists within the Project Area and may be further bolstered by KWP 1's predator trapping efforts implemented as part of the post-construction monitoring program.

Existing Measures to Mitigate Impacts from Unavoidable Take

The primary means of mitigation for take of nēnē was to invest in propagation projects (release pens) to increase the number of nēnē fledged in Maui Nui. In 2009, KWP LLC provided funding to DOFAW for the construction and management of the Haleakalā Ranch nēnē release pen as part of KWP 1's nēnē mitigation (KWP 2024a). DOFAW constructed the release pen three years later. KWP LLC assumed the management of the pen in mid-December 2022, and in 2024, provided an additional payment to DOFAW. Funding has been used by DOFAW to perform fence maintenance, predator control, vegetation management, and monitoring at the Haleakalā Ranch pen. The pen infrastructure is under continual improvement, in discussion with DOFAW, to best support the population. Through FY 2025, nēnē mitigation at Haleakalā Ranch had resulted in the production of 89 nēnē fledglings and increased survival for 160 breeding adults[61], or the equivalent of adding 50.3 adult-equivalent nēnē to the population (i.e., mitigation credits) (Tetra Tech 2025a; pending written confirmation from USFWS and DOFAW).

More recently, KWP LLC has begun management of a pen on Moloka'i following a translocation of 24 nēnē inclusive of 4 adult pairs and 16 subadult goslings. Nēnē mitigation efforts on Moloka'i began following the April 2025 translocation, though the remaining resident nēnē produced two fledglings during the FY 2025 breeding season prior to the translocation.

Mitigation for the current (2006 to 2026) ITP and ITL is still ongoing, and has not yet achieved the net conservation benefit. KWP 1 is working with DOFAW and USFWS to adaptively manage the nēnē mitigation program. Additionally, the lag time between impacts and offset can result in additional

[61] Note that this may not represent 144 unique individuals, as each year is counted separately for the purposes of mitigation crediting, and therefore an individual nēnē may be counted more than once.

impacts to the species due to lost productivity. Lost productivity accrual resulting from mitigation lagging take, then, affects the amount of mitigation needed to fully offset impacts. Lost productivity is calculated as described in the current HCP and assumes a loss of 10 percent productivity per year for any direct take of an adult that hasn't been replaced by mitigation (KWP 2006). The addition of lost productivity to the cumulative take estimate at the 80 percent UCL in any given year ensures that mitigation would sufficiently offset the full impact of nēnē take.

ʻUaʻu (Hawaiian Petrel)

Biology, Population, Distribution, and Threats

The ʻuaʻu is currently listed as federally endangered under the ESA and state-endangered under HRS Chapter 195D. The ʻuaʻu is a medium-sized seabird endemic to the central Pacific, with a distribution encompassing both pelagic waters and select islands of the Hawaiian archipelago (DLNR 2024b). Outside of the breeding period, the species is highly migratory and spends the majority of its life over the Pacific Ocean, with foraging ranges extending eastward toward the western coast of the Americas. During the breeding season, the ʻuaʻu consistently returns to their natal islands to reproduce and constructs their nests on steep volcanic slopes and remote cliffs (DLNR 2024b).

The breeding season for the ʻuaʻu runs from late spring through early fall, with adults leaving the nests to forage far out to sea to provide food for the chick, which hatches after an incubation period of around 55 days (USFWS 2024a). Egg laying typically occurs in late April and early May, with incubation occurring during May and June, followed by a nestling period from July through October (Simons and Bailey 2020).

Historically, this seabird nested on all Hawaiian Islands and was a common breeding seabird (Simons and Bailey 2020). In the early 1990s, the population of the ʻuaʻu was estimated at approximately 19,000 individuals, with a breeding population consisting of about 4,500 to 5,000 pairs; however, the inaccessibility of nesting sites complicates efforts to obtain accurate counts (DLNR 2015a). The most recent estimates indicate that the global population of this species is now around 11,900 individuals, reflecting a decreasing trend (Pyle and Pyle 2017). It primarily breeds on the islands of Lanaʻi (2,500 pairs), Kauaʻi (1,500 pairs), and Maui (1,600 pairs), with smaller populations on Hawaiʻi Island (300 pairs) and Molokaʻi (50 pairs) (Pyle and Pyle 2017; Simons and Bailey 2020). On Maui, breeding populations are present at the Nakula Natural Area Reserve and Kahikinui Forest Reserve, the Alpine Wildlife Sanctuary, and Haleakalā National Park (Krushelnycky et al. 2019; USFWS 2022c).

Threats to ʻuaʻu include collisions with powerlines; attraction and disorientation from light pollution, collisions with infrastructure, dehydration, and starvation; and predation by introduced predators, such as cats and rats, during the breeding season (Raine et al 2017). Additional threats at sea also exist including marine pollution, plastic ingestion, overfishing, and the impacts of climate change and fisheries bycatch (Raine et al 2017). Hawaiian petrels have also been killed due to collisions with wind turbines (KWP 2024a).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

At the time of construction, ʻuaʻu was suspected of breeding in the West Maui mountains, specifically based on a call heard approximately 8 miles from the Project Area (KWP 2006). Pre-construction radar surveys near the Project Area recorded low daily movement rates (1 target per hour in Fall 2004 and 1.2 targets per hour in Summer 1999), suggesting that the location of the wind farm represents some of the lowest passage rates on the island (KWP 2006). Activity was higher during post-construction radar surveys, with an average of 0.5 to 3.6 targets per hour during the summer depending on the location (KWP 2007).

From 2006 through FY 2025, a total of 8 ʻuaʻu have been recorded as fatalities at the KWP 1 facility (observed direct take during searches plus one incidental fatality outside of the search areas). The estimated direct take at the end of FY 2025 was less than or equal to 19 petrels (80 percent UCL) and the estimated indirect take is 5 adults (rounded up to a whole bird). Therefore, the UCL for cumulative Project take of the ʻuaʻu at the 80 percent credibility level is 24 petrels (19 estimated direct take + 5 estimated indirect take). That is, there is an approximately 80 percent probability that cumulative take at KWP 1 at the end of FY 2025 is less than or equal to 24 petrels (KWP 2025).

Listed Hawaiian seabirds may traverse the Project Area at night during the breeding, nesting, and fledging seasons (March 1 to December 15) during which time, outdoor lighting could result in seabird disorientation, fallout, and injury or mortality (USFWS 2022a). KWP 1 implements lighting BMPs to minimize attraction and potential impacts to listed seabirds, including ʻuaʻu (see Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*). For example, outdoor lights are fully shield so the bulb can only be seen from below, and nighttime construction is avoided during the seabird fledgling period (September 15 to December 15). Listed seabirds have also been documented colliding with communication towers, particularly towers with guy-wires and in areas of high seabird passage rate (USFWS 2022a). The existing KWP 1 met tower guy lines are equipped with bird diverters to minimize seabird collisions.

Existing Measures to Mitigate Impacts from Unavoidable Take

Mitigation for ʻuaʻu for KWP 1 included funding protection and enhancement of known or potential breeding sites to increase the number of ʻuaʻu fledged in Maui Nui. Mitigation is to offset the take of 38 ʻuaʻu. The Makamakaʻole breeding site was selected for ʻuaʻu mitigation and began with the construction of two predator exclosures in September 2013. Efforts included predator monitoring and trapping, artificial burrow checks, game camera monitoring, seabird social attraction using decoys and sound systems, and ongoing maintenance, including vegetation management. Mitigation occurred through January 2023 and resumed again in 2025; however, no ʻuaʻu activity had been detected at Makamakaʻole after 2017. Thus, starting in 2018, KWP 1 funded Pūlama Lānaʻi to support ʻuaʻu breeding colony protection on Lānaʻi as an adaptive management measure. These protections included predator control and burrow monitoring in the Greater Hiʻi area. The success of this mitigation allowed for continued support for the Lānaʻi ʻuaʻu breeding program through FY 2023. The results of this mitigation program

has achieved a net benefit to the ʻuaʻu based on achieving 59.22 mitigation credits (Tetra Tech 2025a), well above both the permitted take of 38 and the current estimated take of 24.

ʻAʻo (Newell's Shearwater)

Biology, Population, Distribution, and Threats

ʻAʻo is a seabird endemic to the Hawaiian Islands that is listed as threatened under federal and state law. The USFWS has recommended uplisting the species to endangered in the last three 5-year status reviews, as the information and analyses indicate that the species' status continues to be worse than previously understood when the species was listed as threatened in 1975 (USFWS 2024b).

Similar to ʻuaʻu, much of their life is spent at sea, returning to land mostly to breed. Historically, ʻaʻo nested on Hawaiʻi, Maui, Molokaʻi, Oʻahu, and Kauaʻi (Ainley et al. 2020, USFWS 2024c). Today, the breeding range has been restricted to Kauaʻi, Hawaiʻi, and Maui (USFWS 2024c), though there is some evidence of breeding or prospecting on Oʻahu (Pacific Rim Conservation 2023). Breeding colonies are often located in remote areas to reduce predation risk. These shearwaters dig burrows or excavate crevices to nest in steep and vegetated terrain (Ainley et al. 2020). Outside of the breeding season, ʻaʻo often travel hundreds of miles from their nesting sites to forage, primarily in the pelagic waters of the North Pacific (DLNR 2024c). Their foraging journeys can extend from the Hawaiian Islands to the coasts of California and Mexico, depending on food availability (USFWS 2024c).

Breeding occurs from March to November, during which each pair typically lays a single egg. Both parents share the responsibility of incubation, which lasts approximately 50 days. Parents undertake long foraging trips at sea. The chick-rearing period lasts for about 90 days, after which the fledgling departs for its pelagic lifestyle (Ainley et al. 2020).

The most recent ʻaʻo population estimates indicate a population of approximately 20,550 individuals (Pyle and Pyle 2017), a significant decrease from previous estimates at 84,000 birds based on at-sea surveys in the 1990s (DLNR 2015b). Within the State, there are an estimated 10,300 ʻaʻo breeding pairs, with 50 of those pairs residing on Maui (Pyle and Pyle 2017). A small colony of ʻaʻo was discovered in 2002-2004 near the headwaters of Piʻinaʻau Stream along the western walls of Ainahou Bowl and west Wailua Nui (as cited in Pyle and Pyle 2017). More recently, this species have been documented in West Maui at the Makamakaʻole mitigation site that was part of the initial HCP for KWP 1. Between 2016 and 2022, two ʻaʻo fledglings were documented at the site, and in 2022, a total of 20 burrows were considered active with 34 adults documented (Tetra Tech 2025a). Additionally, based on recent correspondence with DOFAW, ʻaʻo at Makamakaʻole have successfully fledged one chick in 2023 (KWP 2024b).

Similar to the ʻuaʻu, key threats to ʻaʻo include powerline collisions; predation by invasive species such as rats, cats, and mongoose; artificial lighting, which can disorient birds and cause them to eventually fall to the ground exhausted or increasing their chance of colliding with artificial structures; and degradation of nesting habitat (Ainley et al. 2020, USFWS 2024c). Although not fully understood, marine threats include

marine pollution, plastic ingestion, overfishing, and the impacts of climate change and fisheries bycatch (Raine et al 2017).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

No ʻaʻo fatalities have been observed at KWP 1, nor have there been any incidental observations during the 19 years of post-construction monitoring (KWP 2025).

KWP currently implements lighting BMPs to minimize attraction and potential impacts to listed seabirds, including ʻaʻo. For example, KWP 1 minimizes outdoor lighting within the Project Area and fully shields outdoor lights so the bulb can only be seen from below. Nighttime construction is avoided during the seabird fledgling season (September 15 to December 15). Listed seabirds have also been documented colliding with communication towers, particularly towers with guy-wires and in areas of high seabird passage rate (USFWS 2022a). The existing KWP 1 met tower guy lines are equipped with bird diverters to minimize seabird collisions.

Existing Measures to Mitigate Impacts from Unavoidable Take

Mitigation efforts for ʻaʻo are similar to those described for the ʻuaʻa above. Similar to ʻuaʻa, efforts at Makamakaʻole included predator monitoring and trapping, artificial burrow checks, game camera monitoring, seabird social attraction using decoys and sound systems, and ongoing maintenance, including vegetation management were conducted through 2022. Seabird breeding activity was assessed using game cameras, burrow scoping, and checking for evidence of visitation. Mitigation efforts at the Makamakaʻole Seabird Enclosure resulted in mitigation credit totaling 5.03 ʻaʻo[62]. In September 2024, KWP 1 signed a Memorandum of Agreement (MOA) with DOFAW (in conjunction with KWP 2) to provide $750,000 in funding for a fence replacement at Makamakaʻole and agreed to resume specified management and monitoring activities at the site starting in FY 2025 and through January 2026, with the obligation continuing for KWP II through the end of its current permit term (KWP 2025).

ʻAkēʻakē (Band-rumped Storm-petrel)

Biology, Population, Distribution, and Threats

The ʻakēʻakē is the smallest and rarest seabird that breeds in Hawaiʻi and is listed as endangered under federal and state law. This species spends half their lives at sea, returning to land mostly for breeding. The ʻakēʻakē was once historically abundant throughout the main Hawaiian Islands; however, current breeding colonies are only confirmed on Kauaʻi and Hawaiʻi Island, with suspected nesting attempts on Maui. It also breeds on remote islands in Japan, Galápagos, and off the coasts of Spain and Africa (USFWS 2021b, Slotterback 2024). Population estimates for the species are uncertain, but it has been recently estimated that 221 nesting pairs occur on the north shore of Kauaʻi, with additional birds on Maui Nui and Hawaiʻi Island (USFWS 2020, as cited in ICF 2023). Pyle and Pyle (2017) estimated 250 pairs

[62] USFWS and DOFAW mitigation letters combined the mitigation offset for KWP I and KWP II for ʻaʻo, therefore, this number is based on the proportion of the permitter take attributed to KWP I (4 shearwater out of the total obligation of 6.681): 59 percent of the 8.53 total offset = 5.03.

on Kauaʻi, 50 pairs on Hawaiʻi Island, and 30 pairs on Maui. These birds are known to nest in burrows or natural cavities in a variety of high-elevation, inland habitats including cliffs and rocky lava fields. While nests have not been found on Maui, nesting is suspected on the slopes of Haleakalā near high barren lava, and in other areas on East Maui (USFWS 2021b). A single ʻakēʻakē carcass was found at the Makamakaʻole site in West Maui in 2020 (USFWS 2021c); social attraction has been implemented at Makamakaʻole starting in 2023, but the species has not been attracted to nesting attempts to date (Maui Nui Seabirds, pers. comm., May 24, 2024). A single ʻakēʻakē carcasses was also reported at the Auwahi wind facility on Maui in 2020 (Tetra Tech 2020, Tetra Tech 2021b).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

Pre-construction surveys (Nishibayashi 1997) did not detect any ʻakēʻakē within the Project Area (KWP 2006). Further analysis, conducted when the adjacent KWP 2 facility was undergoing an HCP amendment in 2019, determined that while there is potential for ʻakēʻakē to be present within the Project Area due to individual birds flying over, the risk of take was extremely low and the Project would not rise to the level of incidental take (KWP II 2019). Recent acoustic surveys detected ʻakēʻakē at a detector approximately 1.7 miles from the most mauka turbine of KWP 1 (Turbine 01); this detection was on a single night during an approximately six week acoustic monitor deployment. No ʻakēʻakē were detected at the eight acoustic detectors located within a mile of the KWP 1 turbines (J. Learned, pers. comm., March 24, 2025). The next closest detections were approximately 4.2 to 4.5 miles away (Tetra Tech 2025a).

No ʻakēʻakē have been documented as fatalities during the 19 years of operation at KWP 1 (KWP 2025). No ʻakēʻakē fatalities have been documented during the 13 years of operation at the adjacent KWP 2 facility (KWP II 2025).

Assimulans Yellow-faced Bee

Biology, Population, Distribution, and Threats

The assimulans yellow-faced bee (*Hylaeus assimulans*) is an endangered Hawaiian archipelago endemic species, and is federally and state listed as endangered. The current population size or demographics of assimulans yellow-faced bee is unknown; however, the species is believed to be extant in low numbers in populations on Maui, Lānaʻi, and Kahoʻolawe (USFWS 2021d). The Maui population of the assimulans yellow-faced bee is distributed across six locations, primarily in coastal and lowland dry forest ecosystems. Surveys conducted between 1997 and 2007 identified the species in small pockets of native vegetation at two sites: 1) at Lahainaluna a bee was observed on ʻilima in dry forest at 1,800 feet elevation; and 2) near Waikapū at 400 feet elevation four bees were observed on nehe (*Lipochaeta lobata*) in lowland dry shrubland dominated by ʻaʻaliʻi (Daly and Magnacca 2003). Recent photo documentation confirmed the presence of the species at several additional locations, including Makena, Kahakuloa, Honolua, and Papanalahoa Point. The bees were observed visiting flowers of ʻūlei (*Osteomeles anthyllidifolia*), ʻohelo kai (*Lycium sandwicense*), naupaka (*Scaevola* spp.), and ʻōhai (*Sesbania tomentosa*) (Kenolio 2020 as cited in USFWS 2021d). The species was not found in other surveyed areas, such as Waiehu dunes area, Kanaio Natural Area Reserve, and Manawainui Gulch,

despite suitable habitat. Most recently, yellow-faced bee surveys were conducted from 2022 to 2025 on DLNR lands near the KWP 1 facility. Surveys focused on nesting locations but also included data on observations of yellow-faced bees, primarily foraging on ʻilima (Tetra Tech 2025a). Ground nests of the assimulans yellow-faced bee were documented within the vicinity of KWP 1 and individual bees have also been recorded visiting ʻilima within the Project Area (Tetra Tech 2025a).

Habitat loss and predation have largely reduced the suitable habitat for this species. Ground-nesters need relatively dry conditions and existing burrows for nesting because they lack the physical characteristics needed to dig their own nests (USFWS 2022d). However, recent documentation of newly excavated soil in front of assimulans yellow-faced bee nests on Maui suggest some capability of soil excavation (as cited in USFWS 2022d). Though solitary, assimulans yellow-faced bee tend to nest in aggregations (USFWS 2022d).

Assimulans yellow-faced bee require foraging habitats nearby that provide a variety of suitable native plant pollen and nectar. This species is primarily dependent on ʻilima as a food source. Other important plants visited for pollen and nectar include naupaka, pāʻū o hiʻiaka (*Jacquemontia ovalifolia*), and nehe (DLNR 2015c). USFWS (2021d) identified several other foraging resources, including ʻuhaloa, ʻohelo kai (*Lycium sandwicense*), ʻūlei, and ʻōhai. As cited in USFWS (2022d), yellow-faced bees depend on native plants for food, but nonnative tree heliotrope (*Heliotropium foertherianum*), koa haole, kiawe, and saltweed (*Blutaparon vermiculare*) may be used when native flowers are in low supply or otherwise unavailable, though it was not specified if assimulans yellow-faced bee will utilize these plants. Yellow-faced bee activity is dependent on the availability of suitable food resources, with activity closely tied to the blooming cycles of plants that provide nectar and pollen for survival and reproduction (USFWS 2021d).

The primary factors that pose serious and ongoing threats to the species include the following: habitat degradation and destruction; non-native ungulates and plants that remove food sources and nesting sites; drought, fire, and natural disasters; predation and nest raiding by non-native invertebrates; competition with other bees; inadequate regulatory mechanisms; and limited numbers of populations and individuals (USFWS 2021d).

While not identified as primary threats to the species, USFWS and DOFAW raised concern of the potential impacts of wind turbines and herbicide use on the species.

Herbicides generally have low acute toxicity to adult bees, but indirect and sublethal effects are increasingly documented (as cited in McKnight et al. 2018, Blackburn et al. 2021). Importantly, the more common impact of herbicides on bees is removal of the floral resources that pollinators depend on, effectively reducing the amount of plants they use (Blackburn et al. 2021). Four routes of pesticide exposure have been identified for solitary, cavity nesting bees, including larval ingestion, adult ingestion, contact, and transovarial transmission (Kopit and Pitts-Singer 2018).

Studies on the impacts of wind energy on assimulans yellow-faced bee have not been conducted, and the effect of wind energy on bees generally is not well understood. However, a case study in Wyoming documented that the abundance and richness of bees was not found to differ with proximity to turbines,

indicating that there is neither attraction or avoidance due to the turbines on the landscape (Weschler and Tronstad 2024). A study focused on honeybee colonies similarly found no evidence of impacts from wind turbines on honeybee colonies (Fourrier et al. 2023).

Voigt (2020) reported that insects can be killed by operating turbines, as evidenced by organic detritus left on turbine blades. It is currently unknown whether certain insect taxa are more vulnerable to collisions. Weschler and Tronstad (2024) state that migrating insects may be most vulnerable, as those species may be evolved to travel at higher altitudes and across longer distances, as well as nocturnal or crepuscular species which have lower visual and spatial acuity. The assimulans yellow-faced bee is not migratory and is most active during mid-day.

The Hymenoptera order (bees) has been documented to fly at altitudes greater than 550 meters and some species are capable of flying in high wind speeds, potentially increasing their risk of collisions (Weschler and Tronstad 2024). However, while published literature on flight height of bees is lacking, one study documented *Hylaeus* species at altitudes below 7 meters (Dorey et al. 2024), which would be below the rotor-swept zone at KWP I. Pan and Wilson (2020) also documented flight behaviors of another Hylaeus species to be associated with the ground or vegetation. This aligns with the foraging behavior of the assimulans yellow-faced bee, which typically utilizes resources near the ground, potentially providing little incentive for the species to fly at higher altitudes. Conversely, Daly and Magnacca (2003) reported that Hylaeus are relatively strong fliers and tend to spend time at or above the forest canopy rather than below. Vegetation at KWP (see Section 3.8.1.2, *Existing Vegetation*) is generally low in structure, and taller species (e.g., ironwood) are managed near the turbines.

Collisions from wind turbines is not listed as a threat for the assimulans yellow-faced bee in the listing decision (USFWS 2016c), recovery plan (USFWS 2022e) or species report (USFWS 2022d).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

As described above, recent surveys have documented ground nests of the assimulans yellow-faced bee within the vicinity of KWP 1 and individual bees has been recorded visiting ʻilima within the Project Area (Tetra Tech 2025a). ʻIlima, the primary food source of the bee, occurs in the Project Area, particularly in the mid- elevation area between approximately 2,000 to 3,000 feet in elevation (Appendix D). ʻIlima tend to occur in previously disturbed areas. Past fires in the area as well as disturbance from the KWP 1 related activities, have likely had a beneficial impact on the growth of ʻilima in the Project Area and vicinity (K. Bustamente, DLNR, pers. comm., June 16, 2025). ʻIlima was also observed growing along roadsides, likely due to water runoff and an increase in soil moisture (K. Bustamente, DLNR, pers. comm., June 16, 2025). Other species of plants observed within the Project Area which may serve as foraging include the native ʻuhaloa (moderately common) and ʻūlei (uncommon) and a few individuals of non-native koa haole and kiawe have been documented in the lower elevation areas below 2,000 feet along the access road (Appendix D).

Surveys of assimulans yellow-faced bee in proximity to the Project area were conducted by DOFAW between 2022 and 2025, documenting individuals, nesting locations and individual nests. Within the dataset shared with KWP, opportunistic observations indicated that 20 of the 269 assimulans yellow-

faced bee observations occurred within the Project area (7.4 percent), and 5 occurred within areas of potential vegetation impacts (1.9 percent) (Tetra Tech 2025a). Observations included individuals at elevations up to approximately 2,600 feet, including areas in proximity to the lower 13 turbines in the Project Area.

Other Species Considered but Excluded from the Proposed Action's HCP

Blackburn's Sphinx Moth

Biology, Population, Distribution, and Threats

The endangered Blackburn's sphinx moth (*Manduca blackburni*) occurs in dry to mesic areas on the islands of Maui, Hawai'i, and Kaho'olawe. Larvae of the Blackburn's sphinx moth feed on plants in the nightshade family (Solanaceae), including two listed 'aiea (*Nothocestrum*) species and the common, non-native tree tobacco (USFWS 2024d). Although tree tobacco is the most commonly used larval food plant for Blackburn's sphinx moth caterpillars, the native 'aiea plants are considered primary constituent elements required for foraging, sheltering, maturation, and dispersal (USFWS 2003, USFWS 2024d). Larvae develop through five instars over roughly three weeks and then leave the host plant to burrow into the ground to pupate (USFWS 2024d). Pupae may remain in torpor in the soil for up to a year. Adult moths are believed to feed on several native plant species, including hala pepe (*Pleomele auwahiensis*), maiapilo (*Capparis sandwichiana*), 'ilie'e (*Plumbago zeylanica*), and koali'awa (*Ipomea indica*) (USFWS 2003, USFWS 2005b).

The current population numbers of the Blackburn's sphinx moth are unknown and it's unclear if the population is increasing, decreasing, or stable. Based on incidental sightings, their range is thought to be expanding (USFWS 2024d). However, range size and abundance are not correlated. The primary threats to the Blackburn's sphinx moth include predation by ants and parasitic wasps that prey on the eggs and caterpillars, and the continued decline of its native larval host plants partly as a result of feral ungulates. Other threats to the Blackburn's sphinx moth include destruction of habitat, invasion and competition with habitat altering invasive plants, and susceptibility to seasonal variations and weather fluctuations (USFWS 2024d).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

The larval host plants for Blackburn's sphinx moth (i.e., 'aiea and tree tobacco) have not been documented in the Project Area. The Project biologist (who is trained in tree tobacco survey methods) has been onsite weekly over the course of the Project's operational life and has not observed tree tobacco or other larval host plants at the Project, including along roads (Spencer Engler, pers. comm., November 2024). In addition, no native adult stage host plants for the Blackburn's sphinx moth are known to occur in the Project Area. Additionally, vegetation management at the site includes the management of vegetation on the roadways and pads to prevent encroachment or growth (through mechanical removal or limited herbicide use), and while vehicles may be a source of potential seed dispersal as they travel along the Honopiilani Highway, general vehicle movement through the site is restricted. Wind dispersal of seeds mauka to the highway is also unlikely, based on wind patterns.

Because of the absence of host plants, the potential for Blackburn's sphinx moth to occur within the Project Area is unlikely (KWP 2024a).

Pueo (Hawaiian Short-eared Owl)

Biology, Population, Distribution, and Threats

The pueo is not afforded state or federally level protections on the island of Maui but is state-listed endangered on the island of O'ahu, and is protected under the MBTA. It is a culturally significant endemic subspecies of the globally widespread short-eared owl (*Asio flammeus*). Pueo are found on all the main Hawaiian Islands from sea level to over 8,200 feet (DLNR 2015d). A current population estimate for the state and Maui Nui is unknown. However, an initial assessment of occupancy using 2011 eBird data suggested that Maui Nui and the island of Kaua'i had the highest occupancy rates and that pueo were relatively common on the landscape (Wilhite 2021). Pueo occupy a variety of habitats, including agricultural lands, grasslands, wetlands, shrublands, and native forests and their habitat use is likely influenced by food availability (Price and Cotín 2018). Pueo are active during the day, with increased activity levels at dawn and dusk, and are commonly seen hovering or soaring over open areas. There is limited information regarding breeding of this species; while peak breeding is concentrated in February and March, active nesting may occur throughout the year. Nests are made of scrapes in the ground lined with grasses and feather down (Holt and Leasure 1993, Price and Cotín 2018, Wang et al. 2022).

Pueo are susceptible to the same factors that threaten other Native Hawaiian birds, including: loss and degradation of habitat, predation by introduced mammals, interactions with vehicles and heavy machinery, and exposure to pesticides and other contaminants (Pueo Project 2019, Wang et al. 2022).

Occurrence in the Project Area and Impact of Current KWP 1 Operations

Pueo have the potential to forage in or traverse the Project Area and are susceptible to collisions with wind turbines (Tetra Tech 2025a). Post-construction monitoring conducted within the Project Area provides data on pueo fatalities. As shown in Table 3-12, between 2006 and 2025, 16 pueo have been found as fatalities at the KWP 1 facility, 15 were attributable to turbine collisions and 1 to a vehicular strike.

KWP currently implements measures to avoid and minimize impacts to pueo including limiting vehicle speed to 10 mph on access roads, limiting the opportunity for habitat attractants such as mice and rats, and equipping met tower guy wires with bird diverters to avoid collisions.

3.9.1.5 Existing Avoidance, Minimization, and Mitigation Measures

The following measures are currently being implemented at the KWP 1 facility and would continue to be implemented for the life of the facility, unless it becomes apparent through study that these measures are no longer appreciably reducing take and it is agreed upon by KWP 1, DOFAW, and the USFWS that the measures can be discontinued.

- General

- Implement existing avoidance, minimization, and mitigation measures outlined in Section 3.8, *Vegetation* including invasive species BMPs and Wildfire Prevention Plan (TerraForm 2025).
- Prior to vegetation removal, crew members receive training for endangered species awareness (WEOP), health and safety covering personal protective equipment, proper use of tools and equipment, and herbicide application and decontamination protocols.
- Implement BMPs to maintain soil stability and prevent erosion and sedimentation, as described in Section 3.4, *Geology, Topography, and Soils*.
- Implement BMPs to minimize noise and vibration impacts, as described in Section 3.11, *Noise*.
- Equip the existing KWP 1 met tower guy lines with bird diverters to minimize bird collisions.
- Inform KWP 1 personnel and contractors about the presence of endangered and threatened species on-site and advised them not approach, feed, or disturb wildlife.
- Implementing stop work requirements if a listed species is observed on-site during ground disturbance activities.
- Limit vehicle speeds to 10 mph to avoid collisions with wildlife.
- Limit the opportunity for habitat attractants such as mice and rats.
- Employing relatively few turbines situated in a single row, rather than a large number of turbines in multiple rows.
- Using “monopole” steel tubular towers, rather than lattice towers, to eliminate perching and nesting opportunities. The tubular towers may also reduce collision risk because they are considerably more visible.
- Using a smaller tower (55 meters) than is typically used with the GE 1.5 turbine (65 meters or greater), to potentially reduce the risk of collision for birds and bats, even though such risk is not demonstrably related to the tower height.
- Utilizing a rotor with a significantly slower rotational speed (11-20 rpm), which makes the rotor much more visible during operation (previous designs had 28.5 and 34 rpm rotors).
- Choosing a site in proximity to existing electrical transmission lines to eliminate the need for an overhead transmission line from the project to the interconnect location; placement of all new power collection lines underground to eliminate the risk of collision with new wires;

  - Designing and installing the site substation and interconnect to Maui Electric's transmission lines using industry-standard measures to reduce the possibility of wildlife electrocutions.
  - Conduct post-construction fatality monitoring to monitor potential impacts to non-listed and listed wildlife as a result of KWP 1 operations.
  - Adaptively manage the minimization and mitigation measures described herein and in the current KWP 1 HCP (KWP 2006), as needed, in coordination with USFWS and DOFAW.

- ʻŌpeʻapeʻa
  - Avoid trimming or removal of vegetation taller than 15 feet between June 1 and September 15, when juvenile ʻōpeʻapeʻa that are not yet capable of flying may be roosting in the trees. If tree removal is needed during the pupping season (due to a conflict with nēnē breeding season or for a site safety issue), a biological monitor would evaluate the trees first for roosting bats.
  - Implement LWSC below 5.5 m/s from sunset to sunrise from February 15 through December 15.
  - Conduct acoustic monitoring for bat activity at KWP 1.
- Nēnē
  - Implement the vegetation management goals outlined in the nēnē-specific vegetation management memo (Tetra Tech 2021a) to limit favorable habitat on site.
  - Avoid creating areas with standing water and managing woody vegetation to minimize attracting nēnē.
  - Monitor nēnē activity on site to inform areas of vegetation management needs and successes.
  - Routinely inspect the Project Area for nēnē nests during the breeding season (September through April) and communicate observed nest and fledging to DOFAW Maui.
  - Vegetation management is limited to time periods outside the nēnē nesting season and accompanied by a biological monitor for nēnē.
- Seabirds (ʻAʻo, ʻUaʻa, and ʻAkēʻakē)
  - Fully shield all outdoor lights to the bulb can only be seen from below.
  - Install automated motion sensor switched and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
  - Avoid nighttime construction during the seabird fledgling period (September 15 to December 15) that could attract or disorient seabirds.

- Blackburn's sphinx moth
    - Project biologist is trained in tree tobacco survey methods and would report any observations of Blackburn's sphinx moth larval host plants during weekly HCP compliance monitoring and if observed, KWP 1 would coordinate removal of any non-native host plants under 3 feet.
- Implement mitigation measures to offset unavoidable take of Covered Species, as summarized in Table 3-13.

Table 3-13. Summary of KWP 1 Mitigation through FY 2025 (in adults/adult equivalents)

Covered Species	Mitigation Location and Actions	Mitigation Obligation under Existing ITL/ITP	Total Projected Take through FY 2025 (80% UCL)[1]	Mitigation Credits through FY 2025
Nēnē (Hawaiian goose)	Haleakalā Ranch mitigation area – Development and management of release pen	60	≤56	50.3[2] (Mitigation Ongoing)
ʻŌpeʻapeʻa (Hawaiian hoary bat)	Funding for ecological research in East Maui and Hawai'i Island	50	≤32	50 (Completed)
ʻUaʻu (Hawaiian petrel)	Makamakaʻole mitigation area - Development and management of breeding grounds Pūlama Lānaʻi mitigation area - Adaptively managed. Predator control at breeding colony	38	≤24	59.22[3] (Completed)
ʻAʻo (Newell's shearwater)	Makamakaʻole mitigation area - Development and management of breeding grounds	4	No take observed	5.03[4] (Completed)

1. Based on the use of the 80% UCL, actual take is likely to be lower, as these projections are conservative for both direct and indirect take.

2. Mitigation credits include the allocation from the FY 2025 breeding season based on 8 fledglings and 16 adult breeding nēnē from the Haleakala Ranch, pending concurrence of USFWS and DOFAW.

3. USFWS and DOFAW mitigation letters combined the mitigation offset for KWP I and KWP II, therefore, this number is based on the proportion of the permitted take attributed to KWP I (38 petrels + 4.78 lost productivity out of total obligation of 64.48 = 66 percent); 66 percent of the 89.72 total offset = 59.22.

4. USFWS and DOFAW mitigation letters combined the mitigation offset for KWP I and KWP II, therefore, this number is based on the proportion of the permitter take attributed to KWP I (4 shearwater out of the total obligation of 6.681): 59 percent of the 8.53 total offset = 5.03.

Source: Tetra Tech 2025a

3.9.2 Potential Impacts and Mitigation Measures

3.9.2.1 Factors Considered in Impact Analysis

Issues related to wildlife that have been identified during the scoping process for the Proposed Action and addressed in this subsection include 1) impacts to high-quality wildlife habitat and designated critical habitat, 2) impacts on MBTA protected bird species and native species, 3) impacts on listed species and compliance with the ESA and HRS Chapter 195D, and 4) avoidance, minimization, and mitigation measures to reduce wildlife and habitat impacts. Wildlife impacts addressed in this section include removal or degradation of habitat, behavioral disturbances, direct mortality / incidental take and population-level effects.

A significant impact on wildlife would result if any of the following were to occur as a result of the Proposed Action or No Action Alternative:

- Substantial loss of high-quality wildlife habitat for native species (as compared to total available resources within the area);
- Adversely modify critical habitat to the degree that it would no longer support the species for which it was designated;
- Loss of individuals of a population of native wildlife and/or MBTA-protected wildlife species that would result in the species being listed or proposed for listing as threatened or endangered; or
- Jeopardize the continued existence of a federally or state listed species.

3.9.2.2 Proposed Action

Continued Operations

Impacts to Non-Listed Wildlife Species and MBTA-Protected Birds

The continued operation of KWP 1 may directly impact non-listed wildlife species, including MBTA-protected birds, as a result of temporary removal of habitat, temporary disturbance or displacement, or collisions with wind turbines, vehicles, or other structures.

Habitat Removal

As noted in Section 3.9.1.2, *Non-Listed Wildlife Species and MBTA-Protected Birds*, the grassland and shrublands within the Project Area provide habitat for both native and non-native wildlife. Ground disturbance and vegetation management activities associated with continued operations may result in the temporary removal of up to 23 acres of previously disturbed vegetation within the LOD, which could be habitat for various native and non-native wildlife. Ground disturbing activities would primarily occur during the Proposed Action's initial maintenance period and would occur entirely within areas previously disturbed during the initial construction of the KWP 1 facility, which is unlikely to be high-quality habitat for most native species or MBTA-protected birds. Following ground disturbing activities within the LOD, revegetation would occur in compliance with the KWP Vegetation Management Plan, which includes the

requirements of the CDUP (Appendix F). Permanent habitat loss is anticipated to be negligible as no new structures or impervious surfaces are proposed. Vegetation management activities would continue to occur during the additional operational period around the turbine pads, substation, buildings, and along the access roads, but would primarily occur in areas already cleared of vegetation thus resulting in negligible impacts to wildlife habitat within the Project Area. Indirect impacts to wildlife habitat could result if invasive species were introduced or spread or if a wildfire occurred within the Project Area. Potential impacts on wildlife habitat would be minimized by implementing KWP 1's Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025). Continued operations would have a negligible, direct and indirect impact to habitat for non-listed native wildlife and MBTA-protected species within and in the vicinity of the Project Area.

Behavioral Disturbance

Low levels of noise and vibration would also occur during continued operations, which could disturb or displace non-listed, native species and MBTA-protected birds in the area. Noise associated with the maintenance period (e.g., recontouring roads, transporting equipment, vegetation management) would be intermittent and short-term. During operations, noise levels are expected to be similar to the previous 19 years of operations; no new sources of noise are proposed. Additionally, the presence of the turbines (and associated noise/motion) in the airspace above the Project Area are not new features of the landscape and wildlife species have had over 19 years to adapt to their presence. Wildlife are expected to exhibit avoidance behavior and relocate to nearby areas if disturbed. As described in Section 3.11, *Noise*, KWP 1 would continue to implement BMPs to avoid and minimize noise impacts. No changes to existing EMF currents are anticipated with continue operations; EMF currents are not anticipated to cause adverse impacts to wildlife. Given the facility's long-term operation spanning over 19 years, resident wildlife populations have likely become habituated to the facility and behavioral disturbances from continued operations would be minor and localized to the Project Area and vicinity.

Direct Mortality and Population-Level Effects

Collisions with turbines, vehicles, and other structures have the potential to result in direct mortality of non-listed, native species and MBTA-protected birds. As described in Section 3.9.1.2, *Non-Listed Wildlife Species and MBTA-Protected Birds*, non-listed avian species have been observed as fatalities during the 19 years of operation of KWP 1. Fatalities of a similar magnitude are likely to occur with the continued operations of KWP 1; however, such levels of take are not anticipated to adversely affect local or regional populations of these species. There have also been documented fatalities of MBTA-protected species at the KWP 2 and Auwahi wind facilities on Maui (KWP II 2024, Auwahi 2024) and other wind facilities on Oʻahu (Nā Pua 2024, Kawailoa Wind 2024, Kahuku Wind 2024); cumulative impacts to wildlife are addressed in Section 3.17, *Cumulative Impacts*.

Predator trapping would continue to be conducted within the Project Area to reduce scavenging of carcasses and would result in fatalities of non-native mammals, including feral cats, rats, and mongoose.

This action is expected to have a beneficial impact on non-listed, native avian species and MBTA-protected birds, as well as the nēnē, due to reducing the predator load in the vicinity.

Post-construction fatality monitoring would continue to be conducted within the Project Area to monitor potential impacts to non-listed and listed wildlife as a result of KWP 1 operations. KWP 1 would continue to implement the avoidance and minimization measures listed in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* to reduce potential impacts to non-listed, native species and MBTA-protected birds.

Overall, continued operations would result in direct fatalities to non-listed native species and MBTA-protected birds; however, any impacts to non-listed native species and MBTA protected birds are anticipated to not adversely affecting local or regional populations and therefore direct mortality impacts would be minor. While not listed on Maui, additional information on the pueo (which is state listed on O‘ahu) is provided in Section 3.9.2.2, *Proposed Action, Listed Wildlife Species* below.

Impacts to Designated Critical Habitat for Listed Species

As described above, critical habitat has been designated by the USFWS within the northernmost portion of the Project Area for two endangered forest bird species—the ‘akohekohe and kiwikiu (USFWS 2016a) (Figure 3-9). This critical habitat was designated after construction of KWP 1, and neither species have been documented within the Project Area. DOFAW also concurred that the KWP 1 project footprint is most likely unoccupied critical habitat for the ‘akohekohe and kiwikiu (see Appendix B). As such, the continued operation of the KWP 1 facility is anticipated to have no direct impact on these listed species (i.e., incidental take or behavioral disturbances).

Ground disturbance and vegetation management activities associated with continued operations may result in temporary removal of up to 1 acre of vegetation within the LOD located within the Montane Mesic – Unit 5 critical habitat. This vegetation would have been previously disturbed during initial construction of KWP 1 and is unlikely to be high-quality habitat for the ‘akohekohe and kiwikiu. Ground disturbing activities would primarily occur during the Proposed Action’s initial maintenance period and following ground disturbing activities within the LOD, revegetation would occur in compliance with the KWP Vegetation Management Plan (Appendix F). Permanent habitat loss is anticipated to be negligible as no new structures or impervious surfaces are proposed. Vegetation management activities would continue to occur during the 20-year additional operational period around the turbine pads and roads located within the portion of the LOD located in the Montane Mesic – Unit 5 critical habitat, but these activities would primarily occur in areas already cleared of vegetation thus resulting in minimal impacts to critical habitat within the Project Area.

Indirect impacts to designated critical habitat could result if invasive species were introduced or spread of wildfire occurred within the Project Area. Potential impacts on native wildlife habitat would be minimized by implementing KWP 1’s Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025). With implementation of these BMPs, continued operations would not adversely modify designated critical habitat to the degree that it would no longer have the ability to support the species for which it was designated (should they

be reestablished within the area). Continued operations would have negligible, direct and indirect impacts to designated critical habitat within and in the vicinity of the Project Area.

Impacts to Listed Wildlife Species

Based on post-construction fatality monitoring data collected since 2006, continued operation of KWP 1 is expected to impact several listed wildlife species. Removal of habitat, temporary disturbance or displacement, or collisions with wind turbines, vehicles, or other structures may occur during continued operation of KWP 1. As with Section 3.9.1.4, *Listed Wildlife Species*, potential impacts are described for Covered Species (i.e., ʻōpeʻapeʻa, nēnē, ʻuaʻu, ʻaʻo, 'akē'akē and assimulans yellow-faced bee) and other listed-species not covered by the Project's Proposed HCP (i.e., Blackburn's sphinx moth and pueo[63]).

General habitat and behavioral impacts discussed in the *Impacts to Non-Listed Wildlife Species and MBTA-Protected Birds* subsection above would also be applicable to listed wildlife species. These impacts will not be repeated in this section but will be summarized with additional information specific to each listed species.

Covered Species

Methodology

Incidental Take

To assess the anticipated level of take for each Covered Species, KWP LLC used fatality data collected under the current ITP and ITL and modelled using the EoA program (Dalthorp et al. 2017) to project future take for an additional 20.5-year period at the 80 percent UCL.

KWP 1 would continue to implement a year-round fatality monitoring program to document downed (i.e., injured or dead) wildlife incidents involving Covered Species and other species. This monitoring would be used to estimate impacts to Covered Species, ensure KWP 1 is within the permitted take amount for each species, and trigger adaptive management, if needed (see Section 2.1.3.2, *HCP Compliance Monitoring* for details).

As stated in Section 3.9.1.4, *Listed Wildlife Species*, USFWS and DOFAW requires take be conservatively estimated at the 80 percent UCL; 80 percent UCL means there is an 80 percent probability that actual mortality is equal to or less than the predicted mortality. The 80 percent UCL take projection includes the anticipated direct take (observed and unobserved) and indirect take (Tetra Tech 2025a).

The modelling process uses the EoA projections tool with the following inputs:

1. To estimate take to-date for each species with at least one observed fatality, inputs of the post-construction monitoring data from FY 2006 through FY 2025 were used.

[63] The pueo is not federally or state listed on the island of Maui but is state-listed endangered on the island of Oʻahu, and is protected under the MBTA. As it is a culturally significant species known to occur in the Project Area and anticipated to be impacted by the Proposed Action, it is further discussed in this section under "non-covered species".

2. To estimate take at the end of the future permit term, inputs of the post-construction monitoring data from FY 2006 through FY 2025 with an additional 20.5 years of operations utilizing FY 2025 detection probability and consistent rho value of 1 throughout the projection timeframe. This was used to predict take for two time periods:
    a. Under the current 20-year ITL and ITP
    b. At the end of the 40-years of operations

The total anticipated take for each species under the new ITL and ITP is then calculated as:

$$total\ predicted\ take\ over\ 40\ years\ -\ predicted\ take\ at\ the\ end\ of\ the\ current\ permit\ term$$

This approach captures the anticipated direct observed and unobserved take. It assumes that current take rates would not change, that future monitoring effort and spatial adjustments to raw fatality counts based on site-specific data remains consistent with FY 2025 over the operational life.

The direct observed and unobserved take is then used to estimate the indirect take. Indirect take is estimated to account for the potential loss of offspring (eggs or dependent young) that may occur as a result of the loss of an adult. Indirect take estimates are specific to each species based on the biology of that species, including the likelihood of breeding given the time of year an individual is detected as a fatality, assumed parental contribution to successful fledging of offspring, the number of anticipated offspring per pair/female, and survival rate of offspring. The total requested take for each species is the sum of the direct take (observed + unobserved) and indirect take.

Table 3-14 summarizes the predicted total take for each Covered Species over the new operational period. While monitoring, mitigation, and decommissioning are classified as Covered Activities under the Proposed HCP, they are not expected to result in take. See the Proposed HCP (Tetra Tech 2025a) for more information on the modelling process and how direct and indirect take was calculated for each Covered Species. The Project's Proposed HCP is anticipated to be published in the same issue of *The Environmental Notice* (TEN)[64] as this Draft EIS.

Table 3-14. Proposed Action's Take Request for Covered Species (in adults/adult equivalents)

Covered Species	Requested Take Amount
ʻŌpeʻapeʻa (Hawaiian hoary bat)	38 adults or adult equivalents
Nēnē (Hawaiian goose)	69 adults or adult equivalents
ʻUaʻu (Hawaiian petrel)	29 adults or adult equivalents
ʻAʻo (Newell's shearwater)	10 adults or adult equivalents

[64]For TEN publications, see: https://planning.hawaii.gov/erp/environmental-notice/

Covered Species	Requested Take Amount
'Akē'akē (Band-rumped Storm Petrel)	10 adults or adult equivalents
Assimulans yellow-faced bee	Up to 23.2 acres[1]
Source: Tetra Tech 2025a. 1. For the Assimulans yellow-faced bee, habitat is used as a surrogate for impacts. This acreage will be refined in the final Proposed HCP following site surveys.	

The following paragraphs summarize the predicted take that may occur over the permit term, potential impacts of that take, and minimization measures to reduce impacts to Covered Species within the Project Area and vicinity. Mitigation measures to offset the take of Covered Species is also provided below.

Mitigation

Since the Proposed HCP would support a new ITL and ITP, the mitigation proposed is for future efforts but builds off of historic and ongoing mitigation efforts. Generally, mitigation for nēnē, ʻuaʻu, and ʻaʻo are continuations of past or current mitigation efforts focused on protection of breeding areas and use of propagation facilities to increase population numbers. Mitigation for ʻōpeʻapeʻa includes new mitigation efforts, including land protection and enhancement, focused on increasing breeding/ reproductive potential, and would build off of research conducted under the current permit. Mitigation for ʻakēʻakē involves providing funds to a seabird conservation account. Mitigation for the assimulans yellow-faced bee includes new mitigation efforts, including land enhancement/restoration and potential funding of monitoring or research. Any of the mitigation measures described below may be adaptively managed in coordination with USFWS and DOFAW, if needed, including utilizing new or novel mitigation opportunities that differ from those described here. Conservation banking or in-lieu fee programs may also be utilized if needed and if available during the Permit Term.

For each Covered Species, the anticipated mitigation location(s), timing of mitigation, and mitigation actions/activities are described. Details on success criteria, mitigation monitoring, and adaptive management is described in Section 6 and Section 7 of the Proposed HCP, respectively (Tetra Tech 2025a).

ʻŌpeʻapeʻa (Hawaiian Hoary Bat)

Habitat Removal and Behavioral Disturbances

As described in Section 3.9.1.4, *Listed Wildlife Species* above, ʻōpeʻapeʻa may use the Project Area for roosting, foraging, and potentially breeding. Limited bat roosting habitat is present within the Project Area due to the minimal number of trees greater than 15 feet; however, some trees over 15 feet are present and have the potential to be used for roosting (DOFAW 2015, USFWS 2022a). KWP 1 staff and contractors would not disturb, remove, or trim woody plants greater than 15 feet tall during the bat

birthing and pup rearing season (June 1 through September 15). If tree removal is needed during the pupping season a biological monitor would survey the trees first for roosting bats. Noise and vibration from KWP 1 O&M activities would generally be the same as existing levels. Bat acoustic monitoring since 2014 has demonstrated a significant increase of activity over time and therefore, continued operations would be anticipated to have a negligible short- and long-term impact to ʻōpeʻapeʻa behavior and their habitat, including roosting and foraging activities within the Project Area and vicinity.

Incidental Take

Based on the EoA projection detailed in the Proposed HCP, KWP predicts an estimated direct take of 35 bats and indirect take[65] of up to 3 bats (rounded up to the nearest whole ʻōpeʻapeʻa). Therefore, the total requested take to be permitted is 38 adult ʻōpeʻapeʻa over 20.5 years (Tetra Tech 2025a).

Population-level Effects

As discussed above, the population size of the ʻōpeʻapeʻa remains unknown, and at present, it is not considered feasible to determine a reliable population estimate for a single island (ESRC and DOFAW 2024). The ESRC's current bat guidance recommends assuming a maximum of 1,500 individuals on Maui; however, this figure is derived from "extremely limited information" (ESRC and DOFAW 2024) and should be interpreted with caution due to its unverified accuracy. Based on this working estimate, the requested permitted take of 38 ʻōpeʻapeʻa over the 20.5-year operational period (equivalent to approximately 1.9 ʻōpeʻapeʻa per year of operations) represents an estimated 0.13 percent of a Maui population of 1,500 ʻōpeʻapeʻa (ESRC and DOFAW 2024) per year. The loss of 0.13 percent of the population per year would be unlikely to result in a significant impact to the Maui population. The projected take rate is the same as that which has been occurring at the site since 2006, during which, as stated above, a significant increase in bat activity at the site has occurred. Site-specific acoustic monitoring data would continue to provide insight into bat activity trends at the site.

Avoidance, Minimization, and Mitigation Measures

To minimize impacts to this species, KWP 1 would continue to implement the existing avoidance and minimization measures described in Section 3.9.1., *Existing Avoidance, Minimization, and Mitigation Measures* above. In particular, the implementation of LWSC has decreased mortality of hoary bat at the KWP 1 facility and would continue to be used under the Proposed Action. In addition, barbed wire within the Project Area would be minimized to the maximum extent practicable. Any barbed wire required (e.g., for human safety around electrified components) would be marked to increase visibility to bats. No barbed wire would be used for mitigation actions at any of the mitigation sites, and some barbed wire removal/replacement may occur if warranted.

Mitigation would offset bat take impacts. Mitigation for ʻōpeʻapeʻa is difficult given the challenges around surveying for bats and determining population changes. Thus, past mitigation for this species has

[65] Indirect take for ʻōpeʻapeʻa is calculated using the updated USFWS methodology (USFWS 2016b) as described in the Proposed HCP.

included funding research to better inform future mitigation, and future mitigation includes habitat protection and/or restoration aimed at ecosystems that can provide needed resources for the ʻōpeʻapeʻa.

To offset the take requested under the Proposed Action, KWP would need to mitigate for 38 ʻōpeʻapeʻa. As more information becomes available about ʻōpeʻapeʻa, and based on the agency preference of habitat protection, land management, or restoration (versus research), multiple mitigation opportunities are being sought. In April 2025, KWP deployed eight acoustic bat detectors, four on the island of Lānaʻi and four on the island of Molokaʻi, to aid in identification of potential bat mitigation locations. The mitigation would be developed based on the ESRC and DOFAW guidance (ESRC and DOFAW 2015, ESRC and DOFAW 2024) and would prioritize implementation in the areas on Molokaʻi and Lānaʻi where acoustic monitoring is currently occurring. The mitigation would meet the requirements of HRS 195D, including a measurable net conservation benefit and support species recovery through habitat improvement. Mitigation actions may occur within a single area on one island, or through a combination of areas either on one or both of the islands.

The overarching biological goal is to enhance or restore habitat in areas known or likely to support hoary bat use, contributing to improved foraging, roosting, and overall reproductive success. Key objectives include increasing native vegetation cover to support roosting, increasing insect prey availability, and implementing monitoring to assess the effectiveness of these mitigation actions. Additional objectives include reducing uncertainty about bat activity and habitat use on Molokaʻi and/or Lānaʻi to inform future conservation and management efforts.

Mitigation would focus primarily on habitat restoration and enhancement. Preferred mitigation sites would contain or have the potential to support native or mixed forest with vertical structure (e.g., trees exceeding 15 feet in height). Restoration actions may include, but are not limited to, the removal of invasive plant species, replanting or natural regeneration of native species (e.g., ʻōhiʻa lehua), and/or measures to reduce ungulate impacts through fencing or other controls, depending on the needs of the final site(s) selected. Additionally, restoration efforts may include areas with existing or restorable water sources (e.g., natural seeps or troughs), which can improve insect abundance and diversity. Acoustic monitoring would be conducted to assess baseline bat activity and evaluate changes following restoration actions.

The amount of habitat restored would be scaled to align with recommended mitigation crediting assumptions. While Bonaccorso et al. (2015) found that adult bats occupied a mean core use area (CUA) of 48.5 acres, the same study also reported a median CUA of 8.3 hectares (approximately 20.5 acres). The use of the median helps avoid inflation from a small number of very large core areas and more accurately represents the typical space use for most individuals. Bats are known to spend at least 50 percent of their time and exhibit concentrated foraging behavior within their CUAs. Following the methods outlined in ESRC and DOFAW (2024), restoring 20.5 acres of high-quality, predominantly native habitat could reasonably be considered sufficient to meet 50 percent of an adult bat's essential resource needs, specifically for roosting and concentrated foraging. To fully offset take of a single bat under this

model and using the methods outlined in ESRC and DOFAW (2024), the CUA restoration area would be doubled to 41 acres, thereby addressing the full scope of the bat's resource use. As described in the guidance (ESRC and DOFAW 2024), while both native and non-native habitat cover types can provide some resources for Hawaiian hoary bats, native forest restoration would be prioritized because it offers greater net conservation benefit and supports the recovery of multiple native species.

Thus, mitigation for 38 ʻōpeʻapeʻa would aim to improve approximately 1,558 acres of suitable habitat (41 acres [doubled CUA] multiplied by 38 bats). Land availability, habitat quality, mitigation actions, and expected conservation benefit would all be considered in determining the appropriate mitigation site boundaries. To ensure effectiveness, an adaptive management approach would be employed. If monitoring shows limited or no increase in bat activity following mitigation actions, mitigation measures would be re-evaluated and adjusted. Potential adjustments may include supplemental planting, modified maintenance practices, or expansion to additional areas. The goal is to ensure that mitigation sites not only sustain but demonstrably support increased bat activity over time.

Mitigation actions may also include threat reduction (e.g., predator control, barbed wire removal). Removal of barbed wire has historically been attributed with the following quantifiable benefits (M. Bogardus/USFWS, pers. comm., March 20, 2024):

$$\#\ miles * \#\ strands * 0.013\ bats * 20\ years = \#\ \text{bats offset}$$

Removal of barbed wire from the mitigation site would be a benefit to the species, even if the quantification varies from the above historical equation. Based on preliminary data analysis confirming bat presence on Molokaʻi, KWP has worked with the landowner to identify 3.6 miles of 6-strand barbed wire for removal and/or replacement, and would fund this effort in 2026 to initiate mitigation actions for the ʻōpeʻapeʻa at the beginning of the permit term. A full Site-Specific Mitigation Implementation Plan is anticipated to be developed and submitted by June 2026, with a goal of plan finalization by December 2026, prior to start of operations under the new PPA.

Final mitigation for ʻōpeʻapeʻa may be a single project, or a combination of projects that combined would result in a net benefit to the species in Maui Nui. KWP 1 is committed to providing as many mitigation details as possible in the draft and final HCPs, but also recognizes that mitigation plans take time, planning, and surveys to properly develop. As stated above, initial surveys to document presence at potential mitigation locations in Maui Nui began in April 2025 on Molokaʻi and Lānaʻi, and KWP 1 intends to have initial results by the end of 2025, which would then be used to develop a Site-Specific Mitigation Implementation Plan(s).

Nēnē (Hawaiian Goose)

Habitat Removal and Behavioral Disturbances

As described in Section 3.9.1.4, *Listed Wildlife Species* above, observations at KWP 1 and KWP 2 confirm that nēnē are resident in and around the Project Area and utilize the site for foraging, socializing, and breeding. Nēnē have also been documented nesting in the Project Area (Tetra Tech 2025a; Figure 3-11). To minimize nēnē attraction, KWP 1 would continue to manage woody vegetation along the turbine pads

and access roads and avoid creating areas with standing water. These activities began in 2011 and would continue, in coordination with DOFAW and USFWS, over the additional 20.5-year operational period. Vegetation management activities are believed to have reduced the appeal of certain areas within the Project Area as suitable nesting and foraging habitat for nēnē, and the continuation of these activities is anticipated to have continued success under the Proposed Action. Nonetheless, post-construction monitoring data indicates that KWP 1 operations has not significantly deterred nēnē from using or transiting through the Project Area. In fact, nēnē use of the site has increased since pre-construction, compared to the baseline information that nēnē were not known to breed within the Project Area (J. Medeiros, Maui DOFAW, pers. comm., as cited in KWP 2006). Noise and vibration during the continued operation of KWP 1 would generally be the same as existing levels. Therefore, continued operations would be anticipated to have a minor impact to nēnē habitat and minor impact to foraging, socializing, and breeding activities within the Project Area and vicinity.

Incidental Take

KWP predicts an estimated direct take of 65 nēnē and indirect take[66] of up to 4 nēnē (rounded up from 3.62 to the nearest whole nēnē). Therefore, the total requested take to be permitted is 69 nēnē over an additional 20.5 years of operation (Tetra Tech 2025a).

Population-level Effects

A total of 69 nēnē (at 80 percent UCL) equates to an annual take of less than or equal to approximately 3.5 nēnē per year from the Maui Nui population. An annual take value of 3.5 nēnē per year represents less than 0.8 percent of the most recent population status on Maui (429 nēnē; Nēnē Recovery Action Group 2024) and would be unlikely to significantly impact the Maui Nui population. The USFWS (2019) determined that the population on Maui is stable, and this determination occurred while KWP 1 was operating with nēnē take. Therefore, on the continued trajectory of take at KWP 1, it is anticipated that the population of nēnē within Maui Nui would remain stable. Mitigation would continue and be expanded.

Avoidance, Minimization, and Mitigation Measures

To minimize impacts to this species, KWP 1 would continue to implement the existing avoidance and minimization measures described in Section 3.9.1., *Existing Avoidance, Minimization, and Mitigation Measures* above. In addition to these BMPs, KWP 1 has requested active engagement with DOFAW Maui to band nēnē within the Project Area (Tetra Tech 2025a). This would allow KWP 1 to better understand the onsite population by standardizing the current observational monitoring program at the site. Banding would allow for the ability to track observations of distinct individual nēnē to better understand

[66] Indirect take calculations are described in the Proposed HCP. The indirect take multiplier ranges from 0.04 (April, August, and September) to 0.09 (October through March) depending on when take is observed in the breeding season.

their movements around the site, nesting location fidelity, and provide potential insight to nēnē mortality at KWP 1 by determining if fatalities were from the onsite population or not.

Currently, the primary means of mitigation for take of nēnē is to invest in propagation projects (release pens or nēnē pens) that increase the number of nēnē fledged in Maui Nui. Mitigation for nēnē would continue to utilize the nēnē pens as the method for offsetting nēnē take. Mitigation would include a combination of ongoing activities at existing nēnē pens and/or creation of new nēnē pens or new/expanded predator trapping programs to protect breeding nēnē. Current nēnē pens include one at Haleakalā Ranch on Maui and another at Puʻu o Hōkū Ranch on Molokaʻi. Due to the location of these facilities on private land and voluntary involvement in Safe Harbor Agreements and MOUs[67], the location and design of nēnē mitigation may need to be adaptively managed over time in coordination with USFWS and DOFAW (i.e., the management of nēnē pens described here may end at some point, and additional pens or trapping efforts at alternate locations [e.g., construction and management of a pen at Kamehamenui has been identified as a potential future option] may be implemented).

KWP 1 would manage release pens and trapping programs within Maui Nui (or other identified mitigation projects, e.g., traffic control measures) until mitigation offsets have exceeded the requested take of 69 nēnē (plus any lost productivity; see Tetra Tech 2025a) by at least 1 nēnē. At that time, KWP 1 would transfer pen management responsibilities to DOFAW, with at least 90 days' notice per the current MOUs. KWP 1 would provide annual management, monitoring, and reporting for the nēnē pens until the mitigation obligations have been fulfilled. Additional mitigation offsets (e.g., satellite tagging and associated actions such as predator trapping outside of release pens) may also be warranted and would be developed in coordination with USFWS and DOFAW to account for any additional increases in survival or production beyond current measures.

Mitigation is already occurring at both sites, and any mitigation obligation remaining under the existing ITL and ITP would be fulfilled concurrent with the allocation of offsets to the new ITP and ITL. Each year, unless otherwise agreed to by DOFAW and USFWS and KWP 1, mitigation offsets for nēnē would be calculated as the sum of the following for each release pen (and surrounding vicinity):

$$\#\ nēnē\ goslings\ fledged * 0.83\ survival\ to\ adulthood$$

$$\#\ breeding\ adult\ nēnē\ * 0.031\ increased\ adult\ survivorship$$

Haleakalā Ranch: KWP 1 would continue managing the Haleakalā Ranch release pen; pen infrastructure is under continual improvement, in discussion with DOFAW, to best support the population. Plans for additional water features and expanding the catchment system are in place. From its establishment in 2012 to date, the Haleakalā Ranch release pen has produced an average 6.7 fledglings per year and provided an increased survival benefit to an average of 12 breeding adults per year. Based on fledgling survival of 0.83 to adulthood and increased adult survival of 0.031 for breeding adults, this results in an average offset of 5.9 nēnē per year (Tetra Tech 2025a).

[67] Current MOUs in place for existing release pens both require at least 90 days' notice of any party to withdraw.

Pu‘u O Hoku Ranch: DOFAW reconstructed the release pen in 2024-2025, and 24 nēnē individuals (4 family groups) were translocated from Kaua‘i to a release pen at Pu‘u o Hōkū Ranch in April 2025. As a second mitigation project, KWP 1 is working with Pu‘u o Hōkū Ranch and DOFAW-Maui to manage the Moloka‘i nēnē pen following the translocation. Mitigation offsets would accrue based on the number of documented fledgling and the number of breeding adults. KWP I would provide annual management, monitoring, and reporting for the nēnē pen until the mitigation obligations have been fulfilled.

‘Ua‘u (Hawaiian Petrel)

Habitat Removal and Behavioral Disturbances

While the ‘ua‘u occasionally fly through the Project Area, the species is not anticipated to use the Project Area as habitat. The presence of the turbines (and associated noise/motion) in the airspace above the Project Area, may alter flight patterns of ‘ua‘u as they transit through the Project Area. However, the turbines are not new features of the landscape and wildlife species have had over 19 years to adapt to their presence. Therefore, continued operations would be anticipated to have no impact to ‘ua‘u habitat and negligible impacts to behavior if they transit through the Project Area.

Incidental Take

Adult and immature ‘ua‘u have the potential to collide with turbines and associated structures while commuting between nesting and feeding grounds during the pre-laying period (March to April) and incubation or chick-feeding periods (May through October).

The total estimated (and requested) take to be permitted is 29 ‘ua‘u over 20.5 years. This request is based on a projected direct take of 24 ‘ua‘u and indirect take[68] of 5 adult equivalent ‘ua‘u (rounded up from 4.25 to the nearest whole ‘ua‘u).

Population-Level Effects

If the maximum requested take of 29 adult ‘ua‘u occurs, it is not expected to impact the population significantly. The global population of ‘ua‘u is estimated at 11,900 (Pyle and Pyle 2017), with approximately 1,600 breeding pairs (3,200 adults) on Maui (Pyle and Pyle 2017; Simons and Bailey 2020). The requested permitted take of 29 ‘ua‘u over the 20.5 year of operation (equivalent to approximately 1.34 ‘ua‘u per year) represents an estimated 0.04 percent of the Maui population of 3,200 ‘ua‘u. The loss of 0.04 percent of the population per year would be unlikely to result in a significant impact to the Maui population. The mitigation measures outlined for the project (see below) would provide a net benefit, offering further assurance that there would be no population-level effects from the project's operation.

[68] Indirect take calculations are described in the Proposed HCP. The point during the breeding season when an adult is taken determines to what extent offspring may be affected, and how indirect take is calculated.

Avoidance, Minimization, and Mitigation Measures

To minimize impacts to ʻuaʻu under the Proposed Action, KWP 1 would continue to implement the avoidance and minimization measures described in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* above, including BMPs regarding lighting and avoidance of nighttttime construction work during the seabird fledgling period (September 15 to December 15). If nighttime construction (i.e., for maintenance or for decommissioning) during this period is unavoidable, KWP I would utilize a biological monitor during nighttime activities. This monitor would observe construction activities between approximately 0.5 hour before sunset to 0.5 hour after sunrise (i.e., when lighting is used) to be on lookout for wildlife species that appear to be disoriented or attracted to the lighting, or grounded by lighting, and facilitate corrective actions to be taken with the construction crew so as to avoid or minimize potential issues. Examples of potential issues include birds flying around turbines or lights, or becoming disoriented and falling to the ground near light sources.

Monitoring would be conducted by scanning the sky surrounding the construction area with binoculars approximately every 5 minutes. Every hour, the biological monitor would conduct a walk around the perimeter of the construction area (or to the extent the conditions are safe) searching for downed wildlife. In the morning, the biological monitor would conduct a walk-through of any portion of the perimeter of the construction area that, due to safety issues, was not accessible during the night to check for downed wildlife.

If any Covered Species are observed being affected by the lighting, the biological monitor would immediately notify the construction manager that wildlife have been observed reacting to the lighting and that lighting may need to be reduced or turned off until the observed wildlife leave the area. If the individual(s) do not exit the construction area, the biological monitor would direct the construction manager to reduce lighting as soon as it is safe to do so. If the reduction in lighting does not appear to be sufficient (i.e., the individuals do not leave the area), lighting should be turned off as soon as it is safe to do so. If a Covered Species becomes injured or falls to the ground, the biological monitor would attempt to locate the individual(s) and protect them from predators and construction disturbance until the individual(s) are able to exit the area on their own will. If any wildlife are found injured, the permitted wildlife rehabilitation center would be contacted. If any wildlife are found deceased, a Fatality Report would be filled out and submitted to agencies.

In addition, where fences extend above the vegetation, KWP I would integrate three strands of polytape into the fence to increase visibility where feasible.

Currently, the primary means of mitigation for ʻuaʻu is propagation projects and/or protections of existing breeding colonies that would increase the number of ʻuaʻu fledged in Maui Nui, though alternative options for offsets may be considered in the future if needed. Mitigation would build on previous efforts by including predator control and burrow monitoring in the Greater Hiʻi area with Pūlama Lānaʻi. Without additional support, it is reasonably expected that nesting ʻuaʻu in the area will experience increasing predation pressure by feral cats and rodents, and that reproductive success will revert to baseline levels.

Mitigation offset would be calculated using methodologies described in the HCP (Tetra Tech 2025a).

Mitigation would continue until our calculated mitigation offsets exceed the permitted take of 29 ʻuaʻu by at least one.

ʻAʻo (Newell's Shearwater)

Habitat Removal and Behavioral Disturbances

No ʻaʻo have been observed within the Project Area, and the species is not anticipated to use habitat within the Project Area. However, ʻaʻo may transit the airspace above the Project Area, and low numbers of potential ʻaʻo (targets exhibiting ʻaʻo -like timing of movement,) were documented during pre-construction radar surveys (KWP 2006). ʻAʻo are only expected to fly through the Project Area during the pre-laying period (April to May), incubation and chick-feeding periods (June to October) and fledging period (October to November). The presence of the turbines (and associated noise/motion) in the airspace above the Project Area, may alter flight patterns of ʻaʻo as they transit through the Project Area. However, the turbines are not new features of the landscape and wildlife species have had over 19 years to adapt to their presence. Therefore, continued operations would be anticipated to have no impact to ʻaʻo habitat and negligible impacts to behavior if they transit through the Project Area.

Incidental Take

No ʻaʻo have been observed as fatalities at the Project since operations began in 2006; therefore, it is possible that no ʻaʻo would collide with turbines and associated structures under continued operations; however, given the documented breeding that has occurred on island at the Makamakaʻole mitigation site, KWP 1 determined, in coordination with DOFAW and USFWS, that risk may exist and therefore is seeking coverage for the species.

Based on no fatalities being observed between FY 2006 and FY 2025, KWP predicts an estimated direct take of up to 9 ʻaʻo and indirect take of another 1 adult equivalent (rounded up from 0.55). An indirect take assessment would be applied to any adult ʻaʻo found directly taken from June through October. Indirect take would not be assessed to adult ʻaʻo found at other times of year or applied to immature ʻaʻo. Thus, the total requested take to be permitted is 10 ʻaʻo over the 20.5 years of operation.

Population-level Effects

If up to 10 ʻaʻo takes occur, it is not expected to impact the population significantly. State-wide, an estimated 10,300 ʻaʻo breeding pairs (20,600 adults) exist, with 50 of those pairs (100 adults) residing on the island of Maui (Pyle and Pyle 2017); 34 adults were documented at Makamakaʻole during the 2022 breeding season. Take of ten individuals over 20.5 years (average of 0.5 per year) would constitute 0.5 percent of the Maui population annually, and is not anticipated to have a significant impact on the species. Additionally, the requested take is based on several conservative assumptions, and actual take may be lower or not occur at all based on a lack of fatality records during over 19 years of operations. In the case of no observed take, previously implemented mitigation and the planned mitigation under the new permits would provide an even greater net conservation benefit.

Avoidance, Minimization, and Mitigation Measures

To minimize impacts to ʻaʻo under the Proposed Action, KWP 1 would continue to implement the avoidance and minimization measures described in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* above, including BMPs regarding lighting. The additional minimization measures described above for the ʻuaʻu are also applicable to ʻaʻo.

The primary means of mitigation for ʻaʻo is to invest in propagation projects and/or protections of existing breeding colonies that would increase the number of ʻaʻo fledged on Maui. Mitigation would build off previous and ongoing efforts at Makamakaʻole and would include funding the following:

- Inspections and maintenance (repair) of the fence to assure exclusion (to the extent possible) of ingress by small mammalian predators (i.e., mice, rats, mongoose, and cats);
- Predator monitoring within the exclosure;
- Predator trapping around the perimeter and within the exclosure in the vicinity of the known ʻaʻo colonies;
- Maintenance of bait boxes and assessment of rodent populations;
- Maintenance and deployment of social attraction playback system and decoys; and
- Burrow monitoring using game cameras, burrow scoping, and/or checking for evidence of visitation.

Mitigation offsets would be measured by methodologies described in the HCP (Tetra Tech 2025a). Mitigation would continue until calculated mitigation offsets exceed the permitted take by at least one.

ʻAkēʻakē (Band-rumped Storm-petrel)

Habitat Removal and Behavioral Disturbances

No ʻakēʻakē have been observed within the Project Area, and the species is not anticipated to use habitat within the Project Area. However, ʻakēʻakē may transit through the site during certain times of the year. The presence of the turbines (and associated noise/motion) in the airspace above the Project Area, may alter flight patterns of ʻakēʻakē as they transit through the Project Area. However, the turbines are not new features of the landscape and wildlife species have had over 19 years to adapt to their presence. Therefore, continued operations would be anticipated to have no impact to ʻakēʻakē habitat and negligible impacts to behavior if they transit through the Project Area.

Incidental Take

No ʻakēʻakē have been observed as fatalities at the Project since operations began in 2006; therefore, it is possible that no ʻakēʻakē would collide with turbines and associated structures under continued operations; however, given that breeding is suspected in the vicinity of Makamakaʻole (Maui Nui Seabirds, pers comm., February 20, 2025), and a documented fatality at the Auwahi wind farm on Maui (Tetra Tech 2020), KWP 1 determined, in coordination with DOFAW and USFWS, that risk may exist and therefore is seeking coverage for the species.

The projected direct take for ʻakēʻakē is anticipated to be 9 ʻakēʻakē over 20.5-years of operation. As with ʻuaʻu and ʻaʻo, adult and immature ʻakēʻakē are most likely to collide with turbines or associated structures during the breeding season. ʻAkēʻakē are not expected to be flying across the Project area at other times of year. Based on the above, an indirect take assessment would be applied to any adult ʻakēʻakē found directly taken from May through October. The total indirect take at the Project is predicted to be the equivalent of 0.5 additional ʻakēʻakē adult equivalents (rounded to 1). Thus, the total requested take to be permitted is 10 ʻakēʻakē over 20.5 years.

Population-level Effects

If the maximum requested take of 10 ʻakēʻakē occurs, it is not expected to significantly impact the Hawaiʻi population. Population estimates for the species are uncertain, but it has been recently estimated that 221 nesting pairs occur on the north shore of Kauaʻi, with additional birds on Maui Nui and Hawaiʻi Island (USFWS 2020 as cited in ICF 2023). Pyle and Pyle (2017) estimated 30 pairs (60 adults) on Maui, 250 pairs on Kauaʻi, 50 pairs on Hawaiʻi Island. The requested maximum permitted take of 10 ʻakēʻakē over 20.5 years of operation permit term (equivalent to approximately 0.5 ʻakēʻakē per year) represents an estimated 0.1 percent of the Hawaiʻi population per year (assuming conservatively 450 birds). This loss would be unlikely to result in a significant impact to either the Maui or Hawaiʻi populations.

Additionally, the requested take is based on several conservative assumptions, and actual take may be lower or not occur at all based on a lack of fatality records during the first 19 years of operations. In the case of no observed take, any successfully implemented mitigation would provide an even greater net conservation benefit.

Avoidance, Minimization, and Mitigation Measures

To minimize impacts to ʻakēʻakē under the Proposed Action, KWP 1 would continue to implement the avoidance and minimization measures described in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* above, including BMPs regarding lighting restrictions for listed seabirds. The additional minimization measures described above for the ʻuaʻu are also applicable to ʻakēʻakē.

While a specific ʻakēʻakē mitigation project similar to those described for the other seabirds may be considered, the USFWS has created a “Hawaiian Seabird Conservation Account” with the National Fish and Wildlife Foundation (NFWF) where funds for seabird mitigation can be deposited and then used according to an appropriate conservation plan. The overall intent is that pooled resources can be used to fund larger management projects with the opportunity to successfully support more individuals or to resolve larger research questions targeted at the recovery of seabirds than could have been supported through smaller scale investments. This fund currently covers all three listed seabirds (ʻuaʻu, ʻaʻo, ʻakēʻakē).

This account was developed for low impact and/or low-take projects, and provides a mitigation opportunity for species when there is not a readily accessible option for offsetting the take on the affected island(s). There are no known confirmed breeding colonies within Maui Nui, and of those

suspected, they are located in inaccessible gulches. While social attraction projects for ʻakēʻakē have begun within Maui Nui, the timeline for colony establishment is not known or predictable. Therefore, at this time, KWP proposes to fund NFWF as the mitigation for the ʻakēʻakē.

Activities for which funds from the Hawaiian Seabird Conservation Account can be used include, but are not limited to:

- Management of known breeding colonies, including:
    - predator fencing and predator control, including potential barn owl removal
    - social attraction and/or translocation of Hawaiian seabirds into protected areas
    - removal of invasive plant species
    - seabird reproductive monitoring
- Surveys to locate and protect new breeding colonies;
- Funding of programs that retrieve, rehabilitate, and release seabird fledglings disoriented by artificial lights;
- Adaptive management designed to mitigate the impact of various activities on listed Hawaiian seabirds.

When funding is provided as a result of HCPs, USFWS coordinates with DOFAW regarding how the funds are spent, success criteria, and ensures that funds are spent per HCP instructions/guidance.

To mitigate the impacts of unavoidable ʻakēʻakē take, KWP would provide designated mitigation funds to the NFWF dedicated account. The USFWS, DOFAW, and potentially other appropriate partner organizations would collaborate to create a conservation plan and implement the planned activities. The conservation plan funded in part by KWP contributions would be developed in coordination with DOFAW, reviewed by appropriate species experts, and include appropriate biological measures of success which would be determined when the conservation plan is developed.

USFWS and DOFAW estimated that it takes $28,000 to mitigate for one ʻaʻo (Tetra Tech 2016). Adjusting for inflation, that should be approximately $37,500 in todays dollars. Adding 20 percent for administrative costs results in an estimate of $45,000 per seabird. At the requested take of 10 ʻakēʻakē, this would require a total estimated contribution of $450,000. Because the management of the species implemented from the funding would improve habitat used by the ʻakēʻakē, this mitigation would provide a net benefit to the species.

The mitigation resources from multiple sources may be pooled, thereby increasing the potential scope of research and management efforts and the value of the research or management to the species. The ʻakēʻakē mitigation project funded through NFWF would be developed in coordination with DOFAW and represents the most appropriate conservation project available at this time. Based on current estimates, USFWS anticipates the identification of an appropriate conservation project within one year of permit issuance.

The mitigation measures that would be implemented for ʻakēʻakē under the Proposed Action would offset take and provide a net benefit to the species.

Assimulans Yellow-faced Bees

Habitat Removal and Behavioral Disturbances

The KWP I facility has been operating for 19 years and assimulans yellow-faced bees are readily nesting and foraging within the Project Area and on adjacent lands, which is the best evidence that the species can co-exist with operating wind turbines. The turbines are not new features of the landscape and wildlife species have had over 19 years to adapt to their presence. Noise and vibration during the continued operation of KWP 1 would generally be the same as existing levels. Therefore, continued operations would be anticipated to have a negligible impact on behavior of assimulans yellow-faced bees within the Project Area and vicinity.

Assimulans yellow-faced bee use ʻilima for foraging and nest underground in proximity to these foraging resources (USFWS 2022c; Hawai'i Invertebrate Program [HIP] pers. comm. via DOFAW, July 15, 2025). Therefore, take in the form of habitat removal could occur if activities occur within or otherwise impact nesting areas or foraging resources (ʻilima plants, or other species identified in Section 3.9.1.4, *Listed Wildlife Species, Assimulans yellow-faced bee*). Should other plant species be identified in the future as important as a foraging resource, KWP would work with USFWS and DOFAW to adapt the minimization and avoidance measures accordingly.

Activities that could result in habitat removal involve routine O&M activities, and the initial maintenance activities (i.e., replacement of components). Minor recontouring or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities, to maintain the primary and secondary access roads for service vehicles, and to maintain vegetation free buffers to provide fire breaks and assist with HCP compliance monitoring. Any ground disturbance would fall within the LOD. Use of heavy machinery within the LOD and off the existing roads and pads, if necessary, would be limited and infrequent. This activity has the potential to impact foraging resources or cause soil compaction which may be linked to indirect take through the temporary loss of unoccupied suitable habitat. Nest surveys for assimulans yellow-faced bees would occur prior to periods of known heavy machinery or ground disturbance work (i.e., prior to the initial maintenance and decommissioning periods), and nest areas would be flagged and avoided. These surveys would occur during the nest building period, roughly February through April, in the year prior to heavy machinery or ground disturbance.

Vegetation maintenance occurs at the facility in order to keep roadways and turbine pads clear of vegetation to allow access for maintenance staff, to reduce fire risk, and to maintain highly visible fatality monitoring search areas. Vegetation maintenance would follow the Vegetation Management Plan (Appendix F). Some manual vegetation management activities could result in the modification or removal of ʻilima. Targeted herbicide applications may occur as part of vegetation management.

Herbicide would not be directly applied to any ‘ilima plants, but indirect effects may occur due to assimulans yellow-faced bee presence in the vicinity.

Through desktop analysis, KWP determined that approximately 40 percent (23.2 acres) of the 58 acre limits of disturbance is vegetated and 60 percent (34.8 acres) is the existing roads and pads. (i.e., non-habitat). Due to the compaction of gravel on the roads and pads, and the presence of a weed barrier under the gravel, this area is classified as non-habitat. The remaining 23.2 acres may be used for foraging, nesting, or both, or not be suitable habitat. A detailed vegetation and habitat characterization survey will occur prior to publication of the final HCP to document presence of ‘ilima and other foraging resources and refine the potential nesting habitat areas within the LOD.

KWP anticipates that most activities would occur within non-habitat (i.e., on the existing roads and pads). Activities off the roads and pads would be avoided wherever and whenever possible but may occasionally need to occur. Impacts off the roads and pads but within the limits of disturbance would be temporary (i.e., no permanent loss of habitat). Nevertheless, due to the length of continued operational and potential for indirect impacts to occur, KWP is requesting take for up to 23.2 acres of habitat. This number will be refined for the final HCP following site surveys.

Based on an assumed minimum foraging distance of 550 meters (Hawai’i Invertebrate Program [HIP] pers. comm. via DOFAW, July 15, 2025), each assimulans yellow-faced bees may use approximately 235 acres[69] depending on the distribution of food resources. Based on the amount of habitat that may be temporarily or indirectly impacted (23.2 acres), this impact would represent approximately 10 percent of the foraging area for a bee[70]. Impacts would be avoided whenever possible, and would occur only intermittently where unoccupied habitat overlaps with unavoidable maintenance or decommissioning activities within the LOD. Therefore, the temporary and indirect impact of up to 23.2 acres is not anticipated to have a significant impact on the local population of assimulans yellow-faced bee.

Based on the number of foraging and nesting resources available outside the LOD, and beyond the Project Area, suitable habitat is available in the vicinity. Mitigation efforts would serve to increase foraging and nesting resources in this broader area, providing a net conservation benefit to the local population of assimulans yellow-faced bee.

Incidental Take

While the operations of wind turbines could result in mortality of assimulans yellow-faced bee, the frequency of these events is unknown and there is not currently a valid way to quantify or predict this risk. However, based on studies on bees more generally, and Hylaeus species specifically, the risk of

[69] Area = π * radius^2 = π * 302,500 ≈ 950,332 square meters ≈ 235 acres

[70] It should be noted that not all 23.2 acres are located within the foraging distance of the known nest congregation (i.e., the LOD include areas > 550 meters from the core nest area and therefore not all 23.2 acres would be anticipated to impact this population) or within 550 meters of a known single nest.

turbine strikes would be low (see Section 3.9.1.4, *Listed Wildlife Species, Assimulans yellow-faced bee*). The fact that the KWP I facility has been operating for 19 years and assimulans yellow-faced bees are readily nesting and foraging within the Project and on adjacent lands, is the best evidence that the species can co-exist with operating wind turbines.

KWP anticipates that direct take of assimulans yellow-faced bee from maintenance activities or vegetation management would be avoided through avoidance of documented nest locations and foraging resources (i.e., ʻilima) during the active season. Avoidance of impacts to nest locations or foraging bees would be accomplished through seasonal timing restrictions on ʻilima removal and use of a biological monitor to identify nest locations within areas of disturbance, if they occur. Additionally, it is currently unknown where assimulans yellow-faced bee are located during their inactive period. While efforts would be made to avoid take of individuals and nests through seasonal work windows and pre-activity surveys, some direct or indirect take of individuals may occur if nests are missed during the survey. Such take is thus not measurable; therefore, the Proposed HCP uses habitat impacts as a surrogate metric to both quantify take and the mitigation necessary to offset take and to provide a net conservation benefit. Using habitat as a surrogate metric for take is a common practice for species that are elusive or otherwise hard to study based on their life histories and also accounts for any indirect take occurring due to herbicide use or through the transplanting of ʻilima.

The Proposed HCP uses habitat impacts as a surrogate metric to both quantify take and the mitigation necessary to offset take and to provide a net conservation benefit to the assimulans yellow-faced bee (see discussion on *Habitat Removal and Behavioral Disturbance* above). However, as described above, direct take of assimulans yellow-faced bee would be avoided through avoidance of documented nest locations and foraging resources (i.e., ʻilima) during the active season. Avoidance of impacts to nest locations or foraging bees would be accomplished though seasonal timing restrictions on ʻilima removal and use of a biological monitor to identify nest locations within areas of disturbance, if they occur.

Avoidance, Minimization, and Mitigation Measures

KWP 1 would continue to limit activities off the roads and pads whenever possible. The WEOP would include bee nest awareness and ʻilima identification and activities would be conducted in accordance with the Vegetation Management Plan (Appendix F) and other measures that are expected to avoid and minimize impacts to the species. Key measures include:

- ʻIlima Protection and Timing:
    - Avoid removal or disturbance of ʻilima to the maximum extent practicable.
    - If vegetation management affecting ʻilima must occur, schedule work between July and November, or when ʻilima is confirmed to not be flowering, corresponding with a presumed period of dormancy for yellow-faced bees.
    - If work must occur during the active season (December–June), a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would

conduct a pre-activity survey for listed yellow-faced bees in the impact area and a 50-foot buffer around any ʻilima.

- Any ʻilima plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional ʻilima may also be planted to supplement the translocated plant(s).

- Other foraging resources (natives):
  - Avoid removal of the native ʻuhaloa and ʻūlei to the maximum extent practicable
  - If vegetation management of these species must occur, schedule work when the species are not flowering or have a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer.
  - And native plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional outplantings may also be used to supplement the translocated plant(s).
- Other foraging resources (non-natives: kiawe and koa haole):
  - Vegetation management of these species would be scheduled for when the species are not flowering or a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer.
- Additional Measures:
  - Restrict vehicle use to existing roads, and enforce the posted speed limit of 10 mph.
  - Include ʻilima and assimulans yellow-faced bees (including nests) in onsite environmental awareness training.
  - Limit herbicide use to periods between July and October, which is outside the active period for assimulans yellow-faced bees, and implement the following BMPs related to the use of herbicides (adapted from McKnight et al. 2018):
    - Conduct herbicide applications on calm days when wind speed is <10 mph (avoid applications during gusty or sustained high winds)
    - When available, use selective herbicides that are targeted to the species that need treating
    - Use targeted application techniques

- Selectively control undesirable plants with spot treatments, frill treatment, weed wipe, or other well-targeted techniques to avoid non-target species
- Avoid broadcast applications of herbicides
- Keep applications on target and minimize drift
    - Carefully choose and calibrate your spray nozzles to minimize drift, ensuring only target plants are treated
    - When possible, utilize spatial or vegetative buffers around pollinator habitat
- Apply herbicide during the plant life stage when a weed is most vulnerable
    - Plants should not be sprayed when they are in flower or after they have gone to seed
    - This practice alone can greatly reduce herbicide exposure for the local pollinator community
- When possible, apply in the early morning or in the evening when pollinators are less active, and not during mid-day when bees and other pollinators are most active, especially if the optimal time to spray the target plant is when it is flowering

- Assimulans Yellow-faced Bee Surveys
    - Surveys for YFB and their nests would be conducted by a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience), and would be developed in consultation with entomologists. These surveys would occur during the active assimulans yellow-faced bee period, prior to initial maintenance activities, and again at the end of the operational life prior to decommissioning. Surveys in the interim years would be conducted on an as-needed basis (i.e., if there is a need to disturb areas off the main roads and pads during the following year).
    - Following the guidelines in Blackburn et al. (2021), and adapted based on consultation with DOFAW entomologists, the surveys would be conducted during the following environmental conditions (if possible):
        - Minimum temperature: Above 60° F (~15°C)
        - Cloud cover: partly sunny or better. On cooler days the sun can play a very important role in bee activity
        - Wind: less than 20 mph

        - Precipitation: No rain and dry vegetation; wait three days after moderate to heavy rain which can remove nesting signs (e.g., expelled dirt)
        - Time of day: target between 930am and 230pm
        - Time of year: target the period of adult bee nest-building activity, roughly February through April.
    - Surveyors would walk the limits of disturbance, marking on a GPS any locations where YFB are observed on flowers, around nest sites, or over the ground. Nests would also be physically marked for avoidance.

Mitigation for the assimulans yellow-faced bee would focus on habitat protection and restoration. As described above, potential direct or indirect impacts to assimulans yellow-faced bee may occur on up to 23.2 acres within the Project Area. Impacts to habitat would be temporary as no permanent structures to impervious surfaces would be constructed with the Proposed Action; no permanent loss of habitat is anticipated.

If all vegetated areas within the limits of disturbance (23.2 acres) are identified as suitable habitat for the assimulans yellow-faced bee (i.e., foraging, nesting, or mixed) and are assumed to be impacted by Covered Activities, this would require approximately 24 acres of mitigation, which would result in a greater than one-to-one ratio. Actual requested take and the resulting mitigation obligation may be refined for the final HCP pending a site survey to classify the limits of disturbance.

Based on an estimated cost of $8,700 per acre for site preparation and out planting (Wada et al. 2017)[26], this would result in a maximum mitigation obligation of approximately $208,800 if solely focused on land management activities (and if the permitted amount is the full 23.2 acres; this value, and the corresponding mitigation obligation and costs, may be reduced pending a site-specific habitat assessment). Enhancement or restoration activities may include, but are not limited to:

- Additional foraging resources.
- Invasive species control.
- Creation of ground nesting opportunities (e.g., ironwood removal).

Final mitigation actions, and the allocation of the $208,800 in mitigation funding, would be determined in coordination with USFWS and DOFAW and informed by input from species experts. Final acreage may be reduced if it is determined that funding of targeted assimulans yellow-faced bee research has a greater benefit to the species. In that case, a portion of the mitigation funding may be allocated to research or monitoring efforts rather than land management activities.

Mitigation activities would occur within the Project Area or on the adjacent state lands [i.e., TMK (2) 4-8-001:001 (portion) or TMK (2) 3-6-001:014 (portion)]. KWP would work with DOFAW and USFWS to identify areas for mitigation, which would provide the greatest benefit to the population (e.g., areas with potential for future nesting or areas within foraging distance of known nest locations).

The intention is to fully offset take and provide a net conservation benefit to the species by replacing any temporary (direct) or indirect habitat impacts during implementation of covered activities. In addition, KWP I is required to transplant any native plants that are going to be disturbed by Project-related activities per the CDUP. Therefore, any native plants (including ‘ilima and other known foraging resources) that would be removed would be transplanted. Success criteria for mitigation and outplanting efforts, and a monitoring plan, would be developed in coordination with DOFAW and USFWS.

As possible, mitigation would be implemented upon permit issuance. However, delays may occur if additional surveys for assimulans yellow-faced bee are needed (i.e., prior to outplanting or to identify locations for mitigation activities) or if plants (e.g., ‘ilima) are not readily available at a USFWS and DOFAW-approved nursery in time for the outplanting. In these instances, KWP would work with a qualified contractor to initiate propagation of plants from the onsite stock, including potential seed collection or to conduct assimulans yellow-faced bee surveys as needed.

Non-Covered Species

Blackburn’s Sphinx Moth

Habitat Removal and Behavioral Disturbances

As described in Section 3.9.1.4, *Listed Wildlife Species*, the potential for Blackburn’s sphinx moth to occur within the Project Area is unlikely due to the lack of host plants and continuous monitoring for host plants (Tetra Tech 2025a). As no known Blackburn’s sphinx moth habitat exists within the Project Area, continued operations are anticipated to have no impact on the species’ habitat or behavior.

Direct Mortality

As the potential for Blackburn’s sphinx moth to occur within the Project Area is unlikely, KWP 1 is not requesting take authorization for this species. With implementation of these avoidance and minimization measures below, the Proposed Action is anticipated to have no impact on the Blackburn’s sphinx moth.

Avoidance, Minimization, and Mitigation Measures

To avoid impacts to Blackburn’s sphinx moth under the Proposed Action, KWP 1 would continue to implement the avoidance and minimization measures described in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* above and implement the following:

- Site staff would be trained to identify tree tobacco and would report any sighting of tree tobacco to the onsite biologist or site manager; signage would be added to the O&M building illustrating different stages of tree tobacco for identification.
    - If tree tobacco less than 3 feet in height is observed within areas with potential vegetation disturbance, the plants would be removed immediately to prevent attracting Blackburn’s sphinx moth. DOFAW recommends this removal occur during the dry season (usually May to October).

- If tree tobacco over 3 feet in height is observed in an area requiring disturbance, a qualified biologist would thoroughly search the plant(s) for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). DOFAW and USFWS may be contacted for additional guidance.

- Should any major ground disturbance occur within the Project Area, regular surveys for tree tobacco may occur in those areas to confirm tree tobacco is not present and there no impacts to the listed Blackburn's sphinx moth.

Pueo (Hawaiian Short-eared Owl)

Habitat Removal and Behavioral Disturbances

Pueo have the potential to forage in or traverse the Project Area. Ground disturbance and vegetation management activities would occur with protocols in place to avoid impacts to nesting pueo and would be limited to previously disturbed areas of no more than 23 acres within the LOD.

KWP 1 would continue to trap and remove mice and rats, a food source for pueo, which may limit the attractiveness of the Project Area for pueo but would not differ from current conditions. Noise and vibration during the continued operation of KWP 1 would generally be the same as existing levels. The presence of the turbines (and associated noise/motion) in the airspace above the Project Area, may alter flight patterns of pueo as they transit through the Project Area. However, the turbines are not new features of the landscape and wildlife species have had over 19 years to adapt to their presence. Therefore, continued operations would be anticipated to have a minor impact to pueo habitat and foraging activities within the Project Area and vicinity.

Direct Fatalities

Pueo would continue to be susceptible to collisions with wind turbines, vehicles, and other structures under the Proposed Action (Tetra Tech 2025a). As shown in Table 3-12 above, between 2006 and 2025, 16 pueo have been observed as fatalities at the KWP 1 facility. Similar impacts are anticipated during the additional 20.5-years of operation. While the population of pueo on Maui is unknown, a similar rate of impact over 20.5 years is not anticipated to have a significant impact on their population; however, impacts would be minor and minimized and mitigated as described below.

Avoidance, Minimization, and Mitigation Measures

To minimize impacts to pueo under the Proposed Action, KWP 1 would continue to implement the avoidance and minimization measures described in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures* above, with slight modifications based on new agency guidance. KWP would implement the following to avoid and minimize impacts to pueo:

- Before any ground disturbing activities that may disturb potential pueo nesting habitat, a qualified biologist would conduct surveys for pueo. Surveys should be done for 2-3 nights prior to ground disturbing activities during crepuscular hours from vantage points where the entire

disturbance area can be observed. If any pueo breeding displays are observed, it is likely there could be a nest.

- If pueo nests are detected in the Project Area at any time, a 328-foot (100 meters) buffer should be established in which no activity occurs until the nesting cycle is complete and the chicks are capable of flight.
- As part of the WEOP Progam, all construction and regular on-site staff would be trained to identify pueo and if pueo or a pueo nest are observed, staff would stop work and coordinate with onsite biologist to determine appropriate steps.
- DOFAW staff should be notified of any nests or adult breeding behavior.
- The site-wide speed limit of 10 mph would be enforced.

Because the pueo does not have threatened or endangered status on the island of Maui, and is not federally listed, KWP is not seeking incidental take authorization for pueo. KWP recognizes the ecological and cultural significance of the pueo and would therefore provide voluntary mitigation under the Proposed Action. KWP 1 would provide $11,000 in funding to the Hawai‘i Wildlife Center to cover the remaining costs of an aviary rebuilt in 2024. This aviary is anticipated to last more than 10 years based on the lifespan of the last aviary and may serve approximately 12 pueo patients per year (Tetra Tech 2025a).

HCP Compliance Activities

Overall, implementation of the HCP compliance activities is intended to provide a benefit to wildlife. Avoidance and minimization that would occur as part of compliance activities would also minimize impacts to non-listed wildlife species, including species protected under the MBTA and other species of concern. The year-round fatality monitoring program would also document any downed (i.e., injured or dead) non-listed wildlife species. Activities related to HCP compliance at the Project Area would involve work on the existing turbines pads and roads and therefore is not expected to adversely affect wildlife. Impacts from vegetation management conducted as part of HCP compliance are included in the *Continued Operations* section above for each species. This section outlines potential impacts to wildlife as a result of the mitigation activities proposed for the Covered Species.

Non-listed Wildlife and MBTA Protected-Birds

A range of habitats occur within the mitigation areas that could support non-listed wildlife. Although mitigation activities may result in localized, small-scale ground disturbance (e.g., fence construction/maintenance, outplanting), BMPs would be implemented to minimize impacts, including measures to minimize disturbance and prevent introduction or spread of invasive species. In the long-term, all of the mitigation measures described above are anticipated to have a benefit beyond the Covered Species that they are designed to mitigate for and are expected to benefit non-listed wildlife. For example, other seabirds are expected to benefit from the fencing and predator control at Makamaka‘ole. Mitigation for ‘ōpe‘ape‘a and assimulans yellow-faced bee would benefit other native

species through outplantings of native plants or other habitat protection and conservation measures. Any removal of predators has benefits to other species that are threatened by the same introduced mammalian predators as the Covered Species. All of these actions, cumulatively, lead to a net environmental benefit and fulfillment of the requirements of HRS 195(D).

Critical Habitat

As described above in Section 3.9.1.3, *Designated Critical Habitat for Listed Species,* mitigation activities would continue to occur within small portions of designated critical habitat for ʻakohekohe, kiwikiu, and Blackburn's sphinx moth. While limited ground disturbance from fence maintenance, personnel and equipment movement, predator control, and vegetation management activities may occur under the mitigation actions at the Makamakaʻole and Haleakalā Ranch mitigation areas, continued management at of these areas is not anticipated to impact critical habitat or directly impact ʻakohekohe, kiwikiu, or the Blackburn's sphinx moth.

Listed Wildlife Species

All of the mitigation measures described above are designed to result in an overall beneficial impact on the Covered Species that they are designed to offset. Mitigation activities are anticipated to have no impact on the Blackburn's sphinx moth or pueo. See Section 3.9.2.2, *Proposed Action, Impacts to Listed Wildlife Species* above for more information.

Decommissioning and Restoration

Decommissioning activities are expected to have short-term, direct and indirect impacts on wildlife and critical habitat, from ground disturbance necessary for the dismantling and removal of the WTG, pads, and axillary structures, regrading to preconstruction contours (where feasible), and the movement of heavy equipment and vehicles used to dismantle and transport infrastructure.

In the short-term, dismantling and removal of above- and below ground structures, grading and re-contouring efforts and the movement of personnel and equipment have the potential to directly impact wildlife habitat and behavior. Above-ground structures to be decommissioned and removed include the turbines, the KWP 1 substation (unless deemed beneficial to leave in place by DLNR and Hawaiian Electric), and foundations. The O&M building and warehouse storage facility would be left in place if the KWP 2 Project is still within its operational period. Below-ground structures include buried electric cables and the WTG foundation pads, which would be removed to a depth specified by DLNR. Decommissioning and ground disturbing activities would occur entirely within previously disturbed areas. Impacts to the assimulans yellow-faced bee, which are largely due to habitat disturbance, would be similar to those described above for continued operations.

To minimize impacts during decommissioning, KWP 1 would continue to implement the avoidance and minimization measures listed above. The decommissioning contractor would avoid vegetation clearing during the nēnē nesting season (September to April), trimming or removal of vegetation over 15 feet during the ʻōpeʻapeʻa pupping season (June to September 15), and removal of ʻIlima during the assimulans yellow-faced bee active period (October to June), or such work would be conducted in

conjunction with an appropriate biological monitor. When necessary, wildlife surveys would be conducted prior to ground disturbing or vegetation removal activities and/or a biological monitor would be on site with the ability to stop or modify decommissioning activities to avoid impacts to listed species. Disturbed areas would be stabilized and revegetated as soon as practical and BMPs implemented to prevent the introduction and spread of invasive species. Direct impacts to wildlife could also occur from vehicle collisions or disturbance due to noise and vibration; however, with the implementation of BMPs such as reduced road speed limits, this risk would be reduced to minor or negligible. Indirect impacts to designated wildlife habitat could result from the introduction or spread of invasive species and increased risk of fire during decommissioning. To minimize these risks, the decommissioning contractor would execute KWP 1's Invasive Species Prevention Plan (Appendix G) and Wildfire Prevention Plan (TerraForm 2025).

Following the dismantling and removal of KWP 1 infrastructure, restoration activities would take place to return the Project Area to preconstruction conditions to the extent practicable. Reclamation would take place as soon as practicable following equipment removal, ideally before the next growing season following the completion of ground-disturbing activities, to minimize the spread and establishment of invasive weed species in affected areas. As described in the sections above, several listed and MBTA species are at risk of colliding with turbines during the operational life of the KWP 1 wind farm. However, decommissioning and restoring the Project Area to pre-construction conditions removes this hazard. Therefore, reclamation activities would have a long-term, beneficial impact on wildlife.

3.9.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 project would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS and no ITL would be issued by DOFAW, and the HCP conservation measures would not be implemented. As a result, the wildlife impacts associated with the continued operation of KWP 1 and from the HCP mitigation would not occur. Throughout the operational lifetime of KWP 1, many of the mitigation projects were successful and resulted in more species mitigation credits than were required in the original project agreements. With the No Action Alternative, additional mitigation would not be required and all existing mitigation activities would end once the originally agreed-upon credit requirements are met.

The potential wildlife impacts from decommissioning and restoration activities are described above but under the No Action Alternative these activities would occur immediately rather than at the end of the extended operational period. Following the dismantling of infrastructure, reclamation activities would take place to restore and revegetate the Project Area to reflect pre-construction conditions. Restoring the Project Area to its original conditions would result in a long-term beneficial impact on wildlife.

3.9.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on wildlife under the Proposed Action, KWP 1 would continue to implement the measures outlined in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*. BMPs relevant to decommissioning would also be implemented under the No-Action

Alternative. In addition to these BMPs, the applicant would implement the following additional measures to avoid or minimize potential impacts from the Proposed Action and No Action Alternative:

- General
    - Continue to implement avoidance and minimization measures in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*.
    - Implement KWP 1's Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025).
    - Implement BMPs during maintenance and decommissioning to maintain soil stability and prevent erosion and sedimentation, as described in Section 3.4, *Geology, Topography, and Soils*.
    - Implement BMPs during maintenance and decommissioning to minimize noise and vibration impacts, as described in Section 3.11, *Noise*.
    - Continue to implement the WEOP for all regular on-site staff to minimize project-related impacts to listed species and other wildlife. The program would be on-going and updated as necessary.
    - Conduct post-construction fatality monitoring to monitor potential impacts to non-listed and listed wildlife as a result of KWP 1 operations.
    - Adaptively manage the minimization and mitigation measures described herein and in the Proposed HCP, as needed, in coordination with USFWS and DOFAW.
- ʻŌpeʻapeʻa
    - Continue to implement avoidance and minimization measures in Section 3.9.1.5, *Existing Avoidance, Minimization, and Mitigation Measures*.
    - Barbed wire within the Project area would be minimized to the maximum extent practicable.
- Nēnē
    - Continue to implement avoidance and minimization measures in Section 3.9.1.5, Existing Avoidance, Minimization, and Mitigation Measures.
    - Traffic signage would be used in areas of higher nēnē use for general awareness, and the locations of this signage may be increased and/or updated over time in conjunction with the location(s) nēnē use observations.
    - During fatality monitoring, precautions would continue to be taken to prevent potential canine interactions with the nēnē. If nēnē are present in a search area, the canine handler would immediately retrieve and restrain the dog, avoid disturbing the birds, and

would postpone searching in the vicinity of the birds, worked on leash away from wildlife and/or temporarily skipping canine searches in the proximity of the nēnē.

- Engage with DOFAW Maui to band nēnē within the Project Area to track individual nēnē, better understand their movements, nesting location fidelity, and provide insight to nēnē mortality at KWP 1.

- Seabirds
  - Continue to implement avoidance and minimization measures in Section 3.9.1.5, Existing Avoidance, Minimization, and Mitigation Measures.
  - If nighttime construction (i.e., for maintenance or for decommissioning) during this period is unavoidable, KWP I would utilize a biological monitor during nighttime activities. This monitor would observe construction activities between approximately 0.5 hour before sunset to 0.5 hour after sunrise (i.e., when lighting is used) to be on lookout for wildlife species that appear to be disoriented or attracted to the lighting, or grounded by lighting, and facilitate corrective actions to be taken with the construction crew so as to avoid or minimize potential issues. If any Covered Species are observed being affected by the lighting, the biological monitor would immediately notify the construction manager that wildlife have been observed reacting to the lighting and that lighting may need to be reduced or turned off until the observed wildlife leave the area. If the individual(s) do not exit the construction area, the biological monitor would direct the construction manager to reduce lighting as soon as it is safe to do so. If the reduction in lighting does not appear to be sufficient (i.e., the individuals do not leave the area), lighting should be turned off as soon as it is safe to do so.
  - Assimulans Yellow-faced Bee ʻIlima Protection and Timing:
    - Avoid removal or disturbance of ʻilima to the maximum extent practicable.
    - If vegetation management affecting ʻilima must occur, schedule work between July and November, or when ʻilima is confirmed to not be flowering, corresponding with a presumed period of dormancy for yellow-faced bees.
    - If work must occur during the active season (December–June), a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for listed yellow-faced bees in the impact area and a 50-foot buffer around any ʻilima.
    - Any ʻilima plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional ʻilima may also be planted to supplement the translocated plant(s).
  - Other foraging resources (natives):

- Avoid removal of the native ʻuhaloa and ʻūlei to the maximum extent practicable
- If vegetation management of these species must occur, schedule work when the species are not flowering or have a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer.
- And native plants requiring removal would be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting (see Appendix B). Additional outplantings may also be used to supplement the translocated plant(s).

- Other foraging resources (non-natives: kiawe and koa haole):
  - Vegetation management of these species would be scheduled for when the species are not flowering or a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer.
- Additional Measures:
  - Restrict vehicle use to existing roads, and enforce the posted speed limit of 10 mph.
  - Include ʻilima and assimulans yellow-faced bees (including nests) in onsite environmental awareness training.
  - Limit herbicide use to periods between July and October, which is outside the active period for assimulans yellow-faced bees, and implement the following BMPs related to the use of herbicides (adapted from McKnight et al. 2018):
    - Conduct herbicide applications on calm days when wind speed is <10 mph (avoid applications during gusty or sustained high winds)
    - When available, use selective herbicides that are targeted to the species that need treating
    - Use targeted application techniques
    - Selectively control undesirable plants with spot treatments, frill treatment, weed wipe, or other well-targeted techniques to avoid non-target species
    - Avoid broadcast applications of herbicides
    - Keep applications on target and minimize drift

        - Carefully choose and calibrate your spray nozzles to minimize drift, ensuring only target plants are treated
        - When possible, utilize spatial or vegetative buffers around pollinator habitat
    - Apply herbicide during the plant life stage when a weed is most vulnerable
        - Plants should not be sprayed when they are in flower or after they have gone to seed
        - This practice alone can greatly reduce herbicide exposure for the local pollinator community
    - When possible, apply in the early morning or in the evening when pollinators are less active, and not during mid-day when bees and other pollinators are most active, especially if the optimal time to spray the target plant is when it is flowering

- Assimulans Yellow-faced Bee Surveys
    - Surveys for YFB and their nests would be conducted by a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience), and would be developed in consultation with entomologists. These surveys would occur during the active assimulans yellow-faced bee period, prior to initial maintenance activities, and again at the end of the operational life prior to decommissioning. Surveys in the interim years would be conducted on an as-needed basis (i.e., if there is a need to disturb areas off the main roads and pads during the following year).
    - Following the guidelines in Blackburn et al. (2021), and adapted based on consultation with DOFAW entomologists, the surveys would be conducted during the following environmental conditions (if possible):
        - Minimum temperature: Above 60° F (~15°C)
        - Cloud cover: partly sunny or better. On cooler days the sun can play a very important role in bee activity
        - Wind: less than 20 mph
        - Precipitation: No rain and dry vegetation; wait three days after moderate to heavy rain which can remove nesting signs (e.g., expelled dirt)
        - Time of day: target between 930am and 230pm

- Time of year: target the period of adult bee nest-building activity, roughly February through April.

- Surveyors would walk the limits of disturbance, marking on a GPS any locations where YFB are observed on flowers, around nest sites, or over the ground. Nests would also be physically marked for avoidance.

- Blackburn's Sphinx Moth
  - Continue to implement avoidance and minimization measures in Section 3.9.1.5, Existing Avoidance, Minimization, and Mitigation Measures.
  - Site staff would be trained to identify tree tobacco and would report any sighting of tree tobacco to the onsite biologist or site manager; signage would be added to the O&M building illustrating different stages of tree tobacco for identification.
    - If tree tobacco less than 3 feet in height is observed within areas with potential vegetation disturbance, the plants would be removed immediately to prevent attracting Blackburn's sphinx moth. DOFAW recommends this removal occur during the dry season (usually May to October).
    - If tree tobacco over 3 feet in height is observed in an area requiring disturbance, a qualified biologist would thoroughly search the plant(s) for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). DOFAW and USFWS may be contacted for additional guidance.
  - Should any major ground disturbance occur within the Project Area, regular surveys for tree tobacco may occur in those areas to confirm tree tobacco is not present and there no impacts to the listed Blackburn's sphinx moth.
- Pueo
  - Provide $11,000 in funding to the Hawai'i Wildlife Center as voluntary mitigation for the Pueo.
  - Before any ground disturbing activities that may disturb potential pueo nesting habitat, a qualified biologist would conduct surveys for pueo. Surveys should be done for 2-3 nights prior to ground disturbing activities during crepuscular hours from vantage points where the entire disturbance area can be observed. If any pueo breeding displays are observed, it is likely there could be a nest.
  - If pueo nests are detected in the Project Area at any time, a 328-foot (100 meters) buffer should be established in which no activity occurs until the nesting cycle is complete and the chicks are capable of flight.

- As part of the WEOP Program, all construction and regular on-site staff would be trained to identify pueo and if pueo or a pueo nest are observed, staff would stop work and coordinate with onsite biologist to determine appropriate steps.
- DOFAW staff should be notified of any nests or adult breeding behavior.
- Where fences extend above the vegetation, KWP I would integrate three strands of polytape into the fence to increase visibility where feasible.
- The site-wide speed limit of 10 mph would be enforced.

In addition to the avoidance and minimization measures listed above, mitigation would be implemented for each Covered Species to compensate for take impacts as described above. Mitigation is described for each Covered Species in the sections above and summarized in Table 3-15. Beyond the mitigation that would be implemented through the HCP for the Covered Species, KWP I would voluntarily provide $11,000 in funding to the Hawai‘i Wildlife Center as voluntary mitigation for the pueo.

Table 3-15. Summary of KWP 1 Mitigation under the Proposed Action

Covered Species	Offset Requirement and Type	Mitigation Location	Mitigation Timing and Notes
‘Ōpe‘ape‘a (Hawaiian hoary bat)	> 38 ‘ōpe‘ape‘a, which would be offset through habitat restoration efforts or habitat protection or through removal of hazards (e.g., barbed wire)	TBD location(s) on Lana‘i, Moloka‘i or Maui	Acoustic surveys began in April 2025 on Lana‘i and Moloka‘i. KWP would work with USFWS and DOFAW, along with landowners, on potential actions that could be taken at potential sites, and potential sites would be chosen after six months of acoustic data are collected (scheduled for April – October 2025). If no appropriate plan can be developed or if acoustic surveys do not indicate either site to be a viable option, the Applicant would adaptively manage to other sites on Lana‘i or Moloka‘i or begin surveys at locations on Maui.
Nēnē (Hawaiian goose)	> 69 adult equivalent nēnē, which would be offset through direct replacement at propogation pens through fledglings and increased adult survival through trapping efforts, maintenance of predator fencing, and other management efforts.	Haleakalā Ranch Nēnē Pen (Maui) Pu‘u o Hōkū Nēnē Pen (Moloka‘i)	Sites currently exist and are already being utilized to propagate nēnē; offsets for the new ITP and ITL would begin upon permit issuance concurrent with the current (2006-2026) ITP and ITL mitigation obligations. Mitigation actions would continue until a net benefit has been achieved relative to the permitted amount of take (and any accrued lost productivity).
‘Ua‘u (Hawaiian petrel)	> 29 ‘ua‘u, which would be offset through direct replacement through fledglings and increased adult survival through trapping efforts.	Greater Hi‘i Area (Lana‘i)	Mitigation would be funded upon permit issuance for the following breeding season(s) and continue until the net benefit had been achieved.

Covered Species	Offset Requirement and Type	Mitigation Location	Mitigation Timing and Notes
ʻAʻo (Newell's shearwater)	> 10 ʻaʻo, which would be offset through direct replacement through fledglings and increased adult survival through trapping efforts, maintenance of predator fencing, and other management efforts.	Makamakaʻole (Maui)	Mitigation would be funded upon permit issuance for the following breeding season(s) and continue on an annual basis until the net benefit had been achieved.
ʻAkēʻakē (Band-rumped storm petrel)	> 10 ʻakēʻakē, which would be offset through metrics determined by USFWS and DOFAW and funded through NFWF.	TBD location(s)	Mitigation would be funded upon permit issuance or at a point in time agreed upon by DOAFW and USFWS.
Assimulans yellow-faced bee	Habitat mitigation to offset indirect and temporary impacts on up to 23.2 acres.	Project Area and Adjacent Lands within the same TMK (Maui)	Mitigation would be funded upon permit issuance, and is anticipated to begin after an assimulans yellow-faced bee survey occurs in early 2026. Mitigation would continue until the net benefit has been achieved.
1. Acreage for assimulans yellow-faced bee mitigation will be refined in the final Proposed HCP following site surveys.			

3.9.2.5 Summary of Impacts

The Proposed Action would have minor adverse impacts on wildlife critical habitat and non-listed species, so long as avoidance and minimization measures continue to be implemented. An overall beneficial impact to Covered Species is anticipated with implementation of the mitigation measures detailed above. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned at the end of the current permit term, which would lead to immediate ground disturbance that would impact existing wildlife and habitat. However, restoration of the Project Area would result in long-term, beneficial impacts to wildlife and habitat. Table 3-16 summarizes potential impacts to wildlife and critical habitat from the Proposed Action and No Action Alternative.

Table 3-16. Summary of Potential Impacts to Wildlife

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Non-listed Species & MBTA-Protected Birds				
Habitat Removal	Negligible	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
Behavioral Disturbance	Minor	Beneficial	Minor (Short-term); Beneficial (Long-Term)	Minor (Short-term); Beneficial (Long-Term)
Direct Mortality	Minor	No Impact	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
Designated Critical Habitat				
Habitat Removal	Negligible	No Impact	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
Behavioral Disturbance	No Impact	No Impact	No Impact	No Impact
Direct Mortality	No Impact	No Impact	No Impact	No Impact
ʻŌpeʻapeʻa (Hawaiian Hoary Bat)				
Habitat Removal	Negligible	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
Behavioral Disturbance	Negligible	Beneficial	Minor (Short-term); Beneficial (Long-Term)	Minor (Short-term); Beneficial (Long-Term)
Incidental Take	Benefical[1]	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
Nēnē (Hawaiian Goose)				
Habitat Removal	Minor	Beneficial	Minor (Short-term); Beneficial (Long-Term)	Minor (Short-term); Beneficial (Long-Term)
Behavioral Disturbance	Minor	Beneficial	Minor (Short-term); Beneficial (Long-Term)	Minor (Short-term); Beneficial (Long-Term)
Incidental Take	Benefical[1]	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
ʻUaʻu (Hawaiian Petrel)				
Habitat Removal	No Impact	Beneficial	No Impact	No Impact
Behavioral Disturbance	Negligible	Beneficial	No Impact	No Impact
Incidental Take	Benefical[1]	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
ʻAʻo (Newell's Shearwater)				
Habitat Removal	No Impact	Beneficial	No Impact	No Impact
Behavioral Disturbance	Negligible	Beneficial	No Impact	No Impact
Incidental Take	Benefical[1]	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
ʻAkēʻakē (Band-rumped Storm-petrel)				
Habitat Removal	No Impact	Beneficial	No Impact	No Impact
Behavioral Disturbance	Negligible	Beneficial	No Impact	No Impact
Incidental Take	Benefical[1]	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)
Assimulans Yellow-faced Bee				
Habitat Removal	Benefical[1]	Beneficial	Minor (Short-term) / Beneficial (Long Term)	Minor (Short-term) / Beneficial (Long Term)
Behavioral Disturbance	Negligible	Beneficial	Minor (Short-term) / Beneficial (Long Term)	Minor (Short-term) / Beneficial (Long Term)
Direct Mortality	No Impact	No Impact	No Impact	No Impact
Blackburn's Sphinx Moth				
Habitat Removal	No Impact	No Impact	No Impact	No Impact
Behavioral Disturbance	No Impact	No Impact	No Impact	No Impact
Direct Mortality	No Impact	No Impact	No Impact	No Impact
Pueo (Hawaiian Short-eared Owl)				
Habitat Removal	Minor	No Impact	Minor (Short-term); Beneficial (Long-Term)	Minor (Short-term); Beneficial (Long-Term)
Behavioral Disturbance	Minor	No Impact	Minor (Short-term); Beneficial (Long-Term)	Minor (Short-term); Beneficial (Long-Term)
Direct Mortality	Minor	Beneficial	Negligible (Short-term); Beneficial (Long-Term)	Negligible (Short-term); Beneficial (Long-Term)

1. Mitigation measures would offset projected incidental take and are designed to result in an overall beneficial impact to listed species.

3.10 Cultural and Archaeological Resources

This section includes a description of the cultural and archaeological resources within and surrounding the Project Area and evaluates the potential impacts the Proposed Action and No Action Alternative may have on these resources. Defined here, cultural resources include historic archaeological districts, landscapes, sites, or objects, traditional cultural properties, human remains, and/or historic built environment resources that include, districts, buildings, structures, landscapes, sites, and objects or places of importance to a culture or community for scientific, traditional, religious, or other reasons. Archaeological resources refer to archaeological sites, features and historic properties that can include visible surface features and/or buried deposits without surface features.

The ROI for cultural resources encompasses the Ukumehame Ahupua‘a, the Project Area, the immediate surrounding regions, and the HCP mitigation sites. This broad ROI is appropriate because a comprehensive understanding of the ahupua‘a in which the Project Area is located is needed to assess the cultural significance of the Project Area. Furthermore, some cultural resources require consideration of a broader region and island landscape to assess cultural significance.

The ROI for archaeological resources is the Project Area plus up to a distance of one-half mile to account for potential direct and indirect impacts to archaeological resources. Although the Applicant does not anticipate any ground disturbance outside the Project Area, the one-half mile distance from the Project Area was included in the ROI to consider potential indirect impacts on archaeological sites from potential Project effects.

Data used in this analysis comes from the Project’s Cultural Impact Assessment (CIA) (ASM 2025, Appendix C) and from the 12 archaeological investigations that have examined areas overlapping with or adjacent to the Project Area. These previous archaeological investigations are discussed in detail in Section 3.10.1.6, *Archaeological and Historic Features*.

The CIA was prepared pursuant to Act 50 and in accordance with the ERP (formerly the Office of Environmental Quality Control [OEQC]) Guidelines for Assessing Cultural Impacts (Environmental Council 1997). Act 50 explicitly acknowledges the State’s responsibility to protect Native Hawaiian cultural practices and states that environmental studies prepared under HRS 343 “should identify and address effects on Hawaii’s culture, and traditional and customary rights” and that “native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the ‘aloha spirit’ in Hawai‘i. See Section 3.10.1.1, *State Regulations and Guidelines for Assessing Cultural Impacts* for more information on Act 50 and ERP guidelines for CIAs.

The CIA and the analysis in this section also incorporates the three components of the Ka Pa‘akai Analysis (KPA). As discussed in Section 3.10.1.1, *Ka Pa‘akai Analysis*, State agencies are required to undertake a KPA when evaluating proposed actions that require discretional approvals, in order to assess potential effects on Native Hawaiian cultural, historical, and natural resources, as well as traditional and customary practices.

The CIA and previous archaeological investigation reports provide cultural and historical background information, data from prior archaeological surveys, and insights shared by various consulted parties during interviews for the Project CIA. Consulted parties for the CIA were identified by ASM through the following efforts:

- Publishing a public notice in the October 2024 edition of the Office of Hawaiian Affairs (OHA) monthly newspaper, Ka Wai Ola. A copy of the public notice is included in the CIA (Appendix C).
- Contacting 18 individuals and three organizations identified in Table 5 of the CIA (Appendix C) via phone or email.
    - When contact was made either via phone or email, ASM's ethnographer explained the nature of the proposed Project and the scope of the CIA study, and emailed a community consultation packet which included a more comprehensive explanation of the proposed Project, contact information including phone numbers, email addresses, and physical address of ASM staff, as well as maps showing the location of the Project Area.
    - At least two attempts were made to contact each person and organization listed in Table 5 of the CIA.
    - ASM attempted to locate contact information for each of the three individuals interviewed for the CIA completed for the KWP 2 facility in 2009 (Ah Sam and Rechtman 2009); of these three individuals, only one person was successfully contacted.

The findings from the CIA and from the prior archaeological surveys these show that several historical resources, cultural resources, and culturally valued natural resources are present in the vicinity of the Project and are directly relevant to the exercise of traditional and customary Native Hawaiian rights (ASM 2025). While these resources are referred to as historical, cultural, or natural resources, it is important to acknowledge that their historical associations and uses are inherently interconnected, meaning that the distinctions between these categories are not clearly defined (ASM 2025). These resources, which are discussed in detail in Section 3.10.1, *Existing Environment* include several historic properties (including a heiau [Site 50-50-09-05232], the Lāhainā Pali Trail [Site 50-50-09-02946], and several other previously documented historic properties within the KWP I area and immediate vicinity); the wao akua, the red soil exposed on Hana'ula Ridge, the viewshed from Kaho'olawe, and numerous species of indigenous and endemic plants and animals, some of which are listed federally or by the State as endangered. Each of these resources is described further below. A discussion of potential impacts to these resources is provided in Section 3.10.2, *Potential Impacts and Mitigation Measures*. Impacts are described qualitatively.

3.10.1 Existing Environment

3.10.1.1 Regulatory Framework

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended, requires federal agencies to assure preservation or mitigation of effects to historic properties that are eligible for inclusion on the National Register of Historic Places. The issuance of an ITP by the USFWS is a federal undertaking subject to Section 106 of the NHPA. Cultural and archaeological resources surveys have been conducted for the Project as described in more detail in Section 3.10.1, *Existing Environment*. The USFWS would coordinate with the State Historic Preservation Division (SHPD) on cultural resources which would be addressed in the NEPA EA.

HRS Chapter 6E, Historic Preservation

HRS Chapter 6E, Historic Preservation, outlines the state's policies and procedures for the identification, evaluation, and protection of historic properties. It establishes the framework for the SHPD, which is responsible for maintaining the state's historic sites and ensuring compliance with federal and state preservation laws. Due to the Applicant's request for a lease to use State lands, the Proposed Action is subject to review under HRS Chapter 6E-42 and HAR Chapter 13-284.

The State of Hawai'i has developed a system for evaluating significance of historic properties under HAR Chapters 13-275 and 13-284. For a historic property to be considered significant, it must possess integrity of location, design, setting, materials, workmanship, feeling, and/or association and meet one or more of the following cultural/historic criteria as defined by HAR §§ 13-275-6 and 13-284-6:

> *Criterion "a" Be associated with events that have made an important contribution to the broad patterns of our history;*
>
> *Criterion "b" Be associated with the lives of persons important in our past;*
>
> *Criterion "c" Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;*
>
> *Criterion "d" Have yielded, or is likely to yield, information important for research on prehistory or history;*
>
> *Criterion "e" Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state because of associations with traditional cultural practices once carried out, or still carried out, at the property or because of associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.*

HAR Chapter 13-276 outlines the Rules Governing Standards for Archaeological Inventory Surveys (AIS) and Reports required by HAR Chapters 13-275 and 13-284. According to HAR §§ 13-276-7 and -8, significance evaluations must be included in all survey reports, along with recommendations for

mitigation measures. These evaluations and recommendations are required to be summarized in a table listing all sites to fulfill the mandates outlined in HRS § 6E.

As further described in Section 3.10.1.6, *Archaeological and Historic Features*, there have been numerous previous archaeological investigations conducted in the Project Area including an AIS completed by Rechtman Consulting, LLC for the KWP 1 wind turbine survey corridor, access road, and staging area (Clark and Rechtman 2005). This survey report was accepted by SHPD on August 29, 2005 (SHPD Correspondence Log No: 2005.1794, Doc No: 05087MK24 dated August 29, 2005), documenting the Project's compliance with the following steps under HRS 6E review:

- Documentation of historic properties in the Project Area in accordance with HAR 13-275/284-5(b);
- Evaluation of the significance of these properties in accordance with HAR 13-275/284-6(d);
- Determination of effects to significant historic properties (in accordance with HAR 13-275/284-7(b);
- Proposed mitigation measures in accordance with HAR 13-275/284-8(a); and
- Development of mitigation plans in accordance with HAR 13-275/284-8(h).

More information about the documented historic properties, evaluation of significance, determination of effect, and proposed mitigation measures is included in Section 3.10.1.6, *Archaeological and Historic Features*.

State Regulations and Guidelines for Assessing Cultural Impacts

Act 50, enacted by the Legislature of the State of Hawai'i in 2000 through House Bill 2895, explicitly acknowledges the State's responsibility to protect Native Hawaiian cultural practices and emphasizes the need to clarify that environmental assessments or impact statements must identify and consider the effects on Hawai'i's culture, as well as traditional and customary rights (H.B. No. 2895). This Act mandates that state agencies and developers evaluate the impacts of proposed land use developments on the cultural practices of the community and the State as part of the environmental review process outlined in HRS Chapter 343.

In addition to the requirements of Act 50, the Environmental Review Program (ERP, formerly the Office of Environmental Quality Control) has *Guidelines for Assessing Cultural Impacts*, adopted by the Environmental Council, State of Hawai'i, on November 19, 1997 and amended in 2000 (Environmental Council 1997). As stated in these guidelines, Articles IX and XII of the state constitution, along with other state laws and court rulings, impose a duty on governmental agencies to promote and preserve the cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups. Specifically, Article IX establishes the state's responsibility to manage the environment sustainably and preserve cultural and historical resources, recognizing their significance to Hawaii's identity and heritage. Article XII emphasizes the protection of Native Hawaiian rights and the preservation of cultural heritage. It recognizes Native Hawaiians as the indigenous people of Hawai'i and establishes the state's

responsibility to promote their welfare and ensure their participation in decisions affecting their rights and resources.

The Project's CIA was prepared in accordance with Act 50 and the ERP guidelines and assesses the likelihood of impacts on recognized cultural resources. Recognized cultural resources encompass values, rights, beliefs, objects, records, properties, and narratives within the Project Area and its surroundings (H.B. 2895, Act 50).

A further analytical framework for addressing the preservation and protection of customary and traditional native practices specific to Hawaiian communities resulted from the *Ka Paʻakai O Ka ʻĀina v. Land Use Commission* court case. See the *Ka Paʻakai Analysis* section below. The KPA specifically addresses potential impacts to Native Hawaiian rights, while a CIA addresses a range of cultural practices/impacts, including those that are historic but not necessarily associated with Native Hawaiian rights.

Ka Paʻakai Analysis

The KPA is a legal framework used by State and local agencies to evaluate whether projects/proposals requiring State or local approvals may affect Native Hawaiian traditional and customary rights. The framework was established by the Hawaiʻi Supreme Court in 2000 in the case *Ka Paʻakai O Ka ʻĀina vs. Hawaii Land Use Commission*. In this case, the Court determined that the proponent of an action must provide adequate evidence that traditional and customary Hawaiian practices are safeguarded if they exist in the relevant area. This "Ka Paʻakai framework" was established to ensure the enforcement of traditional and customary Native Hawaiian rights while reasonably accommodating competing private development interests. According to the KPA ruling, State agencies are required to conduct a "Ka Paʻakai Analysis" for any proposed action that necessitates agency approvals, independent of the proposing entity. When performed by a project proponent or contractor, the written KPA is designed solely to inform the State's evaluation of the proposed action's impacts on valued cultural, historical, or natural resources, as well as traditional and customary practices. The Court specified that the KPA should include an assessment of the following:

> *(a) "the identity and scope of 'valued cultural, historical, or natural resources' in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in that area;*
>
> *(b) "the extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action;" and*
>
> *(c) "the feasible actions, if any, to be taken … to reasonably protect native Hawaiian rights if they are found to exist."*

3.10.1.2 Ukumehame Ahupuaʻa

The Project Area is located in Ukumehame Ahupuaʻa, which is the easternmost ahupuaʻa within the moku (district) of Lāhainā (Figure 3-12). The name Ukumehame, which translates to "paid mahame

wood," originates from the land's connection to the mēhamehame wood (Pukui et al. 1974; ASM 2025). The traditional oral histories of Ukumehame highlight the powerful winds of the region, significant place names, and legendary events that illustrate the interconnectedness of its natural and cultural landscapes (ASM 2025).

During the Pre-Contact and early Historic Periods, the focus of settlement and traditional agriculture in Ukumehame Ahupuaʻa was in the kula (pasture or open fields) land at the mouth of Ukumehame Gulch southwest of the Project Area (DTL 2023, ASM 2025). Descriptions from the nineteenth century refer to long, narrow stretches of loʻi (traditional taro patches) lining the deep valleys and ravines of Ukumehame (ASM 2025). The coastline from Ukumehame to Lāhainā is also known for its numerous koʻa, which are said to have aided fishermen in canoes traveling between Maui and Kahoʻolawe (ASM 2025). Oral interviews with Maui residents from 2009 and 2024 indicate that traditional kalo (taro) cultivation continues within Ukumehame Ahupuaʻa today (ASM 2025).

In contrast to the coastline and lower elevations, the uplands of Ukumehame were less intensively used for economic activities. The high-elevation slopes near the Project Area are thought to have served as a kulamanu, or gathering place for birds, from which they would assemble for migration. The pueo, in particular, has strong cultural ties to the area (ASM 2025). The rocky slopes surrounding the Project Area were traversed by mauka-makai transportation routes connecting the coast to the higher elevations of the West Maui Mountains, including the ʻAʻalaloloa Trail (also known as the Lāhainā Pali Trail), a challenging route that ran overland from Central Maui to Lāhainā. The Lāhainā Pali Trail, which intersects the access road leading to the KWP 1 facility, was improved in 1841 for horse travel over the West Maui uplands and was actively used until ca. 1891, when a carriage road was built closer to the coastline and the trail became obsolete (ASM 2025).

During the 1848 Māhele, Ukumehame Ahupuaʻa was designated as Crown Land and awarded to Kamehameha III (Buke Māhele 1848, ASM 2025). A total of forty kuleana claims were made for lands in Ukumehame, which included loʻi, wauke patches (used to grow paper mulberry for making kapa, a traditional Hawaiian cloth), house plots, and kula; however, only 19 of these claims were ultimately granted (ASM 2025). None of these claims are linked to lands near the Project Area, with the majority located to the west of Manawaipueo Gulch in the alluvial flats near the mouth of Ukumehame Valley (ASM 2025). By the late 1850s, the Crown lands in Ukumehame had been leased to foreign business owners for various ventures, primarily cattle ranching (ASM 2025).

By the late 19th century, Ukumehame became recognized for its pasturelands. The privatization of land limited access to much of the ahupuaʻa, as evidenced by various newspaper advertisements from the 1860s and 1870s that cautioned against allowing animals to graze on Crown lands and private leases (ASM 2025). The Maalaea Stock Ranch, owned by John Richardson, appears to have leased pastureland in Ukumehame until at least 1900 (Tomonari-Tuggle 1998, ASM 2025). Cattle ranching continued on the lands of the Project Area until the mid-1990s under a lease held by the Perreira Ranch. However, ranching activities ceased within the Project Area when a lease for the current Project Area was granted

to First Wind (formerly UPC Wind Partners LLC) and Makani Nui Associates, LLC for the development of the KWP 1 facility (ASM 2025).

3.10.1.3 Kaheawa Pastures

The Project Area is located within the uplands of Ukumehame Ahupua'a, in an area now referred to as Kaheawa Pastures. The Project Area occurs on the south-facing slopes of the West Maui volcano (Mauna Kahālāwai) and is roughly aligned with the course of the volcano's South Rift Zone (Macdonald and Abbott 1970, ASM 2025). The terrain within the Project Area consists of what is commonly referred to as tableland. Typical of the south rift of the West Maui volcano, this land consists of high, inter-valley ridges separated by steep-sided, dry gulches that descend the steep, southwest-facing slope to the ocean (Tomonari-Tuggle 1998, ASM 2025). Manawainui Gulch is the most prominent gulch in the region and forms the boundary between the Lāhainā and Wailuku Districts. The Kaheawa Pastures access road ascends the slope just to the west of Malalowaiaole Gulch before crossing Manawainui Gulch to reach the turbines; the KWP 1 facility lies between the upper portions of Manawainui Gulch (to the east) and Pāpalaua Gulch (to the west). Several small pu'u, including Pu'u Ahu and Pu'u Moe, occur along the South Rift to the east of the Project Area. To the east, the Project Area offers views of Haleakalā in East Maui; to the south across the 'Alalākeiki Channel is Kaho'olawe, an island that, along with Lāna'i and Moloka'i, was once joined with Maui as part of the connected landmass of Maui Nui (Macdonald and Abbott 1970, ASM 2025).

The 1999 EIS (WSB-Hawai'i 1999) prepared for the KWP 1 project offers an explanation of the origin of the name "Kaheawa" based on information provided by a cultural informant (Lindsey as cited in WSB-Hawai'i 1999) and also clarifies the source of the contemporary name "Kaheawa Pastures":

> *Kaheawa translates literally to mean "irrigate the awa." The awa is a native Hawaiian plant which was used for restorative or medicinal purposes. After a hard day's work, native Hawaiians would prepare a tea from the leaves of the awa plant. The tea is believed to have facilitated a more restful sleep and rejuvenation of tired muscles. It is believed that the area now referred to as Kaheawa provided a major watershed and the fresh water for areas used to cultivate the awa plants. Since the 1850's, much of the land in this area has been used for grazing. Consequently, WSB-Hawaii will refer to the area as the Kaheawa Pastures.*

3.10.1.4 Valued Cultural Resources

Cultural resources identified through cultural-historical background research and interviews conducted for the CIA (ASM 2025, Appendix C) include the wao akua, the red soil exposed on Hana'ula Ridge, and the viewshed from Kaho'olawe. Numerous species of indigenous and endemic plants and animals were also identified as culturally valued natural resources. Those are discussed under Section 3.10.1.5, *Culturally Valued Natural Resources*.

Wao Akua

Research and consultation interviews have highlighted the wao akua as a valued cultural resource in proximity to the Project Area (ASM 2025). Defined as a remote mountain region inhabited by spirits, the wao akua can also refer to wilderness or desert areas. Historical accounts depict it as a transitional zone characterized by smaller trees, situated between the wao ma‘ukele (the forested area) and the wao kanaka (the cultivated area). Although scholars and community members have expressed different ways to define the wao akua, this region is consistently said to lie in the middle elevations of mountainous regions, above the areas typically inhabited by people on a day-to-day basis (ASM 2025). During the CIA for the KWP II wind facility (Ah Sam and Rechtman 2009), the beginning of the wao akua was identified above the elevation of the existing KWP I facility and the view was shared by cultural consultants that cultural impacts could be avoided by refraining from expanding the facility above the existing footprint.

Hana‘ula Ridge

Another significant place name related to the current Project Area is Hana‘ula. Pukui et al. (1974) define Hana‘ula as a mountain and a gulch in Ukumehame; however, historical maps depict Hana‘ula as occupying different locations. Government Registered Map Nos. 1194 and 1408, for example, depict Hana‘ula as the ridge which encompasses the current Project Area’s wind turbine corridor. In contrast, USGS topographic maps from 1954 and 1983 depict Hana‘ula as a smaller gulch leading to the ocean southwest of the Project Area. It is assumed that Hana‘ula thus spanned from the ocean to the mountains inland in the ahupua‘a and includes a portion of the current Project Area (ASM 2025).

During a previous CIA conducted for the construction of KWP 2, a cultural consultant identified Hana‘ula Ridge as the landform between Manawainui and Manawaipueonui gulches on which the KWP 1 facility stands. According to the cultural consultant, Hana‘ula is the only ridge of red dirt of its type along the coastline from Mā‘alaea to Lāhainā. Based on its unique color, Hana‘ula is understood as a large ko‘a or beacon to those sailing toward Ukumehame (ASM 2025). Ah Sam and Rechtman (2009), who conducted a CIA for the development of KWP 2, observed that “while the placement of wind towers does not go unnoticed, the actual effects the towers have on obscuring this natural navigation aid can be considered negligible in that the ability to use this landscape feature is not diminished by their presence.”

View Planes from Kaho‘olawe

On November 15, 2024, SHPD submitted a comment letter in response to the Proposed Action’s EISPN (see Appendix B). The letter mentioned the need to evaluate “the potential negative impacts on scenic vistas and view planes as seen from Kaho‘olawe [and] the effects on Hawaiian religious practitioners who conduct ceremonies there” and requested that the EIS make such an evaluation. It is understood that Makahiki ceremonies have been held annually on the island of Kaho‘olawe by the organization Protect Kaho‘olawe ‘Ohana since 1980 (Protect Kaho‘olawe ‘Ohana 2024), and there may be additional religious practices conducted on Kaho‘olawe by Native Hawaiian cultural practitioners (ASM 2025). Although the Makahiki ceremonies on Kaho‘olawe occur at a significant distance from the Project Area, the physical footprint of the KWP 1 facility, in particular the turbines, is a highly visible aspect of the contemporary

West Maui landscape. Given the large size of the turbines and the direct line of sight, it is conceivable that the power generating equipment would be perceptible to individuals viewing the east-facing slope of West Maui from Kahoʻolawe during religious ceremonies, and that the view of the turbines could alter the character or experience of specific ritual practices (ASM 2025).

3.10.1.5 Culturally Valued Natural Resources

Background research and community consultations have indicated that numerous culturally valued natural resources, including various species of wildlife and vegetation, are present or potentially present within the Project Area. Many of these natural resources were traditionally collected and utilized by Native Hawaiians for food, medicine, and raw materials, making them valuable for economic, political, religious, and/or cultural reasons. Even in the absence of specific economic or other cultural uses, however, it is critical to understand that, within a traditional Hawaiian context, the cultural and natural environments are so closely interconnected that no meaningful distinction can be made between natural or biological and cultural resources (Maly 2001, ASM 2025). Consequently, all natural and biological resources native to the Hawaiian Islands, including varieties of plants and animals, are considered culturally important. The paragraphs below discuss these biological resources in a cultural context. More information on biological resources within and in the vicinity of the Project Area is available in Section 3.9, *Vegetation* and Section 3.10, *Wildlife*.

Wildlife

The Project Area provides habitat for both native and introduced wildlife. On-site knowledge of these species is well-known given 19 years of post-construction monitoring and other HCP compliance activities in the vicinity of the Project Area (KWP 2024a), as well as pre-construction surveys that occurred prior to construction (KWP 2006). Wildlife in the Project Area holds cultural importance, particularly due to the presence of various bird species that are indigenous or endemic to Hawaiʻi and Maui.

Several indigenous birds are known to or have the potential to occur in or fly through the Project Area; these include (but are not limited to) the Pacific golden plover/kōlea (*Pluvialis fulva*), white-tailed tropicbird/koaʻe kea (*Phaethon lepturus*), sooty tern/'ewa'ewa (*Sterna fuscata*), wedge-tailed shearwater/ʻuaʻu kani (*Puffinus pacificus*), and the endemic Hawaiian short-eared owl/pueo (*Asio flammeus sandwichensis*) (Nishibayashi 1997, Nishibayashi 1998, KWP 2006, KWP 2024a).

Additionally, five federally and state-listed listed wildlife species endemic to the Hawaiian Islands also have the potential to occur or use habitat in the Project Area: the nēnē (Hawaiian goose, *Branta sandvicensis*), ōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus semotus*), ʻaʻo (Newell's shearwater; *Puffinus auricularis newelli*), ʻuaʻu (Hawaiian petrel; *Pterodroma sandwichensis*), and 'akē'akē (Band-rumped storm-petrel, *Oceanodroma castro*) (Tetra Tech 2025a).

Historical investigations have shown that Native Hawaiians utilized the tablelands of Ukumehame as a resource area for these native birds, and CIA interviews identified the uplands of Ukumehame have been identified as a probable kulamanu, or bird gathering site (ASM 2025). The SHPD has also highlighted the

presence of various faunal cultural resources within the Project Area, including the kōlea, ʻūlili, koaʻe kea, ʻewaʻewa, ʻuaʻu kani, and the endemic pueo.

The cultural significance of seabirds to Native Hawaiians is expressed in various ways, as noted by the Kauaʻi Endangered Seabird Recovery Project (2024). For instance, the flight paths of seabirds from shore to land can aid in sea navigation and assist with weather observations, while the presence of feeding seabirds can help locate schools of fish. Certain seabirds, such as ʻuaʻu nestlings, were historically consumed, and their feathers were used to create capes and lei (Kauaʻi Endangered Seabird Recovery Project 2024).

Kōlea, nēnē, ōpeʻapeʻa are sometimes regarded as ʻaumakua (ancestral deities); pueo are often considered "benevolent ʻaumakua" (ASM 2025). According to legend, pueo from various islands gathered at Manawaipueo Gulch, a ravine that runs east of the Project Area, before flying to Wailuku to confront local chiefs. A 2009 interview conducted by ASM indicated that Manawaipueo serves as a seasonal gathering place for migrating pueo, with colonies identified in the area (Ah Sam and Rechtman 2009). One cultural practitioner mentioned that nēnē migration may originate in Ukumehame, with the birds flying over the mountains to the Wailuku and Waiheʻe areas (Ah Sam and Rechtman 2009, ASM 2025).

Due to the potential for incidental take of listed species, the current HCP (KWP 2006) for the KWP 1 wind facility included coverage for four Covered Species: ʻōpeʻapeʻa, nēnē, ʻuaʻu, and ʻaʻo. A summary of the existing Covered Species, the observed take that has occurred at KWP 1, and the status of the mitigation described in the current HCP is provided in Section 3.9.1.4, *Wildlife, Existing Environment, Listed Wildlife Species*. Mitigation authorized in the current HCP is anticipated to result in an overall net benefit to the Covered Species authorized for incidental take.

Vegetation

Mean annual rainfall in the Project Area ranges from 14.23 inches to 71.91 inches, from the lower elevation entry point off Honoapiʻilani Highway to the uppermost portion of Project Area, respectively (Giambelluca et al. 2014). Consequently, a diverse range of plant species characterizes different elevations within the Project Area. During the Pre-Contact Period, the lower elevations (such as the makai portion of the access road) would have predominantly comprised dry grassland and shrubland, while the upper elevations, where the KWP 1 turbines are situated, contained mesic to wet, windblown forests (Planning Solutions 2007). Numerous native plant species were traditionally found in the general Project Area including ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), naio (*Myoporum sandwicence*), ʻiliahi (*Satalum ellipticum*), koʻokoʻolau (*Bidens menziesii*), pili (*Heteropogon contortus*), ʻilima (*Sida fallax*), ʻūlei (*Osteomeles anthyllidifolia*), pūkiawe (Syphelia sp.), and ʻākia (*Wikstroemia thymelaeaceae*). During the mid- to late 19th century, cattle ranching resulted in drastic transformations to the natural landscape of Ukumehame. As foreign animals grazed on native plants, these species were often replaced with introduced species that eventually overtook the indigenous flora. Native vegetation was further impacted by periodic wildfires throughout the 19th and 20th centuries (Hobdy 2006) and through modern development.

Although vegetation within the Project Area and vicinity has been previously disturbed and is now dominated by non-native species, biological studies have documented the presence of many indigenous and endemic plants. Many of the plants identified within the Project Area have documented cultural uses, which range from a variety of medicinal uses to the use of plant parts in making dye, lei, basketry, house parts, and many other objects. Table 6 in the CIA (Appendix C) provides some of the cultural uses that have been recorded for plant species identified in the vicinity of the KWP I Project Area.

As discussed in Section 3.8, *Vegetation*, eighteen plant species that are native to the Hawaiian Islands were observed in the April 2025 botanical survey (Appendix D), including seven species which are endemic to and found only in the Hawaiian Islands. The native plant species observed are considered common species throughout the Hawaiian Islands. Native vegetation appears to become increasingly more dominant mauka of the Project Area toward the summit of Mauna Kahālāwai (Jacobi et al. 2017). Native plant communities include low-stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻūlei (*Osteomeles anthyllidifolia*), and native ferns uluhe (*Dicranopteris linearis* f. *linearis*), palaʻā (*Odontosoria chinensis*), and kīlau (*Pteridium aquilinum* subsp. *decompositum*). Other native species present in or along the edges of the mesic shrubland include ʻilima (*Sida fallax*), ʻuhaloa (*Waltheria indica*), and ʻākia (*Wikstroemia oahuensis* var. *oahuensis*), which are common in occurrence, and koʻokoʻolau (*Bidens micrantha* subsp. *micrantha*), kāwelu (*Eragrostis variabilis*), *Morelotia gahniiformis*, koali ʻawa (*Ipomoea indica*), and *Nephroia orbiculata*, which are rare in occurrence. A list of native plants recorded during the April 2025 Botanical Survey (Appendix D) is included in Table 3-10 in Section 3.8, *Vegetation*.

No listed or otherwise rare plant species have been recorded in the Project Area in previous surveys for the existing wind farm (Appendix D; Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b). Additionally, no listed plant species or rare plants have been observed at the existing wind farm during operations or post-construction monitoring over the last 19 years (KWP 2024a). Although no listed plant species are known to occur in the Project Area, USFWS have designated critical habitat for 28 listed plant species within the Project Area; however, none of the listed species associated with these critical habitat designations are known to occur in the Project Area. Impacts to critical habitat resulting from the operation of KWP I have been minimal as all vegetation management activities remain among designated, previously disturbed areas. Additional information on existing vegetation conditions is provided in Section 3.8.1, *Vegetation, Existing Environment*.

During interviews conducted for the CIA (ASM 2025, Appendix C), two cultural consultants recalled memories of common plant species in Project Area portion of Ukumehame. One cultural consultant stated that beautiful ʻaʻaliʻi and [ʻōhiʻa] lehua plants once grew along the side of the valley near where the KWP I operations building currently stands but were destroyed during construction of Kaheawa Pastures access road. Another cultural consultant mentioned the presence of abundant pili grass in the general area and recalled that, while the area would have had maile lau liʻi, he is unsure whether they would still be present. He also shared that the area is a potential habitat for koa lau liʻi, a variety unique to West Maui.

The cultural consultants expressed concern that the native flora in the Project Area may be negatively impacted by the Proposed Action and cited hard soils and dense invasive species as key factors in preventing native species from thriving within the Project Area today, despite Maui Cultural Lands' efforts to support regeneration. The growth of ironwood trees was emphasized during community interviews as a key problem in vegetation management at the wind farm, as well as the spread of other invasive species such as fireweed.

3.10.1.6 Archaeological and Historic Features

The entire ground surface of the Project Area, including the access road leading from the Honoapiʻilani Highway to the KWP 1 lease area, has been surveyed for historical resources (ASM 2025). As described in more detail below, since 1991 nine archaeological inventory surveys and three archaeological reconnaissance surveys have been completed within the Project Area or its vicinity. These 12 archaeological investigations comply with statewide historic preservation laws and examined areas overlapping with or adjacent to the Project Area (See Figure 3-13). The information from these investigations is presented in this section and provides sufficient background to assess existing archaeological and historic resources in the Project Area and immediate vicinity.

The earliest archaeological studies of the region included the island-wide survey of Winslow Walker (Walker 1931), which focused on monumental traditional Hawaiian architecture (e.g. heiau or ceremonial sites) and known Pre-contact period settlement areas, followed by the 1972-1973 Hawaiʻi Statewide Inventory of Maui conducted by the Bishop Museum under the support and direction of the State of Hawaiʻi. Within this region, the statewide inventory appears to have focused primarily on revisiting site areas previously identified by Walker. In this island-wide survey, Walker (1931) documented a group of habitation sites occurring along the coast from about 2 miles west of Māʻalaea Village to McGregor Point. Walker (1931) did not provide a site number for the habitation sites observed west of Māʻalaea Village; however, the site was eventually designated as Site 50-50-09-01287 as part of the Hawaiʻi State Inventory of Historic Places (SIHP).

Following the 1972-1973 Hawaiʻi Statewide Inventory of Maui conducted by the Bishop Museum, there was a lull in archaeological investigations in the Project Area region until the 1990s. Since 1991, there have been 12 archaeological investigations conducted to comply with statewide historic preservation laws, which have examined areas overlapping with or adjacent to the Project Area (See Figure 3-13). While many of these studies were part of the regulatory requirements for the construction of the KWP 1 and KWP 2 projects, additional surveys were also carried out for the DLNR's Nā Ala Hele Trails Program and the construction of a transmission line by Maui Electric. These investigations have led to the identification of numerous historic properties located within the Project Area or its vicinity. A summary of previous archaeological and historical surveys conducted in the Project Area and vicinity and a summary of findings associated with the Project Area is provided below. A list of the documented sites within or near the Project Area is included in Table 3-17, and their locations are shown on Figure 3-14. Historic property location information was derived from map figures included in relevant archaeological reports, which were georeferenced in relation to the Maui Island TMK shapefile and portions of the

M‘ālaea Quadrangle 7.5-minute USGS topographic map; as well as legacy GIS data from the State Historic Preservation Division.

Summary of Previous Archaeological and Historical Surveys Conducted in the Project Area

- **1991 Archaeological Inventory Survey of Lāhainā Pali Trail**
    - Tomonari-Tuggle and Tuggle (1991) conducted an archaeological survey of two demonstration trails for the Hawai‘i Statewide Trail and Access System for the DLNR’s Nā Ala Hele Program (now Nā Ala Hele Trail and Access Program). One of the demonstration trails surveyed was the Historic Lāhainā Pali Trail, which crosses the current location of the Kaheawa Pastures access road south of the KWP 1 facility (but within the Project Area). The access road was not present at the time of the survey.
    - During the survey of the Lāhainā Pali Trail, Tomonari-Tuggle and Tuggle (1991) recorded 18 archaeological sites adjacent to the trail alignment but did not assign an SIHP number to the trail itself. Other than the trail, none of these sites are within or immediately adjacent to the Project Area. Sixteen of the sites documented during the AIS are related to the construction and use of either the trail or the old coastal road and include alignments, enclosures, walls, petroglyphs, terraces, and C-shaped structures. The two sites not related to the trail or coastal road included a midden scatter (Site 02816) and a rockshelter (Site 02833). Both of these sites were interpreted as likely Pre-Contact Hawaiian in origin. The Lāhainā Pali Trail was later designated as Site 50-50-09-02946.
- **1994 and 1996 Archaeological Inventory Surveys of Maui Electric’s Transmission Line and Access Road**
    - Robins et al. (1994) conducted an AIS of a then-proposed 14.7-mile-long Maui Electric transmission line corridor from Mā‘alaea to Lāhainā. The transmission line, which has since been constructed, currently serves as the grid connection for the KWP 1 and KWP 2 wind facilities. The transmission line alignment runs along the makai boundary of the KWP 1 lease area at an elevation of approximately 1,880 feet amsl.
    - A survey for access roads leading to the transmission lines was later conducted by Hammatt et al. (1996).
    - While these two surveys did locate a number of Historic Period sites, including irrigation ditches, a dam, and cattle walls, as well as sites thought to date to the Pre-Contact Period such as temporary shelters, wind breaks, enclosures, and agricultural features, no archaeological resources were documented in the vicinity of the Project Area.
- **1998 Archaeological Reconnaissance Survey of Portion of KWP 1 Project Area**
    - One-day survey conducted by Tomonari-Tuggle (1998), covering 27 proposed wind turbine locations at elevations of approximately 2,000 to 2,900 feet amsl. The survey area included a 200-foot-wide by roughly 1.5-mile long corridor following a line of five

anemometer towers and a portion of Manawainui Gulch extending inland from the Maui Electric transmission line for approximately 3,000 feet.

- Identified a concrete water trough (later documented by Magnuson 2003 and assigned site number 50-50-09-05402) and a metal waterline and no other traditional Hawaiian historic properties were encountered. The report concluded that the area was unlikely to contain archaeological sites due to minimal historical use by Hawaiians.

- **2002 Archaeological Inventory Survey of Heiau**
  - International Archaeological Research Institute, Inc. (IARII) completed inventory survey level documentation (Athens 2002) of an unnamed upland heiau (later designated as Site 50-50-09-05232) discovered in late 1999 by Mr. Ed Lindsey, a cultural monitor for the original KWP 1 project and founding member of Maui Cultural Lands. Mr. Lindsey discovered the upland heiau near the western perimeter of the Project Area between the 2,240- and 2,280-foot contours. The site was exposed by a brush fire that cleared the slope of dense vegetation.
  - The IARII study included site mapping, photographic documentation, and subsurface testing.
  - The heiau consisted of two adjacent stone enclosures and revealed charcoal deposits dated to approximately 1670-1770 or 1800-1960. Several pieces of branch coral were recovered, indicating the religious nature of the site.
  - Tomonari-Tuggle and Rasmussen (2005) prepared a preservation plan for the heiau, which called for both short-term protection measures (to be undertaken during the construction of KWP 1) and long-term preservation measures (see below).
- **2003 Supplemental Archaeological Inventory Survey of KWP 1 Project Area**
  - IARII conducted a supplemental AIS for revised wind turbine pad locations for the KWP 1 wind facility (Magnuson 2003). The survey included three 200-foot-wide corridors for two possible turbine rows and a connecting access road at elevations of 2,400 to 3,100 feet amsl.
  - As a result of the survey, one site, a watering trough previously noted by Tomonari-Tuggle (1998), was re-located, mapped in detail, photographed, and assigned a site number (Site 50-50-09-05402) and dated to 1943. No additional archaeological or historic-era sites were encountered during the survey.
- **2004 Supplemental Archaeological Inventory Survey of KWP 1 Project Access Road**
  - IARII conducted a supplemental AIS for a proposed access road to the original KWP 1 wind facility (Athens 2004). The survey area consisted of a 75-meter-wide corridor

stretching 2.5 kilometers northwest from an existing jeep road across Manawainui Gulch to the KWP 1 wind facility area surveyed by Magnuson 2003.

- Athens (2004) identified two small rock piles likely serving as cairns (Sites 50-50-09-05625 and -05626) and concluded that the rock piles/cairns were fully documented and that no further archaeological documentation was needed. The study also documented a brass cartridge casing from 1866-1932 along the western edge of Manawainui Gulch.

- **2005 Supplemental Archaeological Reconnaissance Survey for KWP 1 Project Access Road**
  - IARII conducted a supplemental archaeological reconnaissance survey for a proposed low-impact road to the KWP 1 Project Area (Rasmussen 2005a).
  - The survey area consisted of a corridor approximately 75 meters wide at elevations of roughly 1,400 to 2,300 feet amsl. The corridor commenced at an existing access road and followed a narrow ridge to the northwest before crossing Manawainui Gulch to reach the then-proposed wind turbine locations.
  - Rasmussen (2005a) reidentified seven previously recorded historic properties including Sites 50-50-09-02825 (historic petroglyphs and trail), -02826 (terraced enclosure), -02827 (enclosure), -05232 (unnamed heiau), -05402 (cattle trough), and -05625 and -05626 (cairns).
  - The survey documented three previously unrecorded archaeological sites all interpreted as Pre-Contact in origin: Sites 50-50-09-05648 (a complex), -05649 (a cairn and modified outcrop), and -05650 (a series of cairns).
    - Site 05648, located between approximately 1,280 and 1,420 feet amsl, consisted of six C- shaped rock shelters, a possible C-shaped rock structure, one modified outcrop, and a cupboard. Based on the presence of a shell and the formal attributes of the features, Site 05648 was interpreted as being used for habitation, perhaps related to the Lāhainā Pali Trail, or an earlier trail.
    - Site 05649, located between approximately 1,880 and 1,980 feet amsl, consisted of a rock cairn and modified outcrop.
    - Site 05650, located at the top of an unnamed pu‘u at an elevation of approximately 2,300 feet amsl, consisted of four rock cairns. Rasmussen (2005a) concluded that, “the location (on top of a *pu‘u*) and type of features present (cairn with linear stones that may be fallen upright stones) suggest that this site may have a ceremonial function.”

- **2005 Supplemental Archaeological Reconnaissance Survey for KWP 1 Access Road Driveway off Honoapi‘ilani Highway**
  - IARII conducted a supplemental archaeological reconnaissance survey (Rasmussen 2005b, 2005c) of a roughly 1.75-acre staging/parking area along the mauka edge of

Honoapi‘ilani Highway, within the SMA, at the current Kaheawa Pastures access road driveway entrance.

- Rasmussen (2005b, 2005c) recorded three archaeological sites, including a historic road remnant (Site 50-50-09-05652), a traditional Hawaiian habitation area located upslope of the staging area (Site 50-50-09-05653), and a set of concrete steps dated to 1908 (Site 50-50-09-05654). All three sites were determined to be located outside the project area being surveyed.

- **2005 Archaeological Inventory Survey for KWP 1 Project Area and Access Road**
  - Rechtman Consulting, LLC conducted an AIS for the KWP 1 wind turbine survey corridor, access road, and staging area (Clark and Rechtman 2005). This survey was accepted by SHPD on August 29, 2005 (SHPD Correspondence Log No: 2005.1794, Doc No: 05087MK24 dated August 29, 2005).
  - The survey area is described in more detail below:
    - Wind turbine survey corridor: Includes a 75-meter wide by roughly 2.5-kilometer-ong corridor (approximately 200 acres) along the western edge of Manawainui Gulch for the placement of twenty proposed wind turbines. The survey corridor ranges in elevation from 2,000 to 3,200 feet amsl.
    - Access road survey corridor:
      - From the staging area at Honoapi‘ilani Highway, the road survey corridor is approximately 30 meters wide following an existing 4WD jeep road mauka to approximately 1,400 feet amsl.
      - The 30-meter-wide corridor then leaves the existing 4WD road (where the 4WD road turns to the northeast and crosses Malalowaiaole Gulch), crosses the Lāhainā Pali Trail, and continues to the north-northwest following a narrow ridge between Malalowaiaole Gulch (to the east) and Manawainui Gulch (to the west). At the time of the survey, this route was used by Maui Electric to access their transmission lines.
      - At an elevation of approximately 2,300 feet amsl, the proposed access road skirts the eastern edge of a small unnamed pu'u near the head of Malalowaiaole Gulch, and then turns to the northwest, crosses Manawainui Gulch and joins with the survey corridor for the proposed wind turbine locations at an elevation of approximately 2,700 feet above sea level.
    - Staging area: Includes an approximate 1.75-acre area along mauka edge of Honoapi‘ilani Highway

- Clark and Rechtman (2005) re-located seven previously identified sites: the Historic Lāhainā Pali Trail, a section of Historic highway (Site 50-50-08-04696), a concrete watering trough (Site 50-50-09-05402), a cairn (Site 50-50-09-05625), a cairn and adjacent modified outcrop (Site 50-50-09-05649), a terraced section of old road (Site 50-50-09-05652), and the remains of a Historic structure, including a set of concrete steps (Site 50-50-09-05654).
- The survey recorded two new sites: a possible privy (Site 50-50-09-05714) and a Historic hoist location (Site 50-50-09-05715). And recorded two isolated finds, consisting of marine shell fragments and an adze fragment, respectively.
- The survey re-located five archaeological sites previously recorded by IARII outside the boundaries of the current Project Area: an upland heiau (Site 50-50-09-05232) along the western perimeter of the Project Area, a cairn (Site 50-50-09-05626), a Pre-Contact Period habitation complex between 1,280 and 1,420 feet amsl (Site 50-50-09-05648), a grouping of four cairns atop an unnamed pu‘u (Site 50-50-090-05650), and a Pre-Contact habitation complex approximately 70 feet amsl (Site 50-50-09-05653).

- **2008 Archaeological Inventory Survey of KWP 2 Project Area**
  - Rechtman Consulting, LLC conducted an AIS for the KWP 2 wind facility in 2008 (Clark and Rechtman 2008). The survey area included a 333-acre area east and south of the KWP 1 Project Area.
  - The survey re-identified the previously recorded heiau (Site 50-50-09-05232) and recorded five new historic properties:
    - Windbreak shelter (Site 50-50-09-06218);
    - Three cairns (Sites 50-50-09-06219, -06220, and -06221); and
    - Historic Period ranching area (Site 50-50-09-06222).
- **2009 Second Archaeological Inventory Survey of KWP 2 Project Area**
  - Rechtman Consulting, LLC conducted a second AIS (Rechtman et al. 2009) for the proposed makai alternative location of KWP 2 (i.e. the alternative that was constructed).
  - The survey identified the Lāhainā Pali Trail and a possible remnant section of its Mā‘alaea branch.
  - The survey re-identified the previously recorded Site 50-50-09-05648 (complex) and documented 20 new features, bringing the total number of features to 30.
  - The survey recorded a concrete water trough (Site 50-50-09-06665) associated with a water system developed by Honolua Ranch in Ukumehame in the 1940s.

In summary, of the 25 known historic properties documented in the Project Area or its vicinity by previous island-wide studies (2 historic properties) and by previous archaeological surveys (23 historic properties), eight are within or intersect with the Project Area. See Table 3-17. Sites that are located within or intersecting the Project Area are listed in bold type and the associated row is highlighted in grey.

Table 3-17. Historic Properties Documented Within or Adjacent to the Project Area

Site # (50-50-09-)	Site Type	Function	Time Period	Source	Location Relative to Project Area/LOD[1]
01441	Three connecting c-shapes	Habitation – Temporary	Pre-Contact	Hawai'i Statewide Inventory 1974	Located outside the Project Area and LOD.
01287	**Mā'alaea Complex**	**Habitation**	**Pre-Contact**	**Walker 1931, Hawai'i Statewide Inventory 1974**	**Complex limits intersect Project Area/LOD near parking/staging area by Kaheawa Pastures access road entrance off highway.** **Note: complex limits are approximate and derived from relative coordinates established during the Hawai'i Statewide Survey. Based on desktop review of Walker 1931 figures, all documented features associated with this site appear to be outside the Project LOD.**
02825	Petroglyph and Trail	Rock Art and Transportation	Historic	Rasmussen 2005a	Located outside the Project Area and LOD.
02826	Complex	Habitation	Pre-Contact	Rasmussen 2005a	Located outside the Project Area and LOD.
02827	Enclosure	In determinate	Pre-Contact	Rasmussen 2005a	Located outside the Project Area and LOD.
02946	**Lāhainā Pali Trail**	**Transportation**	**Pre-Contact to Historic**	**Tomonari-Tuggle and Tuggle 1991; Clark and Rechtman 2005; Rechtman et al. 2009**	**Intersects with the Project Area and LOD. Trail crosses Project's Kaheawa Pastures access road approximately 0.5 mile makai of the southernmost KWP 1 turbine.**

Site # (50-50-09-)	Site Type	Function	Time Period	Source	Location Relative to Project Area/LOD[1]
04696	**Historic highway remnant**	**Transportation**	**Historic**	**Clark and Rechtman 2005**	**Within Project Area and LOD. Located within the existing parking/ staging area by Kaheawa Pastures access road entrance off highway.**
05232	Heiau in Upland Ukumehame	Ceremonial	Pre-Contact	Athens 2002; Tomonari-Tuggle and Rasmussen 2005	Located outside the Project Area and LOD. However, a portion of the site's preservation buffer falls within the Project Area.
05402	**Watering trough**	**Ranching**	**Historic Ranch Post 1943**	**Magnuson 2003, Clark and Rechtman 2005, Rasmussen 2005a**	**Within the Project Area and LOD.**
05625	Cairn	Marker	Unknown	Athens 2004; Clark and Rechtman 2005, Rasmussen 2005a	Located outside the Project Area and LOD.
05626	Cairn	Marker	Unknown	Athens 2004; Clark and Rechtman 2005, Rasmussen 2005a	Located outside the Project Area and LOD.
05648	**Complex including c-shapes, modified outcrop, and cupboard**	**Habitation**	**Pre-Contact to Historic Period**	**Rasmussen 2005a; Clark and Rechtman 2005; Rechtman et al. 2009**	**Complex limits intersect Project Area/LOD associated with the Kaheawa Pastures access road.** **Note: No documented features associated with this site are within the Project LOD.**
05649	**Complex - Rock cairn and modified outcrop**	**Unknown**	**Unknown**	**Rasmussen 2005a; Clark and Rechtman 2005**	**Complex limits intersect Project Area/LOD associated with the Kaheawa Pastures access road.**

Site # (50-50-09-)	Site Type	Function	Time Period	Source	Location Relative to Project Area/LOD[1]
					Note: No documented features associated with this site are within the Project LOD.
05650	Complex - Rock cairns	Possibly ceremonial	Pre-Contact	Rasmussen 2005a; Clark and Rechtman 2005	Located outside the Project Area and LOD.
05652	Historic road remnant	Transportation	Historic	Rasmussen 2005b, Clark and Rechtman 2005	Located outside the Project Area and LOD.
05653	**Complex**	**Habitation**	**Pre-Contact**	**Rasmussen 2005b; Clark and Rechtman 2005**	**Complex limits intersect Project Area/LOD associated with the parking/staging area by Kaheawa Pastures access road entrance off highway.**
05654	**Concrete Steps**	**Habitation**	**Historic**	**Rasmussen 2005b, Clark and Rechtman 2005**	**Within the Project Area and LOD.**
05714	Privy	Ranching	Historic	Clark and Rechtman 2005	Located outside the Project Area and LOD.
05715	Remnants of a hoist	Ranching	Historic	Clark and Rechtman 2005	Located outside the Project Area and LOD.
06218	Modified outcrop	Wind Break Shelter	Indeterminant	Clark and Rechtman 2008	Located outside the Project Area and LOD.
06219	Cairn	Possible Trail Marker	Indeterminant	Clark and Rechtman 2008	Located outside the Project Area and LOD.
06220	Cairn	Possible Trail Marker	Modern	Clark and Rechtman 2008	Located outside the Project Area and LOD.
06221	Cairn	Possible Trail Marker	Indeterminant	Clark and Rechtman 2008	Located outside the Project Area and LOD.

Site # (50-50-09-)	Site Type	Function	Time Period	Source	Location Relative to Project Area/LOD[1]
06222	Complex	Ranching	Historic	Clark and Rechtman 2008	Located outside the Project Area and LOD.
06665	Watering trough	Ranching	Historic Ranch Post 1943	Rechtman et al 2009	Located outside the Project Area and LOD.

Note: Sites that are located within or intersecting the Project Area are highlighted in grey.

1. Historic property locations referenced in table are based on information included in relevant archaeological reports, which were georeferenced in relation to the Maui Island TMK shapefile and portions of the M‘ālaea Quadrangle 7.5-minute USGS topographic map; as well as, legacy GIS data from the State Historic Preservation Division.

Of the 25 historic properties listed in Table 3-17 and mapped in Figure 3-14, there are ten historic properties located well outside the Project Area. These properties are not anticipated to be directly or indirectly impacted by the Proposed Action due to their location relative to the Project Area and the Project’s LOD but are briefly discussed below as they were previously documented in one or more of the archaeological studies conducted in the Project Area and vicinity. However, as no impact to these sites is anticipated, they are not further analyzed in this EIS. Historic property locations referenced below is based on georeferenced[71] information included in relevant archaeological reports, as well as, legacy GIS data from the State Historic Preservation Division.

- ***Site 01441 Three Connecting C-shapes.*** This site is outside the Project Area, over 1,400 feet northeast of the Project’s LOD associated with the Kaheawa Pastures access road parking and driveway entrance area. This site is separated from the Project’s LOD by an ephemeral drainage; therefore, indirect impacts such as stormwater run-off from the road would not affect this site.
- ***Site 02825 Petroglyph and Trail.*** This site is located along the Lāhainā Pali Trail approximately 1,100 feet west of the Kaheawa Pastures access road (the closest point of the Project Area and LOD). This site is separated from the Kaheawa Pastures access road by Manawainui Gulch and therefore, indirect impacts such as stormwater run-off from the road would not affect this site.
- ***Site 02826 Complex.*** This site is located along the Lāhainā Pali Trail and is more than 700 feet east of the Kaheawa Pastures access road (the closest point of the Project Area and LOD). This site is separated from the Kaheawa Pastures access road by Malalowaiaole Gulch and therefore, indirect impacts such as stormwater run-off from the road would not affect this site.
- ***Site 02827 Enclosure.*** This site is located along the Lāhainā Pali Trail approximately 900 feet east of the Kaheawa Pastures access road (the closest point of the Project Area and LOD). This site is

[71] Documented historic properties from relevant archaeological reports were georeferenced in ArcGIS using known spatial coordinates from the Maui Island TMK shapefiles and portions of the M‘ālaea Quadrangle 7.5-minute USGS topographic map. Georeferencing is the process of adding coordinate information to a digital image so that it can be accurately displayed on a map. This is done by attaching known latitude and longitude points to the image.

separated from the Kaheawa Pastures access road by Malalowaiaole Gulch and therefore, indirect impacts such as stormwater run-off from the road would not affect this site.

- ***Site 06218 Modified Outcrop.*** This site is located approximately 870 feet west of the Kaheawa Pastures access road and over 1,800 feet makai of the closest KWP 1 turbine pad. This site is situated atop a ridge between ephemeral stream channels that drain into Manawainui Gulch to the east and and Ka'alaina Gulch to the west. This site is additionally separated from the Kaheawa Pastures access road by Manawainui Gulch. Given the location of this site in relation to the natural drainage features, indirect impacts such as stormwater run-off are not anticipated.
- ***Site 06219 Cairn.*** This site is located approximately 900 feet west of the Kaheawa Pastures access road and over 2,200 feet makai of the closest KWP 1 turbine pad. This site is situated atop a ridge between an ephemeral stream channel that drains into Makahuna to the west and Ka'alaina Gulch to the east. This site is additionally separated from the Kaheawa Pastures access road by Manawainui Gulch. Given the location of this site in relation to the natural drainage features, indirect impacts such as stormwater run-off are not anticipated.
- ***Site 06220 Cairn.*** This site is located approximately 880 feet west of the Kaheawa Pastures access road and over 2,300 feet makai of the closest KWP 1 turbine pad. This site is situated atop a ridge between an ephemeral stream channel to the east that drains into Ka'alaina Gulch to the west. This site is additionally separated from the Kaheawa Pastures access road by Manawainui Gulch. Given the location of this site in relation to the natural drainage features, indirect impacts such as stormwater run-off are not anticipated.
- ***Site 06221 Cairn.*** This site is located over 2,000 feet west of the Kaheawa Pastures access road and over 2,100 feet makai of the closest KWP 1 turbine pad. This site is situated atop a high point surrounded by ephemeral stream channels and is further separated from the Kaheawa Pastures access road by Manawainui Gulch. Given the location of this site in relation to the natural drainage features, indirect impacts such as stormwater run-off are not anticipated.
- ***Site 06222 Complex.*** This site is located over 1,000 feet west of the Kaheawa Pastures access road and over 2,000 feet makai of the closest KWP 1 turbine pad. This site is situated atop a high point surrounded by ephemeral stream channels that drain into Opunaha Gulch and is further separated from the Kaheawa Pastures access road by Manawainui Gulch. Given the location of this site in relation to the natural drainage features, indirect impacts such as stormwater run-off are not anticipated.
- ***Site 06665 Water Trough.*** This site is located approximately 1,300 feet west of the Kaheawa Pastures access road (the closest point of the Project Area and LOD). The site is associated with 20th century ranching and was assessed for significance in Rechtman et al. (2009) and recommended for no further work. Although the site is downslope from the Kaheawa Pastures access road no changes to the road are anticipated other than typical road maintenance

activities. Therefore, no changes in existing stormwater run-off from the road are anticipated and the Proposed Action is not anticipated to affect this site.

As noted in Table 3-17, there are eight historic properties located within or intersecting with the Project Area. There are also seven historic properties that are immediately adjacent to or in close proximity to the Project Area that could be directly or indirectly impacted by the KWP 1 facility. These fifteen historic properties are discussed further below. Sites related to the Historic Period include six sites associated with 19th and early 20th-century ranching (Sites 05402, 05654, 05714, and 05715) and transportation (Sites 04696 and 05652). Pre-Contact use of the Project Area centered around coastal habitation and the exploitation of marine resources, as indicated by Site 01287 (Walker 1931, Hawai'i Statewide Inventory 1974) and Site 05653 (Clark and Rechtman 2005). Pre-Contact sites include one archaeological site thought to be associated with traditional Hawaiian transportation (02946-Lāhainā Pali Trail), two sites associated with possible ceremonial use (05232-upland heiau and 05650 -rock cairns), and three temporary habitation sites (01287, 05648 and 05653). Additionally, there are three sites with an unknown temporal association (05625, 05626, and 05649).

Referenced distances discussed below regarding historic properties locations relative to the Project Area and Project's LOD and/or Project features are from legacy SHPD data or from georeferenced data from relevant archaeological reports.

Historic Ranching and Transportation Sites

Historic Ranching Sites

The sites associated with ranching include a watering trough (Site 50-50-09-05402), a set of concrete steps (Site 50-50-09-05654), a privy (Site 50-50-09-05714), and hoist remnants (Site 50-50-09-05715).

- **Site 05402** is a water trough associated with 20th century ranching. The site was first noted by Tomonari-Tuggle (1998), documented in detail in Magnuson (2003), and assessed for significance in Clark and Rechtman (2009). The site was georeferenced from the Magnuson 2003 data as being located within the Project Area and LOD. However, KWP 1 operational staff observed concrete steps near this location as occurring outside the LOD.
- **Site 05654** is a historic structure (concrete steps) first noted in Rasmussen (2005b) and further documented in Clark and Rechtman (2005). The georeferenced site from Rasmussen (2005b) and Clark and Rechtman (2005) shows the site located within the Project Area/LOD associated with the Kaheawa Pastures access road.
- **Site 05714** is a pit likely to have functioned as a privy that was documented in Clark and Rechtman (2005). The georeferenced site from Clark and Rechtman (2005) shows the site located outside the Project Area and LOD approximately 25 feet from the LOD associated with the parking area at the entrance of the Kaheawa Pastures access road.
- **Site 05715** is a hoist location documented in Clark and Rechtman (2005) as marked by a small, rectangular, concrete foundation with the remains of two metal pipes projecting out of it and a

chain with a hook bolted into it. The georeferenced location from Clark and Rechtman (2005) shows the site located just outside the Project Area and LOD, approximately 12 feet from the LOD associated with the Kaheawa Pastures access road.

All four of these sites were assessed as significant under Criterion d as outlined in HAR §13-284-6 and recommended for "no further work" prior to the construction of the KWP 1 facility, as, according to Clark and Rechtman (2005:41), "sufficient information has been collected [as the result of the AIS] concerning their physical attributes and possible uses to successfully mitigate any potential impacts resulting from the current proposed development." sites, and they are therefore recommended for no further work."

Historic Transportation Sites

Sites associated with transportation include a historic highway remnant (Site 50-50-09-04696) and a historic road segment (Site 50-50-09-05652).

- **Site 04696** includes segments of the former Lāhainā to Wailuku Government Road and is located within the Project Area and intersects with the Project's LOD associated with the parking and staging area at the entrance to the Kaheawa Pastures access road. The site was documented by Clark and Rechtman (2005).
- **Site 05652** consists of a remnant segment of historic roadbed. The site was recorded by Rasmussen (2005b) and Clark and Rechtman (2005) and georeferenced location from these reports shows the site located approximately 48 feet outside the Project Area and LOD associated with the Kaheawa Pastures access road.

Both of these sites were assessed as significant under Criterion d as outlined in HAR §13-284-6 and recommended for "no further work" prior to the construction of the KWP 1 facility, as, according to Clark and Rechtman (2005:41), "sufficient information has been collected [as the result of the AIS] concerning their physical attributes and possible uses to successfully mitigate any potential impacts resulting from the current proposed development."

Lāhainā Pali Trail

The Lāhainā Pali Trail (Site 02946) is recognized as a significant cultural landmark. The Lāhainā Pali (also known as the ʻAʻaloloa) Trail was built in 1841 to facilitate horse travel between Central Maui, near Puʻu Hele, and Lāhainā, with another branch connecting to Māʻalaea (Tomonari-Tuggle and Tuggle 1991). This 1841 trail was likely constructed over an older foot trail, a common practice in 19th-century Hawaiʻi (Maly and Maly 2001). As noted above, Tomonari-Tuggle and Tuggle (1991) conducted an AIS of the trail as part of DLNR's Nā Ala Hele Trails Program and determined significance under Criterion c, d, and e and recommended preservation. The survey recorded 18 archaeological sites adjacent to the trail alignment, none of which are located within or immediately adjacent to the Project Area. The Lāhainā Pali Trail was later designated as Site 50-50-09-02946, and a cultural resource management plan was prepared for the trail (Tomonari-Tuggle 1995).

The Kaheawa Pastures access road crosses the Lāhainā Pali Trail approximately 0.5 miles makai of the southernmost KWP 1 wind turbine and its associated LOD. Aside from the breach of the trail caused by the construction of the access road in the early 2000s, the condition of the trail in December 2024 (i.e. at the time of the site visit by ASM in support of the CIA) appeared similar to the description provided by Tomonari-Tuggle and Tuggle (1991) (ASM 2025). Two interpretive signs were observed along this section of the trail: one near the road crossing and another several meters west of it. While both signs marking the road intersection with the trail have significantly deteriorated due to sun exposure, the interpretive sign to the west of the access road has degraded to the point of being completely illegible; it has also been defaced by stickers (ASM 2025).

Heiau in Upland Ukumehame

The unnamed upland heiau (Site 05232) was discovered along the western edge of the Project Area by cultural monitor Mr. Edwin Lindsey, Jr. of Maui Cultural Lands following a brush fire in 1999. The heiau is situated approximately 40 feet west of the Project Area and 321 feet from the closest LOD in proximity to KWP 1's WTG 16.

During planning for the construction of the KWP 1 facility, it was determined through consultation with the developer that the potential exists for development and maintenance activities associated with the wind power facility to impact the site (Tomonari-Tuggle and Rasmussen 2005). The heiau was assigned an SIHP site number by Athens (2002) and described as two adjacent stone enclosures joined by a wall; the mauka enclosure has a notch on its northwestern corner, creating an irregular rectangle. The site is oriented to the west and southwest, overlooking the ʻAuʻau Channel toward Kahoʻolawe. Informant information cited by Tomonari-Tuggle and Rasmussen (2005) suggested a possible connection between the location of the heiau and the pueo, because of its location near Manawaipueo Gulch. The site was assessed as significant under Criterion d because of its important research potential and Criterion e because of its important traditional cultural value and was recommended for preservation (Athens 2002).

A previously accepted preservation plan for the unnamed upland heiau was prepared by IARII (Tomonari-Tuggle and Rasmussen 2005) and outlines various short-term measures as well as long-term strategies for preservation through avoidance and protection. Of note, the SHPD acceptance letter (SHPD Correspondence Log No: 2005.1378, Doc No: 0507MK02 dated July 13, 2005) includes the stipulations that:

- A generous buffer of 100 to 200 feet in width around the heiau will be established. Permanent markers will be placed along the buffer to clearly mark … the preservation area. The upslope buffer (northeast and east) will be larger, as the steep valley wall to the west operates as a natural buffer; and
- Archaeological and cultural monitoring of the heiau site has been recommended for any construction activity within 500 feet of the heiau… In addition, orange plastic construction fencing will be erected on the buffer surrounding the site prior to construction.

The 100–200-foot preservation buffer overlaps with the Project Area (but not the LOD) while the 500-foot construction monitoring buffer overlaps with a portion of the LOD. See Figure 3-15.

The heiau was re-visited and briefly assessed during a site visit to the Project Area for the CIA. Although no significant disturbance was observed, the heiau has become overgrown with young ironwood trees, and one ironwood tree has fallen across one of the west-facing walls. Two signs titled "Sacred Cultural Area," both of which were deteriorated and only partially legible at the time of the visit, were identified in the vicinity of the heiau; one had fallen to the ground, and the other was obscured by ironwood trees (ASM 2025).

Possible Traditional Ceremonial Site

Site 05650 consists of four cairns located outside the Project Area on top of a prominent hill (an unnamed pu'u) at an elevation of approximately 2,300 feet amsl. The Kaheawa Pastures access road wraps around the east and north sides of the unnamed pu'u and Site 05650 is located approximately 170 feet west of the road LOD. The site was originally documented by Rasmussen (2005) with four cairns (Feature 13-16) interpreted as traditional Hawaiian in origin and possibly ceremonial in function. Clark and Rechtman relocated the site in 2005 as part of the archaeological survey for KWP 1 and described Site 05650 as falling outside the survey area. As a result, no recommendations were made for the site.

Traditional Habitation Sites

The sites inferred to have a traditional Hawaiian association include three habitation complexes (Sites 50-50-09-01287, -05648 and -05653) consisting of C-shape shelters, modified outcrops, and/or other habitation-related features.

Site 01287 – Habitation Complex

Site 01287 is associated with a group of habitation sites observed by Walker (1931) along the coast from about 2 miles west of Mā'alaea Village to MacGregor Point. Walker (1931:78) offers the following description of these sites:

> *The shelters are low walled semicircular or oval enclosures built against some large rocks or groups of rocks. Shells and pebbles are found around these sites.*
>
> *House platforms are little more than cleared spaces on which pebbles have been strewn. No carefully built terraces of stone pavements are to be seen. Several sites may reasonably have been used koas or shrines. One was a large flat rock on which a circle of stones had been placed.*

The DLNR-SHPD site files provide the following information about Site 01287, a portion of which (3 temporary habitation features or C-shapes) was later subsumed under Site 50-50-09-01441:

> *Walker noted 45+ C-shapes & enclosures [Walker 1931]; many since destroyed; remaining features: A, U-shape, 11 x 6 x .6m; B, 9 enclosures, from 2m diam to 10 x 5 .4-1m; C, 7 C-shapes (3 became part of -1441) (email from Stacy Naipo, 30 June 2025)*

The complex limits for Site 01287 intersect the Project LOD near the Kaheawa Pastures access road parking/staging area by the access road entrance. However, the complex limits are approximate and derived from relative coordinates established during the Hawai'i Statewide Survey. Based on a desktop review of the Walker (1931) report figures, all documented features associated with this site appear to be outside the Project LOD.

Site 05648 – Habitation Complex

Site 05648 is a habitation complex with 30 recorded features interpreted as consistent with temporary habitation and may represent intermittently used shelters associated with trail routes during both the Pre-Contact and Historic periods. The most intensive habitation may have occurred when the Lāhainā Pali Trail and its Mā'alaea branch were still in use, ca. 1841 to 1891. The complex limits intersect with the LOD associated with the Kaheawa Pastures Access Road as the site extends to both sides of the road. However, no features are directly impacted by the road and the nearest feature within the complex occurs within approximately 155 feet of the road LOD. The site was originally documented by Rasmussen (2005b) with 6 C-shapes (Features 1, 2, 5, 6, 7, 9), a possible C-shape (Feature 4), a modified outcrop (Feature 10), a cupboard (Feature 3), and a cairn (Feature 8). Clark and Rechtman (2005) relocated the site as part of the archaeological survey for KWP 1 and described Site 05648 as falling outside the survey area and no recommendations were made for the site. However, during later survey work for KWP 2, Rechtman et al. (2009) recorded 20 additional features as part of Site 05648 and recommended the creation and implementation of a preservation plan in their AIS for KWP 2. A preservation plan was completed by Rechtman Consulting, LLC (2010) and the long-term preservation measures consist of the installation of four informational/cautionary signs at key locations between the KWP 2 wind tower pads and the feature clusters of Site 5648. The preservation plan stipulates that the signs should state the site is "a historically and culturally significant place" and warn against removing or disturbing rocks from the area and that the site is protected under state law (Chapter 6E-11, HAR) and violations can result in fines. These signs were installed as part of the KWP 2 project.

Site 05653 – Habitation Site

Site 05653 is a Pre-Contact habitation site situated on a knoll mauka and north of the graded staging area at the base of Kaheawa Pastures access road. The site was originally documented in Rasmussen (2005b) with five features including a circular enclosure (Feature 1), a wall (Feature 2), two C-shapes (Features 3 and 4), and a terrace (Feature 5). The nearest feature is located approximately 1 foot inside the LOD extent associated with the parking area at the entrance of the Kaheawa Pastures access road. Clark and Rechtman (2005) relocated the site as part of the archaeological survey for KWP 1 and described Site 05653 as falling outside the survey area and no recommendations were made for the site.

Unknown Function/Unknown Period Sites

Site 05649 is a complex consisting of a cairn and a modified outcrop with indeterminant age and function. It is located between 1,880 and 1,980 feet amsl and the complex limits intersect with a portion of the Project Area/LOD associated with the Kaheawa Pastures access road. The complex consists of a

rock cairn and a modified outcrop and was first documented by Rassmussen (2005a) and later assessed by Clark and Rechtman (2005) as significant under Criterion d and recommended for "no further work" prior to the construction of the KWP 1 facility, as, according to Clark and Rechtman (2005:41), "sufficient information has been collected [as the result of the AIS] concerning their physical attributes and possible uses to successfully mitigate any potential impacts resulting from the current proposed development."

Sites 05625 and 05626 are both rock cairns first noted by Athens (2004) and were identified and recorded. Site 05625 was documented as being located on a natural bench immediately upslope of a small unnamed cinder cone within a dense growth of ironwood samplings. Site 05625 is located outside the Project Area, approximately 13 feet to the west of the LOD associated with the Kaheawa Pastures access road. Site 05626 was documented by Athens (2004) as situated on the edge of a small ridge descending into Manawainui Gulch from the west. Site 05626 is located outside the Project Area, approximately 343 feet to the west of the LOD associated with the Kaheawa Pastures access road. Athens (2004) concluded that the two stacked rock piles, probably cairns, were fully documented and that no further archaeological documentation was needed.

Clark and Rechtman (2005) and Rasmussen (2005b) re-identified these two sites. The function and cultural associations of these two cairns were assessed as unknown but are either a modern or indeterminate age.

3.10.1.7 Traditional Native Hawaiian Practices

The CIA identifies traditional and customary practices that historically occurred and continue to occur in the Ukumehame Ahupuaʻa. These include:

- Agricultural Practices:
    - The focus of settlement and cultivation in Ukumehame has typically been the arable coastal and valley regions. It is unknown when Ukumehame Ahupuaʻa was first settled, but it is said that during the time of Kapakaʻiliʻula and Kaʻikipaʻananea, Ukumehame and Olowalu were the favored residences of royalty (*Nūpepa Kūʻokoʻa* 16 March 1865, as cited in ASM 2025). The ahupuaʻa of Ukumehame was considered fertile and supported a large population. Kalo was grown in the long narrow stretches of loʻi that lined the deep valleys and ravines of Ukumehame. The distribution of Land Commission Awards made during the Māhele reflects this settlement pattern, as all the kuleana claims made for land in Ukumehame Ahupuaʻa were within the agriculturally productive gulches to the west of the Project Area. During his islandwide survey of Maui in the late 1920s, Walker (1931) reported the presence of irrigated kalo terraces (loʻi kalo) along the gulches of Ukumehame, Olowalu, and Lāhainā ahupuaʻa. Handy et al. (1991) similarly observed the heavy production of kalo in these areas until the 1930s, stating that:

        > *Southeastward along the coast from the aliʻi settlement [of Lāhainā] were a number of areas where dispersed populations grew taro, sweet potato, breadfruit and coconut on slopes below and in the sides of valleys which had*

> *streams with constant flow…Ukumehame had extensive terraces below its canyon, some of which were still planted with taro in 1934; these terrace systems used to extend well down below the canyon. Olowalu, the largest and deepest valley on southwest Maui, had even more extensive loʻi lands both in the valley and below. Just at the mouth of the valley we found in 1934 a little settlement of five kauhale (family homes) surrounded by their flourishing loʻi…*

  - The results of oral interviews with Maui residents in 2009 (Ah Sam and Rechtman 2009) and in 2024 for this CIA indicate that people still cultivate kalo in the area through the 21st century. Thus, traditional kalo cultivation is a tradition that continues within Ukumehame and the greater Lāhainā District.

- Fishing on the Ukumehame Coast
  - In addition to agriculture, fishing and the collection of marine resources was a major means of subsistence within Ukumehame and the surrounding areas. Kahaʻulelio describes the various fishing koʻa between Ukumehame, Lāhainā, Lāna'i, and Kahoʻolawe (Maly and Maly 2003). He suggests that these koʻa, which occur at intervals approximately 1 to 2 miles apart, are interrelated and that the maunu (chum) placed at each koʻa affects the others. After the Māhele of 1848, Ukumehame was known as a Konohiki Fishery (Maly and Maly 2003).
  - So important were the fisheries and the ocean surrounding the area that Ukumehame became a prominent canoe landing as documented in a newspaper article depicting the voyage of A. Lahaba from Kona, Hawai'i Island, to Oʻahu in late June and early July 1861 (Ah Sam and Rechtman 2009). Lahaba's party left Kawaihae, crossed the channel one evening, and arrived in Keawanui. From there, they continued to sail to Honuaʻula where they furled the sails due to strong winds and paddled the distance to Ukumehame where they landed for the night before continuing up the coast. There is another mention of the Ukumehame landing in an earlier article in the Hawaiian language newspaper Lama Hawai'i, in which Kealiʻiʻumiʻumi wrote about the death of a fisherman along the Ukumehame coastline (Kealiʻiʻumiʻumi 1834 as cited in ASM 2025).
- Native Bird Gathering
  - In contrast to the coastline and lower elevations, the uplands of Ukumehame were less intensively used for economic activities. However, high-elevation slopes are believed to have served as a kulamanu, or gathering place for birds preparing for migration, with the pueo having strong cultural ties to the area (Ah Sam and Rechtman 2009).
  - Robins et al. (1994) suggest that the tablelands of Ukumehame have been used by Native Hawaiians as a resource collection area for native birds. Birds identified in or near the Project Area by scientific studies and information provided by consulted parties

include numerous species of seabirds, shorebirds and wading birds, the pueo (Hawaiian short-eared owl, *Asio flammeus sandwichensis*), and the nēnē (*Branta sanvicensis*).

- Trails Through Ukumehame
    - Handy et al. (1991) mention a series of overland trails that cross Puʻu Kukui, the tallest peak of West Maui, connecting the windward and leeward sides of the island. The main mauka-makai trail in the vicinity of KWP 1 followed Kealaloloa Ridge, east of the Project Area. Devereux et al. (1999) relate that this mauka-makai trail follows Kealaloloa Ridge before reaching the summit of Hanaʻula near the headwaters of Pohakea and Ukumehame streams (north of the Project Area). From here, the trail continues along the summit ridge to intersect with the Olowalu-Puʻu Kukui-Waiehu Trail.
    - The uplands of Ukumehame likely served as access routes to the higher elevations of the West Maui Mountains and their associated land districts (Robins et al. 1994). Mr. Paolo Kamakehau Fujihiro spoke of these upland trails during an oral interview conducted for the KWP II CIA (Ah Sam and Rechtman 2009). One of the trails mentioned by Mr. Fujihiro traverses the ridge of Makenewa (an unidentified ridge) and is said to have been used as an escape route during the battle between Kauhiaimokuakama and Kamehamehanui.
- Lāhainā Pali Trail (ʻAʻalaloloa)
    - Although coastal trails such as the Alaloa once ringed much of Maui, Handy et al. (1991) indicate that, likely due to the roughness of the terrain, “from Olowalu [along the coast to the west of the Project Area] travelers were ferried by canoe to Māʻalaea [along the coast to the east of the Project Area], thence to Makena where the Alaloa followed the long, sandy beach.” In 1841, the Lāhainā Pali (also known as the ʻAʻaloloa) Trail was constructed to accommodate horse traffic between Central Maui, near Puʻu Hele, and Lāhainā; another branch of the trail led to and from Māʻalaea (Tomonari-Tuggle and Tuggle 1991). The 1841 trail was likely built over an older trail, as was common practice in Hawaiʻi during the 19th century (Maly and Maly 2001).
    - Robbers were a well-known danger encountered on the Lāhainā Pali Trail, especially on the remote section of trail in the vicinity of the Project Area.
    - Following its formal construction in 1841, the Lāhainā Pali Trail was in use for roughly 50 years as the shortest route between Central Maui and Lāhainā. However, the route fell out of use around the turn of the century when a carriage road was constructed along the coast (Tomonari-Tuggle and Tuggle 1991).

Although the cultural-historical background research and interviews conducted for the CIA (ASM 2025) yielded an abundance of information about valued resources that could potentially be found within the Project Area, little information was obtained regarding ongoing traditional and customary practices occurring in the Project Area that might be impacted by the Proposed Action. However, there are several historical, cultural, and natural resources in the vicinity of the Project Area with relevance to the

exercise of traditional and customary Native Hawaiian rights. These resources, which are discussed in detail above, include a heiau (Site 50-50-09-05232), the Lāhainā Pali Trail (Site 50-50-09-02946), several other previously documented historic properties within the KWP I area and immediate vicinity; the wao akua, the red soil exposed on Hana'ula Ridge, the viewshed from Kaho'olawe, and numerous species of indigenous and endemic plants and animals, some of which are listed federally or by the State as endangered. Each of these resources is described further in Section 3.10.1.4, *Valued Cultural Resources* and Section 3.10.1.5, *Cultural Valued Natural Resources,* and in Section 3.10.1.6, *Archaeological and Historic Features*, respectively.

3.10.1.8 Existing Avoidance, Minimization, and Mitigation Measures

Existing avoidance, minimization, and mitigation measures being implemented by the Applicant to minimize adverse effects on geology, topography, and soils (Section 3.4), water resources (Section 3.5), vegetation (Section 3.8), and wildlife (Section 3.9) are included in the respective resource sections. These measures help minimize indirect impacts on culturally valued natural resources and archaeological and historic features. The Applicant provides access to the wind farm site for cultural groups seeking access to the natural resources on site or mauka of the site and maintains 10 mph or less speed limits on the access roads to accommodate hikers on the Lāhainā Pali Trail.

3.10.2 Potential Impacts and Mitigation Measures

3.10.2.1 Factors Considered in Impact Analysis

Issues related to cultural resources and practices have been identified during the scoping and CIA process for the Proposed Action. The cultural resource issues addressed in this subsection include the Proposed Action's impacts on 1) traditional Native Hawaiian rights and practices exercised in the Project Area, 2) valued cultural resources including the Wao Akua, Hana'ulu Ridge, and view planes from Kaho'olawe, 3) culturally valued natural resources including native and threatened and endangered wildlife and vegetation, and 4) archaeological sites within and in the vicinity of the Project Area. Impacts are considered in context to measures to avoid, minimize, and mitigate impacts to cultural and archaeological resources. These issues are addressed in this section.

Under the administrative guidelines of the State of Hawai'i, several types of impacts (or "effects") to historic properties are recognized. Per HAR §13-284-7(b), "[Potentially harmful] effects include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the property's surrounding environment, detrimental visual, spatial, noise, or atmospheric impingement, increasing access with the chance of resulting damage, and neglect resulting in deterioration or destruction."

And through the Ka Pa‘akai Analysis the following should be assessed:

> *(a) "the identity and scope of 'valued cultural, historical, or natural resources' in the petition area, including the extent to which traditional and customary Native Hawaiian rights are exercised in that area;*
>
> *(b) "the extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action;" and*
>
> *(c) "the feasible actions, if any, to be taken … to reasonably protect Native Hawaiian rights if they are found to exist."*

A significant impact on cultural resources or practices would result if any of the following were to occur as a direct or indirect result of the Proposed Action or No Action Alternative:

- Impacts to the function or integrity of valued cultural resources including the wao akua, Hana'ulu Ridge, and view planes from Kaho'olawe.
- Loss of culturally valued natural resources at the population level, including native and threatened and endangered wildlife and vegetation.
- Potentially harmful effects to archaeological sites/historic properties considered significant under Criterion a, b, c, d or e as defined by HAR §§ 13-275-6 and 13-284-6. Potentially harmful effects include those defined under HAR §13-284-7(b).
- Impacts to traditional Native Hawaiian rights and practices exercised in the Project Area.

Impacts on cultural and archaeological resources are typically viewed as permanent because these resources are limited, and any disturbances, especially to archaeological sites, cannot be undone. However, impacts on historic landscapes or viewsheds be temporary if projects do not cause lasting damage to the related resources and are to be removed later.

Identified Concerns

Several concerns that the Proposed Action could create some potential impact on valued cultural resources were discussed by interviewees during the CIA consultation process. Although not all of these concerns directly translate into resource impacts, they reflect community values that could be impacted. This analysis also considers public comments submitted during the KWP 1 Continued Use scoping phase. In a letter to the Applicant, the SHPD identified several concerns related to the potential impact of the Proposed Action on view planes from Kaho‘olawe as well as to historic properties within and near the Project Area. Concerns identified during the CIA consultation process and in the SHPD comment letter are detailed below and, when applicable, integrated into the impact analysis and identified avoidance, minimization, and mitigation measures (Section 3.10.2.4*, Avoidance, Minimization, and Mitigation Measures*).

Wao Akua

During an interview in 2009 for a CIA conducted for the proposed KWP 2 project (Ah Sam and Rechtman 2009), concerns were raised regarding the potential expansion of the wind farm areas into the wao akua. In a subsequent interview for the current Project, similar concerns were reiterated, particularly regarding the impact of the turbines on both the wao kanaka and the wao akua, as well as their potential effects on connectivity to the shoreline and ocean (ASM 2025).

View Planes from Kahoʻolawe

Although the concern regarding view planes from Kahoʻolawe were not discussed with interviewees for the CIA, the SHPD letter submitted in response to the Project's EISPN (Appendix B) cited the discussion presented in the EISPN concerning "potential adverse impacts on scenic vistas and view planes on Maui" but notes that "the project has not evaluated potential negative impacts on scenic vistas and view planes as seen from Kahoʻolawe, nor the effects on Hawaiian religious practitioners who conduct ceremonies there" and recommends that the EIS contain an assessment of the Proposed Action's visual impacts as viewed from Kahoʻolawe.

Culturally Valued Natural Resources

Wildlife: Community members interviewed for the CIA are concerned about the impacts of turbine collisions on terrestrial fauna, particularly among native and endangered species. Interviews highlighted that the mortality rates of the ʻōpeʻapeʻa (Hawaiian hoary bat) and shearwater birds due to wind turbine collisions are higher than initially projected. One interviewee also expressed apprehension about the potential effects of turbine-generated noise on the ʻōpeʻapeʻa's echolocation capabilities and the concern that the ʻōpeʻapeʻa may be roosting in the invasive ironwood trees, thus creating additional problems for controlling the invasive plants. One interviewee emphasized the need for the Proposed Action to be transparent in reporting incidental take of birds and bats and reiterated the importance of "give back," such as habitat creation, to help support the populations affected by the wind farm (ASM 2025).

Vegetation: Cultural informants have raised concerns about the negative impact of the Proposed Project on native flora in the area. The native vegetation has already been significantly affected by historical cattle ranching, fires, and modern development, including the construction and operation of the KWP 1 facility. Current conditions, such as hard soils and dense invasive species, were cited as hindering native species from thriving, despite efforts by Maui Cultural Lands to promote regeneration. The proliferation of ironwood trees and other invasive species has been identified as a major challenge in vegetation management. One interviewee expressed particular concern about portions of the Kaheawea Pastures access road that has resulted in the loss of native plants like ʻaʻaliʻi and lehua and proliferation of ironwood.

Archaeological and Historic Features

Interviews conducted through the CIA highlighted concerns regarding the need to identify and report all archaeological features that could be affected by the Proposed Action with impact mitigation measures put in place (ASM 2025).

In SHPD's letter responding to the Proposed Action's EISPN, comments were made regarding impacts to the following archaeological sites: Lāhainā Pali Trail (Site 50-50-09-02946), a heiau (Site 50-50-09-05232), an enclosure (Site 50-50-09-02827), a petroglyph and wall complex (Site 50-50-09-02825), a terraced enclosure with adjacent walls (Site 50-50-090-02826), and a site consisting of three C-shaped shelters (Site 50-50-09-01441). Of these sites, the Lāhainā Pali Trail (Site 02946), described in the SHPD letter as a "significant cultural landmark," is crossed by the access road for KWP I. The heiau (Site 05232) is situated along the western boundary of the KWP I lease area. The remaining four sites cited in the letter (Sites 01441, 02825, 02826, and 02827) lie 700 feet or more outside the Project Area and LOD and as discussed in Section 3.10.1.6, *Archaeological and Historic Features*, no direct or indirect impacts are anticipated to these four sites.

One CIA interviewee specifically questioned whether an updated archaeological survey would be carried out before project implementation, arguing that the initial study from approximately 20 years ago is no longer relevant.

Although no new construction is planned, one CIA interviewee noted that existing infrastructure has already caused direct physical impacts. For example, plastic piping laid by facility personnel over archaeological sites has deteriorated due to sun exposure, leading to the scattering of plastic fragments among these historic properties. There are concerns that continued deterioration could result in plastic melting onto the stones, further compromising the integrity of these sites.

Traditional Native Hawaiian Practices

As indicated above in Section 3.10.1.7, *Traditional Native Hawaiian Practices*, the cultural-historical background research and interviews conducted for the CIA (ASM 2025) yielded little information regarding ongoing traditional and customary practices in the Project Area that might be impacted by the Proposed Action. One interviewee mentioned the concern that the Proposed Action could potentially restrict public access to places like the "sky ponds" at Puʻu Moe (mauka of the Project Area). However, the historical, cultural, and natural resources identified in Section 3.10.1, *Existing Environment* have relevance to the exercise of traditional and customary Native Hawaiian rights and impacts to these resources from the Proposed Action are further discussed in Section 3.10.2.2, *Proposed Action*.

Community Engagement and Transparency

The interviews collectively highlighted the importance of fostering a collaborative relationship between KWP 1 and the local community. A summary of community engagement and transparency concerns identified by the CIA is below.

- Participants emphasized the need for transparency in the proposed continuation of the KWP 1 facility, particularly regarding the incidental take of birds and bats. They called for clear and accessible information that is easy to understand.
- Strengthening relationships between KWP operators and the Hawaiian community, especially those connected to Ukumehame and Māʻalaea, was a recurring theme. Participants advocated for integrating community members, including lineal and cultural descendants, into decision-making processes.
- There was a call for the wind farm to hire more local community members for various professional roles, particularly in positions that involve decision-making responsibilities. This reflects a desire for greater local involvement and economic benefits.
- Participants expressed concerns about the rising costs of energy despite the implementation of renewable energy sources. They highlighted the need for operators to provide clarity on energy costs and fulfill promises of lower electricity bills for Maui residents.

3.10.2.2 Proposed Action

Continued Operations

Valued Cultural Resources

Cultural resources identified through cultural-historical background research and interviews conducted for the CIA include the wao akua, the red soil exposed on Hanaʻula Ridge, and the viewshed from Kahoʻolawe (ASM 2025).

During the development of the CIA for the KWP 2 facility (Ah Sam and Rechtman 2009), the view was shared by cultural consultants that cultural impacts to the wao akua could be avoided by refraining from expanding the facility above the existing footprint. Because the KWP 1 facility has already been built and no additional infrastructure is proposed, continued use of the facility is not anticipated to cause any additional impacts to the wao akua or associated cultural beliefs or practices (ASM 2025). In recognition of cultural sensitivity regarding the wao akua and the cultural landscape of Ukumehame, including the presence of the heiau (Site 50-50-09-05232), the Applicant would continue to educate Project operations and maintenance staff regarding the presence of these sites so they may understand the cultural significance of the area and the importance of ensuring that all operations, especially those conducted in the Project Area's upper elevations near the wao akua and in the general vicinity of the heiau, are carried out in a manner that is culturally appropriate to the area's significance.

The continued use of KWP I is not anticipated to impact Hanaʻula Ridge as a cultural and navigational landmark. Ah Sam and Rechtman (2009), who conducted a CIA for the development of KWP 2, observed that "while the placement of wind towers does not go unnoticed, the actual effects the towers have on obscuring this natural navigation aid can be considered negligible in that the ability to use this landscape feature is not diminished by their presence." The continued use of the facility is not anticipated to cause any additional impacts to views of Hanaʻula Ridge that would impact one's ability to use the ridge for navigational purposes.

Regarding the viewshed from Kahoʻolawe, the physical footprint of the KWP 1 facility, particularly the turbines, represents a highly visible aspect of the contemporary West Maui landscape. The CIA determined that, given the large size of the turbines and their direct line of sight, it is conceivable that the power generating equipment would be perceptible (or even conspicuous) to individuals viewing the east-facing slope of West Maui from Kahoʻolawe during religious ceremonies, and that the view of the turbines could alter the character or experience of specific ritual practices. Concern regarding the viewshed from Kahoʻolawe and the Project's potential effects on Hawaiian religious practitioners was not mentioned by any of the individuals contacted for the CIA. However, in response to SHPD's comments regarding the viewshed from Kahoʻolawe, ASM made multiple efforts to reach out to representatives of the Protect Kahoʻolawe ʻOhana and the Kahoʻolawe Island Reserve Commission to discuss potential negative impacts on scenic vistas and view planes from Kahoʻolawe. As noted in the CIA (Appendix C), while an initial response was received from the Protect Kahoʻolawe ʻOhana, it did not ultimately prove possible to schedule an interview. Without additional information from individuals or organizations engaging in religious observances on Kahoʻolawe, it is difficult to assess the nature or scope of any potential impacts. Given that the KWP I facility has been in operation for almost two decades, there would be no new visual impacts associated with the Proposed Action. See Section 3.12, *Visual Resources* for more information.

Based on the analysis above, significant impacts to the function or integrity of valued cultural resources including the wao akua, Hana'ulu Ridge, and view planes from Kaho'olawe are not anticipated from the Proposed Action.

Culturally Valued Natural Resources

Wildlife

As described in *Section 3.10.1.5, Culturally Valued Natural Resources*, various native and endemic animals present in the Project Area have been identified as culturally important. Species include numerous species of seabirds, shorebirds and wading birds, the pueo, the nēnē, and the ōpeʻapeʻa. There is the potential for individual birds and bats that are considered culturally important to collide with KWP 1 structures during the Proposed Action. Anticipated impacts of the Proposed Action on these species are described in Section 3.9.2.2 *Wildlife, Potential Impacts and Mitigation Measures, Proposed Action*. The Proposed Action's Proposed HCP includes take coverage for six Covered Species due to the potential for incidental take: ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), ʻaʻo (Newell's shearwater), ʻakēʻakē (Band-rumped Storm Petrel), and assimulans yellow-faced bee. The Proposed HCP includes measures to avoid, minimize, and mitigate these impacts to listed species (see Section 3.9.2.2 *Wildlife, Potential Impacts and Mitigation Measures, Proposed Action*). These measures would reduce the risk of impacts to culturally important listed species during continued operations and create a net benefit to the Covered Species, as outlined in the Proposed HCP.

Regarding the non-listed avian species identified as culturally important, fatalities of some of these species have been observed throughout the 19 years of operation of KWP 1, as described in Section 3.9.1.2, *Wildlife, Existing Environment, Non-Listed Wildlife Species and MBTA-Protected Birds*. Fatalities of

a similar magnitude are likely to occur with the continued operations of KWP 1; however, such levels of take are not anticipated to adversely affect local or regional populations of these species.

As discussed in Section 3.9.2.2, *Wildlife, Potential Impacts and Mitigation Measures, Proposed Action*, pueo fatalities have been documented at the existing KWP 1 facility and would continue to be susceptible to collisions with wind turbines, vehicles, and other structures under the Proposed Action. However, as the pueo does not have threatened or endangered status on the island of Maui, and is not federally listed, KWP is not seeking incidental take authorization for pueo. However, KWP 1 recognizes the ecological and cultural significance of the pueo including the cultural connections of the pueo with the Project Area (Ah Sam and Rechtman 2009, ASM 2025) and therefore would implement the avoidance and minimization measures described in Section 3.9.2.4, *Avoidance, Minimization, and Mitigation Measures* and would provide voluntary mitigation under the Proposed Action. KWP 1 would provide $11,000 in funding to the Hawai‘i Wildlife Center to cover the remaining costs of an aviary rebuilt in 2024. This aviary is anticipated to last more than 10 years based on the lifespan of the last aviary and may serve approximately 12 pueo patients per year (Tetra Tech 2025a).

With the implementation of avoidance, minimization, and mitigation measures discussed in Section 3.9, *Wildlife*, the Proposed Action is not anticipated to result in a population level loss of culturally important native and threatened and endangered wildlife.

Vegetation

As described in *Section 3.10.1.5, Culturally Valued Natural Resources*, various indigenous and endemic plant species present in the Project Area have been identified as culturally important. Species include eighteen plant species that are native to the Hawaiian Islands and seven species which are endemic to and found only in the Hawaiian Islands. The native plant species observed are considered common species throughout the Hawaiian Islands and no listed or rare plant species have been observed in the Project Area. Anticipated impacts of the Proposed Action on these species are described in Section 3.8.2.2, *Vegetation, Potential Impacts and Mitigation Measures, Proposed Action*.

With the implementation of the KWP 1 Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025), continued operations would have minor, direct and indirect impacts to vegetation within the Project Area and Project vicinity. As noted in the KWP 1 Vegetation Management Plan (Appendix F), KWP 1 would work with local experts and community group (e.g., Maui Cultural Lands) to remove/control invasive species of concern, including ironwood and fireweed, within the LOD and in select areas outside of the LOD. Furthermore, the Vegetation Management Plan describes BMPs for avoiding impacts to native plant species and where impacts are unavoidable, measures to translocate or replace native plant species.

Given that the Project Area has already been developed and no additional ground disturbance is planned outside of previous areas of ground disturbance, it is anticipated that any impact of the continued operations of the KWP I facility on native flora, would not be significant.

Archaeological and Historic Features

Under the Proposed Action, direct impacts on archaeological and historic features could result from operations and maintenance activities including minor grading or vegetation removal that may be necessary to prepare the site for equipment transport and maintenance activities, to maintain the primary and secondary access roads for service vehicles, and to maintain vegetation free buffers to provide fire breaks and assist with HCP compliance monitoring. Ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint. For those archaeological features that are within or immediately adjacent to the LOD, the Applicant will consult with SHPD under the HRS 6E review process and will coordinate with SHPD on compliance with existing mitigation commitments.

Temporary indirect impacts to archaeological and historic features could result from noise, dust, and vibrations caused by earthmoving and heavy equipment during maintenance activity. Potential indirect impacts from noise, dust, and vibration are anticipated to be minimal. Community access to cultural resources is not anticipated to change.

Of the 15 historic properties recorded as being located within or intersecting with the Project Area or its immediate vicinity, three have preservation or management plans: Site 02946 - Lāhainā Pali Trail, Site 05648 – Habitation Complex, and Site 05232 – Upland Heiau. An assessment of the Proposed Actions compliance with these preservation plans and potential impacts to these sites designated for preservation is provided below.

Site 02946 - Lāhainā Pali Trail

Site 02946, the Lāhainā Pali Trail, was assessed as significant for its information potential under Criterion c, d and e and was recommended for “preservation” (Tomonari-Tuggle and Tuggle (1991). The main trail branch is already governed by a management plan (Tomonari-Tuggle 1995) and it would not be directly impacted as a result of the Proposed Action. The portion of the Lāhainā Pali Trail that crosses the Kaheawa Pastures access road was breached during the construction of KWP 1 and KWP 2; however, following construction of the access road, the course of the trail was restored, and the current conditions of the trail at the crossing of the access road are documented in the CIA (ASM 2025). As documented in the CIA, the signage near the intersection of the Lāhainā Pali Trail and the Kaheawa Pastures access road has deteriorated significantly and is in considerable disrepair. Although the signs are the property of the DLNR, the Applicant offered to DLNR as recently as 2023 to repair or replace the signs and would do so in the future as appropriate. The signs would include interpretive content explaining the history and significance of the trail as a historic property and cultural resource. The signs would remain in place for the duration of the Proposed Action.

As part of the Project’s CDUP conditions (2005 CDUP MA-3103 Amendment, Condition #4), Kaheawa Wind, LLC would continue to contribute $1,500 annually to the Na Ala Hele program as mitigation for visual impacts to the Old Lahaina Pali Trail.

No new direct or indirect impacts to the trail are anticipated by the Proposed Action as no disturbance outside the current LOD of the Kaheawa Pastures access road at the trail crossing is anticipated, and no access to the trail would change under the Proposed Action.

Site 05648- Habitation Complex

Site 05648 is a habitation complex considered significant under Criterion d for both the information it has yielded and the potential information it is likely to yield if future work were to be conducted and was recommended for "preservation." The portion of the Project Area that intersects with Site 05648 is the portion associated with the existing Kaheawa Pastures access road. All the features associated with this site are avoided by the existing road and its associated LOD.

As noted earlier, a preservation plan for this site was prepared and submitted to SHPD for review and approval (Rechtman 2010). Under the Proposed Action, the Applicant would ensure compliance with the SHPD-approved preservation plan.

Site 05232 – Upland Heiau

Site 05232 is an upland heiau and is considered significant under Criterion d because of its important research potential and under Criterion e because of its important traditional cultural value. This site was recommended for preservation (Athens 2002; Clark and Rechtman 2008), and a site preservation plan was prepared (Tomonari-Tuggle and Rasmussen 2005) and accepted by SHPD (SHPD Correspondence Log No: 2005.1378, Doc No: 0507MK02 dated July 13, 2005). The preservation plan and SHPD approval requires a 100–200-foot permanent preservation buffer around the heiau and a 500-foot archaeological monitoring buffer for any construction activities occurring within 500 feet of the heiau.

Although Site 05232 is located outside the Project Area, the permanent 100-200 foot preservation buffer overlaps with the Project Area. The CIA recommended several actions to the Applicant to ensure compliance with the SHPD-approved preservation plan for Site 05232 (ASM 2025):

- The installation of "discrete permanent markers" consisting of metal pipe set in concrete along the perimeter of a preservation buffer zone extending 100 to 200 feet from the heiau (where it overlaps with the Project Area);
- The installation of "small signs" where the buffer zone crosses into the lease area "that state that a sacred site is in this area and that respect toward this site is expected"; and
- The distribution by the Applicant of "educational brochures or information sheets that may be produced by DLNR or a cultural group for distribution to individuals and organizations having access to the project area [to] provide information on the site, its sacred/spiritual character, the need for protection, and a point-of-contact for additional information." According to the preservation plan, "individuals responsible for landscaping maintenance and grass control [shall] be explicitly instructed to be aware of and to avoid Site 05232" (Tomonari-Tuggle and Rasmussen 2005:14).

The heiau was re-visited and briefly assessed during a site visit to the Project Area for the CIA (see Figures 31 and 32 of Appendix C). Although no significant disturbance was observed, the heiau has become overgrown with young ironwood trees, and one ironwood tree has fallen across one of the west-facing walls (see Figure 33 of Appendix C). Two signs titled "Sacred Cultural Area," both of which were deteriorated and only partially legible at the time of the CIA site visit, were identified in the vicinity of the heiau; one had fallen to the ground, and the other was obscured by ironwood trees (see Figure 34 of Appendix C).

Although not a preservation measure per se, the preservation plan (Tomonari-Tuggle and Rasmussen 2005:14) for the heiau (Site 05232) also states that interviews conducted for the preservation plan revealed a strong "community interest in long-term maintenance and protection of the site." As a result, the authors raised the possibility of forming a long-term curation agreement for care of the heiau between the State and a community group such as the Maui Cultural Lands organization.

Although the heiau (Site 05232) is located outside the Applicant's lease boundary, in compliance with the long-term preservation measures described in the SHPD correspondence accepting the Preservation Plan, the Applicant would complete the following activities:

- Support a curation arrangement with a community group such as Maui Cultural Lands, to manage the heiau site.
- Support the curator community group with:
    - Confirming the location of permanent markers identifying the perimeter of a 200-foot buffer from the heiau and if necessary, replace or install markers if not easily visible.
    - Replacing the current educational signs with new ones identifying the heiau and non-disturbance buffer. Signage text would be determined by the curator group.
    - Managing vegetation within the heiau (see KWP 1 Vegetation Management Plan, Section 4.4 in Appendix F).
- Provide educational information to onsite employees and contractors (when appropriate) regarding the location of the heiau and its cultural and traditional significance and requirement to avoid impacts to the site and a 200-foot buffer.
- Prior to any ground disturbing maintenance activities occurring within 500 feet of the heiau, ensure a cultural/archaeological monitor is onsite to monitor work within 500 feet of the heiau.

Traditional Native Hawaiian Practices

As discussed in Section 3.10.1.7, *Traditional Native Hawaiian Practices*, traditional and customary Native Hawaiian practices historically occurred and continue to occur in the Ukumehame Ahupua'a. Although no ongoing cultural practices have been identified with the Project Area, cultural-historical background research and interviews conducted for the CIA identified several historical, cultural, and natural resources in the vicinity of the Project Area with relevance to the exercise of traditional and customary Native Hawaiian rights, which are discussed below.

The CIA identifies traditional and customary practices that historically occurred and continue to occur in the Ukumehame Ahupua'a including agricultural practices, fishing, and use of traditional trails including Lāhainā Pali Trail. Continued operation of KWP 1 is anticipated to have a negligible impact on these traditional and customary practices. Agricultural practices, including traditional kalo cultivation, would not be directly or indirectly impacted by continued operation of the KWP 1 facility. Fishing and collection of marine resources along the Ukumehame coast are also not expected to be directly impacted by the Proposed Action. Indirect impacts to fishing from stormwater run-off and Project-related erosion and sedimentation are anticipated to be negligible (see Section 3.4, *Geology, Topography, and Soils* and Section 3.5, *Water Resources*). Only small increases in the amount of new semi-pervious surfaces are anticipated under the Proposed Action, which would only result in minimal increase in stormwater runoff. Given the distance of the Project Area from the marine environment, and as KWP 1 would implement stormwater and vegetation BMPs, continued operations and maintenance of KWP 1 are anticipated to have a negligible impact on marine waters downstream of the Project Area. Public access to the Lāhainā Pali Trail would remain under the Proposed Action and additional mitigation measures regarding this historic property are discussed in Section 3.10.2.4, *Avoidance, Minimization, and Mitigation Measures*.

Regarding traditional and customary Native Hawaiian practices within or near the Project Area, one interviewee from the CIA mentioned concern the Proposed Action could potentially restrict public access to places mauka of the Project Area like the "sky ponds" above Pu'u Moe. The Applicant holds a non-exclusive lease to use the land on TMK (2) 4-8-001:001 and has a non-exclusive access easement to use Kaheawa Pastures access road. Access to DLNR owned TMKs (2) 4-8-001:001 and (2) 3-6-001:014 for cultural practitioners is granted by DLNR. While there are security gates at the entrance to the Kaheawa Pastures access road entrance, the Applicant currently does not restrict requests for access to any cultural practitioner seeking access to lands above and adjacent to the wind farm operations area, nor would it under the Proposed Action. Therefore, access to Pu'u Moe and elevations above the wind farm site would not change under the Proposed Action.

As KWP 1 has been operational for nearly two decades, it is anticipated that there would be no new impacts to traditional Native Hawaiian practices as a result of continued operations. The Proposed Action, including its minimization and mitigation measures is not anticipated to significantly impact traditional Native Hawaiian rights and practices exercised in the Project Area.

Other Indirect Impacts

Indirect impacts to cultural and archaeological resources would occur if continued operations result in the following:

- Visual impacts that alter the landscape and affect the integrity of culturally-important sites and viewsheds.
- Operational noise that may disturb nearby cultural or archaeological sites, particularly those used for traditional practices or ceremonies.

- Increased access to previously remote areas that results in added disturbances to archaeological and cultural sites.
- Alterations in culturally-important plant and wildlife species populations and behaviors.
- Insufficient preservation of existing historic properties within the Project Area.

The Proposed Action is not anticipated to create new indirect impacts associated with landscape alteration, noise, access, and wildlife and plant species, as the Project is already a part of the landscape and BMPs and avoidance measures (see Section 3.10.2.4, *Avoidance, Minimization, and Mitigation Measures*) are in place to mitigate impacts.

HCP Compliance

The avoidance and minimization measures in the Proposed HCP would have a beneficial impact on culturally important listed species, as described in Section 3.9, *Wildlife*. HCP compliance activities are anticipated to have no impact on traditional cultural practices, cultural valued resources, or historic properties in the ROI. As described in Section 3.8, *Vegetation*, KWP 1 conducts vegetation management within the Project Area to minimize attractiveness of onsite habitat to the nēnē and enhance fatality monitoring efficiency. As stipulated in the KWP 1 Vegetation Management Plan (Appendix F), vegetation management would continue to be conducted in a manner that minimizes impacts native plants within the Project Area.

Offsite mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites, may require limited ground disturbance at the respective mitigation sites. Any subsurface ground disturbance outside of existing disturbed areas would be evaluated for cultural resources and discussed with SHPD prior to commencement of work. As described in Section 3.8.1.4, *Existing Vegetation*, vegetation cover in the Haleakalā Ranch pen, Puʻu o Hōkū Ranch pen, and Makamakaʻole mitigation areas is characterized as alien dry shrubland, alien mesic grassland, alien dry grass land, and very sparse to unvegetated bare ground. Therefore, ground disturbance in these areas would primarily impact non-native species. However, most vegetation within the Pūlama Lānaʻi mitigation area is characterized as low-stature ʻōhiʻa wet forest, which is dominated by native vegetation. Precautions would be taken to avoid and minimize direct impacts to native vegetation within the Pūlama Lānaʻi mitigation area. In the long term, the protection and/or restoration of foraging, roosting, and nesting habitats for ʻōpeʻapeʻa and assimulans yellow-faced bee would likely have a beneficial impact on native vegetation and native animals.

The movement of personnel, material, and equipment from and within the ROI could also indirectly impact vegetation through the introduction and spread of invasive species. KWP 1 would implement its Invasive Species Prevention Plan (Appendix G) to avoid the unintentional introduction or transport of new invasive species to the Project Area and HCP mitigation sites; HCP compliance and mitigation activities would be covered in this plan.

Overall, the measures implemented in the Proposed HCP are designed to achieve conservation goals while minimizing adverse effects on listed plant and animal species and native vegetation and native birds. HCP compliance and mitigation activities proposed under the Proposed HCP are expected to have negligible, short-term adverse impacts and long-term, beneficial impacts on culturally important natural resources within the ROI.

Decommissioning and Restoration

The decommissioning and removal of the Project and its components would likely result in impacts similar to those experienced during the construction phase. This may involve access road widening, the presence of large construction vehicles and equipment, ground disturbance, and vegetation clearing. These actions may temporarily affect Native Hawaiian access to valued cultural resources and archaeological and historic features and may temporarily affect the cultural landscape due to the increased presence of machinery and the alteration of roadways. To avoid direct impacts to archaeological and historic features, the Applicant would consult with SHPD to identify and implement appropriate mitigation measures.

Impacts from decommissioning would be alleviated after decommissioning is complete and the Project Area is revegetated. Over time, the landscape previously affected by the Project would gradually return to a state more representative of pre-construction conditions. Decommissioning activities are not expected to significantly impact valued cultural resources, culturally value natural resources, or archaeological and historic features, as BMPs would be in place to minimize or mitigate impacts to these resources.

Ka Pa‘akai Analysis

The KPA requires the assessment of the following:

> *(a) “the identity and scope of ‘valued cultural, historical, or natural resources’ in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in that area;*
>
> *(b) “the extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action;” and*
>
> *(c) “the feasible actions, if any, to be taken … to reasonably protect native Hawaiian rights if they are found to exist.”*

Cultural-historical background research and interviews conducted for the Project CIA identified several valued historical, cultural, and natural resources in the vicinity of the Project Area with relevance to the exercise of traditional and customary Native Hawaiian rights. These are identified and discussed in Sections 3.10.1.3, *Kaheawa Pastures*, 3.10.1.4, *Valued Cultural Resources*, 3.10.1.5, *Culturally Valued Natural Resources* and 3.10.1.6, *Archaeological and Historic Features*. The extent to which those resources may be affected or impaired by the Proposed Action and actions to be taken to reasonably

protect these valued historical, cultural, and natural resources is discussed in Section 3.10.2.2, *Proposed Action* and Section 3.10.2.4, *Avoidance, Minimization, and Mitigation Measures*.

3.10.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 facility would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS nor an ITL from DOFAW, and the HCP conservation measures would not be implemented. As a result, the cultural and archaeological impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur.

The potential impacts from decommissioning and restoration activities would be as described above in Section 3.10.2.2, *Proposed Action, Decommissioning and Restoration*, but would occur immediately rather than at the end of the 20-year extended operational period. BMPs would be implemented to minimize adverse impacts to traditional Native Hawaiian practices, valued cultural resources, culturally valued natural resources, and archaeological and historic features during decommissioning and restoration. However, under the No Action Alternative, the Applicant would not carry out long-term avoidance, minimization and mitigation measures such as the long-term preservation measures for the heiau. Following the dismantling of infrastructure, restoration activities would take place to return the Project Area to preconstruction conditions to the extent practicable.

3.10.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on cultural and archaeological resources, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in *Section 3.10.1.8, Existing Avoidance, Minimization, and Mitigation Measures* as well as the avoidance, minimization, and mitigation measures described in Section 3.4, *Geology, Topography, and Soils*, Section 3.5, *Water Resources*, Section 3.8, *Vegetation*, and Section 3.9, *Wildlife*. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential impacts from the Proposed Action and No Action Alternative:

- Under the Proposed Action and No Action Alternative, educate Project operations and maintenance staff regarding the presence of the wao akua and the cultural landscape of Ukumehame, including the presence of the heiau (Site 50-50-09-05232), so they may understand the cultural significance of the area and the importance of ensuring that all operations and decommissioning activities, especially those conducted in the Project Area's upper elevations near the wao akua and in the general vicinity of the heiau, are carried out respectfully and with proper decorum.
- Under the Proposed Action, provide voluntary pueo mitigation by providing funding to the Hawai'i Wildlife Center to cover the remaining costs of an aviary rebuilt in 2024 to serve approximately 12 pueo patients per year (Tetra Tech 2025a).
- Under the Proposed Action, provide access to cultural practitioners to lands above and adjacent to KWP 1's wind farm operations.

- Under the Proposed Action, implement the KWP 1 Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025).
- Under the Proposed Action and No Action Alternative, limit ground disturbance to areas within the LOD to the extent practicable.
- Under the Proposed Action and Non Action Alternative, the Applicant will coordinate with SHPD to provide measures to address previously recorded historic properties, as needed.
- Under the Proposed Action, coordinate with the DLNR and provide the necessary funding to repair or replace the signs where the Lāhainā Pali Trail crosses the Kaheawa Pastures access road. The signs would remain in place for the duration of the Proposed Action.
- Under the Proposed Action, the Applicant would continue to contribute $1,500 annually to the Na Ala Hele program as mitigation for visual impacts to the Old Lahaina Pali Trail (in compliance with the Project's CDUP conditions).
- Under the Proposed Action, the Applicant would ensure compliance with the SHPD-approved preservation plan for Site 05648 by consulting with SHPD to confirm the informational/cautionary signs were installed, assess whether they are visible and clear of vegetation, and to improve or replace the signs if they are illegible or damaged.
- Under the Proposed Action support a curation agreement for the upland heiau (Site 50-50-09-05232). The Curation agreement would be between DLNR and a community group such as Maui Cultural Lands, to manage the heiau site. The Applicant would support the curator community group with the following activities:
    - Confirming the location of permanent makers identifying the perimeter of a 200-foot buffer from the heiau and if necessary, replace install markers if not easily visible.
    - Replacing the current educational signs with new ones identifying the heiau and non-disturbance buffer. Signage text would be determined by the curator group.
    - Managing vegetation within the heiau.
    - Under the Proposed Action and No Action Alternative:
    - Onsite employees and contractors (when appropriate) would be notified regarding the location of the heiau and the requirement to avoid impacts within a 200-foot buffer of the site.
    - Prior to any ground disturbing maintenance activities occurring within 500 feet of the heiau, ensure a cultural/archaeological monitor is onsite to monitor work within 500 feet of the heiau.
- In the event that human remains are discovered, all construction activities in the immediate vicinity would be halted, and the SHPD staff would be notified in accordance with HAR §13-300-40. The final disposition of any discovered human remains would be determined by SHPD staff.

Possible treatments for inadvertent discoveries may include preservation in place or disinterment followed by reburial near the original find location.

Additional CIA Recommendations

The measures above include the recommendations outlined in the CIA aimed at addressing specific, tangible impacts identified in the CIA. ASM also provided general suggestions informed by insights from consulted individuals as well as the authors' perspectives. They emphasize the importance of building relationships with the Ukumehame cultural community and other stakeholders, such as the Protect Kahoʻolawe ʻOhana, as well as with Native Hawaiians of Maui and the broader Maui community. The goal is to foster trust and facilitate the sharing of knowledge.

As noted in Section 2.1.2.3, *Community Benefits Program*, the Applicant is committed to providing a Community Benefits Package valued at $300,000 per year for the 20-year PPA term of the Proposed Action, or $6 million for the term of the Stage 3 PPA. The allocation/distribution of these funds would be based on community consultation and input but could be used to accommodate one or more of the additional CIA recommendations such as providing support for community cultural programs or, potentially, training opportunities for local students and young professionals with an interest in renewable energy.

The Community Benefits Program would be implemented starting from the commencement of the Stage 3 PPA, which is anticipated to begin in December 2026. The Applicant anticipates partnering with one or more local, 501(c)(3) non-profit organizations to administer the benefits program over the lifetime of the project.

3.10.2.5 Summary of Impacts

The Proposed Action has the potential for no impacts to minor adverse impacts to cultural and archaeological resources during the 20 years of additional operation. If the No Action Alternative is taken, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The KWP 1 facility would cease operation and be decommissioned, which would lead to immediate minor impacts to some cultural and archaeological resources. Table 3-18 summarizes potential impacts to cultural and archaeological resources from the Proposed Action and No Action Alternative.

Table 3-18. Summary of Potential Impacts to Cultural and Archaeological Resources

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Impacts to the function or integrity of valued cultural resources	Wao Akua: No Impact Hana'ula Ridge: No Impact View planes from Kaho'olawe: Minor	No Impact	Wao Akua: No Impact Hana'ula Ridge: No Impact View planes from Kaho'olawe: Minor (short-term); Beneficial (long-term)	Wao Akua: No Impact Hana'ula Ridge: No Impact View planes from Kaho'olawe: Minor (short-term); Beneficial (long-term)
Loss of culturally valued natural resources at the population level	No Impact	No Impact	No Impact	No Impact
Impacts to significant archaeological sites	Negligible	No Impact	Minor	Minor
Impacts to traditional Native Hawaiian rights and practices	Negligible	Negligible	Negligible	Negligible

3.11 Noise

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on noise. "Noise" is defined as "any sound that may produce adverse physiological or psychological effects or interfere with individual or group activities, including but not limited to communication, work, rest, recreation and sleep" (HAR § 11-46-2). Under certain conditions, noise can interfere with human activities at home or work and affect human health and well-being (HAR § 11-46-2).

The ROI for noise used in this analysis is the Project Area, parcels adjacent to the Project Area, and noise sensitive receptors (NSRs) in the vicinity of the Project Area. A secondary ROI is the HCP mitigation sites.

To inform the noise impact analysis, Tetra Tech conducted an acoustic assessment to analyze KWP 1 operations with continued use of the GE 1.5se turbines, a 6-to-9-month initial maintenance period if the Proposed Action is authorized, and a 2-year decommissioning and restoration period (Appendix E). The purpose of the assessment was to evaluate potential sound impacts in relation to potential NSRs and the applicable noise limits set by HDOH through the HAR § 11-46, "Community Noise Control". NSRs are locations where the presence of unwanted sound could negatively impact human activities or land use. These locations are often characterized by their sensitivity to noise levels, and include places like residences, schools, hospitals, churches, and some recreational areas (e.g., trails, parks, scenic lookouts). Impacts are described quantitatively.

3.11.1 Existing Environment

3.11.1.1 Regulatory Framework

State of Hawai'i Community Noise Control (HAR § 11-46)

The HDOH regulates noise through the HAR § 11-46 "Community Noise Control". The stated purpose of the Community Noise Control regulations is to "provide for the prevention, control, and abatement of noise pollution in the State from the following noise sources: stationary noise sources; and equipment related to agricultural, construction, and industrial activities". Sound from routine ongoing maintenance activities is considered part of routine operation and the combined total of the ongoing maintenance and routine operation are subject to the sound level limits. Sound from the occasional, major equipment overhauls during operations and maintenance is temporary and would be regulated similar to construction activity.

The Hawai'i noise limits for stationary sources, such as wind turbines, transformers and inverters, apply to sound levels received at the property line for three zoning class districts and are generally more restrictive during nighttime periods. For mixed zoning districts, the primary land use designation is used to determine the applicable zoning district class and maximum permissible sound level. The daytime and nighttime maximum permissible noise limits by zoning class district are presented in Table 3-19. The noise limits are assumed to be absolute and independent of the existing acoustic environment; therefore, no ambient sound survey is required to assess conformity.

Pursuant to HAR §11-46-4(b), compliance is assessed relative to the noise limits at any point at or beyond (past) the property line based on the zoning class district of the adjacent lands. Because the Project Area is in the State Conservation District, compliance is assessed relative to the maximum permissible sound levels for Class A Zoning districts, i.e., sound levels cannot exceed 55 a-weighted decibels (dBA) during daytime and 45 dBA during nighttime.

Table 3-19. Hawai'i Maximum Permissible Sound Levels by Zoning District

Receiving Zoning Class District	Maximum Permissible Sound Level (dBA)	
	Daytime (7:00 a.m. – 10:00 p.m.)	Nighttime (10:00 p.m. – 7:00 a.m.)
Class A Zoning districts include all areas equivalent to land zoned residential, conservation, preservation, public space, or similar type.	55	45
Class B Zoning districts include all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.	60	50
Class C Zoning districts include all areas equivalent to lands zoned agriculture, county, industrial, or similar type.	70	70
Source: HAR 11-46, "Community Noise Control."		

According to HAR § 11-46-4(c), noise levels may exceed the prescribed limits up to 10 percent of the time within any 20-minute period. The maximum permissible sound level for impulsive noise, as measured with a fast meter response, is 10 dBA above the maximum permissible sound levels for the given receiving zoning class district.

Pursuant to HAR § 11-46-7, a permit may be granted by the director of HDOH for operation of an excessive noise source beyond the maximum permissible sound levels. Under HAR § 11-46-7(j), noise permits for construction allow for activities emitting noise in excess of the limits but restrict these activities to the hours of 7:00 am to 6:00 pm during weekdays and 9:00 am to 6:00 pm on Saturdays (no exceedances allowed on Sundays or holidays). Pursuant to HAR § 11-46-8, a variance may be obtained for operation of an excessive noise source beyond the maximum permissible sound levels outside of permitted construction hours. Factors that are considered in granting of such variances include whether the activity is in the public interest and whether the best available noise control technology is being employed.

3.11.1.2 Acoustic Terms and Definitions

Sounds originate from a source, whether it is a human voice, motor vehicles on a roadway, or a wind turbine generator. Energy is required to produce sound, and this sound energy is transmitted through the air in the form of sound waves – tiny, quick oscillations of pressure just above and just below atmospheric pressure. These oscillations, or sound pressures, impinge on the ear, creating the sound we hear. Source sound power is calculated from measurements of sound intensity or sound pressure at a given distance from the source outside the acoustic and geometric near field.

Sound can be measured, modeled, and presented in various formats. The most common metric used in this analysis is dBA. Sound levels are presented on a logarithmic scale to account for the large range of acoustic pressures that the human ear is exposed to and are expressed in units of decibels (dB). Sound levels are expressed in dBA, which compensates for the frequency response of the human auditory system. An inherent property of the logarithmic decibel scale is that the sound pressure levels of two separate sources are not directly additive. For example, if a sound of 50 dBA is added to another sound of 50 dBA, the result is a 3 dB increase (or 53 dBA), not an arithmetic doubling to 100 dBA.

With respect to how the human ear perceives changes in sound pressure level relative to changes in "loudness", scientific research demonstrates that the following general relationships hold between sound level and human perception:

- A 1 dBA increase or decrease is a non-perceptible change in sound.
- A 3 dBA difference is the threshold for a perceptible change in sound level in a laboratory environment but is not a perceptible change in an outdoor environment.
- A 5 dBA difference as a perceptible change in sound level and is a discernible change in an outdoor environment.
- A 10 dBA difference in sound level is perceived to be twice or half as loud.

Additional terminology used in this analysis is presented in Table 3-20.

Table 3-20. Acoustic Terms and Definitions

Term	Definition
Noise	Typically defined as unwanted sound. This word adds the subjective response of humans to the physical phenomenon of sound. It is commonly used when negative effects on people are known to occur.
Sound Pressure Level (L_P)	Pressure fluctuations in a medium. Sound pressure is measured in dB referenced to 20 micropascals, the approximate threshold of human perception to sound at 1,000 hertz (Hz).
Sound Power Level (L_W)	The total acoustic power of a noise source measured in dB referenced to picowatts (one trillionth of a watt). Noise specifications are provided by equipment manufacturers as sound power as it is independent of the environment in which it is located. A sound level meter does not directly measure sound power.
Equivalent Sound Level (L_{eq})	The L_{eq} is the continuous equivalent sound level, defined as the single sound pressure level that, if constant over the stated measurement period, would contain the same sound energy as the actual monitored sound that is fluctuating in level over the measurement period.
A-Weighted Decibel (dBA)	Environmental sound is typically composed of acoustic energy across all frequencies. To compensate for the auditory frequency response of the human ear, an A-weighting filter is commonly used for describing environmental sound levels. Sound levels that are A-weighted are presented as dBA in this report.
Unweighted Decibels (dBL)	Unweighted sound levels are referred to as linear. Linear decibels are used to determine a sound's tonality and to engineer solutions to reduce or control noise as techniques are different for low and high frequency noise. Sound levels that are linear are presented as dBL.
Propagation and Attenuation	Propagation refers to the process by which sound waves travel through a medium from source to receiver. It involves the transmission of sound as a sequence of pressure waves through media such as air, water, or solids. During this process, sound waves can be reflected, refracted, or attenuated. Attenuation is the decrease in amplitude of an acoustic signal. Sound attenuation factors include air absorption, terrain effects, sound interaction with the ground, diffraction of sound around objects and topographical features, foliage, and meteorological conditions including wind velocity, temperature, humidity, and atmospheric conditions.
Octave Bands	The audible range of humans spans from 20 to 20,000 Hz and is typically divided into center frequencies ranging from 31 to 8,000 Hz.
Broadband Noise	Noise which covers a wide range of frequencies within the audible spectrum, i.e., 200 to 2,000 Hz.
Frequency (Hz)	The rate of oscillation of a sound, measured in units of Hz or kilohertz. One hundred Hz is a rate of one hundred times (or cycles) per second. The frequency of a sound is the property perceived as pitch: a low-frequency sound (such as a bass note) oscillates at a relatively slow rate, and a high-frequency sound (such as a treble note) oscillates at a relatively high rate. For comparative purposes, the lowest note on a full range piano is approximately 32 Hz and middle C is 261 Hz.

3.11.1.3 Acoustic Modeling Software

The acoustic modeling analysis was conducted using the most recent version of CadnaA, a comprehensive three-dimensional acoustic software model that conforms to the International Organization for Standardization (ISO) standard ISO 9613-2 "Attenuation of Sound during Propagation Outdoors" (ISO 1996). The engineering methods specified in this standard consist of full (1/1) octave band algorithms that incorporate geometric spreading due to wave divergence, reflection from surfaces, atmospheric absorption, screening by topography and obstacles, ground effects, source directivity, heights of both sources and receptors, seasonal foliage effects, and meteorological conditions.

Topographical information was imported into the acoustic model using the USGS digital elevation dataset to accurately represent terrain in three dimensions. Terrain conditions, vegetation type, ground cover, and the density and height of foliage can also influence the absorption that takes place when sound waves travel over land. The model integrated ISO 9613-2 standard accounts for ground absorption rates. Sound attenuation by the atmosphere is not strongly dependent on temperature and humidity; however, the temperature of 50 degrees Fahrenheit and 70 percent relative humidity parameters were selected for this analysis and is considered standard engineering practice and is a conservative assumption. The ISO 9613-2 standard calculates attenuation for meteorological conditions favorable to propagation, i.e., downwind sound propagation or what might occur typically during a moderate atmospheric ground level inversion. Though a physical impracticality, the ISO 96132 standard simulates omnidirectional downwind propagation. For receivers located between discrete sound sources, the acoustic model may result in over-prediction.

3.11.1.4 Ambient Noise Sources

Project Area

The Project Area is located on a remote hillside of the West Maui Mountains. As described in Section 1.1.1.1, *Location and Land Ownership* and shown in Figure 1-4, there are few uses present within or near the Project Area other than the KWP 1 and KWP 2 facilities. The Lāhainā Pali Trail crosses the Kaheawa Pastures access road at an elevation of approximately 1,500 feet, which is south of the KWP 1 facility but crosses the Project Area. The Project Area is boundary by the West Maui Forest Reserve to the north and west and by a mixture of conservation and agricultural lands to the east. South of the Project Area is Honoapiʻilani Highway, including several scenic lookouts (i.e., McGregor Point and Lighthouse and Papawai Scenic Lookout), and the Pacific Ocean. The nearest settlements are Olowalu, which is over three to five miles to the southwest, and Māʻalaea, which is approximately 1.5 to 2 miles to the east. The closest residence to a KWP 1 turbine is over 2 miles.

There are several ambient sound sources in the Project Area. HAR § 11-46-2 defines "ambient or background noise" as the totality of sounds in a given place and time, independent of sound contribution of the specific source being measured. Ambient sound sources in the Project Area include the turbines at the existing KWP 2 facilities, vehicles traveling along the facility access road, rain, wind blowing through low brush and grass, insects, birds, and mammals.

HCP Mitigation Sites

The mitigation sites at Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, and Pūlama Lānaʻi, and located in remote areas far from noise sources. Ambient sound sources in the Project Area include the turbines at rain, wind blowing through low brush and grass, insects, birds, and mammals and noise from nearby ranch and land management activities.

Ambient noise at the Kaheawa Pastures mitgation area would be the same or simular to the Project Area, as decribed above.

3.11.1.5 Noise from Existing KWP 1 Facility

Sound Sources

The two main sources of sound from KWP 1 operations are the wind turbines and substation. A summary of each noise source is provided below. Details on how these sound sources were integrated into the acoustic model are provided in Appendix E.

The operational acoustic assessment was performed using the existing Project site layout using the GE 1.5se wind turbine with a rotor diameter of 231 feet and hub height of 180 feet. Sound generated by an operating wind turbine is comprised of both aerodynamic and mechanical sound with the dominant sound component from modern utility-scale wind turbines being aerodynamic. Aerodynamic noise results from air flowing across and around each blade of the turbine. Secondarily, mechanical sound is sound generated by machinery located inside the nacelle of the turbine, such as gearboxes, motors, cooling systems, and pumps. The improved design of wind turbine mechanical components and the use of improved noise damping materials within the nacelle, including elastomeric elements supporting the generator and gearbox, have minimized mechanical noise emissions.

Wind energy facilities, in comparison to other energy-related facilities, are somewhat unique in that the sound generated by each individual wind turbine increases as the wind speed increases. The sound emitted by a wind turbine is strongly dependent on the speed of the tip of the blade, the design of the blade, and on atmospheric conditions such as the degree of turbulence. This turbulent boundary layer noise (trailing edge noise) usually defines the upper limit of wind turbine noise levels and is considered the greatest contributor to aerodynamic noise. It is important to recognize that as wind speeds increase, the background ambient sound level will generally increase as well, resulting in acoustic masking effects; however, this trend is also affected by local contributing sound sources. The net result is that during periods of elevated wind speeds, when higher wind turbine sound emissions occur, the sound produced from a wind turbine operating at maximum rotational speed may be largely or fully masked due to wind-generated sound in foliage or vegetation.

The operational acoustic assessment also included the existing KWP 1 substation, which houses a 34 megavolt ampere transformer. Substations have switching, protection, and control equipment, as well as a main power transformer, which generates the sound generally described as a low humming. There are three chief noise sources associated with a transformer: core noise, load noise, and noise generated by

the operation of the cooling equipment. The core is the principal noise source and does not vary significantly with electrical load. The load noise is primarily caused by the load current in the transformer's conducting coils (or windings), and consequently, the main frequency of this sound is twice the supply frequency: 120 Hz for 60 Hz transformers. The cooling equipment (fans and pumps) may also be an important noise component, depending on fan design. During the air-forced cooling method, cooling fan noise is produced in addition to the core noise. The resulting audible sound is a combination of hum and broadband fan noise.

Sound Levels

Figure 3-16 is a sound contour plot displaying broadband (dBA) sound levels, presented as color-coded isopleths, for KWP 1 under standard operating conditions. The sound contours are graphical representations of the cumulative noise associated with the full operation of the equipment, showing how operational noise would be distributed over the surrounding area. Results from acoustic modeling are projected in 5-dBA increments over aerial imagery. The contour isopleths are analogous to elevation contours on a topographic map, i.e., the noise contours are continuous lines of equal noise level around some source, or sources, of noise. The sound contour isopleths are modeled and plotted at a height of 4 meters above ground level, as per the American National Standards Institute (ANSI) standard on wind turbine sound modeling (ANSI/ACP 111-1-2022). Results are independent of the existing acoustic environment, representative of KWP 1-generated sound levels only.

Figure 3-16 also shows the receiving zoning class districts identified in HAR § 11-46 noise regulations. Land adjacent to the Project boundary is categorized as Class A; therefore, the most stringent daytime and nighttime limits of 55 dBA and 45 dBA, respectively, will apply. Modeling results show that there are exceedances of the daytime and nighttime limits at the parcel boundary; however, NSRs are not in proximity to the boundary given the surrounding land use and terrain. The parcels adjacent to the Project Area are remote, conservation and agricultural lands primarily used as open space. Therefore, no meaningful noise impacts would occur at the parcel boundary.

Received sound levels were also evaluated at discrete NSRs, as shown in Figure 3-16 and Table 3-21. The KWP facility is located over 2 miles from the nearest residence and over 4 miles from the nearest public school, hospital, or community centers. At its nearest point, the Lāhainā Pali Trail (NSR 1 and NSR 2) is approximately 0.5 mile away from the closest KWP 1 wind turbine. All other NSRs (NSR 3 – 9) are over 2 miles from the nearest turbine. At Lāhainā Pali Trail (NSR 1 and 2), the modeled received sound levels ranged from 38 to 42 dBA. Sound levels at all other NSRs (NSR 3 – 9) are below 28 dBA which is a negligible sound level as a 30 dBA sound level is considered extremely quiet and similar to sound levels in a quiet library of a soft whisper at 15 feet (Appendix E). These modeled sound levels are independent of the existing acoustic environment and only reflect the modeled Project-generated sound levels. NSRs 3 through 9 are approximately two miles or more from the closest KWP 1 wind turbine and many of these NSRs are located near highways or roads which contribute to the existing ambient acoustic environment. Given the distance from the operational wind turbines and the existing ambient environment, it is unlikely turbine noise would be discernable at NSRs 3 through 9.

At NSRs 1 and 2 (i.e. the Lāhainā Pali Trail) the Project may result in audible sound under certain operational and meteorological conditions; however, the KWP 1 operational sounds may not even be audible over the ambient sound levels currently experienced on the trail except during the calmest wind conditions. The modeled sounds levels which are independent of the existing acoustic environment are similar to a quiet rural residential area with no activity.

At all NSRs, KWP 1 related sound is at a low level and successfully demonstrate compliance with the daytime and nighttime limits for the Class A zoning district (Appendix E).

Table 3-21. Identified NSRs

NSR ID	Name	UTM Coordinates (m)	
		Easting	Northing
1	Lāhainā Pali Trail (Location 1)	756223	2301772
2	Lāhainā Pali Trail (Location 2)	756298	2302104
3	McGregor Point and Lighthouse	757883	2299498
4	Maui Ocean Center	758995	2301188
5	Condominiums at Hauʻoli Street	759162	2301204
6	Pāpalaua State Wayside Park	753220	2301119
7	King Kamehameha Golf Club	758474	2304505
8	Residence at Pōhaku Aeko Street	751122	2302400
9	Keālia Coastal Boardwalk	761175	2301673

3.11.1.6 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse noise effects, operational staff and contractors adhere to the following avoidance and minimization measures for the existing KWP 1 facility:

- Originally sited the KWP 1 facility away from residences and other sensitive sound receptors.
- Regularly service and maintain turbines, reducing the potential for excess noise.
- Maintain all operational equipment in good working order in accordance with manufacturer specifications. Suitable mufflers or air-inlet silencers are installed on all internal combustion engines and certain compressor components.
- Operate vehicles traveling within and around the Project Area in accordance with posted speed limits.

3.11.2 Potential Impacts and Mitigation Measures

3.11.2.1 Factors Considered in the Impact Analysis

Issues related to noise that have been identified during the scoping process for the Proposed Action and addressed in this subsection include: 1) new and increased noise sources generated by the Proposed Action; 2) compliance with state noise regulations, and 3) avoidance, minimization, and mitigation measures to reduce noise impacts generated by the Proposed Action and No Action Alternatives.

A significant noise impact would occur if the Proposed Action and No Action Alternatives would result in an exceedance of the state noise regulation at a noise sensitive receptor.

3.11.2.2 Proposed Action

Continued Operations

Continued operation of the KWP 1 facility under the Proposed Action is anticipated to result in similar impacts as described in Section 3.11.1.5, *Noise from Existing KWP 1 Facility*, above. At any location, the magnitude, frequency, and duration of environmental noise may vary considerably over the course of the day and week. In the case of KWP 1, weather conditions, such as higher speeds, is the primary cause of operational noise variation. During maintenance activities, variation in noise levels would be caused primarily by changes in equipment operations and activity locations.

During the initial maintenance period, WTG components would be inspected, repaired, or replaced. Maintenance activities would require the use of heavy equipment that may be periodically audible at off-site locations. Received sound levels would fluctuate, depending on the construction activity, equipment type, and distance between the noise source and receiver. Sound from equipment would vary depending on the number and class of equipment at a location at any given time.

To assess noise impacts during the maintenance period, composite noise levels at the identified NSRs are modeled for an average work day and peak workday (Appendix E). The estimated composite site noise level assumes that all equipment would operate simultaneously at a conservative load usage factor of 100% over a standard eight-hour workday. The load usage factor accounts for the fraction of time that the equipment is in use over the specified period. Maintenance sound would be attenuated with increased distance from the source. Other factors, such as vegetation, terrain, and obstacles such as buildings, would act to further limit the impact of maintenance noise levels, but were not considered in the analysis. Maintenance activities would also generate vehicle and truck traffic on and offsite, which would contribute to overall sound levels. However, potential noise effects from maintenance generated traffic would be short-term.

Modeled sound levels at Lāhainā Pali Trail (NSR 1 and 2) range from 42 to 52 dBA during the maintenance period, which is below the daytime limit of 55 dBA but exceeds the nighttime limit of 45 dBA for the Class A zoning district (Appendix E). In practice, the noise levels would unlikely exceed nighttime limits at Lāhainā Pali Trail, as all not all equipment would operate simultaneously at a

conservative load usage factor of 100 percent. At all other NSRs, the predicted sound levels are well below the Class A zoning district daytime and nighttime limits.

Standard BMPs, including those listed in Section 3.11.2.4, *Avoidance, Minimization, and Mitigation Measures* below, would be implemented to minimize noise during increased maintenance activities. If noise levels from maintenance activities are anticipated to exceed HDOH limits, the applicant would obtain a noise permit or community noise variance from HDOH. With issuance of a noise permit, noise produced by portable or movable equipment, such as construction equipment, are not subject to the 55 dBA daytime limit under HDOH noise regulations. Pursuant to HAR § 11-46-8, a variance may be obtained for operation of an excessive noise source beyond the maximum permissible sound levels outside of permitted construction hours. As maintenance activities would be short-term, implemented with noise reduction BMPs, the temporary increase in noise due to maintenance would have a less than significant impact.

During continued operations, noise levels at the Project Area would remain unchanged, as there would be no significant increase in personnel, changes to O&M activities, or additional vehicle trips. The facility is located away from sensitive receptors and KWP 1 would continue to implement operational BMPs to minimize noise from the facility. Although modeling results show that there are exceedances of the daytime and nighttime noise limits at the parcel boundary due to the Class A Zoning District maximum permissible levels being the most restrictive, NSRs are not expected to be in proximity to the parcel boundary given the surrounding land use and terrain. Therefore, no meaningful noise impacts would occur at the parcel boundary. Received sound levels at NSRs, are predicted to range from 25 to 42 dBA, which is below both daytime and nighttime limits for the Class A zoning district. Overall, the continued operation of the KWP 1 facility is anticipated to have a minor impact to noise at the property boundary and a negligible impact on NSRs within the ROI.

HCP Compliance

Offsite mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites may require the use of heavy equipment and vehicles, which would temporarily produce noise. Standard construction BMPs would be implemented to minimize noise within the HCP mitigation sites. Although unlikely, if construction is anticipated to exceed permissible sound levels, a noise permit would be obtained from HDOH. Within implementation of BMPs, HCP mitigation activities would have a short-term, minor impact on noise within the ROI.

Decommissioning

Upon completion of the 20-year planned operational life of the Project, KWP 1 would be decommissioned and the Project Area restored to pre-construction conditions. The decommissioning and restoration process is expected to take 2 years, with peak activities planned for 6 months of the total decommissioning period.

In the short-term, decommissioning and dismantlement of KWP 1 would involve the use of some equipment and activities that are inherently noisy. The primary sources of noise would include 1) trucks transporting removed materials from the site and equipment to the site, and 2) operation of heavy equipment and power tools. The equipment used for decommissioning would largely remain the same as that used during maintenance but would include additional specialty equipment for concrete cutting and breaking. To assess noise impacts during the decommissioning period, composite noise levels at the identified NSRs are modeled for an average work day and peak workday (Appendix E). Similar to maintenance, noise levels may exceed ambient levels, potentially causing temporary and/or short-term disturbances.

During decommissioning, modeled noise levels at Lāhainā Pali Trail (NSR 1 and 2) range from 46 to 56 dBA, which exceeds the daytime and nighttime limit for the Class A zoning district (Appendix E). In practice, the noise levels would unlikely exceed nighttime limits at Lāhainā Pali Trail, as all not all equipment would operate simultaneously at a conservative load usage factor of 100%. Decommissioning activities are not anticipated to occur during the nighttime hours. Additionally, acoustic modeling only shows a possible exceedance of the daytime limit of 55 dBA at NSR 2 during a peak decommissioning work day. At all other NSRs, the predicted sound levels are well below the Class A zoning district daytime and nighttime limits. In cases where equipment noise exceeds, or is expected to exceed, HDOH maximum permissible noise levels, a noise permit or variance would be obtained from the HDOH. KWP 1 would require the decommissioning contractor to use reasonable and standard practices to mitigate noise, including those listed in Section 3.11.2.4, *Avoidance, Minimization, and Mitigation Measures* below. As decommissioning activities would be short-term and implemented with noise reduction BMPs, the temporary increase in noise due to decommissioning would have a minor noise impact.

Following the dismantling of infrastructure, restoration activities would take place return the Project Area to preconstruction conditions to the extent practicable. The return of the Project Area to preconstruction conditions would result in an overall long-term, beneficial impact on noise.

3.11.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 facility would no longer operate and would be decommissioned, an ITP would not be issued by USFWS nor an ITL from DOFAW, and the HCP conservation measures would not be implemented. As a result, the impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential impacts to noise from decommissioning and restoration activities would be as described above in Section 3.11.2.2, *Proposed Action, Decommissioning and Restoration* but would occur immediately, rather than at the end of the 20-year extended operational period. Decommissioning would involve excavation and dismantling of structures, WTGs and their foundations, and other Project equipment, causing a temporary, minor impact on noise levels in the ROI. BMPs would be implemented to minimize adverse impacts from decommissioning on noise levels including those listed in Section 3.11.2.4, *Avoidance, Minimization, and Mitigation Measures*. Following the dismantling of infrastructure, restoration activities would take place

return the Project Area to preconstruction conditions to the extent practicable. The return of the Project Area to preconstruction conditions would result in an overall long-term, beneficial impact on noise.

3.11.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on noise under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.11.1.6, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, the applicant would implement the following additional measures to avoid or minimize potential impacts from the Proposed Action and No Action Alternative:

- Document, investigate, evaluate, and resolve project-related noise complaints, if any arise.
- Maintain all maintenance and decommissioning equipment in good working order in accordance with manufacturer specifications. Suitable mufflers or air-inlet silencers should be installed on all internal combustion engines and certain compressor components.
- Obtain a noise permit or community noise variance, as needed, prior to maintenance and decommissioning activities.
- Limit noisy maintenance and decommissioning activities to the least noise-sensitive times of day (daytime only, between 7:00 a.m. and 7:00 p.m.) and weekdays.

3.11.2.5 Summary of Potential Impacts

The Proposed Action would continue to have a negligible to minor, adverse impacts on noise, during the 20-years of additional operation. If the No Action Alternative is taken, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The KWP 1 facility would be decommissioned, which would lead to immediate minor, short-term impacts. Restoration of the Project Area to pre-construction conditions would result in a long-term, beneficial impact on noise. Table 3-22 summarizes potential impacts to noise from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on noise based on the criteria listed in Section 3.11.2.1, *Factors Considered in the Impact Analysis*.

Table 3-22. Summary of Potential Noise Impacts

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning	
Noise impacts at the property boundary in excess of HDOH regulations	Minor	Minor (short-term)	Minor (short-term) Beneficial (long-term)	Minor (short-term) Beneficial (long-term)
Noise impacts at the sensitive receptors in excess of HDOH regulations	Negligible	Minor (short-term)	Minor (short-term) Negligible (long-term)	Minor (short-term) Negligible (long-term)

3.12 Visual Resources

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on visual resources. Visual resources encompass both the natural and constructed elements of the landscape that enhance the public's experience and appreciation of the environment. Visual resource or scenic impacts are generally defined in terms of a project's physical characteristics and potential visibility and the extent to which the project's presence would change the perceived visual character and scenic quality of the environment where it would be located.

This section examines the current visual conditions and the potential impacts on visual resources within the ROI. The ROI for visual resources in this analysis is defined as the Project Area, areas in which the KWP 1 facility is visible to the public (up to 23 miles from the Project Area), and the HCP mitigation sites.

Data used in this analysis comes from three previous visual assessments conducted within the Project Area. Prior to construction of the KWP 1 facility, visual assessments were conducted in the 1999 Final EIS and 2004 Final EA for the KWP 1 facility (WSB-Hawaii 1999, KWP 2004). A viewshed analysis was also completed as part of the KWP 2 Project EIS (Planning Solutions 2010), which included a visual analysis of the KWP 1 WTGs and provides a baseline for the existing visual environment in the vicinity of the KWP 1 facility. Visual impacts from the Proposed Action and No Action Alternative were assessed qualitatively. No new visual modeling was completed for either alternative beyond the analyses provided in the previous EA and EISs.

3.12.1 Existing Environment

3.12.1.1 Regulatory Framework

Scenic Vistas and View Planes Identified in County and State Plans

HAR § 11-200.1-13 requires that applicants identify potential adverse impacts on scenic vistas and view planes identified in county or state plans or studies. Neither the Maui Island Plan (County of Maui 2012), the West Maui Community Plan (County of Maui 2022), nor the Kīhei-Mākena Community Plan (County of Maui 1998a) or draft South Maui Community Plan[72] (County of Maui 2024a) designate any scenic sites or view planes within the Project Area. However, both the Maui Island Plan and the community plans generally emphasize the importance of protecting mauka-to-makai and makai-to-mauka view planes, as well as preserving views of significant geographic features and landforms, such as the West Maui Mountains. This protection is particularly relevant for public views from scenic roadways, parks, and other public access points.

Scenic Resources Inventory and Mapping Project (Chris Hart 2006) identifies and maps the island's scenic resource corridors. Each roadway corridor is rated exceptional, high, medium, or low based on its overall

[72] This draft plan will supersede the Kīhei-Mākena Community Plan upon adoption.

resource value. Roadway corridors with exceptional or high scenic-resource values typically contain dramatic and diverse resource values throughout the corridor. The coastal section of Honoapiʻilani Highway directly south of the Project Area (from Olowalu to Māʻalaea) is classified as Exceptional (Chris Hart 2006). The segments of Honoapiʻilani Highway approximately 3 miles to the east of KWP 1 (from Māʻalaea inland towards Wailuku) and approximately 4 miles west of KWP 1 (from Olowalu to Lāhainā) is categorized as High.

3.12.1.2 Visual Landscape

The visual landscape of Maui is predominantly characterized by agricultural areas (approximately 53 percent), and vegetated conservation zones (approximately 42 percent) (County of Maui 2010). In contrast, urban and rural development constitutes a small portion of Maui County at approximately 5 percent (County of Maui 2010).

Project Area

The Project Area is located on the upper slope of Ukumehame, above McGregor Point. Views from the Project Area afford sweeping panoramas of Haleakalā and Māʻalaea Bay to the east, of Kahoʻolawe and Molokini Islands to the south, and of the West Maui Mountains to the west. As further described in Section 3.12.1.3, *Visual Impacts of the Existing KWP 1 Facility*, the KWP 1 facility is part of the existing visual landscape of West Maui. The KWP 1 WTGs, which stand approximately 296 feet tall, are visible from a significant portion of the island.

HCP Mitigation Sites

The Makamakaʻole mitigation area is located on the slopes of the West Maui Mountains. It is approximately 0.5 miles from the nearest residence and approximately 1 mile inland from Kahekili Hwy (Route 340). The Makamaka'ole mitigation area is actively managed by the Maui Nui Seabird Recovery Project and is currently used for the conservation and monitoring of endangered seabirds.

The Haleakalā Ranch mitigation area is located on a ridge of the Haleakalā volcano. Haleakalā Ranch mitigation area is over 5 miles from the nearest residence and approximately 2 miles inland from Pi'ilani Hwy (Route 31). DOFAW currently manages the existing release pen and nēnē mitigation is already occurring at this site.

The Puʻu o Hōkū mitigation area is located on flat lands just east of Hālawa. Puʻu o Hōkū Ranch mitigation area is approximately 1 mile from the nearest residency and Kamehameha V Hwy (Route 450). DOFAW currently manages the existing release pen and nēnē mitigation is already occurring at this site.

The Pūlama Lānaʻi mitigation area is located on the slopes of Puʻualiʻi. The Pūlama Lānaʻi mitigation area is approximately 1 mile from the nearest residency and 1.5 miles from Manele Rd (Route 440). The mitigation area on Lānaʻi is curently managed by Pūlama Lānaʻi for the conservation of an ʻuaʻu breeding colony.

Conservation activities occurring at these sites may include predator trapping, fence maintenance, vegetation management, supplemental feeding and watering, and wildlife monitoring. Conservation

activities (i.e., fences surrounding the Makamakaʻole, Haleakalā Ranch, and Puʻu o Hōkū mitigation areas) may be visible from some homes and portions of the highway but are not visually obtrusive.

The visual characteristics of the Kaheawa Pastures mitgation area would be the same or simular to the Project Area, as decribed above.

3.12.1.3 Visual Impacts of the Existing KWP 1 Facility

Visibility of KWP 1

A Zone of Visual Influence (ZVI) desktop assessment was conducted by Planning Solutions in 2010 as part of the KWP 2 EIS analysis. The ZVI evaluated the baseline (existing) visibility of the KWP 1 WTGs from various locations on the Island of Maui. The ZVI analysis notes that the visibility patterns generated from the GIS analysis provide a conservative estimate of the actual visibility of the KWP 1 facility, as the model does not consider factors that can reduce visibility, such as distance, haze, vegetation, humidity, background landscape, or weather conditions.

Figure 3-17 shows the extent to which existing KWP 1 WTGs are visible at other locations on Maui (Planning Solutions 2010). Existing auxiliary facilities of the KWP 1 wind farm, such as the substation and operation and maintenance (O&M) building, are relatively low-lying and are not visible or only barely visible from the lowland areas where most people are located. In contrast, the KWP 1 WTGs, which stand approximately 296 feet tall, are visible from a portions of south and central maui, including Kīhei and Wailea. The mountainous topography around the Project Area limits the visibility of the KWP 1 facility in the immediate vicinity or from the west, south, and north. The KWP 1 facility becomes visible to the east, as the terrain gradually increasing elevations away from the site.

As shown in Figure 3-17 and summarized below, the KWP 1 WTGs are viable from the following locations:

- West: The KWP 1 WTGs are not visible from any locations on West Maui, except for the mountainous areas immediately surrounding the existing facilities.
- South: Within the Project Area, hikers on certain sections of the Lāhainā Pali Trail can see between six to eight of KWP 1's WTGs. The KWP 1 WTGs are not visible from Māʻalaea to the south. The facility may be visible from portions of the coastal Honoapiʻilani Highway (Route 30) between Olowalu and Māʻalaea, however, most views are obstructed by the natural landscape and topography.
- North: The turbines are also not visible from Waikapu or Kahului to the north and northeast nor Honoapiʻilani Highway or Kūihelani Highway (Route 380) as they traverse the Maui isthmus from Kahului to Māʻalaea.
- East: The KWP 1 WTGs can be seen from Mokulele/Maui Veterans Highway (Route 311) at distances ranging from 5 to 8 miles, as well as from the Kīhei and Wailea shorelines at distances of 6 to 23 miles to the east. The Haleakalā volcano creates a natural rim-like barrier that effectively obstructs views of KWP 1 from east Maui.

Passengers and crew on specific sides of aircraft during landing or takeoff from Kahului Airport, as well as those on helicopter flights, also have views of the wind farm, which stands out prominently in the broader vistas of Maui and the surrounding islands. The KWP 1 facility is also visible off-shore from marine vessels traveling south and east of the Project Area.

Visual Character of the Existing KWP 1 Facility

As summarized in Table 3-23, the KWP 1 facility was sited and designed to reduce visual impacts to the extent practicable. The Project Area was selected as the site of the KWP 1 facility, in part, due to its remote location that restricts the number of vantage points for non-project-related observers. In an effort to reduce visual impacts, WTGs were placed in uniform layout to present a trim, uncluttered, aesthetically attractive appearance. Auxiliary structures were sited where natural topography features largely impede their view from public places and collector lines were buried whenever possible.

Table 3-23. Key Aesthetic Design Features of KWP 1

Feature	Comments
Turbine Design: Tapered, tubular towers with three-bladed rotors, nacelle, and nose cones. The total height of each turbine is 296 feet.	• Surveys typically favor tapered, tubular towers as it provides clean lines. • The three-bladed rotors with nacelle and nose cone provide a pleasing horizontal line to the wind turbine which help break up the vertical lines of the tower and turbine. • Equal tower and rotor diameter dimensions provide a pleasing sense of balance to the observer, i.e., a shorter tower would appear "squatty", while a taller tower would produce a stronger vertical impact.
Array Layout: 20 GE 1.5 MW turbines articulated in a single row with a minimum of 400 feet of spacing between turbines	• This windfarm design promotes visual uniformity by: using one turbine and tower design with the same rotor diameter, tower height, and colors; the turbine row follows the predominant ridgeline; and the turbines are spaced uniformly. • This windfarm design reduces visual clutter by limiting the number of turbines and deploying them in a single row
Auxiliary Structures & Infrastructure: Access roads, O&M building, and electrical lines and substation.	• The number of roads and their size is minimized to reduce visual clutter and reduce erosion potential. • The O&M building is a prefabricated structure painted with typical, earth-tone colors consistent with Hawai‘i rural (farm and ranch) structures. • The power lines of the intrasite collection network are buried. The interconnection substation was designed to be consistent with the existing utility transmission system.
Overall Siting	• The remote location reduces the potential for visual impact. • The turbines were sited to reduce adverse impacts to view planes along the Old Lāhainā Pali Trail.
Source: WSP-Hawaii 1999, KWP 2004.	

The WTGs are the dominant visual elements of the existing KWP 1 facility, particularly where the WTGs are sited near the ridgeline. The tubular towers occur as numerous vertical protrusions that are out of scale with the landscape. They create a noticeable vertical contrast against the horizontal terrain that

slopes down toward the horizon of the open ocean. Turbines were painted with white, non-reflective paint, which minimizes the need for daytime aviation lighting and eliminate glare, but contrasts with the natural colors of the landscape. The WTGs also introduce spinning movement into the landscape, which attract attention throughout the analysis area.

At night, the auxiliary equipment and structures are minimally illuminated for operational safety and security, resulting in minimal light sources that are primarily visible to staff within the Project Area. The turbines are equipped with synchronized red lights that comply with FAA regulations. Due to the significant distance between the KWP 1 facility and nearby residences and businesses, nighttime lighting remains largely unobtrusive to those viewers.

Impacts of the Existing KWP 1 Facility on Visual Resources

Previous Determinations

A Final EIS for construction and operation of KWP 1 was published in October 1999, which included public comments and concerns related to visual impacts (WSB-Hawaii 1999). The DLNR's Na Ala Hele Trails and Access Program expressed concerns regarding the visibility of certain turbines from a section of the Old Lāhainā Pali Trail. As part of the 1999 Final EIS process, the facility site was shifted mauka (upslope) to mitigate visual impacts to the Lāhainā Pali Trail. KWP 1 also agreed to provide $1,500 annually to be used by Na Ala Hele Program to produce educational and interpretive materials under CDUP condition 4 (CDUP MA-3103). Additionally, community members from Kīhei voiced apprehensions about KWP 1's visual impact. However, no other concerns related to visual impact were raised during the 1999 EIS process, and the EIS anticipated that the lack of concern was primarily due to the remote location of the proposed wind farm, which would limit visibility for most individuals (WSB-Hawaii 1999). The 1999 EIS concluded that most observers would not find the windfarm to be visually intrusive, or that its presence would result in a loss of visual amenity to the community (WSB-Hawaii 1999).

In 2004, following consultations with the DLNR and OEQC, an EA was conducted to evaluate the visual impacts of a revised design that differed from what was assessed in the 1999 EIS. This revised design was ultimately constructed and included a reduction in the number of wind turbines from 27 to 20 and an increase in total turbine height from 243 feet to 296 feet. The 2004 Final EA concluded that, "*while the differences among the tower heights are negligible, the differences among the rotor diameters are off-set by the notable decrease in the number of turbines and in the slower rotor speeds. These factors combined will have a less visually intense and intrusive impact*," (KWP 2004).

Current Analysis

The factors that determine the degree of visual impacts associated with an action include the scenic quality, viewing distance, and numbers of affected viewers and their sensitivity to visual change.

Scenic quality is a measure of the visual appeal of a particular location and is somewhat subjective. When evaluating scenic quality, both natural and man-made components of the visual environment are considered as they either add to or detract from the overall landscape character within a specific setting. Scenic quality takes into account the distinctiveness and diversity of a particular landscape setting and

may consider landform, vegetation, water, color, effects of adjacent scenery, scarcity of the landscape, and cultural importance. As described in Section 3.12.1.1, *Scenic Vistas and View Planes Identified in County and State Plans,* the community values mauka-to-makai view planes and views of the West Maui Mountains. These view planes are particularly important from scenic roadways, parks, and other public access points. The visibility of the existing KWP 1 facility from scenic view planes is summarized below:

- The Lāhainā Pali Trail, located approximately 2,800 feet south of the KWP 1 facility, boasts mauka views of the West Maui Mountains and makai views of the Pacific Ocean and south Maui. The KWP 1 facility is visible from portions of the trail looking mauka.
- Topography and vegetation largely obstruct the view of the KWP 1 facility from the coastal section of Honoapiʻilani Highway directly south of the Project Area (from Olowalu to Māʻalaea), which is classified as exceptional in the Scenic Resources Inventory and Mapping Project (Chris Hart 2006).
- KWP 1 is also visible from the Kīhei and Wailea shorelines (at distances of 6 to 23 miles to the east), including several beach parks and scenic lookouts.
- Views from Kahoʻolawe are more than 13 miles away from the Project Area. Given the large size of the turbines and the direct line of sight, it is conceivable that the power generating equipment would be perceptible to individuals viewing the east-facing slope of West Maui from Kahoʻolawe during religious ceremonies, and that the view of the turbines could alter the character or experience of specific ritual practices (ASM 2025), though this was not raised during public consultations. For more discussion on potential impacts on views from Kahoʻolawe and Hawaiian religious practitioners who conduct ceremonies there, see Section 3.10, *Cultural and Archaeological Resources*.

As described above and shown in Figure 3-17, the KWP 1 WTGs are visible to a number of viewers, particularly east of the Project Area. The majority of viewers would be at distance of 6 to 23 miles. KWP 1 components are clearly viewed at distances up to about 5 miles. Viewers more distant than about 5 miles would be able to discern overall shape and mass, but not individual details. KWP 1 components might be visible to some degree beyond 10 miles, but their prominence would be sufficiently reduced that the impact would likely be minor or negligible. The majority of affected viewers would be in the populated coastal towns of Kīhei and Wailea, located approximately 6 to 23 miles from the KWP 1 facility. Depending on their vantage point and the observer's perceptions, some observers may perceive the wind farm as intrusive whereas others may view the facility as aesthetically pleasing. How the observer views the utility of the facility, and its potential benefits, could influence his/her overall assessment of visual impact. Additionally, people tend to become accustomed to new structures in their environment over time, which contributes to a diminishing visual impact.

Although the previous visual impact determinations concluded that most observers would not find the windfarm to be visually intrusive, or that its presence would result in a loss of visual amenity to the community (WSB-Hawaii 1999), given the extent of the existing facility's visibility, this current analysis

concludes that the construction and operation of KWP 1 has resulted in long-term, moderate impacts on visual resources.

3.12.1.4 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse visual effects, operational staff and contractors adhere to the following avoidance and minimization measures for the existing KWP 1 facility:

- The Project Area was selected due to its remote location that restricts the number of vantage points for non-project-related observers.
- WTGs were placed in uniform layouts to present a trim, uncluttered, aesthetically attractive appearance.
- WTGs were painted with white, non-reflective paint to minimize the need for daytime aviation lighting and eliminate glare from the turbines.
- Auxillary structures were sited where natural topography features largely impede their view from public places and residences and collector lines were buried whenever possible.
- Dust suppression measures are implemented to prevent large, visible dust plumes (See also Section 3.2, *Air Quality*).
- Minimize the extent of disturbed area where possible.
- The KWP 1 facility maintains a clean-looking facility, free of debris and unused or broken-down equipment; equipment and supplies are stored in designated areas within the O&M facility, and damaged or unusable equipment is promptly removed from the site.

3.12.2 Potential Impacts and Mitigation Measures

3.12.2.1 Factors Considered in the Impact Analysis

Issues related to visual impacts that have been identified during the scoping process for the Proposed Action and addressed in this subsection include: 1) changes in the visual characteristic or scenic quality of scenic vistas and view planes identified in county and state plans, 2) changes in the visual characteristic or scenic quality of culturally significant view planes, and 3) avoidance, minimization, and mitigation measures to reduce visual impacts generated by the Project.

During the EISPN comment period, DLNR-SHPD submitted a letter on November 15, 2024 requesting the EIS evaluate "*the potential negative impacts on scenic vistas and view planes as seen from Kaho'olawe [and] the effects on Hawaiian religious practitioners who conduct ceremonies there*" (Appendix B). Concern regarding the viewshed from Kaho'olawe was not mentioned by any of the individuals contacted for the CIA. The potential impacts on views from Kaho'olawe are evaluated below and in Section 3.10, *Cultural and Archaeological Resources*.

A significant impact on visual resources would result if any of the following were to occur as a direct or indirect result of the Proposed Action or No Action Alternative:

- Substantial changes in the visual characteristic or scenic quality of scenic vistas and view planes identified in county and state plans; or
- Substantial changes in the visual characteristic or scenic quality of culturally significant view planes (including views from Kahoʻolawe).

3.12.2.2 Proposed Action

Continued Operations

Because the Proposed Action is a continuation of the existing KWP 1 facility, the WTG do not represent a new feature on the landscape. KWP 1 is and would continue to be an existing visual feature of the West Maui Mountains. The facility would be visible from scenic roadways, parks, and other public access points, including the Lāhainā Pali Trail and coastal sections of Honoapiʻilani Highway, as well as from Kīhei and Wailea. For viewers who have grown accustomed to the existing wind farm and have positive attitudes toward renewable energy, the continuation of the KWP 1 facility would tend to go largely unnoticed. For those who are already bothered by the intrusion of large structures into an area that is otherwise natural, the continued presence of the turbines would likely still be considered a nuisance.

During the initial maintenance period, WTG components would be inspected, repaired and/or replaced, which would introduce form, line, color, texture, scale, and movement inconsistent with the existing landscape character. These activities would result in temporary changes in the visual landscape within the Project Area, primarily from: increased personnel and traffic traveling to and within the Project Area; increased use of heavy equipment; increase in the amount of disturbed area and temporary changes to vegetation and dismantling, repair/replacement, and reinstallation of turbine components. Viewpoints located within 5 miles of the Project Area would be most impacted by maintenance activities, with visual impacts diminishing with distance. Activities conducted during operations and maintenance also have the potential to create fugitive dust. However, with the continued implementation of dust suppression techniques, visual impacts from large dust plumes are not expected. Standard BMPs, including those listed in Section 3.12.2.4, *Avoidance, Minimization, and Mitigation Measures* below, would be implemented to minimize visual impacts during maintenance activities.

Views from Kahoʻolawe would remain the same; the turbines could be perceptible to individuals viewing the east-facing slope of West Maui and could alter the character or experience of specific ritual practices. ASM Affiliates attempted to contact stakeholders with Protect Kahoʻolawe ʻOhana and Kahoʻolawe Island Reserve Commission to discuss SHPD's comment concerning potential negative impacts on scenic vistas and view planes as seen from Kahoʻolawe, and the potential effects on Hawaiian religious practitioners who conduct ceremonies there. As noted in the CIA, while an initial response was received from the Protect Kahoʻolawe ʻOhana, it did not ultimately prove possible to schedule an interview. Without additional information from individuals or organizations engaging in religious observances on Kahoʻolawe, however, it is difficult to assess the nature or scope of any potential visual impacts.

Ultimately, the Proposed Action would not change the existing impacts to view planes from Kahoʻolawe and these existing viewshed impacts would continue through the proposed 20-year extension period and are expected to be negligible.

Overall, the continued operation of the KWP 1 facility is anticipated to have a moderate, long-term visual impact within the ROI.

The Proposed Action is not expected to induce changes in the pattern of land use, population density, or growth rate or promote or discourage economic activity and, in consequence, is unlikely to have any indirect impact on existing visual landscape within the ROI.

HCP Compliance

KWP 1 would continue to conduct vegetation management within the Project Area to enhance fatality monitoring efficiency. BMPs would be implemented such that vegetation management does not compromise soil stability, increase erosion, or adversely impact vegetation outside of the management area.

Offsite mitigation activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures (Project Area and Adjacent Lands), and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites may include fence construction and maintenance, predator control, vegetation management, construction of water features, wildlife monitoring, and habitat protection or management. Mitigation activities would be low-lying and consistent with activities already occurring in these areas. Improvements may require limited ground disturbance and require the use of heavy equipment and vehicles, which would temporarily produce visual impacts.

Ultimately, HCP compliance and mitigation activities are anticipated to have a negligible impact on visual resources within the ROI.

Decommissioning and Restoration

Upon completion of the 20-year planned operational life, KWP 1 would be decommissioned. Decommissioning activities are expected to have short- and long-term, visual impacts from the dismantling and removal of the WTG, pads, and auxiliary structures, regrading to preconstruction contours (where feasible), and the movement of heavy equipment and vehicles used to dismantle and transport infrastructure.

In the short-term, decommissioning activities would introduce form, line, color, texture, scale, and movement inconsistent with the existing landscape character. Viewpoints located within 5 miles of the Project Area would be most impacted by decommissioning, with impacts diminishing with distance. Visual impacts would also be highest when the contractor is decommissioning multiple components simultaneously. The primary sources of visual impacts would include: increased personnel and traffic traveling to and within the Project Area; increased use of heavy equipment; increase in the amount of disturbed area and temporary changes to vegetation, and dismantling of turbine components. The removal of vegetation and the resulting earthwork would expose areas of soil, creating a contrast with

the existing landscape until vegetation is eventually reclaimed. Decommissioning activities would also have the potential to create fugitive dust. However, with the continued implementation of dust suppression techniques, visual impacts from large dust plumes are not expected. KWP 1 would require the decommissioning contractor to use reasonable and standard practices to mitigate visual impacts, including those listed in Section 3.12.2.4, *Avoidance, Minimization, and Mitigation Measures* below. Overall, activities during decommissioning would result in moderate, short-term impacts on visual resources.

Impacts on visual resources would lessen once decommissioning-related activities are finished, vegetation has been reestablished, and the landscape gradually returns to its preconstruction state. After decommissioning activities are completed, temporarily disturbed areas, such as laydown yards and crane paths, would be restored to their original conditions. The restoration process would include removing gravel surfaces, regrading to match preconstruction contours, restoring topsoil, and reseeding with approved seed mixes. Ultimately, restoration activities would return the Project Area to as close to preconstruction conditions as practicable. The return of the Project Area to preconstruction conditions would result in an overall long-term, beneficial visual impact.

Views of decommissioning activities from Kahoʻolawe would occur from over 13 miles away; any decommissioning-related impacts would be temporary and negligible, especially in contrast to surrounding views. Once construction-related activities are finished and vegetation has been reestablished, views of the Project Area from Kahoʻolawe would return to their preconstruction state.

3.12.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 facility would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS nor an ITL from DOFAW, and the HCP conservation measures would not be implemented. As a result, the visual impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential visual impacts from decommissioning and restoration activities would be as described above in Section 3.12.2.2, *Proposed Action, Decommissioning and Restoration*, but would occur immediately rather than at the end of the 20-year extended operational period. Decommissioning would involve excavation and dismantling of structures, WTGs and their foundations, and other Project equipment, causing a temporary, moderate impact on visual resources in the ROI. BMPs would be implemented to minimize adverse impacts of these activities on visual resources including those listed in Section 3.12.2.4, *Avoidance, Minimization, and Mitigation Measures*. Following the dismantling of infrastructure, restoration activities would take place return the Project Area to preconstruction conditions to the extent practicable. The return of the Project Area to preconstruction conditions would result in an overall long-term, beneficial visual impact.

3.12.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effects on visual resources, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.12.1.4, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional

measures to avoid or minimize potential visual impacts from the Proposed Action and No Action Alternative:

- Stage decommissioning activities to minimize the amount of disturbed area at any given time.
- Implement temporary and permanent erosion control measures as described in Section 3.4, *Geology, Topography, and Soils*.
- Implement dust control measures as described in Section 3.2, *Air Quality*.

3.12.2.5 Summary of Potential Impacts

The Proposed Action would continue to have moderate impacts on visual resources, during the 20-years of additional operation. If the No Action Alternative is taken, the impacts associated with the continued operation of KWP 1 and from HCP mitigation would not occur. The KWP 1 facility would be decommissioned, which would lead to immediate moderate, short-term impacts. Restoration of the Project Area to pre-construction conditions would result in a long-term, beneficial impact on visual resources. Table 3-24 summarizes potential impacts to visual resources from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on visual resources based on the criteria listed in Section 3.12.2.1, *Factors Considered in the Impact Analysis*.

Table 3-24. Summary of Potential Impacts to Visual Resources

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning	
Impacts to the visual characteristic or scenic quality of scenic vistas and view planes identified in county and state plans	Moderate	Negligible	Moderate (short-term) Beneficial (long-term)	Moderate (short-term) Beneficial (long-term)
Impacts to the visual characteristic or scenic quality of culturally significant view planes (including views from Kaho'olawe)	Negligible	Negligible	Negligible	Negligible

3.13 Land Use

This section discusses the existing environment, impact of current KWP 1 operations, and potential impacts of the Proposed Action and No Action Alternative on land use. State and county plans, policies, and zoning regulations determine the type and extent of land uses allowable in specific areas. Land use

impacts typically result from actions that negatively affect or displace an existing use or affect the suitability of an area for its current, designated, or formally planned use. For purposes of the land use evaluation, the ROI for assessing impacts to land use includes the Project Area, adjacent parcels, and the HCP mitigation sites.

Data used in this analysis comes from state land use plans and regulations and KWP 1's existing land use entitlements. Description of past land uses that occurred at and in the vicinity of the Project Area prior to the development of the KWP 1 facility was sourced from the CIA (ASM 2025; Appendix C). Impacts are described qualitatively.

3.13.1 Existing Environment

3.13.1.1 Regulatory Framework

Land use in Hawai'i is generally controlled by state land use and county zoning designations. The land use regulations relevant to the Project Area and the land use impact analysis are described below.

State Land Use District

Under HRS Chapter 205-2, the State Land Use Commission (LUC) has the authority to designate all land within the state as one of four districts – urban, rural, agricultural, or conservation – based on the general activities and uses of the land. HRS Chapter 205-5 specifies that State Conservation Districts shall be governed by the State of Hawai'i DLNR. Uses in the State Conservation District are regulated by the DLNR Office of Conservation and Coastal Lands (OCCL) under HRS §183C and HAR Chapter 13-5. HAR Chapter 13-5 classifies conservation lands into five subzones: Protective, Limited, Resource, General, and Special. HAR Chapter 13-5 also identifies the land uses that are allowed in each of the subzones and the specific type of permit required for those land uses, per the following designations: A) requires no permit from the department or board, B) requires a site plan approval by the department, C) requires a departmental permit, or D) requires a board permit and where indicated, a management plan. The Proposed Action is located entirely within a State Conservation District (general and protective subzones) and operates under CDUP MA-3103.

Maui County Zoning

Land use is also regulated by the various counties through zoning districts, within which development standards may be specified for different activities. Title 19 of the Maui County Code defines zoning districts and regulates development within them. The Proposed Action is within the State Conservation District. Therefore, as provided by HRS §205-5(a)[73], land use is governed by DLNR.

[73] HRS §205-5 Zoning states "(a) Except as herein provided, the powers granted to counties under section 46-4 shall govern the zoning within the districts, other than in conservation districts. Conservation districts shall be governed by the department of land and natural resources pursuant to chapter 183C".

Maui County Special Management Area

The SMA is a designated area that extends inland from the shoreline (ranging from 100 yards to several miles in width) and is regulated by the Counties under the Hawai‘i Coastal Zone Management (CZM) program. Land uses within the SMA are regulated under HRS §205A and Maui County §12-202, SMA Rules for the Maui Planning Commission (i.e., SMA Rules). Pursuant to HRS §205A and the SMA Rules, any use, activity, or operation proposed within the SMA defined as a “development” shall be subject to the review of the Planning Department Director and the Planning Commission. “Development” is defined in HAR §205A-22 and includes: A) placement or erection of any solid material, and B) grading of any materials. Development with a construction value of less than $500,000 must obtain an SMA minor permit and development valued at more than $500,000, or that would have a significant adverse effect, must obtain an SMA use permit. The lowest portion of the existing access road (approximately 1,200 linear feet) and parking lot/staging area is within the SMA. Maui County issued a SMA minor permit (SM2 2005/0029) for construction of driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapi‘ilani Highway in 2005.

3.13.1.2 Historic Land Uses at and in the Vicinity of the Project Area

Land uses occurring at and in the vicinity of the Project Area prior to the establishment of KWP 1 are described in the CIA prepared by ASM Affiliates on January 9, 2025 and in Section 3.10, *Cultural and Archaeological Resources* above. Historic land uses are described for the Ukumehame Ahupua‘a, which includes the Project Area and properties in the immediate vicinity of the Project Area (Figure 3-14).

The Ukumehame Ahupua‘a was historically used as agricultural and pasture lands since the mid-19th century. In 1886, the western half of Ukumehame Ahupua‘a is listed as being leased to Olowalu Plantation Company for sugarcane cultivation and sugar production, while the eastern half (including the Project Area) is listed as leased to John Richardson and Kahahawai for cattle ranching. Cattle ranching continued in the vicinity of the Project Area until the mid-1990s under a lease to Perreira Ranch for grazing. After the lease to Perreira Ranch was terminated in the mid-1990s, a lease was granted to First Wind (formerly known as UPC Wind Partners LLC) and Makani Nui Associates, LLC for the development of the KWP 1 facility.

No structures were noted in the ROI prior to the development of the KWP 1 facility, however, several trails and jeep roads were established prior to the KWP 1 facility development. The main mauka-makai trail in the vicinity of the Project Area followed Kealaloloa Ridge (within the Project Area, east of the KWP 1 facility), before reaching the summit of Hana‘ula (north of the Project Area). The more accessible areas of the mauka-makai trail near the Project Area were probably destroyed by a mid-20th-century jeep trail (which was subsequently destroyed during development of the KWP 1 and KWP 2 facilities).

The Lāhainā Pali Trail, located within the Project Area, south of the KWP 1 facility, is another historic trail in the ROI that was formally construction in 1841 to accommodate horse traffic between Central Maui and Lāhainā. The 1841 trail was likely built over an older foot trail. However, the route fell out of use

around the turn of the century when a carriage road was constructed along the coast. Lāhainā Pali Trail is now a recreational trail.

3.13.1.3 Current Land Uses

Project Area and Vicinity

As shown in Figure 1-2, the Project Area is currently used for the existing 20-turbine, 30-MW KWP 1 wind farm, including the turbines, ancillary facilities (e.g., substation, maintenance facility), internal access roads, and a parking/staging area. The parking lot/staging area is located at the makai portion of the Project Area, near the access road's intersection with Honoapi'ilani Highway.

Due to the rugged and steep nature of the terrain, there are no residential or commercial structures within two miles of the Project Area. As shown in Figure 1-4, the uses within the land use ROI consist of utility structures, access routes (paved and unpaved), trails, and natural areas. Specifically, in addition to the KWP 1 wind farm facilities, the following low intensity uses are present within the ROI:

- The area mauka and west of the Project Area is part of the West Maui Forest Reserve.
- The area makai and south of the Project Area is the KWP 2 wind farm facility.
- The Lāhainā Pali Trail traverses the hillside at an elevation of approximately 1,500 feet south of the Project Area. The trail passes through the upper portion of the adjacent KWP 2 facility.
- Two Hawaiian Electric transmission line easements cross Kaheawa Pastures in a southwesterly direction from Mā'alaea. The first easement (with two power lines) crosses the existing KWP 1 facility at an elevation of approximately 2,300 feet; the second easement (with one power line) crosses about 1,900 feet makai of the Project Area.

Mā'alaea, the closest town located approximately 2 miles southeast of the Project Area, encompasses a diverse mix of land uses, including residential, business, and resort. The Project Area is also located approximately 9 miles southwest of the Kahului International Airport and 12 miles southeast of Kapalua Airport.

The existing KWP 1 facility is compatible with existing land uses within the land use ROI. The KWP 1 facility produces some nuisance impacts in the form of dust, noise, and visual impacts; however, these impacts are mitigated as discussed in Section 3.2, *Air Quality*, Section 3.11, *Noise*, and Section 3.12, *Visual Resources,* respectively. Further, these nuisance impacts do not impact the ability of the adjacent landowners to use their sites for current or future land uses.

HCP Mitigation Sites

DOFAW currently manages existing release pens at Haleakalā Ranch on Maui and at Pu'u o Hōkū Ranch on Moloka'i. Nēnē mitigation is already occurring at both sites. The Makamaka'ole mitigation area is actively managed by the Maui Nui Seabird Recovery Project for the conservation and monitoring of endangered seabirds. Likewise, the mitigation area on Lāna'i is curently managed by Pūlama Lāna'i for the conservation of an 'ua'u breeding colony. Activities at these sites may include predator trapping,

fence maintenance, vegetation management, supplemental feeding and watering, and wildlife monitoring.

Land uses within the Kaheawa Pastures mitgation area would be the same or simular to the Project Area, as decribed above.

3.13.1.4 Land Ownership

Project Area

As shown in Figure 3-18, the Project Area is within two parcels: TMK (2) 4-8-001:001 (portion) and TMK (2) 3-6-001:014 (portion), which are owned by the State of Hawai'i and administered by DLNR. Use of the Project Area is secured through a long-term lease from the DLNR (General Lease No. S-5731[74]). The lease was issued January 19, 2005 and expires (with an approved holdover lease) on January 31, 2026. The lease also includes a non-exclusive access easement for the Kaheawa Pastures access road and is subject to perpetual non-exclusive easements for existing Hawaiian Electric transmission lines that cross through the lease area and non-exclusive easements associated with KWP 2 facilities located within the lease area. There are 12 parcels adjacent to the Project Area, eight of which are owned by the State of Hawai'i and four owned by private entities. Table 3-25 summarizes the land ownership and land uses for the Project Area and adjacent parcels.

Table 3-25. Parcel Information for the Project Area and Adjacent Properties

Tax Map Key	Landowner	Parcel Acreage	Type	Current Land Use / Project Components
(2) 4-8-001:001 (por)	State of Hawai'i (DLNR)	1388 acres	Project Area	KWP 1 WTG, KWP 1 and 2 substations and Hawaiian Electric switchyards, O&M building, warehouse building, battery storage facility, primary and secondary access roads, Hawaiian Electric transmission line, Lāhainā Pali Trail
(2) 3-6-001:014 (por)	State of Hawai'i (DLNR)	3414 acres	Project Area	KWP 2 WTG, primary access road, KWP 1 and 2 parking/staging area, Hawaiian Electric transmission lines, Lāhainā Pali Trail
(2) 4-8-001:010	State of Hawai'i (DLNR)	14.6 acres	Adjacent Parcel	Manawainui Plant Sanctuary, West Maui Forest Reserve
(2) 3-6-001:052	State of Hawai'i (DLNR)	41 acres	Adjacent Parcel	West Maui Forest Reserve
(2) 4-8-001:002	State of Hawai'i (DLNR)	8250 acres	Adjacent Parcel	West Maui Forest Reserve
(2) 3-6-003:001	Hana'ula Ranch LLC	3425 acres	Adjacent Parcel	West Maui Forest Reserve (por.), Conservation Zone

[74] General Lease No. S-5731 describes the lease area as containing an area of 200.00 acres, more or less, together with, non-exclusive access easement 1.

Tax Map Key	Landowner	Parcel Acreage	Type	Current Land Use / Project Components
(2) 3-6-001:015	Ting, Donna P Trustee	375 acres	Adjacent Parcel	Conservation Zone
(2) 3-6-004:008	ADD LLC	483 acres	Adjacent Parcel	Agricultural Zone
(2) 3-6-004:007	Pohakulepo Recycling LLC	79 acres	Adjacent Parcel	Lessee by Hawaiian Cement, Agricultural Zone
(2) 3-6-001:018	State of Hawai'i	257 acres	Adjacent Parcel	Agricultural Zone
(2) 3-6-001:042	State of Hawai'i	8.4 acres	Adjacent Parcel	Conservation Zone
(2) 3-6-001:053	State of Hawai'i	0.73 acres	Adjacent Parcel	Agricultural Zone; Water tower
(2) 3-6-002:042	State of Hawai'i	32 acres	Adjacent Parcel	Conservation Zone
N/A	State of Hawai'i (HDOT)	N/A	Adjacent Parcel	Honoapi'ilani Highway
DLNR - Hawai'i Department of Land and Natural Resources HDOT – Hawai'i Department of Transportation				

The existing KWP 1 facility is compatible with existing land ownership within the ROI. Use of the Project Area is secured through a long-term lease from the DLNR. Continued KWP 1 operation through the Proposed Action does not require the acquisition of additional property, nor infringe on the ownership rights of adjacent landowners.

HCP Mitigation Sites

The parcel information and landowners for the five identified HCP mitigation sites are summarized in Table 3-26.

Table 3-26. Parcel Information for the HCP Mitigation Sites

Tax Map Key	Landowner	Parcel Acreage	Type	Current Land Use
(2) 1-9-001:001 (por); (2) 1-9-001:003 (por)	Haleakalā Ranch Company Department of Hawaiian Home Lands	1114 acres 15620 acres	Haleakalā Ranch mitigation area	Nēnē propagation (nēnē release pen)
(2) 5-8-015:001 (por)	Pu'u o Hōkū Ranch Ltd.	735 acres	Pu'u o Hōkū Ranch mitigation area	Nēnē propagation (nēnē release pen)
(2) 3-1-006:001 (por); (2) 3-1-006:003 (por); (2) 3-1-006:005 (por)	State of Hawaii	2557 acres; 136 acres; 3275 acres	Makamaka'ole mitigation area	Propagation and protection of existing endangered seabird breeding colony

Tax Map Key	Landowner	Parcel Acreage	Type	Current Land Use
(2) 4-9-002:001 (por)	Lanai Resorts, LLC	69270 acres	Pūlama Lānaʻi mitigation area	Propagation and protection of existing ʻuaʻu breeding colony
(2) 4-8-001:001 (por) (2) 3-6-001:014 (por)	State of Hawaiʻi (DLNR)	1388 acres 3414 acres	Kaheawa Pastures mitigation area (Project Area and Adjacent Lands)	KWP 1 and KWP 2 WTG, KWP 1 and 2 substations and Hawaiian Electric switchyards, O&M building, warehouse building, battery storage facility, primary and secondary access roads, Hawaiian Electric transmission line, Lāhainā Pali Trail

3.13.1.5 State and County Land Use Designations

Project Area

Land within the Project Area is within the State Conservation District, County Agricultural (AG) Zone, and is located on the boundary of the West Maui and Kīhei-Mākena/South Maui Community Plans (Figure 1-3). A brief description on how the existing KWP 1's facility is consistent with these land use designations and associated regulations is provided below. For further discussion on the Proposed Action's consistency with Federal, State, and County regulations and policies, as well as County and community plans, refer to Section 4, *Regulatory Context/Consistency with Plans and Policies*.

State Land Use District

As shown on Figure 1-3, the entire Project Area is within State Conservation District (general and protective subzones). HAR §13-5-22 (P-12) identifies "wind generation" as a *"Power Generation from Renewable Resources".* This type of land use is permitted in the general and protective subzones with the issuance of a CDUP approved by the BLNR. KWP 1 currently operates under the terms and conditions of CDUP No. MA-3103 as approved by the BLNR on January 24, 2003, and amended on June 24, 2005. The facility's existing CDUP does not have an expiration date. Since the approval of the 2003 CDUP, the Project has continually complied with the permit's 44 conditions, as detailed in Appendix B. For additional information on the facility's compliance with the rules governing the Conservation District see Section 4.2.5, *State Conservation District Law (HRS Chapter 183C)*.

Maui County Zoning

As described above, the Project Area is within the State Conservation District and therefore, land use is governed by DLNR. Consequently, County zoning regulations are not applicable to the existing KWP 1 facility.

Maui County SMA

As shown in Figure 1-3, the lowest portion of the existing Kaheawa Pastures access road (approximately 1,200 feet of the roadway) and the existing parking lot/staging area are within the SMA. In February 2005, Maui County issued a SMA minor permit[75] for construction of driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapiʻilani Highway. The Project has complied with the permit's seven conditions since Project inception. The Proposed Action does not propose any "development" within the SMA and would continue to use the driveway / access road under its existing SMA permit (SMA 2005/0029). For additional information on the facility's compliance with the CZM and SMA rules see 4.2.3, *Hawai'i Coastal Zone Management Program (HRS Chapter 205A)* and Section 4.3.2, *Special Management Area and Shoreline Setback*, respectively.

HCP Mitigation Sites

The land use designations for the five identified HCP mitigation sites are summarized in Table 3-27.

Table 3-27. Land Use Designation for the HCP Mitigation Sites

Name	State Land Use Designation	County Zoning	SMA
Haleakalā Ranch mitigation area	Agricultural	AG (Agricultural)	Outside the SMA
Puʻu o Hōkū Ranch mitigation area	Agricultural	AG (Agricultural)	Outside the SMA
Makamakaʻole mitigation area	Conservation	N/A[1]	Outside the SMA
Pūlama Lānaʻi mitigation area	Conservation	N/A[1]	Outside the SMA
Kaheawa Pastures mitigation area (Project Area and Adjacent Lands)	Conservation	N/A[1]	Outside the SMA
1. Uses within the state conservation district are govern by the Department of Land and Natural Resources. County zoning regulations are not applicable (N/A).			

3.13.1.6 Maui County Community Plans

Maui County Community Plans are specific community plans that provide focused recommendations to address the goals, objectives and policies of the Maui General Plan, based on the values and unique attributes of each community plan area. The Community Plans are vision plans and are not regulatory. A

[75] Special Management Area Minor Permit – for Construction of Driveway Apron & Parking Lot Improvements at Ukumehame, TMK (2) 3-6-001:014 (SMX 2005/0037; SM2 2005/0029). Approved and issued February 25, 2005.

total of nine community plan areas have been identified within the county. The Project Area is within the West Maui and the Kīhei-Mākena/South Maui Community Plan areas.

The West Maui Community Plan was approved on December 17, 2021 and amended on December 23, 2024 (County of Maui 2022). The portion of the Project Area with the West Maui Community boundaries is designated as State Conservation[76] and is outside of the Planned Growth Area on the Community Plan Designations Map (County of Maui 2022, page 93). This area is also designated as an "area of stability," meaning growth should be concentrated on existing developed areas with existing infrastructure and resources. Specifically in the South of Puamana region, which includes portions of the Project Area, the community seeks to protect and preserve the upper watersheds, open space characteristics, natural and cultural resources, and customary and traditional practices. More broadly, the West Maui Community Plan supports renewable energy. Specifically Goal 2.4, Policy 2.4.8, "Support expansion of renewable energy that is broadly supported throughout the community, including small-scale community options, all of which include plans for disposal that does not burden County landfills and decommissioning at the end of the project's intended use." (County of Maui 2022, page 53).

The Kīhei-Mākena Community Plan was first adopted in 1985 and updated in 1998 (Ordinance No. 2641, County of Maui 1998a). An update to the Kīhei-Mākena plan, renamed as the South Maui Community Plan, is currently in progress (County of Maui 2024a, County of Maui 2024b). The portion of the Project Area located in this community plan district is designated as State Conservation and is outside of the Planned Growth Area on the Community Plan Designations Map (County of Maui 1998b; County of Maui 2024a, page 73). The gulches within the Project Area are also designated as an "area of stability," meaning the community seeks to protect these natural drainage systems and adjacent floodplains from development. Both the Kīhei-Mākena Community Plan and draft South Maui Community Plan identify Lāhainā Pali Trail as an important cultural resource. More broadly, the draft South Maui Community Plan supports renewable energy. There are two policies in the Kīhei-Mākena Community Plan specific to renewable energy: "Encourage research, development, and use of alternate energy sources" (page 27) and "Promote environmentally and culturally sensitive use of renewable energy resources like biomass, solar, wind, and hydroelectric energy in all sectors of the community" (page 35). In the draft South Maui Community Plan Goal 2.3, Policy 2.3., "Support expansion of community-supported renewable energy deployment, including small-scale community options and decentralized energy systems, all of which include plans for maintenance and disposal that do not burden County landfills and decommissioning at the end of the project's intended use as well as safeguarding our endangered flora and fauna" (County of Maui 2022, page 93).

The existing KWP 1 facility is consistent with goals and policies of the West Maui, Kīhei-Mākena, and draft South Maui community plans. KWP 1 operations include measures to protect and preserve the watershed (Section 3.5, *Water Resources*), the open space characteristics of the area (Section 3.12,

[76] The State Conservation community plan designation is intended to recognize the designation of lands in the State Conservation District and is used to protect and preserve wilderness areas, beach reserves, scenic areas, historic sites, open ranges, wetlands, and watersheds; to conserve fish and wildlife; and to promote forestry and grazing.

Visual Resources), cultural resources including Lāhainā Pali Trail (Section 3.10, *Cultural and Archaeological Resources*), and biological resources (Section 3.8, *Vegetation* and Section 3.9, *Wildlife*). Additionally, KWP 1 operations also provide affordable, renewable energy to Maui residents, which are consistent with policies in the West Maui and draft South Maui community plans in support of alternative energy.

For additional information on the facility's compliance with the Maui General Plan and community plans, see Section 4.3.3, *Maui General Plan*.

3.13.1.7 Existing Avoidance, Minimization, and Mitigation Measures

To minimize any adverse effect on land uses within the ROI, KWP LLC requires operational staff and contractors to take the following measures:

- Implement dust control measures to avoid a fugitive dust nuisance to adjacent properties, as described in Section 3.2, *Air Quality*.
- Implement BMPs to protect groundwater, surface water, and marine resources, as described in Section 3.5, *Water Resources.*
- Adhere to the current HCP and implement BMPs to minimize impacts to biological resources in and adjacent to the Project Area, including the West Maui Forest Reserve. See Section 3.8, *Vegetation a*nd Section 3.9, *Wildlife*.
- Implement noise control measures to minimize noise during operations and decommissioning as described in Section 3.11, *Noise*.
- Implement measures to promote the open space characteristic of the Project Area as described in Section 3.12, *Visual Resources*.

3.13.2 Potential Impacts and Mitigation Measures

3.13.2.1 Factors Considered in the Impact Analysis

Issues related to land use that have been identified during the scoping process for this Proposed Action and addressed in this subsection include: 1) compatibility with existing and proposed land uses in and in the vicinity of the Project Area; 2) compatibility with existing State and County land use regulations; and 3) consistency with community plans. These issues are addressed in this section.

A significant impact on land use would result if any of the following were to occur as a direct or indirect result of the Proposed Action or No Action Alternative:

- Action is not compatible with existing and planned land uses meaning it negatively and permanently displaces or affects the suitability of the Project Area and adjacent parcels for its current, designated, or formally planned use;
- Action is not compatible with the State and County land use designations; or

- Action is not consistent with the West Maui and Kīhei-Mākena community plans.

3.13.2.2 Proposed Action

Continued Operations

With implementation of the Proposed Action, KWP 1 would continue over the 20-year additional operational period. As described in Section 3.13.1.3, *Current Land Uses*, KWP 1 operations have a negligible impact on current and planned land uses with the Project Area or of adjacent parcels. The KWP 1 facility has the potential to create dust, noise, visual and traffic nuisances for adjacent property owners. However, these impacts would be avoided or minimized as discussed in Section 3.2, *Air Quality*, Section 3.11, *Noise*, Section 3.12, *Visual Resources*, and Section 3.14*, Transportation and Traffic,* respectively. The Project would not interfere with continuing recreational use of the Lāhainā Pali Trail.

The Proposed Action would not require the acquisition of additional property nor infringe on the ownership rights of adjacent landowners. However, it would require a new long-term lease from the DLNR. Therefore, the continued use of KWP 1 is anticipated to have no impact to current or planned land uses and land ownership over the 20-year operational period.

The purpose of the Proposed Action is to continue the use of the Project Area as it is currently being used. No changes to State or County Land Use designations are required to implement the Proposed Action. The Applicant does not anticipate a modification to the CDUP would be required for the Proposed Action. Additionally, as the Proposed Action does not require development in the SMA, no SMA assessment or permit would be required. With continued adherence to KWP's existing CDUP and SMA permit, the Proposed Action is anticipated to have no impact on State or Land Use designations over the 20-year operational period.

Implementation of the Proposed Action would not require changes to the West Maui and the Kīhei-Mākena Community Plan. As described in Section 2783.13.1.6, *Maui County Community Plans*. KWP 1 operations are consistent with the goals and policies of the West Maui, Kīhei-Mākena, and draft South Maui community plans. The Proposed Action is anticipated to have no impact on Maui County Community Plans over the 20-year operational period.

KWP 1 would not markedly promote or discourage economic activity or induce changes to the population. Consequently, it would not lead to growth or changes in the economic or demographic character of the ROI that might have secondary impacts to land use.

HCP Compliance

Implementation of the compliance and mitigation activities in the Proposed HCP would have no impact on land use. KWP 1 would continue to conduct fatality monitoring, scavenger trapping, road and pad vegetation management, and biological monitoring for nēnē during vegetation management activities.

The Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, and Pūlama Lānaʻi are currently being used for the conservation of the Covered Species, as described in *Section 3.13.1.3, Current Land Uses*. These conservation activities are permitted in the state conservation and agricultural districts, as well as the

county agricultural zone without the issuance of a permit. No changes to the current land uses or land use designations are proposed. While mitigation activities at the Kaheawa Pastures (Project Area and Adjacent Lands) mitigation area would be a new land use, these activities would permitted and is consistent with the objectives of the state conservation district. Therefore, HCP compliance would have no impact on current and planned land uses with the Project Area or HCP mitigation sites.

Decommissioning and Restoration

Decommissioning would include the dismantling and removal of the WTGs, KPW 1 substation, and all associated aboveground equipment along with below-ground equipment to a depth required by DLNR. Certain structures, including the KWP 2 substation, O&M building, warehouse storage facility, and access roads would be left in place if the KWP 2 Project is still within its operational period. The primary Kaheawa Pastures access road would be left for use by DLNR and Hawaiian Electric. The site would be restored and revegetated to reflect pre-project conditions.

Decommissioning and restoration activities have the potential to create dust, noise, visual, and traffic nuisances for adjacent property owners. However, these impacts would be avoided or minimized as discussed in Section 3.2, *Air Quality*, Section 3.11, *Noise*, Section 3.12, *Visual Resources*, and Section 3.14 *Transportation and Traffic,* respectively. Decommissioning activities would not interfere with continuing recreational use of the Lāhainā Pali Trail. Once decommissioning and removal activities are completed, the KWP 1 lease with DLNR would expire and land would be restored back to its previous use as open space. While this constitutes a change in land use, the open space use would be consistent with the character of the area and adjacent land uses. Therefore, the Proposed Action is anticipated to have minor impacts to land uses and land ownership over the 1-year decommissioning and restoration.

Decommissioning and restoration activities would be implemented in compliance with KWP 1's existing CDUP or SMA permit; a new CDUP or SMA permit would not be required. As described above, once decommissioning and removal activities are completed, the Project Area would be restored back to its previous use as open space. Open space is permitted in the State Conservation District, general and protective subzones without the issuance of a permit. Additionally, no changes to the access route or parking/staging area within the SMA is currently proposed as part of the decommissioning or restoration activities. In sum, the Proposed Action is anticipated to have no impact to state and county land uses designations over the 2-year decommissioning and restoration period.

During decommissioning and restoration activities, KWP 1 would implement additional measures to protect and preserve resources valued by the West Maui and Kīhei-Mākena communities, including surface and ground water, visual character, cultural resources, Lāhainā Pali Trail, natural habitat, and wildlife. Once decommissioned, the KWP 1 facility would no longer provide affordable, renewable energy to Maui residents, which would be counter to policies in the West Maui and draft South Maui community plans in support of alternative energy. The impacts of the decommissioning and restoration activities on community plans and visions are anticipated to be negligible.

3.13.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 project would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, potential land use impacts associated with the continued operation of KWP 1 and HCP compliance would not occur. The potential land use impacts from decommissioning and restoration activities would be as described above in Section 3.13.2.2*, Proposed Action, Decommissioning and Restoration*, but would occur immediately, rather than at the end of the 20-year extended operational period. As a result, the impacts of the No Action Alternative to land use would be negligible.

3.13.2.4 Avoidance, Minimization, and Mitigation Measures

To minimize any adverse effect on land use, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.13.1.7, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential land use impacts from the Proposed Action and No Action Alternative:

- Implement additional dust control measures during decommissioning to avoid a fugitive dust nuisance to adjacent properties, as described in Section 3.2, *Air Quality*.
- Implement additional BMPs during decommissioning to protect groundwater, surface water, and marine resources, as described in Section 3.5, *Water Resources*.
- Adhere to the Proposed HCP and implement additional BMPs during operations and decommissioning to minimize impacts to biological resources in and adjacent to the Project Area, including the West Maui Forest Reserve. See the Avoidance, Minimization and Mitigation Measure in Section 3.8, *Vegetation a*nd Section 3.9, *Wildlife* for more information.
- Implement noise control measures during maintenance and decommissioning to minimize noise as described in Section 3.11, *Noise*.
- Post-decommissioning, restore the Project Area to as close to pre-construction conditions as feasible, to promote the open space characteristic of the area.

3.13.2.5 Summary of Potential Impacts

The Proposed Action would result in the existing land uses continuing for another 20-year lease cycle. No changes in the current land use, land ownership, or the land use district or zoning classifications are required for Project implementation. Similarly, while the decommissioning phase would involve a change in land use within the Project Area from wind farm operations to open space, the resulting use would be a minor change that is consistent with adjacent land uses as well as state and county land use designations and community plans. The No Action Alternative would result in the facility being decommissioned immediately. As summarized in Table 3-28, both the Proposed Action and No Action Alternatives are anticipated to have negligible impacts on land use. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on land use based on the criteria listed in Section 3.13.2.1, *Factors Considered in the Impact Analysis*.

Table 3-28. Summary of Potential Impacts to Land Use

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Compatibility with existing and proposed land uses	No Impact	No Impact	Negligible	Negligible
Compatibility with existing State and County land use regulations	No Impact	No Impact	No Impact	No Impact
Consistency with community plans	No Impact	No Impact	Negligible	Negligible

3.14 Transportation and Traffic

This section addresses public and privately owned transportation infrastructure, including highways and roadways, harbors, and airports. A discussion of transportation and traffic includes the movement of motor vehicles, pedestrians, bicyclists, ships, and airplanes.

The ROI for transportation and traffic is defined as the Project Area and access routes leading to the Project Area (e.g., Kaheawa Pastures access road and Honoapi‘ilani Highway), as well as the major harbor and airports servicing the Project Area (e.g., Kahului Harbor, Kapalua Airport, and Kahului International Airport). The ROI for transportation and traffic also includes the HCP mitigation sites and access routes leading to these sites.

Data used in this analysis comes from the HDOT as well as vehicle trip estimates provided by the Applicant. Impacts are described qualitatively.

3.14.1 Existing Environment

3.14.1.1 Roadways and Traffic

Project Area

The existing KWP 1 wind farm facility is accessed by the Kaheawa Pastures access road that begins at Honoapi‘ilani Highway and runs north to the conservation lands mauka of the KWP 1 facility. The existing Kaheawa Pastures access road is owned by the State of Hawai‘i and was upgraded in conjunction with the development of KWP 1. Access is controlled by DLNR, and KWP LLC and KWP 2 LLC share responsibility for the road’s upkeep. The Kaheawa Pastures access road is a four-wheel-drive roadway that extends from Honoapi‘ilani Highway, passing through the KWP 2 wind facility and leading directly to the KWP 1 turbines. The access road has a porous gravel surface and is approximately 20 feet wide. Along the Kaheawa Pastures access road, at the KWP 2 Turbine 12 turbine pad, is an existing less than

one acre staging area that may be utilized by KWP 1 for temporary equipment staging during KWP 1 maintenance activities. An existing parking/staging area is located at the entrance of the road for equipment staging and employee parking and is less than 1 acre. Both staging/parking areas have porous gravel surfaces. The LOD associated with the Kaheawa Pastures access road and parking area is approximately 17 acres. Vehicular access on the Kaheawa Pastures access road is restricted by a locked gate at Honoapiʻilani Highway; access is typically restricted to KWP 1 and KWP 2 staff and contractors, DLNR staff, utility personnel, and contractors, and community members requesting access to historic properties in the vicinity of the Project Area. Pedestrians occasionally cross the access road at its intersection with the historic Lāhainā Pali Trail. The posted speed limit on the access road is limited to 10 mph.

Honoapiʻilani Highway is a two-lane coastal roadway; the State-owned highway is heavily traveled by tourists and commuters, especially during daylight hours. HDOT conducts regular traffic counts on Honoapiʻilani Highway, the annual average daily traffic count near the Kaheawa Pastures access road (between mile post [MP] 6.756 and 17.65) is 25,800 vehicles (HDOT 2023). The annual average daily traffic count represents a typical traffic volume number for any day of the year on the segment of road, and may have been impacted since the Lāhainā wildfires in August 2023. Honoapiʻilani Highway connects with other major highways and provides ready access to the harbor facilities and airport at Kahului. The portion of the Highway fronting the driveway to the Project access road does not have sidewalks. There is a bikeway along the shoulder of Route 30 of Honoapiʻilani Highway, including the portion of the highway fronting the Project access road driveway (HDOT 2022). The pavement condition is designated as “good” by HDOT. Pavement condition ranges from excellent to very poor and is averaged over 0.5-mile sections of roadway and is a combined measure of pavement smoothness, cracking, and rutting (HDOT 2025a). The posted speed limit near the Project Area is 45 mph.

Operation of the existing KWP 1 facility generates vehicle-trips made by staff and vendors traveling to and from the site. Only five O&M personnel are generally present at the KWP 1 facility on a daily basis, plus up to two personnel related to HCP compliance activities. Assuming seven round trip staff commuter trips per workday, this makes up only 0.03% of the 25,800 vehicles traveling on Honoapiʻilani Hwy daily. Material, equipment, and waste from routine O&M activities are also occasionally transported to and from the Project Area via traditional sized transport trucks. Nearly all vehicle and truck trips are to and from Central Maui and occur during daytime, work hours (6:00 a.m. to 5:00 p.m.). Employees and transport trucks use existing state and county roadways to access the Project Area, including Honoapiʻilani Highway, N. Kīhei Road, and State Highway 31 (i.e., Piʻilani Highway). KWP 1 operations have not generated pedestrian nor bicycle traffic on the highway. Overall, KWP 1 operations have a negligible impact on roadways or traffic on the Kaheawa Pastures access road, Honoapiʻilani Hwy and other public roadways used to access the Project Area.

HCP Mitigation Sites

Haleakalā Ranch mitigation area is accessed via a dirt, jeep road located near MP 28 on Pi'ilani Hwy (Route 31). Pi'ilani Hwy is a paved, one-lane road owned by the state and has an annual average daily traffic count of 824 vehicles (between MP 24.51 and 28.8) (HDOT 2023).

Pu'u o Hōkū Ranch on Moloka'i is accessed via Kamehameha V Hwy (Route 450), a paved, single-lane road. Kamehameha V Hwy is state-owned and has an annual average daily traffic count of 690 vehicles (between MP 14.02 and 27.499) (HDOT 2023).

Makamaka'ole mitigation area is accessed via a dirt, jeep road that begins at terminus of Lahaole Place, a private, two-laned road within the Maluhia County Ranch estates. Lahaole Place is accessed via Kahekili Hwy (Route 340), a paved-single lane highway owned by the state. Kahekili Hwy has an annual average daily traffic count of 1100 vehicles (between MP 4.29 and 13.819) (HDOT 2023).

Pūlama Lāna'i mitigation area is primarily accessed via a dirt, jeep road off of Manele Rd (Route 440). The jeep road is accessed from Manele Rd (Route 440), a paved-two-lane highway owned by the state. Mānele Rd has an annual average daily traffic count of 1400 vehicles (between MP 5.97 and 12.84) (HDOT 2023). The site can also be accessed via Munro Trail.

The Kaheawa Pastures mitgation area is be accessed via the Kaheawa Pastures access road, as described above.

3.14.1.2 Harbors

Cargo bound for Maui is transported to Kahului Harbor, Maui's only commercial harbor. Kahului Harbor is at the eastern end of Kahului Bay, and is generally bordered by the east breakwater, Hobron Avenue, Ka'ahumanu Avenue, and Pu'unēnē Avenue. Congestion within the commercial harbor is localized and dependent on vessel arrival timing, and the type and volume of cargo or passengers. The major areas of congestion are at Pier 1 because of cruise ship traffic and unloading of overseas cargo vessels, and at Pier 2 during loading and unloading of the inter-island barges. The east side of the harbor currently encompasses approximately 20 hectares (50 acres) of land. It is the operational portion of the harbor that includes three major berthing structures with storage areas, warehouses, harbor offices, and tenant buildings. All of the commercial maritime activities occur on the east side.

During the construction of KWP 1, heavy equipment and large project components (e.g., blades, gearbox, generators) arrived at Kahului harbor and were trucked to the site via Honoapi'ilani Hwy. Beyond its initial construction, KWP 1 operations have not generated significant cargo congestion, nor has it required component storage and handling space at the Kahului Harbor. In addition, KWP 1 operations have not generated significant vehicle, pedestrian, nor bicycle traffic at or near the harbor. Routine O&M typically takes place within the Project Area. Overall, KWP 1 operations have a negligible impact on Kahului Harbor.

HCP mitigation at the five mitigation sites has not and would not required marine shipment of any materials or equipment. Thus, the harbors that serve those areas are not described in this EIS document.

3.14.1.3 Airports

The Project Area is located approximately 12 miles from the Kapalua Airport and about 9 miles from Kahului International Airport.

The Applicant was required to receive approval from the Federal Aviation Administration (FAA) for the initial construction of KWP 1. Pursuant to 14 CFR 77, temporary or permanent structures higher than 200 feet above mean sea level or exceeding any obstruction standards should generally be marked or lighted. This review process ensures that there are no adverse impacts to air traffic and determines the lighting plan that would be required at the Project. The FAA reviewed the existing KWP 1 turbines and determined that, with proper lighting, they would not constitute a hazard to air navigation (Planning Solutions 2010).

KWP 1 operations have not generated significant air cargo or passenger congestion, nor has it required component storage and handling space at the Kapalua Airport or Kahului International Airport. In addition, KWP 1 operations have not generated significant vehicle, pedestrian, nor bicycle traffic near airports.

The Haleakalā Ranch, Makamakaʻole, and Kaheawa Pastures mitigation sites are located on Maui and would also be served by the Kapalua Airport or Kahului International Airport. Puʻu o Hōkū Ranch mitigation area on Molokaʻi is served by the Molokai Airport and Pūlama Lānaʻi mitigation area served by the Lānaʻi Airport. Ongoing mitigation and conservation activities at all four sites have not resulted in significant air cargo or passenger congestion or significant vehicle, pedestrian, nor bicycle traffic near airports.

3.14.1.4 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on traffic and transportation, KWP LLC requires operational staff and contractors to take the following measures:

- Keep access roads in good working condition.
- Limit vehicle speed on unpaved access roads to 10 mph.
- Maintain all vehicles and heavy equipment in proper tune according to manufacturer's specifications.
- Cover all trucks hauling dirt, sand, soil, or other loose materials.
- Use a water truck or sprinklers to minimize the amount of airborne dust leaving the site, when necessary.

3.14.2 Potential Impacts and Mitigation Measures

3.14.2.1 Factors Considered in the Impact Analysis

Issues related to transportation and traffic that have been identified during the scoping process for the Proposed Action and addressed in this subsection include: 1) traffic that would be generated by the Proposed Action including traffic congestion created from the movement of oversized vehicles or WTG components; 2) road dust or other road hazards generated by the Proposed Action; 3) impacts to air or marine traffic patterns; and 4) avoidance, minimization, and mitigation measures to reduce impacts to traffic and transportation generated by the Proposed Action and No Action Alternative.

During the KWP 1 Continued Use scoping phase, the HDOT submitted a public comment stating that they do not anticipate any significant adverse impacts from the Proposed Action and therefore have no comments to provide on the Proposed Action (Appendix B).

Direct and indirect factors considered in determining whether the Proposed Action and No Action Alternative would have a significant impact on transportation and traffic include the extent to which the alternative would result in:

- Long-term major traffic delays for a substantial number of motorists;
- Creation of road dust or severe road damage at levels that create hazardous situations for motorists, pedestrians, or bicyclists; and/or
- Change air or marine traffic patterns, result in a substantial increase in air or marine traffic, or pose a safety risk to air or harbor facilities and operations.

3.14.2.2 Proposed Action

Continued Operations

As described in *Section 3.14.1.1, Roadways and Traffic*, KWP 1 operations have a negligible impact on traffic, which is anticipated to continue over the 20-year additional operational period. The continued operation and maintenance of the KWP 1 facility would not generate significant amounts of passenger or cargo traffic on Maui's roads, harbors, or airports. Road conditions, bicyclists, and pedestrians are unlikely to be affected.

While routine O&M activities are not anticipated to generate vehicle trips beyond normal operational levels, additional vehicle trips may be generated during the initial maintenance period when maintenance activities would occur on multiple WTGs at once. During the initial maintenance period, on-site employment is expected to average 15 workers on a typical maintenance day, which is estimated to generate an average of 15 round trip vehicle trips per day to and from the highway/access road intersection. There may be short periods of time when multiple activities occur simultaneously and require more workers on site such as during mobilization, civil preparation, and start and stop periods of turbine maintenance. These occurrences may peak up to 50 workers on site, resulting in up to 50 round trip vehicle trips per day to and from the highway/access road intersection. Peak activity days are

anticipated to only occur periodically, (i.e. on and off during the 6-to-9-month maintenance period) and would typically be less than two weeks in duration. Material, equipment, and waste from maintenance activities would also be transported to and from the Project Area via traditional sized transport trucks. The number of round-trip truck trips is anticipated to average 5 per day. This would be an average of 5 round-trip truck trips per day to and from the highway/access road intersection with occasional days reaching up to 20 round-trip truck trips during peak maintenance activities. Nearly all vehicle and truck trips are expected to be to and from Central Maui, although a few may be to and from West and South Maui. Employees and transport trucks would use existing state and county roadways to access the Project Area, including Honoapi'ilani Highway, N. Kīhei Road, and State Highway 31 (i.e. Pi'ilani Highway). Nearly all vehicle and truck trips would occur during daytime, work hours (6:00 a.m. to 5:00 p.m.). Even at a peak of 70 round-trip vehicle and truck trips per day, maintenance activities would only increase traffic on Honoapiʻilani Hwy by 0.5 percent. Therefore, impacts on roadways and traffic are expected to be minor.

Although no turbine blades or tower components are anticipated to be replaced and therefore not anticipated to be transported to or from the Project Area, other heavy or oversized loads for equipment such as cranes, grading equipment, or heavy trucks may be needed to transport equipment to the Project Area. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network. The plan would be submitted to the appropriate agencies for review and approval, including HDOT and County of Maui.

Any major pieces of equipment for the maintenance of the KWP 1 facility would need to be brought in through Kahului Harbor. However, the individual pieces are of a size and nature that allows them to be handled as general containerized cargo. Hence, they would not place an unusual demand on the harbor facilities. Impacts of continued operations on harbors is anticipated to be negligible.

As described above, the FAA determined that so long as they were properly lighted, the KWP 1 turbines would not constitute a hazard to air navigation (Planning Solutions 2010). No changes to the turbine height or locations are proposed. Therefore, the continued operation of KWP 1 is anticipated to have a negligible impact on airports or air traffic.

KWP 1 would not markedly promote or discourage economic activity or induce changes to the population. Consequently, it would not lead to growth or changes in the economic or demographic character of the ROI that might have secondary impacts on vehicle, pedestrian, bicyclist, air, and marine traffic.

HCP Compliance

Implementation of the compliance and mitigation measures in the Proposed HCP would have a negligible impact on transportation and traffic. HCP compliance activities within the Project Areas include weekly searches using detector dogs, regular vegetation management, and scavenger trapping, which would necessitate the presence of approximately two workers. These activities would not increase vehicular traffic on the Kaheawa Pastures access road or Honoapiʻilani Hwy. Likewise, HCP mitigation at the

Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures, and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites would require few staff, and would not noticeably impact traffic along the access routes leading to those sites. Therefore, HCP compliance activities are expected to have negligible impact on traffic, roadway safety and conditions, pedestrians, bicyclists, harbors, or airports.

Decommissioning and Restoration

After the 20-year operating period, the Project would be decommissioned. KWP 1 infrastructure would be removed and the site returned to a condition as close to its preconstruction state as possible. The Kaheawa Pastures access road and most secondary access routes would remain, as it also supports the KWP 2 facility and serves as maintenance access for Hawaiian Electric facilities and for DLNR's access to land mauka of the Project Area.

During decommissioning, heavy equipment and trucks would be required on site to deconstruct equipment, haul it off site, and restore the affected portions of the lease area. Decommissioning and site restoration is anticipated to occur within an approximately 2-year period. Decommissioning of the KWP 1 facility would generate vehicle and truck traffic on area roadways throughout the approximately 2-year decommissioning and restoration period. Most of these trips would be associated with employee commute trips to and from KWP 1 and with the delivery of decommissioning materials to off-site areas.

During much of the decommissioning period on-site employment is expected to average 40 workers per day, which is estimated to generate an average of 40 round-trip vehicle trips per day to and from the highway/access road intersection. There may be short periods of time when multiple activities occur simultaneously, in which employee vehicle trips would reach up to 60 round-trip vehicle trips per day.

Most material, equipment, and decommissioning wastes would be transported via traditional sized transport trucks. Concrete debris from foundations would make up a large volume of decommissioning waste; the number of concrete disposal truck trips would depend on the extent of the concrete removed from the turbine foundations.[77] To the extent practical, disassembled WTG components would be processed into smaller pieces on site in order to transport via traditional sized transport trucks to recycling or disposal facilities. Project-related truck traffic would vary over the course of decommissioning with respect to the number and timing of trips made each day and the kinds of vehicles that would be involved. The number of round-trip truck trips is anticipated to average 20 trips per day with occasional days reaching up to 50 round-trip truck trips during peak decommissioning activities.

Nearly all vehicle and truck trips are expected to be to and from Central Maui, although some may be to and from West and South Maui. Employees and transport trucks would use existing state and county

[77] The number of concrete disposal trucks needed would depend on the extent of the concrete removed from the turbine foundations. The foundations would be removed to a depth specified by DLNR (i.e. in accordance with typical wind farm decommissioning plans). If foundations are removed to in their entirety, the anticipated amount of concrete to be removed at each turbine foundation is 289 cubic yards. The approximate number of concrete disposal trucks would vary between 14 trucks per WTG (typical decommissioning) to 60 trucks per WTG (a-typical decommissioning where entire foundation is removed).

roadways to access the Project Area, including Honoapi'ilani Highway, N. Kīhei Road, and State Highway 31 (i.e. Pi'ilani Highway). Nearly all vehicle and truck trips would occur during daytime, work hours (6:00 a.m. to 5:00 p.m.).

Heavy or oversized loads may be required to transport some heavy equipment (i.e., cranes) and larger debris from WTG components. Oversize vehicles may slow traffic from the posted speed limit to about 25 miles per hour. To accommodate heavy or oversized loads, a traffic management plan would be developed as needed, including detailed measures that would be implemented to avoid, minimize and mitigate potential impacts to the roadway network. Heavy or oversized loads would be scheduled outside of peak traffic hours when practicable. No work is anticipated to be required in existing highway rights-of-ways to accommodate decommissioning.

In summary, during its busiest week, decommissioning activities might increase traffic at the intersection of Honoapi'ilani Hwy and Kaheawa Pastures access road by 220 one-way-vehicle/truck-trips per day. This makes up only 0.9% of the 25,800 vehicles traveling on Honoapi'ilani Hwy daily. Oversize vehicles needed for the WTG component transport may slow traffic to about 25 miles per hour during non-peak traffic periods. A Traffic Control Plan would be developed for decommissioning and restoration activities. The applicant would also coordinate with HDOT Highways, County of Maui Department of Public Works, and the Maui Police Department to coordinate the transporting large WTG pieces during decommissioning, as necessary. Therefore, decommissioning and restoration activities are anticipated to have a temporary, minor impact to traffic and would not result in long-term major traffic delays for a substantial number of motorists. Impacts to pedestrian, and bicyclist are expected to be negligible.

Due to the presence of hazardous materials during decommissioning, hazardous and regulated materials and wastes would be transported for disposal per applicable local, state, and federal regulations. Transportation and handling of these materials would be conducted by trained and qualified personnel utilizing established procedures and proper equipment laid out in the SPCC Plan that would be created for decommissioning. With the implementation of the SPCC, the potential for spills and/or leaks during transportation would be temporary and minor.

Vehicle and truck traffic is also anticipated to generate dust along Kaheawa Pastures access road and may generate dust along State and County roads used for vehicles transport to and from the Project Area. The applicant would continue to implement BMPs to avoid and minimize fugitive dust as described in Section 3.14.1.4, *Existing Avoidance, Minimization and Mitigation Measures*. With the implementation of these BMPs, decommissioning and restoration activities are anticipated to have a minor, temporary impact in terms of road dust.

Kahului Harbor, and to a lesser extent, Kahului International Airport, would likely see a minor and temporary increase in activity and congestion caused by the loading and unloading of decommissioned WTG components and other decommissioning equipment, materials, and workers. Although not anticipated, the applicant would coordinate with HDOT Harbors if temporary component storage and handling space at the Kahului Harbor is required. Decommissioning and restoration activities would not

change air or marine traffic patterns, result in a substantial increase in air or marine traffic, or pose a safety risk to air or harbor facilities and operations.

3.14.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 project would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the transportation and traffic impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. The potential transportation and traffic impacts from decommissioning and restoration activities would be as described above in Section 3.14.2.2, *Proposed Action, Decommissioning and Restoration*, but would occur at the end of the current KWP 1 lease term, rather than at the end of the 20-year extended operational period. Decommissioning and restoration activities would cause immediate impacts to traffic, including increased vehicular traffic and disruptions caused by the movement of worker vehicles, trucks, and heavy equipment needed for dismantling and transporting infrastructure. Impacts to traffic and roadways are anticipated to be minor and temporary. Kahului Harbor and Kahului International Airport would likely see a minor and temporary increase in activity and congestion caused by the loading and unloading of heavy equipment and materials.

3.14.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on transportation and traffic, under the Proposed Action, KWP 1 would continue to implement the BMPs outlined in Section 3.14.1.4, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential transportation and traffic impacts:

- Prior to the initial maintenance and decommissioning/restoration periods, post signage at the intersection of the Kaheawa Pastures access road and the Lāhainā Pali Trail to advise hikers of the traffic on the access road.
- Develop and implement a Traffic Control Plan for decommissioning and restoration activities. The Traffic Control Plan may include:
    - A police escort while transporting large WTG pieces during decommissioning. The escort would ride ahead of the truck warning other traffic of the oncoming load and stopping other vehicles for the few turns that are required; and
    - Traffic control at Honoapi‘ilani Highway/Access Road Intersection. The entrance to the access road would be staffed by two people during working hours to stop other traffic for the 1-2 minutes that are needed for the large trucks to turn into and out of the site access road.
- Encourage employees to carpool whenever possible to minimize vehicle trips, road dust, and greenhouse gas emissions.

- Implement additional dust control measures to minimize road dust as described in Section 3.2, *Air Quality*.
- Develop decommissioning specific protocols and use qualified contractors for the use, storage, and disposal of petroleum-based products used in decommissioning equipment.

3.14.2.5 Summary of Potential Impacts

The Proposed Action would have negligible to minor adverse impacts on transportation and traffic, so long as avoidance, minimization, and mitigation measures continue to be implemented. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned, which would lead to immediate minor, short-term transportation and traffic. Table 3-29 summarizes potential impacts to transportation and traffic from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on transportation or traffic based on the criteria listed in Section 3.14.2.1, *Factors Considered in the Impact Analysis*.

Table 3-29. Summary of Potential Impacts to Transportation and Traffic

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Increased traffic and traffic delays	Minor	Negligible	Minor	Minor
Creation of road dust or road damage	Negligible	Negligible	Minor	Minor
Changes to air traffic patterns, traffic volumes or safety	Negligible	Negligible	Negligible	Negligible
Changes to marine traffic patterns, traffic volumes or safety	Negligible	Negligible	Minor	Minor

3.15 Public Infrastructure and Services

This section addresses the availability and capacity of public infrastructure and services, including electric utilities, utility gas, water and wastewater, solid waste disposal, telecommunications, police and fire protection, health care facilities and emergency medical services, recreational facilities, and education facilities. Transportation facilities are addressed in Section 3.14, *Transportation and Traffic*. The ROI for public infrastructure and services is the Project Area and the surrounding area serviced by utility providers on Maui as well as the HCP mitigation sites.

Data in this analysis includes information from the Applicant and KWP 1's health and safety plans (i.e., the Site Safety Manual and the Emergency Response Plan [Brookfield 2022]), public mapping resources

(such as Google Earth), and State of Hawai‘i and County of Maui websites for public infrastructure and services.

3.15.1 Existing Environment

3.15.1.1 Electric Service

Project Area

Hawaiian Electric provides electrical service on Maui, Lāna‘i, and Moloka‘i. It has two power plants on Maui at Mā‘alaea and Kahului, with a total generating capacity of approximately 250 MW (Hawaiian Electric 2025a). According to Hawaiian Electric’s 2023 RPS Status Report (Hawaiian Electric 2024a), Maui County has a total of 35.4 percent of its power generation supplied by renewable energy, 16 percent of which is supplied by wind energy (approximately 212,200 net MWh). In 2024, KWP 1 provided 79,792 MWh, which was 6 percent of the total power generation supplied to the Maui grid and almost 36 percent of the total wind energy supplied on the Maui grid in 2024 (Hawaiian Electric 2025a, EIA 2025a, EIA 2025b). KWP 1 contributes to energy affordability, energy security, and the state’s movement toward a sustainable, renewable energy future and goal of 100 percent renewable energy by 2045. See Section 1.3.1.1, *Maui Grid Reliability and Resource Adequacy* and Section 1.3.1.2, *Low-Cost Energy* for more information.

A Hawaiian Electric transmission line easement containing two 69-kV transmission circuits cross the Project Area in a southwesterly direction from Mā‘alaea. The existing KWP 1 facility obtains the electrical power it needs for operational loads from the Hawaiian Electric grid via step-down transformers located at the existing KWP 1 substation. Likewise, power generated by the KWP 1 facility is fed into the Hawaiian Electric grid via the same circuit, providing renewable energy to the grid.

There are utility distribution lines located along Honoapi‘ilani Highway and throughout Mā‘alaea, Ukumehame, and other urbanized areas. KWP 1 operations do not impact these lines.

HCP Mitigation Sites

The four mitigation sites at Makamaka‘ole, Haleakalā Ranch, Pu‘u o Hōkū Ranch, and Pūlama Lāna‘i are not connected to the Hawaiian Electric grid and have no need for permanent electric service. There are no Hawaiian Electric facilities or infrastructure within these mitigation sites.

As described above, two 69-kV transmission lines owned by Hawaiian Electric cross the Kaheawa Pastures mitigation area (Project Area and Adjacent Lands). Electric service is available through Hawaiian Electric at the KWP 1 facility.

3.15.1.2 Utility Gas

Project Area

Hawai‘i Gas provides natural gas and propane service on Maui, Lāna‘i, and Moloka‘i. The KWP 1 facility is not connected to gas infrastructure and its operation does not impact utility gas infrastructure or service.

HCP Mitigation Sites

The five mitigation sites at Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, and Kaheawa Pastures are not connected to utility gas services and there are no utility gas facilities or infrastructure within the mitigation sites.

3.15.1.3 Telecommunications Service

Project Area

Several operators provide telephone, wireless, and internet services on Maui, Lānaʻi, and Molokaʻi. Telephone, wireless, and internet services, including satellite services, are available throughout the urbanized areas of Maui County. Telecommunications provided by Hawaiian Telcom exist at the KWP 1 substation.

HCP Mitigation Sites

The five mitigation sites at Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, and Kaheawa Pasture are not connected to telecommunication services. There are no telecommunication facilities or infrastructure within the mitigation sites. At the Kaheawa Pastures mitigation area, telecommunication services are located nearby at the KWP 1 substation within the Project Area.

3.15.1.4 Water Service and Wastewater Management

Project Area

Water supply services for most areas of the county are provided by the County of Maui Department of Water Supply. Although the Department of Water Supply provides water service to the urbanized areas of West Maui, there is no water system that services the existing KWP 1 facility. Non-potable water for the O&M building is supplied by a rain catchment system consisting of three 500-gallon tanks. When the catchment system does not provide sufficient water, additional water is purchased and delivered to the site by a third-party vendor. Non-potable water is used to support O&M building needs, dust control, landscape irrigation, and emergency firefighting. Drinking water is trucked to the site for O&M personnel needs.

Wastewater collection and treatment services are provided by the County of Maui's Wastewater Reclamation Division. There is no public wastewater infrastructure within the Project Area and the KWP 1 facility is not connected to the public wastewater utility. The O&M building has two bathrooms to support onsite O&M personnel. Wastewater is collected and managed through an onsite septic system. Sanitary waste is occasionally collected by a licensed waste management contractor, who then transports it to a county Wastewater Treatment Facility for disposal. The small amount of wastewater that has been generated has been accommodated in the existing treatment and disposal facilities without issue over KWP 1's operational period.

HCP Mitigation Sites

Water supply services on Maui and Molokaʻi are provided by the County of Maui Department of Water Supply. Wastewater collection and treatment services on these islands are provided by the County of Maui's Wastewater Reclamation Division. Lānaʻi Water Company provides water and sewer services to Lānaʻi residences and businesses.

The five mitigation sites at Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, and Kaheawa Pastures are located in remote areas and are not connected to the public water or wastewater systems. There are no public water or wastewater facilities or infrastructure within the mitigation sites.

At Haleakalā Ranch, water is collected in an existing catchment system on the shed roof, or trucked in during the dry months. At Puʻu o Hōkū Ranch, water is provided via an existing well. Neither Makamakaʻole nor Pūlama Lānaʻi capture water on site. There are no sanitary waste facilities within these mitigation sites. At the Kaheawa Pastures mitigation area, water catchment and sanitary facilities are avialable at the KWP 1 facility.

3.15.1.5 Solid Waste Generation, Management and Disposal

Project Area

The County of Maui, Solid Waste Division is responsible for disposal of residential and commercial refuse at landfills located in Hāna, Central Maui, Lānaʻi, and Molokaʻi. The Project Area is serviced by the Central Maui Landfill, which is approximately 12 road miles from the entrance of the KWP 1 and 2 facilities. Central Maui Landfill accepts municipal solid waste, household green waste, and residential and construction and demolition waste (County of Maui 2024c). Several local privately-owned waste haulers and recycling facilities also service the Island of Maui.

KWP 1 currently produces small amounts of municipal solid waste, which is stored in a small dumpster onsite. KWP 1 contracts with a private solid waste management company to collect the refuse weekly and haul it to Central Maui Landfill for disposal. No hazardous material enters this waste stream, as hazardous wastes are disposed of separately and appropriately according to type (See Section 3.7, *Hazardous and Regulated Materials and Waste*).

Occasionally, facility components have been removed and replaced as part of KWP 1's ongoing maintenance and operations. Removed components have been salvaged or recycled to the extent feasible in coordination with qualified sub-contractors, local waste haulers, and local recycling facilities. Materials that could not be recycled or reused were disposed of at authorized site(s), in accordance with applicable laws. No whole major turbine components have been discarded in any landfill in the State of Hawaiʻi. All waste requiring special disposal are handled according to applicable regulations.

Overall, KWP 1 operations over the last 20 years have not resulted in adverse impacts on solid waste management services.

HCP Mitigation Sites

The Makamakaʻole, Haleakalā Ranch, and Kaheawa Pastures mitigation sites are serviced by the Central Maui Landfill, which is approximately 14 road miles and 34 road miles from the sites, respectively.

The Molokaʻi-Naiwa Landfill and Recycling Center services the Puʻu o Hōkū Ranch mitigation site and is approximately 40 road miles west of the site.

The Lānaʻi Landfill is the only landfill on Lānaʻi and is located approximately 6 road miles west of the Pūlama Lānaʻi mitigation site.

3.15.1.6 Police and Fire Protection

Project Area

The Maui Police Department headquarters is located on Mahalani Street in Wailuku, about 10 road miles to the northeast of the Project Area (about 20 minutes by car). In addition, the Lāhainā station is the closest full-service police facility on the west side of the island, located about 15 road miles northwest of the Project Area (about 25 minutes by car). Law enforcement coverage for the area comes from these stations. The KWP 1 site itself is gated and has 24-hour on-site security monitoring, which helps deter trespassing and can alert authorities if needed.

The closest Maui Fire Department stations are Kahului Fire Station and Wailuku Fire Station, about 8 road miles and 15 minutes from the Project Area by road. Kīhei Fire Station is roughly 10 road miles and 20 minutes southeast and Lāhainā Fire Station is roughly 15 road miles and 25 minutes west of the Project Area. In the event of an emergency at KWP 1, fire crews could come from any of these stations depending on access conditions. Factoring in the mauka climb from the Honoapiʻilani Highway to the turbines, response times may be extended by approximately 15 to 30 minutes depending on road conditions. In addition, the Maui Fire Department has conducted rescue training in the event wind farm personnel need to be rescued from a wind turbine and are familiar with the routes to and from the KWP 1 facility.

KWP 1 is equipped with its own water storage and fire suppression equipment on-site, which can help control fires until firefighters arrive. Onsite fire-fighting resources at the existing KWP 1 facility include fire extinguishers in the O&M building, at the substation, and in all project vehicles, as well as shovels and backpack pumps in the O&M building and maintenance vehicles. The BESS (used for KWP 2 operations but located within the Project Area) is equipped with an intelligent fire suppression system that can be controlled remotely. The existing facility also maintains graveled, vegetation-free buffers around the O&M building, the substation, and the WTG foundation pads, which act as fire breaks. The Applicant also has a Fire Contingency Plan (DLNR 2005) and Wildfire Prevention Plan (TerraForm 2025), which describes potential ignition sources of accidental fires, existing firefighting resources onsite, accessibility of the site for emergency response vehicles, and fire mitigation measures. Section 3.6, *Natural Hazards* includes further discussion of fire risk in the vicinity of the Project Area.

KWP 1 implements an Emergency Response Plan (Brookfield 2022) and Site Safety Plan to prevent and respond to emergencies if they arise. In addition to prevention and response, the plans are intended to support and facilitate law enforcement, fire, and other emergency personnel as they respond to emergencies. Existing KWP 1 operations have had a negligible impact on police and fire services.

HCP Mitigation Sites

Law enforcement coverage for the Maui mitigation sites comes from the Wailuku Police Station. The Wailuku Police Station is about 10 road miles to the southeast of the Makamakaʻole mitigation site (about 30 minutes by car), 40 road miles northwest of the Haleakalā Ranch mitigation site (about 80 minutes by car), and 10 road miles to the northeast of the Kaheawa Pastures mitgation area.

The Molokaʻi Police Station is the only police station on the island and is located approximately 25 road miles southwest of Puʻu o Hōkū Ranch (about 60 minutes by car). Lānaʻi Police Station serves the island of Lānaʻi and is about 4 road miles east of the Pūlama Lānaʻi mitigation site (about 5 minutes by car).

The closest Maui Fire Stations to the Makamakaʻole mitigation site are the Wailuku Fire Station, about 10 road miles and 35 minutes southeast of the site and the Kahului Fire Station which is roughly 12 road miles and 35 minutes southeast of the site.

The Kula Fire Station is the closest fire station to the Haleakalā Ranch mitigation site and is located about 25 road miles and 45 minutes by car. Additional fire crews could also be provided by the Kahului Fire Station and Wailuku Fire Station, about 40 road miles and 70 minutes from the Haleakalā Ranch mitigation site.

The closest fire station to the Puʻu o Hōkū Ranch mitigation site is the Pūkoʻo Fire Station, which is approximately 9 road miles and 28 minutes by car. Fire crews could also come from the Kaunakakai Fire Station (approximately 25 road miles and 60 minutes by car) or Hoʻolehua Station (approximately 32 road miles and 65 minutes by car) depending on access conditions.

Lānaʻi Fire Station is about 4 road miles east of the Pūlama Lānaʻi mitigation site (about 5 minutes by car). Factoring in the drive along the jeep roads from the public roadways to the mitigation sites, response times may be extended by 15 to 30 minutes depending on road conditions.

The closest Maui Fire Department stations to the Kaheawa Pastures mitgation site are Kahului Fire Station and Wailuku Fire Station, about 8 road miles and 15 minutes by road.

3.15.1.7 Healthcare and Emergency Medical Services

Project Area

The nearest hospital to KWP 1 is Maui Memorial Medical Center in Wailuku, approximately 10 road miles northeast of the Project Area. Maui Memorial is the island's primary acute-care hospital and houses the emergency department serving Central, South, and West Maui. Drive time from the wind farm area to the hospital (or vice versa) is about 20 to 30 minutes under normal conditions. This facility would treat serious injuries or medical emergencies from the KWP 1 facility. Additionally, Kīhei and Kahului have

urgent care clinics. However, these are farther than the hospital and not 24-hour, so in an emergency, ambulances would typically transport patients directly to Maui Memorial.

KWP 1 implements a Site Safety Handbook to prevent workplace injuries and illness. All personnel are trained for their specific duties and are directed to use appropriate personal protective equipment and follow site safety rules pertinent to their jobs. KWP 1 also maintains site security to prevent unauthorized personnel from accessing KWP 1 facilities. There have been no known OSHA recordables, including worker injuries. With implementation of health and safety BMPs, existing KWP 1 operations have had a negligible impact on healthcare and emergency medical services.

HCP Mitigation Sites

The Maui Memorial Medical Center in Wailuku would treat serious injuries or medical emergencies from both Maui mitigation sites. Drive time from the Makamakaʻole mitigation site to the hospital is about 30 minutes (approximately 10 road miles). The Haleakalā Ranch mitigation site is approximately 40 miles and 75 minutes from Maui Memorial. The Kaheawa Pastures mitgation area is approximately 10 road miles and 20 to 30 minutes from Maui Memorial.

The Molokaʻi General Hospital would be the primary medical service provider in the event of a serious injury or illness at the Puʻu o Hōkū Ranch mitigation site. Drive time from the Puʻu o Hōkū Ranch mitigation site to the hospital is about 60 minutes (approximately 25 road miles).

The Lānaʻi Community Hospital is about 4 road miles east of the Pūlama Lānaʻi mitigation site (about 5 minutes by car).

Factoring in the drive along the jeep roads from the public roadways to the mitigation sites, response times may be extended by 15 to 30 minutes depending on road conditions.

3.15.1.8 Recreational Facilities

Project Area

The Lāhainā Pali Trail is the nearest recreation facility to KWP 1. The trail is part of the Na Ala Hele Statewide Trail and Access System and passes across the Kaheawa Pastures access road, south of KWP 1. The existing KWP 1 turbines are visible from portions of the Lāhainā Pali Trail, but the existing O&M building and substation are not easily visible from areas south of the KWP 1 facility due to the mountainous terrain. KWP 1 operations have not restricted access or use of the trail.

On the Honoapiʻilani Highway directly below KWP 1 is McGregor Point, home to a small lighthouse and a popular scenic lookout (Papawai Lookout). These recreation sites are in the immediate vicinity of the Project Area about 2 miles south of the turbines. Papawai Lookout provides interpretive signage and views of the ocean and is frequently used during whale season. McGregor Point's lighthouse trail is a short walk offering views of Maʻalaea Bay. Both the lookout and lighthouse are easily accessible from the highway and lie essentially at the base of the ridge on which KWP 1 and KWP 2 sit.

In addition to the Lāhainā Pali Trail and McGregor Point, there are several beach parks, most notably Papalaua State Wayside Park (also called Ukumehame Beach Park), located just west of the Pali trail's west trailhead, at the base of the coastal cliffs. This narrow beach park parallels the highway and offers camping, snorkeling, surfing, and picnic areas. It lies approximately 2 miles west of KWP 1. East of McGregor Point is Maʻalaea Harbor and Maui Ocean Center (both about 2 miles away), which, while primarily a harbor and aquarium facility, is a hub for ocean recreation (e.g., boat tours, fishing, etc.).

Components of the KWP 1 facility may be visible from some recreational areas. The topography around the Project Area limits the visibility of the turbines in the immediate vicinity, including nearby coastal recreational areas. Ambient noise from the wind turbines, vehicles traveling along the facility access road, and the occasional use of heavy machinery and equipment for maintenance activities, may be heard from recreational areas. Section 3.12, *Visual Resources* and Section 3.11, *Noise* contain additional discussions of the current impacts to recreation from existing KWP 1 operations. Overall, impacts of KWP 1 operations on recreational facilities are minor.

HCP Mitigation Sites

While there are no recreational facilities within the Makamakaʻole mitigation area, the slopes of the West Maui Mountains near the mitigation site feature several hiking trails including the Makamakaʻole Trail and Waiheʻe Ridge Trail. Approximately 1 mile east of the site is Camp Maluhia, a boy scout camp with cabins, campsites, cooking pavilions, and other camping facilities (Scouting America 2025).

There are no recreational facilities within the Haleakalā Ranch mitigation area. The site is located on the southern slope of the Haleakalā, which feature several unnamed hiking trails.

Puʻu o Hōkū Ranch is a private recreational facility that provides accommodations, ranch tours, access to hiking trails, and guided wild Molokaʻi axis deer hunts (Puʻu o Hōkū Ranch 2025). The nearest publicly accessible recreational facilities to the Puʻu o Hōkū Ranch mitigation site is the Hālawa Lookout, Hālawa Beach and Moaʻula Falls trailhead, all of which are located approximately 1 mile west of the mitigation site.

The Pūlama Lānaʻi mitigation area is located on the slopes of Puʻualiʻi. There are a few trails in the vicinity of the Pūlama Lānaʻi mitigation site, most notably the Munro Trail, which passes through the northern boundary of the site.

The recreational areas in the vicinity of the Kaheawa Pastures mitgation area is the same as the Project Area, as decribed above.

3.15.1.9 Education Facilities

Project Area

Public schools on Maui are operated by the Hawaiʻi Department of Education. KWP 1 is located in a sparsely populated mountain area with no immediate neighbors, so there are no schools in the immediate vicinity. The nearest educational facilities are in the towns of Central Maui, South Maui, or West Maui. The closest public schools are about 12 miles away by road in Kīhei, Wailuku, and Kahului,

and about 15 miles away in Lāhainā. To the southeast are Kulanihakoʻi High School and Kīhei Elementary and Middle Schools in Kīhei, a roughly 25-minute drive from the KWP 1 facility. To the west, Lahainaluna High School, Princess Nahiʻenaʻena Elementary and Lāhainā Intermediate are located on the hillside above Lāhainā about 15 miles from the Project Area by road. There are also private and charter schools in the nearby towns. Existing KWP 1 operations have had negligible impacts on educational facilities.

HCP Mitigation Sites

The closest schools to the Makamakaʻole mitigation area are in the towns of Wailuku and Kahului southeast of the site. ʻIao School, Lihikai Elementary School, Kahului Elementary School, and Maui Waena Intermediate School are all located 6 to 8 miles away from the mitigation area.

Haleakalā Ranch mitigation area is located over 14 miles from the nearest educational facility, which is Kamaliʻi Elementary School located northwest of the mitigation site in Kīhei.

The closest school to the Puʻu o Hōkū Ranch mitigation area is Kilohana Elementary Schools, which is approximately 10 miles southwest of the site.

Lānaʻi High and Elementary School is approximately 2 miles west of the Pūlama Lānaʻi mitigation area.

The educational facilities in the vicinity of the Kaheawa Pastures mitgation area is the same as the Project Area, as decribed above.

3.15.1.10 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse impacts to public infrastructure and services, KWP LLC requires operational staff and contractors to take the following measures:

- Implement a Site Safety Handbook to prevent workplace injuries and illness.
- Ensure the proper use of personal protective equipment.
- Maintain site security to prevent unauthorized personnel from accessing KWP 1 facilities.
- Implement an Emergency Response Plan (Brookfield 2022) in the event of an emergency.
- Design the KWP 1 facility with fire prevention elements and implement operational BMPs to minimize and respond to fire risks (See Section 3.6, *Natural Hazards*).
- Implement a Fire Contingency Plan (DLNR 2005) and Wildfire Prevention Plan (TerraForm 2025) to provide a coordinated response in the event of a wildfire.

3.15.2 Potential Impacts and Mitigation Measures

3.15.2.1 Factors Considered in the Impact Analysis

This section analyzes potential effects on electric, gas, telecommunications, water and wastewater, solid waste, police and fire protection, healthcare and emergency medicine, recreation, and education services that have been identified during the scoping process for the Proposed Action. Potential effects

include infrastructure shortfalls, inconsistencies, inadequacies, or deficiencies identified between the existing infrastructure and the requirements of the Proposed Action. This analysis also includes additional avoidance, minimization, and mitigation measures that would be implemented to reduce potential impacts to public infrastructure and services.

No concerns about the Proposed Action's impacts to public infrastructure and services were raised in the public comments received during the scoping period. In letters submitted during the public comment period, the State of Hawai'i Department of Accounting and General Services, Department of Education, and HDOT commented that the Proposed Action would not have any significant impacts on the departments' respective facilities. The State of Hawai'i Office of Planning and Sustainable Development expressed support for the Proposed Action and noted that KWP 1 provides clean energy to the people of Maui at less cost than fossil-fuel-generated electricity, is an important asset in achieving the State goal of 100 percent clean energy by 2045, and requires significantly less land than other renewable energy sources such as photovoltaic facilities. Similarly, the Hawai'i State Energy Office expressed strong support for the Proposed Action and stated that the extension of the Facility's lease for the next year is critically important for meeting Hawai'i's energy demand and maintaining energy stability. These comments are taken into account in this analysis of potential positive and negative impacts on public infrastructure and services.

Factors considered in determining whether the Proposed Action or No Action Alternative would have a significant impact on public infrastructure and services include the extent or degree to which its implementation would:

- Interrupt or disrupt any public utility service, from physical displacement and subsequent relocation of public utility infrastructure, in a manner that would be a direct, long-term service interruption or permanent disruption of essential public utilities; or
- Require an increase in demand for public services or utilities beyond the capacity of the utility provider so that substantial expansion, additional facilities, or increased staffing levels would be necessary.

3.15.2.2 Proposed Action

Continued Operations

Electric Service

No changes to ongoing electricity use or generation are anticipated under the Proposed Action. KWP 1 would continue to generate affordable, renewable power for the Hawaiian Electric grid and its customers for an additional 20 years.

The Proposed Action would not necessitate any modification of the existing two 69-kV transmission line that cross the Project Area nor any existing electricity distribution lines in the Project vicinity. The initial maintenance activities include repair/replacement of KWP 1 turbine components as well as improvements to the KWP 1 utility interconnection substation. A substantial portion of the work is

expected to occur in a 6-month period prior to the implementation of the new 20-year PPA, during which KWP 1 would pause energy production. In the short-term, the wind energy typically generated by KWP 1 would likely be generated by Maui's existing fossil fuel power plants. In the long-term, maintenance activities would improve the reliability of the KWP 1 facility to produce energy for the grid. The facility would also draw a small amount of electricity from the Hawaiian Electric grid for its operations.

With the renewable power generated by continued operation of KWP 1, Hawaiian Electric would be able to eliminate the use of fossil fuels that would otherwise, presumably, be consumed to produce conventional electric power. Additionally, the Proposed Action would continue to contribute to the goals outlined in the Hawai'i RPS and the HCEI and would support state and county statutes designed to promote energy efficiency and renewable energy sources. Hawaiian Electric has demonstrated that the KWP 1 facility would continue to play an important role in supporting Maui grid reliability; Hawaiian Electric's Integrated Grid Plan concludes that extending the life of the KWP 1 facility would reduce risks of future rolling outages on Maui (Hawaiian Electric 2024b)[78]. The KWP 1 facility is an essential contributor to resource diversity, generating power during the day and night, as well as when it is cloudy. The existing KWP 1 facility is also among the lowest cost electricity generators in the State and saves customers approximately $10 million per year compared to fossil fuels. In 2024, the KWP 1 facility provided energy at 15 to 30 percent below the cost of fossil-fueled generators on Maui[79]. KWP 1 would continue to deliver energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility, a cost that is otherwise directly passed along to consumers and contributes to unpredictable electricity costs.

Overall, the continued operation of the KWP 1 facility would have a beneficial impact to public electric services on the Island of Maui.

Utility Gas

No impacts to utility gas infrastructure or service is anticipated with continued operations of KWP 1.

Telecommunications Service

The Proposed Action would include upgrades to telecommunications equipment within the KWP 1 substation. However, these upgrades would not impact public telecommunication services or infrastructure. Telecommunications provided by Hawaiian Telcom would continue to be sufficient at the KWP 1 substation. Continued operations would have a negligible impact on public telecommunication services or infrastructure.

[78] Updated grid reliability analysis based on Integrated Grid Plan 2024 Annual Update – see pp. 132-169 for discussion of Maui grid reliability. New analyses quantified reliability risks of aging conventional generation fleet, decreases in generating capacity with upcoming retirements, and potential delays/withdrawals of Stage 3 renewable energy projects.

[79] Energy cost comparison based on avoided energy costs and energy cost recovery filings for Maui.

Water Service and Wastewater Management

No changes to water consumption or wastewater management are anticipated under the Proposed Action. All of the water needed for the facility would continue to be supplied by a rain catchment system or trucked to the site, and sanitary wastes generated on site would continue to accumulate in the existing septic tank and collected by a licensed waste management contractor and transported to a Wastewater Treatment Facility or other approved location for disposal. Continued operations would have a negligible impact on public water or wastewater services or infrastructure.

Solid Waste Management and Disposal

Continued operation of the KWP 1 facility is anticipated to have a minor impact on solid waste infrastructure and services on Maui. Facility maintenance would be conducted at KWP 1 both up front and on an ongoing basis. During the initial maintenance period, replacement and/or refurbishment activities would be performed on components at some or all WTGs and at the KWP 1 substation. Examples of WTG subsystems that would be potentially have components that are replaced and/or refurbished would include blades, pitch systems, drivetrains, yaw systems, and certain power electronics. The removed turbine components and associated materials would be salvaged or recycled to the extent feasible and in coordination with qualified sub-contractors, local waste haulers, and/or other facilities that recycle similar types of waste materials. Any remaining materials would be disposed of at authorized site(s), in accordance with applicable laws; no whole major turbine components would be disposed of in any landfill in the State of Hawai‘i. If necessary, turbine components would be shipped to off-island facilities for processing and disposal as to not overburden Maui landfill facilities. Any facility selected to receive discarded components would be fully licensed to accept such material. All waste requiring special disposal would be handled according to applicable regulations.

Small quantities of solid waste from routine operations would continue to be produced, and would be hauled weekly by a licensed private waste disposal contractor to Central Maui Landfill.

Police and Fire Protection

Police and fire services would continue to be available at KWP 1, and the long-term continued operation of the facility would not be expected to significantly impact the current service levels. KWP 1 would continue to implement a Site Safety Plan and Emergency Response Plan (Brookfield 2022) to prevent and respond to emergencies if they arise. In addition to prevention and response, the plans are intended to support and facilitate law enforcement, fire, and other emergency personnel as they respond to emergencies. As described above, a Fire Mitigation Plan (DLNR 2005) and Wildfire Prevention Plan (TerraForm 2025) has been prepared to provide a coordinated response in the event of a wildfire. With implementation of these plans, continued operations are anticipated to have a negligible impact on police and fire protections services.

Healthcare and Emergency Medical Services

Emergency medical services and routes to healthcare facilities would remain available at KWP 1 during continued operations. The remote location of the Project Area and the inaccessibility to the public

reduces the potential for injury from KWP 1 operations. Operations staff would receive appropriate training to carry out their assigned tasks effectively and safely. An Emergency Response Plan (Brookfield 2022) and Site Safety Plan would continue to be in place for KWP 1 and include medical emergency response procedures. The likelihood of incidents requiring medical treatment would be low and the existing services are expected to be adequate to accommodate illness or injuries from KWP 1 operations. Continued operations would have a negligible impact on healthcare and emergency medical services.

Recreational Facilities

Impacts to nearby recreational facilities, including the Lāhainā Pali Trail, would remain unchanged during continued operations. The impacts to nearby recreation opportunities are comprised mainly of acoustic and visual impacts, which are discussed above and in Section 3.11, *Noise* and Section 3.12, *Visual Resources*, respectively. Occasionally, vehicular and heavy equipment traffic would cross the portion of Lāhainā Pali Trail that intersects with Kaheawa Pastures access road. For safety purposes, it would be necessary to interrupt use of that portion of the trail for short periods during maintenance activities. In most cases the interruption would be for no more than fifteen minutes at a time. Overall, impacts of continued operations on recreational resources are anticipated to be minor.

Educational Facilities

Continued operations would have no effect on public schools.

Other Indirect Impacts

The Proposed Action is not expected to induce changes in the pattern of land use, population density, or growth rate or promote or discourage economic activity and, in consequence, is unlikely to have any indirect impact on public infrastructure or services.

HCP Compliance

Implementation of the avoidance and minimization measures in the Proposed HCP are expected to have no impacts to electric, gas, telecommunications, water and wastewater, recreation, or educational infrastructure and services. Temporary, negligible impacts to solid waste, police and fire protection, and healthcare and emergency medicine may arise during routine activities at the Makamakaʻole, Haleakalā Ranch, Puʻu o Hōkū Ranch, Pūlama Lānaʻi, Kaheawa Pastures, and unidentified ʻōpeʻapeʻa and ʻakēʻakē mitigation sites. Minor improvements to these sites may temporarily increase the presence of personnel and equipment at each HCP mitigation site, which would temporarily increase the potential for injury, illness, and fires. BMPs would be implemented to avoid and minimize these risks. The existing police, fire, and emergency medical services would be adequate to respond to the HCP mitigation sites should an emergency arise. No long-term impacts to public services or infrastructure are anticipated.

Decommissioning and Restoration

Electric Service

Given the Maui grid's reliance on the KWP 1 facility, decommissioning the KWP 1 facility would require replacement with other resources that would involve using existing fossil fuel generating facilities until new generation facilities could be constructed and come online. New solar facilities would require significantly more land to produce the same amount of energy. New combustion-based generation sources on Maui would need to be sited and permitted and are likely to worsen the State's and the County of Maui's exposure to volatile fuel prices, increase greenhouse gas emissions, and result in air quality impacts as compared to retaining the KWP 1 project. Further, the cost to replace energy from KWP 1 would be passed immediately to consumers, whom already bear among the highest electricity costs in the U.S. This would result in a moderate, adverse impact to public electric services for the Island of Maui.

Utility Gas

No impacts to utility gas infrastructure or service are anticipated during decommissioning and restoration of the KWP 1 facility.

Telecommunications Service

Impacts to telecommunications services are anticipated to be negligible during decommissioning and restoration.

Water Service and Wastewater Management

During decommissioning, additional water would be required for dust control and emergency fire suppression and would be trucked to the site. Drinking water for operational and decommissioning staff would also be trucked to the site. There are no Maui County water systems that service the existing KWP 1 facility, so there would be no impacts to public water systems or availability during decommissioning and restoration activities.

Decommissioning of KWP 1 would also generate a minor amount of wastewater from portable toilets. Sanitary wastewater from the portable toilets would be hauled away from the site by a licensed contractor. The existing wastewater infrastructure at its point of disposal would have adequate capacity to accommodate the temporary increase in sanitary wastewater during decommissioning. Therefore, impacts to the public wastewater system is anticipated to be negligible during decommissioning and restoration.

Solid Waste Management and Disposal

Debris generated during decommissioning of KWP 1 would temporarily increase solid waste streams from current levels. The decommissioning contractor would be responsible for the provision of waste collection facilities including maintenance, sorting, off-site transportation, and disposal.

Decommissioned components and demolition debris would be salvaged or recycled to the extent feasible and in coordination with qualified sub-contractors, local waste haulers, and/or other facilities that recycle similar types of waste materials.

Non-recyclable waste would be transported by a licensed waste disposal contractor to the Central Maui Landfill (or another licensed waste disposal facility on Maui if Central Maui Landfill has reached capacity and is closed by the time of decommissioning). No whole major turbine components would be disposed of in any landfill in the State of Hawai'i. If necessary, decommissioned components may be shipped to off-island facilities for processing and disposal as to not overburden Maui landfill facilities.

Allowable hazardous waste and petroleum products and contaminated soil would be disposed of at the Central Maui Landfill as well, in accordance with County policies. The licensed waste disposal contractor would remove used oil, tires, and other hazardous waste.

Although the capacity of Maui County waste disposal facilities is finite, it would be sufficient to accommodate demolition waste from decommissioning of KPW 1. Therefore, waste from decommissioning and restoration activities would not cause significant impacts to the existing facilities or exceed the capacity of the facilities.

Police and Fire Protection

During decommissioning, the transport of equipment and materials to and from the Project Area, the increased activity at KWP 1 and on surrounding roads, and the increased presence and activity of site personnel would increase the potential for traffic accidents, injuries, and fires that may require a response by police and fire protection services. However, fire, police, and emergency services are all available, and decommissioning of KWP 1 would not be expected to significantly impact the current service levels. Emergency response agencies, including Maui Police Department and Maui Fire Department, have the ability to respond to such emergencies with an estimated response time to the existing O&M building of approximately 20 to 30 minutes.

The Site Safety Handbook and Emergency Response Plan (Brookfield 2022) would be revised, as needed, and implemented during decommissioning activities and would provide specific direction for maintaining safe working conditions at the site, following company safety policies, and complying with state and federal occupational safety regulations. Additionally, the Wildfire Prevention Plan (TerraForm 2025) would be updated and implemented to prevent and effectively respond to wildfire. Given the remote location of KWP 1 and the fact that some incidents require an immediate response, it is anticipated that emergency response would involve a combination of on-site response and response from local police, fire, and emergency medical responders, depending on the severity and location of the accident or emergency condition. For example, a small fire or minor injury could be dealt with by site personnel, while response to a larger fire or more severe injury might begin with trained site personnel but would require coordination with and response by local emergency response agencies. In sum, impacts to police and fire services during decommissioning and restoration are expected to be negligible.

Healthcare and Emergency Medical Services

During decommissioning, the presence of equipment and materials and the increased presence of site personnel would increase the potential for injury and need for medical care and emergency services. The nearest hospital is Maui Memorial Hospital in Wailuku. Drive time from the wind farm area to the hospital is about 20 to 30 minutes under normal conditions.

As described above, the Site Safety Handbook and Emergency Response Plan (Brookfield 2022) would be revised prior to and implemented during decommissioning activities. All persons entering the work areas would be required to review and adhere to the Site Safety Handbook and Emergency Response Plan (Brookfield 2022). These plans would include contact information and map and directions to both Maui Memorial Hospitals and alternative Urgent Care facilities. The Site Safety Handbook Emergency Response Plan (Brookfield 2022) would also provide specific direction for maintaining safe working conditions at the site, following company safety policies, and complying with state and federal occupational safety regulations, thus reducing the potential for injury and need for medical services. Existing services are expected to be adequate to accommodate illness or injuries from potential decommissioning-related incidents. Impacts to healthcare and emergency medical services are expected to be negligible.

Recreational Facilities

Vehicle traffic from decommissioning and restoration activities would increase along the Kaheawa Pastures access road, which intersects with the Lāhainā Pali Trail as it passes south of KWP 1. For safety purposes, it may be necessary to interrupt use of this portion of the trail for short periods during decommissioning; in most cases the interruption would be for no more than fifteen minutes at a time. The Applicant would provide appropriate signage along the Lāhainā Pali Trail so as to provide advance notice about such temporary closures. When closures are needed, traffic personnel may be utilized to ensure safe crossing by trail users. The Applicant anticipates that passage across this section of the trail may be intermittently interrupted over the course of peak construction. In addition, noise from decommissioning activities (during permitted hours of the day) may be heard from some portions of the trail.

Other recreational opportunities, such as those at McGregor Point and adjacent beach parks, are not anticipated to be significantly affected by the decommissioning and restoration phases of the Proposed Action.

Educational Facilities

Decommissioning and restoration would have a negligible effect on Maui public schools.

3.15.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 facility would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the impacts to public infrastructure and services associated with the

continued operation of KWP 1 and HCP compliance would not occur. The potential impacts from decommissioning and restoration activities would be as described above in Section 3.15.2.2*, Proposed Action, Decommissioning and Restoration*, but would occur at the end of the current KWP 1 lease term in 2026, rather than at the end of the 20-year extended operational period.

3.15.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse effect on public infrastructure and services, KWP 1 would continue to implement the BMPs outlined in Section 3.15.1.10, *Existing Avoidance, Minimization, and Mitigation Measures*. In addition to these BMPs, KWP 1 would implement the following additional measures to avoid or minimize potential impacts of the Proposed Action and No Action Alternative:

- Prior to decommissioning, revise and implement the Emergency Response Plan (Brookfield 2022) and Site Safety Handbook and conduct personnel training and safety briefings, to prevent and respond to emergency situations and facilitate emergency response.
- Develop decommissioning specific protocols and use qualified contractors for the removal, storage, and disposal of hazardous and regulated wastes from the dismantling of KWP 1 equipment and facilities and the use, storage, and handing of petroleum-based products used for decommissioning equipment
- Prior to the initial maintenance and decommissioning/restoration periods, post signage at the intersection of the Kaheawa Pastures access road and the Lāhainā Pali Trail to advise hikers of the traffic on the access road.
- Implement additional transportation and traffic avoidance and minimization measures as described in Section 3.14, *Transportation and Traffic*.

3.15.2.5 Summary of Potential Impacts

The Proposed Action would result in short-term, minor adverse impacts during the initial maintenance period when power generation from KWP 1 would cease. In the long-term, the continued operation of KWP 1 for an additional 20-year period would have beneficial impacts on electric services and negligible to minor adverse impacts other public infrastructure and services, including telecommunications, water, wastewater, solid waste, police and fire protection, healthcare and emergency medical services, and recreational facilities. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned, which would lead to immediate negligible to minor, short-term impacts to various public services and moderate adverse impacts to electric services. Table 3-30 summarizes potential impacts on public infrastructure and service from the Proposed Action and No Action Alternative. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on public infrastructure and services based on the criteria listed in Section 3.15.2.1, *Factors Considered in the Impact Analysis*.

Table 3-30. Summary of Potential Impacts to Public Infrastructure and Services

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Electric Service	Minor (short-term) Beneficial (long-term)	No Impact	Moderate	Moderate
Utility Gas Service	No Impact	No Impact	No Impact	No Impact
Telecommunications Service	Negligible	No Impact	Negligible	Negligible
Water Service and Wastewater Management	Negligible	No Impact	Negligible	Negligible
Solid Waste Management and Disposal	Minor	Negligible	Minor	Minor
Police and Fire Protection	Negligible	Negligible	Negligible	Negligible
Healthcare and Emergency Medical Services	Negligible	Negligible	Negligible	Negligible
Recreational Facilities	Minor	No Impact	Minor	Minor
Educational Facilities	No Impact	No Impact	Negligible	Negligible

3.16 Socioeconomic Characteristics

This section includes a description of the socioeconomic environment surrounding the Project Area and identification and evaluation of the potential socioeconomic consequences of the Proposed Action and No Action Alternative. This section also identifies whether the Proposed Action and No Action Alternative may have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State per HAR § 11-200.1-13(b)(4). Effects on cultural practices, including an evaluation of whether traditional and customary Native Hawaiian rights would be affected or impaired by the Proposed Action (i.e., the Ka Pa‘akai analysis) is discussed in Section 3.10, *Cultural and Archaeological Resources*.

Socioeconomic data describe the population, economic condition, and quality of life. Population data include the number of residents in the area, recent changes in population growth, and demographics. Data on employment, labor force, unemployment trends, income, and industrial earnings describe the economic health of a region. The number and type of housing units, ownership, and vacancy rate can be indicators of the regional quality of life.

The ROI for the socioeconomic analysis is West Maui with emphasis on the individual communities in the Project vicinity, especially Kīhei, Māʻalaea, and Olowalu. Data for Maui County and the State of Hawaiʻi are provided for comparison, as appropriate. The four HCP mitigations sites and the communities in the vicinity of the mitigation sites form a secondary ROI for the socioeconomics assessment.

Data used in this analysis comes from the U.S. Census, the State of Hawaiʻi Economic Data Warehouse, University of Hawaiʻi, the U.S. Department of Energy, KWP 1 community engagement materials, and peer reviewed literature. Impacts from the Proposed Action and No Action Alternative were assessed qualitatively.

3.16.1 Existing Environment

3.16.1.1 Existing Socio-Economic Conditions

Project Area and Vicinity

Population and Demographics

Census Data

No one lives on the existing KWP 1 facility parcels or on immediately adjoining parcels. The nearest settlements are Māʻalaea, which is approximately 2 miles to the southeast and Olowalu, which is approximately 5 miles to the west. Kīhei is also approximately 5 miles east of the Project Area. Table 3-31 summarizes the population and select demographics for the Census Designated Places (CDPs)[80] of Kīhei, Māʻalaea, and Olowalu. Data for Maui County and the State of Hawaiʻi are provided for comparison. In 2020, Māʻalaea's population was estimated at 310, Olowalu's population was estimated at 100 and Kīhei's population was estimated at 21,423, while Maui County as a whole had a population of 164,754 (Census Bureau 2020).

These CDPs were generally less diverse and more educated than the greater County of Maui population. In the County of Maui, 31.5 percent of the population are identified as white; whereas 46.1 percent of residents in Kīhei, 69.7 percent of residents in Māʻalaea, and 59 percent of residents in Olowalu are identified as white (Census Bureau 2020). These communities were also home to fewer Native Hawaiians and Pacific Islanders compared to other communities in Maui; 11.5 percent of the County of Maui population compared to 6 percent in Kīhei, 5 percent in Māʻalaea, and 11 percent in Olowalu (Census Bureau 2020). The percentage of residents that have attained a bachelor's degree or higher in Kīhei (32 percent), Māʻalaea (54.7 percent) and Olowalu (48.9 percent) is also comparable or higher than the County of Maui (31.2 percent) (Census Bureau 2023).

[80] Census data is presented by Census Designated Places (CDPs). CDPs are the statistical counterparts of incorporated places delineated for settled concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state in which they are located. Census data is presented for the three CDPs within the vicinity of KWP 1, Kīhei, Māʻalaea, and Olowalu.

Table 3-31. Population and Demographics, Project Area

Economic Sector	State of Hawai'i	Maui County	Kīhei	Mā'alaea	Olowalu
Population[1]					
Total Population	1,455,271	164,754	21,423	310	100
Race[1]					
Asian	531,558	43,284	4,457	26	6
White	314,365	51,926	9,885	216	59
Two or More Races	291,890	31,432	2,874	24	17
Native Hawaiian and Other Pacific Islander	149,054	18,966	1,416	16	11
Hispanic or Latino	138,923	16,914	2,411	24	7
Black or African American	21,877	1,010	205	4	0
Other	5,283	822	108	0	0
American Indian and Alaska Native	2,321	400	67	0	0
Education Attainment (Pop. 25 years and older)[2]					
High school or equivalent degree	26.7%	28.8%	28.8%	16%	23.3%
Some college, no degree	19.8%	20.7%	24.1%	21.8%	14%
Associate's degree	11%	12%	9.5%	5.9%	2.3%
Bachelor's degree	22.5%	20.2%	21.9%	34.5%	34.9%
Graduate or professional degree	13%	11%	10.1%	20.2%	14%

1. U.S. Census Bureau 2020, Decennial Census, P1 Race

2. U.S. Census Bureau 2023, ACS 5-Year Estimates, S1501 Educational Attainment

Note: The 2023 ACS 5-year estimates are based on data collected over a five-year period, from January 1st of 2019 to December 31st 2023. Percentages may not sum exactly due to rounding.

Trends and Forecasts

Since at least 1970, Maui County's resident population growth exceeded the statewide average and annual growth rates in each ten-year period between 1970 and 2010 ranged from 2.1 percent to 5.4 percent. However, based on the 2020 Census enumeration and subsequent estimates, the County's population growth rate has since slowed and has averaged 0.6 percent per annum between 2010 and 2020 (State of Hawai'i 2025). According to the DBEDT Economic Data Warehouse, while the population increased by 30 people between 2020 and 2021, the population declined by 438 people in 2022 and another 176 people in 2023. Factors of the population decline likely include the COVID-19 pandemic and

2023 island wildfires. The county's population is projected to decrease at a rate averaging -0.3 percent per annum over the next few years to 163,200 in 2026 (UHERO 2023).

Loss of personal income due to unemployment and reduced tourist visitation, coupled with the shortage of available housing, creates an uphill financial struggle for residents displaced by the 2023 fires. A recent University of Hawai'i Economic Research Organization (UHERO) forecasts estimates that the county has lost more than a thousand residents due to increased outmigration and decreased in-migration as a result of the wildfires (UHERO 2025). The loss in Maui's population is estimated to cost the state's economy at least $50 million in annual income (Moore and Karacaovali 2025).

The visitor population showed more rapid growth than the resident population; visitor population grew by 13.1 percent between 2010 and 2023 (State of Hawai'i 2025). However, both visitor arrivals and expenditures declined substantially in 2020 as a result of the COVID-19 pandemic. The total visitor arrivals on Maui Island were 3.06 million in 2019, which dropped to 790,000 in 2020 (DBEDT 2025b). Visitor arrivals on Maui Island peaked in 2022 at 2.92 million but have been on a declining trend since (2.5 million in 2023 and 2.35 million in 2024) (DBEDT 2025b). According to a UHERO economic forecast, Maui's tourism industry is struggling to recover from the 2023 wildfires and a complete recovery of the island's visitor population would likely not be reached before 2028 (UHERO 2023). Hawai'i's near-term tourism prospects will partly depend on policies of the current federal administration and uncertainties in the U.S. and global economies. The U.S. market (i.e., tourist from the U.S. mainland visiting Hawai'i) may benefit from federal tax cuts this year, but a weakening economy along with higher costs and prices will force a modest pullback in 2026 and 2027 (UHERO 2025). The recovery of international markets will continue, although there is a risk that deteriorating global relations could hurt local tourism (UHERO 2025). Tourism businesses in Maui will remain under considerable economic pressure.

Employment and Income

Census Data

Employment and income data for the CDP's of Kīhei, Mā'alaea, and Olowalu are presented in Table 3-32. Data for Maui County and the State of Hawai'i are provided for comparison. The tourism sector was the largest employer in Kīhei and Maui County in the five-year period from 2019 to 2023, accounting for 23 percent of total employment in each region (Census Bureau 2023). In Mā'alaea, education and health care were the largest employer, accounting for 26 percent of total employment. In Olowalu, construction, wholesale and retail trade, and tourism are the largest employers of the small population, accounting for a combined 42 percent of total employment. Civilian unemployment rates varied from zero percent (Olowalu) to 13.9 percent (Mā'alaea) in the CDPs near the Project Area (Census Bureau 2023).

The communities in the vicinity of the Project Area are also not disproportionally low-income. The median household income for Kīhei was $87,568, Mā'alaea was $93,750, and for Olowalu was $108,250, which is 92.1 percent, 98.6 percent, and 113.9 percent of the median household income in Maui County ($95,076), respectively (Census Bureau 2023). Additionally, the percentage of families and individuals whose income is below the poverty level are below the County of Maui average in all three CDPs.

Table 3-32. Employment and Income, Project Area

Economic Sector	State of Hawai'i	Maui County	Kīhei	Mā'alaea	Olowalu
Employment Status[1]					
Civilian Labor Force, Employed (Aged 16+)	668,094	80,930	11,871	87	36
Civilian Labor Force, Unemployed (Aged 16+)	35,378	4,760	852	14	0
Civilian Labor Force, Unemployment Rate	5.0%	5.6%	6.7%	13.9%	0%
Armed Services	49,289	525	133	3	0
Percent of Employed Civilian Population by Industry[1]					
Agriculture/Resource Extraction	1	1	1	0	6
Construction	7	8	8	0	14
Manufacturing	3	2	2	11	0
Wholesale and Retail Trade	13	14	15	16	14
Transportation and Utilities	6	6	7	7	11
Information	3	1	2	0	0
Finance and Real Estate	6	6	7	5	8
Professional, Scientific, and Management	11	11	11	9	11
Education and Health Care	22	18	17	26	6
Tourism (Arts and Services)	15	23	23	16	14
Public Administration	9	5	4	6	8
Other	4	5	5	3	8
Income[1]					
Median household income	$98,317	$95,076	$87,568	$93,750	$108,250
Median earning for workers	$46,964	$45,382	$44,971	$63,125	$48,750
Percentage of families whose income is below the poverty level	6.9%	6.8%	5.3%	6.0%	0%
Percentage of people whose income is below the poverty level	10.0%	9.8%	9.3%	9.5%	0%

1. U.S. Census Bureau 2023, ACS 5-Year Estimate, DP03 Selected Housing Characteristics

Note: The 2023 ACS 5-year estimates are based on data collected over a five-year period, from January 1st of 2019 to December 31st 2023. Percentages may not sum exactly due to rounding.

Trends and Forecast

Maui County's labor force and employment dropped sharply following the 2023 wildfires. According to a 2025 forecast by UHERO, the Maui labor force the wildfires reached a low of approximately 83,000 workers in September 2024, about 4,500 fewer than before the fire (UHERO 2025). While there are signs of stabilization, recovery has been slow. Several factors may be contributing to this sluggish recovery, including the lack of available jobs and to a lesser extent, retirements, workforce exits due to health issues, and outmigration for personal reasons.

Many Maui businesses were impacted both directly and indirectly by the wildfires. In a survey by the Maui County Office of Economic Development, Maui businesses cited lacking a physical location, scaling back operations, or other impacts, and many are still evaluating the disaster's implication for their future plans (UHERO 2025). Employment in the food service industry, finance and real estate, transportation and utilities, trade, and other services sectors have shown little change since December 2023 and remain well below pre-wildfire levels. Most job growth has been concentrated in the healthcare, construction, and government sectors. Since July 2023, Maui's construction workforce has grown by 8 percent, driven in part by rebuilding efforts in Lāhainā (UHERO 2025). Overall, the unemployment rate in Maui is projected to remain low. Tariffs on materials, potential labor shortages, planned federal payroll cuts, and cuts to federal programs and grants are looming concerns.

Housing and Property Values

Census Data

Table 3-33 details housing occupancy and property values in the state, county, and the CDPs of Kīhei, Māʻalaea, and Olowalu. Maui County had an estimated 72,303 housing units in 2023, with 13 percent of this total identified as vacant (Census Bureau 2023). Over half (53 percent) of these vacant units – 12 percent of the total housing stock – were identified for seasonal, recreational, or occasional use. The high relative share of this type of housing in Maui County reflects the importance of tourism to the local economy. Median owner-occupied property values in the Maui County were approximately 106 percent of the State of Hawai'i median in 2023. Median values in the communities near the Project Area ranged from just 78 percent (Māʻalaea) to 122 percent (Olowalu) of the County of Maui median. Median rents in Māʻalaea and Olowalu were 111 percent and 118 percent of the County of Maui median, respectively.

Table 3-33. Housing, Project Area

Geographic Area	State of Hawai'i	Maui County	Kīhei	Māʻalaea	Olowalu
Occupancy Status[1]					
Total Housing Units	564,905	72,303	12,072	611	33
Occupied Housing Units	488,991 (87%)	55,485 (77%)	8,135 (67%)	160 (26%)	21 (64%)
Vacant Housing Units	75,914 (13%)	16,818 (23%)	3,937 (33%)	451 (74%)	12 (36%)
Housing Tenure, Occupied Housing Units[2]					

Geographic Area	State of Hawai'i	Maui County	Kīhei	Mā'alaea	Olowalu
Owner-Occupied	308,421	35,883	4,836	107	12
Renter-Occupied	185,477	20,965	3,299	53	9
Vacancy Status[3]					
For Rent	15,603	5,528	1,538	184	12
Rented, Not Occupied	1,699	177	0	6	0
For Sale	3,306	127	3	8	0
Sold, Not Occupied	2,044	82	0	0	0
For Seasonal, Recreational, or Occasional Use	31,638	8,914	2,200	219	0
For Migrant Workers	239	106	14	0	10
Other	21,385	1,884	182	34	2
Property Values[2]					
Median Value of Owner-Occupied Units (dollars)	$808,200	$858,600	$871,600	$612,500	$1,187,500
Median Rent (dollars)	$1,938	$1,828	$2,021	$2,163	N/A

1. U.S. Census Bureau 2023, ACS 5-Year Estimate, B25002 Occupancy Status
2. U.S. Census Bureau 2023, ACS 5-Year Estimate, DP04 Selected Housing Characteristics
3. U.S. Census Bureau 2023, ACS 5-Year Estimate, B25004 Vacancy Status

Trends and Forecast

The median price of a single-family home rose 9 percent statewide in 2024; Maui County saw the biggest increase at 13 percent (UHERO 2025). With mortgage interest rates hovering near 7 percent and insufficient housing supply, home affordability for local residents remains historically low (UHERO 2025). Recent policy initiatives in the state and county aim to significantly expand the housing supply; however, new home production still remains historically low. Over the past decade, construction of new housing units has occurred at roughly half the pace of the 2000s and just a quarter of the rate seen in the 1970s, when more than 130,000 housing units were built statewide (UHERO 2025). Tariffs on materials and potential labor shortages could impact the construction of new homes.

HCP Mitigation Sites

Population and Demographics

The Makamaka'ole, Haleakalā Ranch, and Pu'u o Hōkū Ranch mitigation areas are all located in remote areas outside of established CDPs. However, population and demographics data are provided for the CDP's closest to these mitigation areas, including:

- The Waihe'e-Waiehu CDP, which is approximately 2 miles southeast of the Makamaka'ole

- The Makana CDP, which is approximately 10 miles west of Haleakalā Ranch
- ʻUalapuʻe CDP, which is approximately 9 miles southwest of Puʻu o Hōkū Ranch

The western portion of the Pūlama Lānaʻi mitigation area is within the Lānaʻi City CDP. The Kaheawa Pastures mitigation area is within and has the potential to impact the same CDP's as the Project Area, which are described in detail above. No one lives within or in the immediate vicinity of the mitigation areas. Table 3-34 summarizes the population and select demographics for the CDPs in the vicinity of the HCP mitigation sites. Data for Maui County and the State of Hawaiʻi are provided for comparison.

Table 3-34. Population and Demographics, HCP Mitigation Sites

Economic Sector	State of Hawaiʻi	Maui County	Waiheʻe-Waiehu	Makena	ʻUalapuʻe	Lānaʻi City
Population[1]						
Total Population	1,455,271	164,754	9,234	196	393	3,332
Race[1]						
Asian	531,558	43,284	3,227	4	11	1,658
White	314,365	51,926	1,197	116	59	483
Two of More Races	291,890	31,432	2,924	49	151	794
Native Hawaiian and Other Pacific Islander	149,054	18,966	1,712	16	167	346
Black or African American	21,877	1,010	27	2	0	14
Other	5,283	822	119	7	3	28
American Indian and Alaska Native	2,321	400	28	2	2	9
Education Attainment (Pop. 25 years and older)[2]						
High school or equivalent degree	26.7%	28.8%	42%	21.1%	25.0%	35.7%
Some college, no degree	19.8%	20.7%	20.3%	9.6%	27.8%	22.2%
Associate's degree	11%	12%	13%	14.9%	14.3%	8%
Bachelor's degree	22.5%	20.2%	11.6%	25.4%	18.5%	21.5%
Graduate or professional degree	13%	11%	7.1%	26.3%	12.6%	3.5%

1. U.S. Census Bureau 2020, Decennial Census, P1 Race
2. U.S. Census Bureau 2023, ACS 5-Year Estimates, S1501 Educational Attainment
Note: The 2023 ACS 5-year estimates are based on data collected over a five-year period, from January 1st of 2019 to December 31st 2023. Percentages may not sum exactly due to rounding.

Employment and Income

Employment and income data for the CDP's of Waiheʻe-Waiehu, Makana, ʻUalapuʻe, and Lānaʻi City are presented in Table 3-35. Data for Maui County and the State of Hawaiʻi are provided for comparison.

Table 3-35. Employment and Income, HCP Mitigation Sites

Economic Sector	State of Hawai'i	Maui County	Waihe'e-Waiehu	Makena	'Ualapu'e	Lāna'i City
Employment Status[1]						
Civilian Labor Force, Employed (Aged 16+)	668,094	80,930	5,504	42	198	1,625
Civilian Labor Force, Unemployed (Aged 16+)	35,378	4,760	191	2	9	38
Civilian Labor Force, Unemployment Rate	5.0%	5.6%	3.4%	4.8%	4.3%	2.3%
Armed Services	49,289	525	79	0	0	13
Percent of Employed Civilian Population by Industry[1]						
Agriculture/Resource Extraction	1%	1%	0%	0%	2%	2%
Construction	7%	8%	12%	25%	3%	6%
Manufacturing	3%	2%	1%	0%	0%	0%
Wholesale trade	2%	2%	1%	3%	0%	1%
Retail trade	11%	12%	17%	0%	8%	3%
Transportation and Utilities	6%	6%	10%	8%	4%	2%
Information	3%	1%	1%	0%	2%	0%
Finance and Real Estate	6%	7%	4%	50%	3%	2%
Professional, Scientific, and Management	11%	11%	11%	3%	5%	16%
Education and Health Care	22%	18%	19%	13%	27%	15%
Tourism (Arts and Services)	15%	23%	13%	0%	20%	43%
Public Administration	9%	5%	6%	0%	24%	8%
Other	4%	5%	5%	0%	3%	1%
Income[1]						
Median household income	$98,317	$95,076	$128,266	$188,750	$62,750	$79,405
Median earning for workers	$46,964	$45,382	$45,181	N/A	$48,750	$51,265
Percentage of families whose income is below the poverty level	6.9%	6.8%	7.3%	0%	3.3%	6.1%

Economic Sector	State of Hawai'i	Maui County	Waihe'e-Waiehu	Makena	'Ualapu'e	Lāna'i City
Percentage of people whose income is below the poverty level	10.0%	9.8%	8.4%	11%	4.1%	7.4%

1. U.S. Census Bureau 2023, ACS 5-Year Estimate, DP03 Selected Housing Characteristics

Note: The 2023 ACS 5-year estimates are based on data collected over a five-year period, from January 1st of 2019 to December 31st 2023. Percentages may not sum exactly due to rounding.

Housing and Property Values

Table 3-36 details housing occupancy and property values in the state, county, and the CDPs of Waihe'e-Waiehu, Makana, 'Ualapu'e, and Lāna'i City. Data for Maui County and the State of Hawai'i are provided for comparison.

Table 3-36. Housing, HCP Mitigation Sites

Geographic Area	State of Hawai'i	Maui County	Waihe'e-Waiehu	Makena	'Ualapu'e	Lāna'i City
Occupancy Status[1]						
Total Housing Units	564,905	72,303	2,688	136	286	1,487
Occupied Housing Units	488,991 (87%)	55,485 (77%)	2,557 (95%)	73 (54%)	161 (56%)	1,157 (78%)
Vacant Housing Units	75,914 (13%)	16,818 (23%)	131 (5%)	63 (46%)	125 (44%)	330 (22%)
Housing Tenure, Occupied Housing Units[2]						
Owner-Occupied	308,421	35,883	2,417	58	160	585
Renter-Occupied	185,477	20,965	370	48	57	613
Vacancy Status[3]						
For Rent	15,603	5,528	38	0	23	25
Rented, Not Occupied	1,699	177	0	0	0	24
For Sale	3,306	127	0	0	2	0
Sold, Not Occupied	2,044	82	0	0	0	8
For Seasonal, Recreational, or Occasional Use	31,638	8,914	36	43	27	141
For Migrant Workers	239	106	0	0	0	17
Other	21,385	1,884	47	5	7	85
Property Values[2]						
Median Value of Owner-Occupied Units (dollars)	$808,200	$858,600	$740,300	$2,000,000+	$291,700	$547,400

Geographic Area	State of Hawai'i	Maui County	Waihe'e-Waiehu	Makena	'Ualapu'e	Lāna'i City
Median Rent (dollars)	$1,938	$1,828	$2,224	N/A	$1,806	$1,092
1. U.S. Census Bureau 2023, ACS 5-Year Estimate, B25002 Occupancy Status 2. U.S. Census Bureau 2023, ACS 5-Year Estimate, DP04 Selected Housing Characteristics 3. U.S. Census Bureau 2023, ACS 5-Year Estimate, B25004 Vacancy Status Note: The 2023 ACS 5-year estimates are based on data collected over a five-year period, from January 1st of 2019 to December 31st 2023. Percentages may not sum exactly due to rounding.						

3.16.1.2 Economic Contribution of KWP 1

KWP 1 has direct, indirect, and induced economic benefits to the Maui economy. Direct effects represent actual and estimated employee compensation and other expenditures of KWP 1 as well as the economic value of services from KWP 1 operations. KWP 1 also provides direct benefits to the Maui community through the Community Benefit Program (see Section 3.16.1.3, *Social and Community Contributions of KWP 1* below). KWP 1 also had indirect economic effects from purchasing goods and services from other local industries in the Maui County economy, including professional and technical services, equipment, and supplies. Induced economic benefits are generated by household spending (e.g., use of worker incomes to purchase groceries and other household goods and services). KWP 1's economic benefits to the Maui economy are described below.

Contributions to Maui Grid Reliability and Low-Cost Energy Production

West Maui's economy has grown steadily resulting in a corresponding increase in demand for electricity. KWP 1 has been a reliable energy generator on the Maui Electric grid since it began operating in 2006 and Maui Electric relies upon this facility to address its energy generation needs on the island of Maui. According to Hawaiian Electric's 2023 RPS Status Report (Hawaiian Electric 2024a), Maui County has a total of 16 percent of its power generation supplied by wind energy (total of 212,200 net megawatt hours), of which, approximately 36 percent (or 79,792 MWh) is supplied by KWP 1. KWP 1 is located on a highly productive wind site and can produce enough clean energy to power the equivalent of an estimated 17,000 homes annually[81] on the island of Maui, or roughly 23 percent of all Maui housing units (Census Bureau 2020). Hawaiian Electric has demonstrated that the KWP 1 facility plays an important role in supporting Maui grid reliability (Hawaiian Electric 2024a). The KWP 1 facility is an essential contributor to resource diversity, generating power during the day and night.

KWP 1 also produced direct economic benefits through the provision of fixed-price energy for electricity consumers. The existing KWP 1 facility is among the lowest cost electricity generators in the State and

[81] Based on an average of HAWAIIAN ELECTRIC's Avoided Costs, Maui household consumption, and KWP 1 generation.

saves customers approximately $10 million per year compared to fossil fuels.[82] In 2024, the KWP 1 facility provided energy at 15 to 30 percent below the cost of fossil-fueled generators on Maui.[83] KWP 1 delivers energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility, a cost that is otherwise directly passed along to consumers and contributes to unpredictable electricity costs.

Labor and Wages

KWP 1 has provided employment opportunities in the region since 2006. In 2024, KWP 1 employed 5 full-time employees who receive wages and benefits.

Revenues to Government

KWP LLC is a private company, which provides a critical service as a power generating facility at no cost to the state or county government or taxpayers. The state collects General Excise Tax (GET) collected on KWP 1 revenue. The GET rate is 4 percent plus a Maui County surcharge of 0.5 percent for a total rate of 4.5 percent. The state also receives direct payments from KWP LLC in the form of lease payments.

As part of KWP 1's current HCP compliance obligations for the protection and mitigation of four federally and state-listed threatened and endangered species, KWP 1 provides direct funding to DNLR DOFAW to manage off-site mitigation projects. More detail on these expenditures is provided in Section 3.16.1.3, *Social and Community Contributions of KWP 1*.

During the construction of KWP 1, there were additional direct revenues to the state and county of Maui in the form of land use and construction permit application fees.

Indirect and Induced Economic Impacts

KWP 1 also had indirect economic effects from purchasing goods and services from other local industries in the Maui County economy. KWP 1 employs Hawaii-based professional and technical services and purchases supplies and equipment from local businesses. As an indirect result of these expenditures, additional business to business purchases within the supply chain take place in Maui, boosting economic activity. Induced effects are the values stemming from household spending of labor income. Worker incomes are used to purchase groceries and other household goods and services from local vendors and suppliers, whom in turn re-spend money, creating a multiplier effect in the economy. Indirect and induced impacts are typically greatest during a project's construction phase when project expenditures are at their highest. Indirect and induced effects during operations are anticipated to be minor and are thus not quantified in this EIS.

[82] Since January 2023, HAWAIIAN ELECTRIC's "Schedule Q" avoided energy costs for the Maui Division has averaged ~$200 / MWh. KWP's current rate is ~$136 / MWh.

[83] Energy cost comparison based on avoided energy costs and energy cost recovery filings for Maui.

3.16.1.3 Social and Community Contributions of KWP 1

Community Benefits Program

KWP 1 currently contributes to a community benefits program. KWP 1 also provides $1,500 annually to be used by Na Ala Hele Program for the production of educational and interpretive materials under CDUP condition 4 (CDUP MA-3103).

The Applicant is committed to providing $300,000 per year for the 20-year PPA term of the Proposed Action, or $6 million for the term of the Stage 3 PPA. The Applicant has conducted outreach to obtain the community's input on the community benefits program and this outreach is ongoing; the community benefits program would be tailored to the needs and choice of the community. More information on the community benefits program for the Proposed Action is provided in Section 3.16.2.2, *Proposed Action*, below.

HCP Compliance

KWP 1 also contributes direct, indirect, and induced economic benefits from employment and expenditures related to KWP 1's HCP compliance obligations for the protection and mitigation of four federally and state-listed threatened and endangered species (Covered Species). Costs for mitigation projects to offset the take of Covered Species varies based on the activities occurring in a given year, but historically has included, but is not limited to the costs shown in Table 3-37. KWP employs multiple contractors to support HCP compliance. HCP-related monitoring and reporting expenditures for KWP 1 in the previous three fiscal years are shown in Table 3-38. Recurring annual costs include approximately $58,000 per year for permit compliance, $82,000 per year for fatality monitoring, $15,000 per year for bat acoustic monitoring and $50,000 per year for vegetation management and scavenger trapping. In total, KWP 1 has reported approximately $7,492,616 in HCP-related expenditures from FY 2007 through FY 2024, or an average of $416,256.

Table 3-37. Approximate Mitigation Expenditures for KWP 1

Covered Species	Costs (FY 2007 through FY 2024)	Comments
ʻōpeʻapeʻa	$1,470,000	Funding to DOFAW, H.T. Harvey Ecological Consultants, and USGS for ʻōpeʻapeʻa ecological research in East Maui and on Hawaiʻi Island
Nēnē	$870,000	Funding to DOFAW and private contractors from 2009 to 2024 to fund construction and management of the Haleakalā Ranch nēnē release pen
Seabirds	$470,000	Funding between 2007 and 2012 to survey for seabirds, including but not limited to the discovery of the Makamakaʻole site, predator trapping, canine-assisted burrow surveys, population modeling, acoustic detectors, and a site feasibility study
	>$1,500,000	Funding for fence construction and annual management costs that were shared with KWP 2 through 2025

Covered Species	Costs (FY 2007 through FY 2024)	Comments
	$498,000	Funding to Pūlama Lānaʻi from 2018 to 2023 for ʻuaʻu breeding colony protection efforts on Lānaʻi in conjunction with KWP 2.

Table 3-38. HCP-Related Monitoring and Reporting Annual Expenditures, FY 2022 through FY 2024

Category[1]	Expenditures		
	FY 2022	FY2023	FY 2024
Permit Compliance	$53,000	$59,801	$60,500
Fatality Monitoring	$75,000	$85,387	$87,900
Acoustic Monitoring for Bats	$10,500	$15,920	$17,500
Vegetation Management and Scavenger Trapping	$40,500	$78,861	$32,800
Equipment and Supplies[2]	$2,000	$5,413	$20,000
Total Cost for Fiscal Year	**$181,000**	**$245,382**	**$251,500**

1. Staff labor costs are included in the overall costs for each category except for Equipment and Supplies.
2. Costs in FY 2024 include the purchase of updated acoustic monitoring equipment.

Public Outreach and Community Feedback

KWP 1 has welcomed the opportunity to share information about its business with the public. A summary of KWP 1's public outreach efforts for the Proposed Project are shown in Table 3-39. KWP maintains open lines of communication and public outreach activities, which have included the following:

- Maintaining an informative website (https://www.kaheawawind.com), with a 'Contact Us' page to respond promptly to feedback.
- Inviting groups and individuals to tour the facility.
- Involving local leaders and community stakeholders in small group meetings to assist in identifying needs and priorities for the future community benefits program

KWP 1 also developed a Community Outreach and Communications Plan (KWP 2023) to inform the public and gather feedback from target communities and stakeholders during the planning, development, and execution of the KWP 1 Continued Use Project. The plan builds off the meetings and outreach that began in 2022 and would continue throughout the project's entitlements and ongoing operations.

The Applicant began community outreach with pre-development activities beginning in 2022 extending through 2023, followed by formal consultations and permitting starting in 2024. Key stakeholders that have been consulted throughout the KWP 1 continued use project are government agencies, elected officials, neighboring landowners and businesses, community associations, environmental conservation

groups, and Native Hawaiian leaders and organizations (KWP 2023). Section 6, *Consulted Parties* includes more information on the public and agency consultation conducted to date and comments received on the EISPN.

Table 3-39. Summary of Public and Community Outreach for KWP 1 Continued Use Project

Description	Timeline	Stakeholders	Results
Exploratory interviews with knowledge leaders	2022	Local knowledge leaders.	An initial round of 5 interviews with local knowledge leaders. Informed RPF Maui Electric Stage 3 RFP Proposal and development of community engagement plan.
Informal Meetings as part of the Maui Electric Stage 3 RFP Process	Early 2023	Government agencies, elected officials, and community associations	Met with a total of 12 stakeholder groups. Discussed the Project's history, economic benefits, and future opportunities. Obtained early input on the Project's implementation.
HRS 343 Agency Kick Off	October 2023	DLNR Land Division and DLNR OCCL	Determined that BLNR would serve as the Accepting Authority and that an EIS was the appropriate level of HRS 343 review.
Community Outreach and Communications Plan	December 2023	Community members and other interested parties	Developed and published a strategic framework for engaging with the Maui community.
Public Open House Meeting	August 14, 2024	Community members and other interested parties	24 individuals in attendance. Discussed the Project, proposed community benefits program, permitting timeline, and environmental and cultural considerations. Six public comment cards were received during the meeting and three online surveys were filled-out on the Project website.
Cultural Consultation for Cultural Impact Assessment (CIA)	August 2024 – November 2024	Individuals and organizations with cultural, historical, or ancestral ties to the Project Area	A total of 18 individuals and three organizations were contacted. In total, four individuals agreed to interviews. Feedback from the interviews were integrated into the CIA.
Public Notice in Office of Hawaiian Affairs Ka Wai Ola	October 2024	Individuals knowledgeable about traditional cultural practices and uses associated with the Project Area	No responses were received following publication.
Publication of the EISPN and 30-day public review (scoping) period	October 2024 – November 2024	Community groups, government agencies, and elected officials	The EISPN was distributed to approximately 133 stakeholders. A total of 35 comments were received from 13 parties and agencies.

Description	Timeline	Stakeholders	Results
			Identified data gaps and public concerns to be addressed in the Draft EIS.
Public Scoping Meeting	October 29, 2024	Community members and other interested parties	6 attendees. Informed the public of the Proposed Action and solicited feedback on concerns to be addressed in the Draft EIS. No comments were received from the public scoping meeting.

Community feedback during the EIS outreach included the following areas of support and opportunity:

- Support for project since the infrastructure is already in place;
- Support for more renewable energy on Maui in general;
- Support for the preparation of an EIS (verses an EA) to fully disclose potential impacts of the Proposed Action;
- Importance of KWP 1 to the production of wind energy on Maui and for Maui's overall energy stability and resilience;
- Interest in energy affordability;
- Opportunity to continue and expand efforts to protect native and listed wildlife species including nēnē, seabirds (ʻuaʻu and ʻaʻo), ōpeʻapeʻa, and pueo;
- Opportunity to nurture native plant species and protect from invasives;
- Opportunity to educate community and communicate energy and cost savings benefits to homeowners; and
- Opportunity to foster a collaborative relationship between the Applicant, KWP operators, and the local community.

Key concerns expressed by the community and stakeholder, and the sections of the EIS in which these concerns are discussed, are listed in Table 3-40 (in no particular order).

Table 3-40. Key Community and Stakeholder Concerns

Concern	Relevant EIS Section
Concern for the protection of historical and cultural resources, including archaeological sites and cultural landmarks such as the Lāhainā Pali Trail.	Section 3.10, *Cultural and Archaeological Resources*
Potential impacts on scenic vistas and view planes from Kahoʻolawe.	Section 3.12, *Visual Resources*
Potential impacts on the wao kanaka and the wao akua and on the connectivity to the shoreline and ocean.	Section 3.10, *Cultural and Archaeological Resources*

Concern	Relevant EIS Section
Disclose impacts from decommissioning and activities including details regarding the disposal of KWP 1 components.	Section 2.1.4, *Decommissioning and Restoration* Potential impacts from decommissioning activities are discussed throughout Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures*
Need for a comprehensive and inclusive consultation process.	Section 3.16, *Socioeconomic Characteristics* Section 6, *Consulted Parties*
Potential impacts on native wildlife and state and federally listed species. Discuss compliance with KWP 1's current HCP/ITL/ITP as well as the Proposed HCP for the additional 20 years of KWP 1 operations.	Section 3.9, Wildlife Section 3.10, *Cultural and Archaeological Resources*
Potential impacts to native vegetation including the introduction and spread of invasive species.	Section 3.8, *Vegetation* Section 3.10, *Cultural and Archaeological Resources*
Island wide concern about runoff, soil erosion, and impacts of segmentation on surface waters and near shore waters.	Section 3.4, *Geology, Topography, and Soils* Section 3.5, *Water Resources*
Disclose a detailed history regarding the previously obtained permits and approvals for the project and KWP 1's compliance with these permits.	Section 1.2.1, *History of Permitting and Construction* Section 4, *Regulatory Context/Consistency with Plans and Policies*

Moving forward, the Applicant plans to conduct multiple community meetings, including public hearings, throughout the 2024-2026 permitting and outreach phase. Additionally, one-on-one meetings and government briefings would be organized as needed, with small group meetings arranged to enhance efficiency and collaboration. Community meetings may be promoted through various channels, including the Kaheawa Wind website, social media platforms, mailing lists, and paid media ensuring that the community remains well-informed about the Project's scope and benefits. By engaging stakeholders throughout the planning, development, execution, and documentation of the Project, KWP LLC aims to minimize environmental hazards by providing clean, affordable energy and ensuring that community members are involved in the decision-making process.

3.16.1.4 Existing Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse social and economic effects, KWP 1 adheres to the following measures for the existing KWP 1 facility:

- Originally sited the KWP 1 facility away from residences and other sensitive areas.
- Limit nuisance impacts to surrounding communities through implementation of BMPs that minimize dust (Section 3.2, *Air Quality*), erosion and sedimentation (Section 3.5, *Water Resources*), noise (Section 3.11, *Noise*), visual (Section 3.12, *Visual Resources*), and traffic impacts (Section 3.14, *Transportation and Traffic*).

- Maintain open communication with the community and respond appropriately and promptly to community concerns and complaints.
- Developed a Community Outreach and Communications Plan (KWP 2023) to inform the public and gather feedback from target communities and stakeholders during the planning, development, and execution of the Proposed Action.

3.16.2 Potential Impacts and Mitigation Measures

3.16.2.1 Factors Considered in the Impact Analysis

Issues related to socioeconomic characteristics that have been identified during the scoping process for this Proposed Action and addressed in this subsection include 1) potential impacts of the Proposed Action on population, employment, and housing; 2) direct, indirect and induced impacts to the economy of Maui County; 3) social and community contributions of KWP 1 including development and implementation of a community benefits program; 4) potential impacts to Native Hawaiian, minority, and/or low-income populations, and 5) avoidance, minimization, and mitigation measures to reduce impacts generated by the Proposed Action and No Action Alternatives. These issues are addressed in this section.

A significant impact on socioeconomic characteristics would result if any of the following were to occur as a direct or indirect result of the Proposed Action or No Action Alternative:

- Population growth beyond what can be supported by existing infrastructure or housing stock;
- Substantial loss or reduction of employment or income;
- Substantial, adverse direct, indirect, or induced impacts to the local economy; or
- High and adverse human health, environmental, or cultural effects that disproportionately impact Native Hawaiian, minority, and/or low-income populations.

3.16.2.2 Proposed Action

Continued Operations

Population, Employment, and Housing

With implementation of the Proposed Action, KWP 1 would continue over the 20-year additional operational period. Continued operations are not expected to induce changes in the pattern of land use, population density, or growth rate or significantly promote or discourage economic activity. The facility would continue to employee approximately 5 full-time employees on Maui. As described in Section 3.15, *Public Infrastructure and Services*, continued operations would also not require an increase in demand for public services, utilities, or housing beyond existing capacity. The KWP 1 facility is not located in communities that have disproportionately minority or low-income populations and would not adversely or unreasonably impact such communities. Therefore, continued operation of KWP 1 for an additionally

20-year period is anticipated to have a negligible impact on population trends and demographics, employment, and housing in the ROI.

Direct, Indirect, and Induced Economic Benefits

As stated above, operation of the existing KWP 1 facility has a long-term, beneficial impact on the local economy. Continued operation of the KWP 1 facility under the Proposed Action is anticipated to result in similar impacts.

The Proposed Action would allow for continued supply of electricity from a local renewable energy source for an additional 20-year period. The PUC's 2024 Adequacy of Supply Report for Maui Electric (Hawaiian Electric 2024c) indicates that some shortfalls existed in Maui's energy reserve margins for 2024, highlighting the need for existing energy sources on Maui, such as KWP 1, to continue to produce electricity to meet power supply demands (Hawaiian Electric 2024c). Approximately 50% of Maui's current fossil-fueled generation fleet will need to retire by 2030 as estimated in Hawaiian Electric's Integrated Grid Planning Report and 2024 annual update (Hawaiian Electric 2023, Hawaiian Electric 2024b). This capacity will need to be replaced by the projects, including the Proposed Action, to maintain a reliable system.

Hawaiian Electric has also demonstrated that the continued operation of the KWP 1 facility plays an important role in supporting Maui grid reliability, which is extremely critical due to the increasing risk of rolling outages in the near term. These risk factors include more frequent problems with Maui's aging conventional generating units, upcoming planned retirement of multiple generating units in Kahului and Mā'alaea, and further delays or withdrawals of new energy projects. Under all the scenarios Hawaiian Electric analyzed in its Integrated Grid Plan, extending the life of the KWP 1 facility reduced risks of future rolling outages on Maui (Hawaiian Electric 2024b). The KWP 1 facility would continue to be an essential contributor to resource diversity, generating power during the day and night as well as when it is cloudy.

With continued operations, KWP 1 would also continue to deliver energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility. KWP 1 would save customers approximately $10 million per year compared to fossil fuels. The financial strain many Maui residents are experiencing due to the 2023 wildfires and the economic fallout from COVID-19 and the resulting inflation underscores the need for reliable and cost-effective electricity.

During the extended operational lifespan of the facility, KWP 1 would continue to contribute direct, indirect, and induced economic benefits to the Maui economy. KWP 1 would provide direct benefits in the form of employment and wages to employees, purchasing goods and services from other local industries, funding conservation efforts in compliance with the Proposed HCP, and funding distributed by the community benefits program. During the initial maintenance period, WTG components would be inspected, repaired and/or replaced, which would result in a temporary increase in project expenditures for professional and technical services, contractors, materials, and equipment. This would result in a short-term, minor boast to the local economy.

Overall, continued operation is anticipated to have a long-term, beneficial impact on the Maui economy.

Social and Community Contributions

Starting in 2027 through the Proposed Action 20-year lease period, KWP 1 is proposing to implement a new community benefits program. This new community benefits program is anticipated to be delivered and administered through a local, Maui-based 501(c)(3) non-profit organization over the lifetime of the program. Hawaiian Electric has established a $3,000/MW/year minimum spending recommendation for community benefits. KWP 1 is committed to a spending level of $10,000 USD/MW/year in community benefits program exclusive funding, which totals $300,000 annually for the 20-year PPA term of the Proposed Action. This is three times more than the annual community benefit funding guidance provided by Hawaiian Electric in the Maui Stage 3 RFP process. The Applicant has conducted outreach to obtain the community's input on the community benefits program and this outreach is ongoing. The community benefits program would be tailored to the needs and choice of the community. Overall, continued operations is anticipated to have a long-term, beneficial impact on the community through implementation of the community benefits program and continued community engagement.

HCP Compliance

Implementation of the Proposed HCP would have a long-term, beneficial economic impact through the continuation of locally sourced employment in the habitat monitoring field and from HCP-related expenditures. Two full-time employees and multiple contractors would continue to be required to support HCP compliance during the next 20-year lease period. KWP 1 would also continue to contribute direct, indirect, and induced economic benefits from HCP-related expenditures including reoccurring annual costs for permit compliance, fatality monitoring, bat acoustic monitoring, vegetation management, and scavenger trapping. KWP 1 would also continue to fund mitigation projects to offset the take of Covered Species at their facility.

Decommissioning and Restoration

At the end of the 20-year lease period requested by the Proposed Action, it is anticipated that KWP 1 would be decommissioned and the Project Area restored within an approximately 2-year period. These activities would provide a short-term, beneficial impact in the form of employment and decommissioning expenditure. During much of the decommissioning period on-site employment is expected to average 40 workers per day. It is unknown what the mix of available workers would be in 20 years. However, workers would likely be sourced both locally and off-island. Decommissioning activities would not induce population changes, nor would it require housing beyond existing capacity. Income received by local workers would be spent over a longer period, while workers from off-island locations would only contribute to the local economy during the decommission and/or restoration time frame. There would also be a temporary increase in project expenditures for professional and technical services, contractors, materials, and equipment during the decommissioning and restoration activities, which is anticipated to result in short-term indirect and induced economic benefits.

Given the Maui grid's reliance on the KWP 1 facility, decommissioning the KWP 1 facility would require replacement with other resources that would involve using existing fossil fuel generating facilities until new generation facilities could be constructed and come online. New solar facilities would require significantly more land to produce the same amount of energy. New combustion-based generation sources on Maui would need to be sited and permitted and are likely to worsen the State's and the County of Maui's exposure to volatile fuel prices, increase greenhouse gas emissions, and result in air quality impacts as compared to retaining the KWP 1 project. The cost to replace energy from KWP 1 would be passed immediately to consumers, whom already bear among the highest electricity costs in the U.S.

3.16.2.3 No Action Alternative

Under the No Action Alternative, the existing KWP 1 project would no longer operate and would be decommissioned, an ITP would not be issued by the USFWS, and the HCP conservation measures would not be implemented. As a result, the beneficial socioeconomic impacts associated with the continued operation of KWP 1 and from HCP compliance would not occur. There would be immediate, short-term economic benefits for the workers employed during the decommission and restoration phases. The No-Action Alternative would also include various related activities that would arise from the loss of benefits currently provided by the Project. Upon shutting off KWP 1, the Maui grid would lose power supply for an equivalent of approximately 17,000 homes each year, and Hawaiian Electric customers would lose around $10 million in annual savings compared to fossil fuel-generated energy. The Maui electric grid would not receive reliable energy through the Project, and residents would be subject to increased power shortages.

Economically, up to five local jobs may no longer be provided by KWP 1, resulting in loss of employee wages and indirect and induced economic benefits from employee spending. However, these employees may be absorbed by KWP 2. Since the existing KWP 1 infrastructure components still have significant remaining service life, decommissioning KWP 1 would mean that Hawaiian Electric and its customers would forfeit the ongoing benefits derived from this investment.

With the loss of a portion of its renewable energy portfolio, the Maui Electric grid would need to source 30 MW of energy from alternative providers. Consequently, under the No-Action Alternative, Hawaiian Electric would require replacement with other resources that would involve building new generation facilities. New wind facilities on an alternate location would disturb new land and displace other uses. New combustion-based generation sources on Maui would need to be sited and permitted and expose the residents of Maui to volatile fuel prices and greenhouse gas emissions as compared to retaining the KWP 1 project. The cost to replace energy from KWP 1 would be passed immediately to consumers and would disproportionately impact lower income households because those customers already bear the highest relative electricity cost burdens (U.S. Department of Energy 2018).

3.16.2.4 Avoidance, Minimization, and Mitigation Measures

In order to minimize any adverse socio-economic effects, under the Proposed Action, KWP 1 would continue to implement the measures outlined in Section 3.16.1.4, *Existing Avoidance, Minimization, and Mitigation Measures*. Additionally, KWP 1 would implement the following additional measures to avoid or minimize potential socioeconomic impacts:

- Continue to limit nuisance impacts to surrounding communities through implementation of additional BMPs that minimize dust (Section 3.2, *Air Quality*), erosion and sedimentation (Section 3.5, *Water Resources*), noise (Section 3.11, *Noise*), visual (Section 3.12, *Visual Resources*), and traffic impacts (Section 3.14, *Transportation and Traffic*) during continued operations, maintenance, and decommissioning/restoration.
- Contribute $300,000 annually to a community benefits program for the 20-year PPA term of the Proposed Action Implement. The community benefits program is anticipated to be delivered and administered through a local, Maui-based 501(c)(3) non-profit organization for community benefits.
- Post-decommissioning, restore the Project Area to as close to pre-construction conditions as feasible, to promote the open space characteristic of the area.

3.16.2.5 Summary of Potential Impacts

The Proposed Action would have long-term, beneficial socio-economic impacts within the ROI. KWP 1 would continue to contribute to the local economy by providing jobs to residents, expenditures for services, materials and equipment, and government revenues in the form of GET, lease revenues, and other payments for management of HCP mitigation sites. The Proposed Action also includes social and community contributions through the community benefits program as well as employment and expenditures related to HCP compliance activities. If the No Action Alternative is taken, the KWP 1 facility would be decommissioned. During the decommissioning and restoration process local employment would temporarily increase and there would be indirect and induced economic benefits as a result. The permanent closure of KWP would result in long-term, moderate negative impacts from the loss of energy cost savings, jobs, and local expenditures. Neither the Proposed Action nor the No Action Alternative would result in a significant impact on socioeconomic characteristics based on the criteria listed in Section 3.16.2.1, *Factors Considered in the Impact Analysis*. Table 3-41 summarizes potential socio-economic and environmental justice impacts from the Proposed Action and No Action Alternative.

Table 3-41. Summary of Potential Impacts to Socioeconomic Characteristics

Impact Issue	Proposed Action			No Action Alternative
	Continued Operations	HCP Compliance	Decommissioning and Restoration	
Population and housing	Negligible	Negligible	Negligible	Negligible
Employment and income	Beneficial	Beneficial	Beneficial (short-term) Minor adverse (long-term)	Beneficial (short-term) Minor adverse (long-term)
Direct, indirect, or induced economic impacts	Beneficial	Beneficial	Beneficial (short-term) Minor adverse (long-term)	Beneficial (short-term) Moderate adverse (long-term)
Disproportionate impacts to Native Hawaiian, minority, and/or low-income populations	No Impact	No Impact	No Impact	No Impact

3.17 Cumulative Impacts

3.17.1 Methods for Identifying Cumulative Effects

Cumulative impacts are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes the other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (HAR § 11-200.1-2).

HAR § 11-200-24(i) requires that an EIS include "specific reference to related actions, public and private, existent or planned in the region…for purposes of examining the possible overall cumulative impacts of such actions." This includes:

- The basis for the assessment, including the regulatory framework, the scope of the analysis, and the Cumulative Impact Analysis Area (CIAA) by resource (Section 3.17.2, *Scope of the Analysis*); and
- A summary table and brief descriptions of the relevant past, present, and reasonably foreseeable actions that could contribute to a cumulative effect (Section 3.17.4, *Present and Reasonably Foreseeable Future Actions*).

The level of analysis for each resource is commensurate with the intensity of the direct and indirect impacts identified. If the action does not have direct or indirect impacts to a resource, there would be no contribution to cumulative impacts, and the cumulative impact analysis would not be conducted for that resource.

3.17.2 Scope of the Analysis

Spatial and temporal boundaries are the two critical elements to consider when deciding which past, present, and reasonably foreseeable future actions to include in a cumulative effects analysis. Spatial and temporal boundaries set the limits for selecting those actions that are most likely to contribute to a cumulative effect. The effects of those actions must overlap in space and time with the effects of the alternatives being analyzed for there to be a potential cumulative effect.

The CIAA to be considered in the cumulative effects analysis varies by resource and consists of the geographic extent of any direct and indirect impacts as well as any of the reasonably foreseeable future actions. For most resources, the CIAA consists of the analysis area identified in Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures*. However, in some cases, the CIAA for a given resource is larger than the corresponding analysis area in order to consider an area large enough to encompass likely effects from reasonably foreseeable future actions on the same resource. Table 3-42 defines the CIAA considered for each resource.

The cumulative impacts analysis focuses on the Proposed Action. As discussed in Section 3.1.1., *Organization of Section 3*, the phases for the Proposed Action include: 1) continued operations of the KWP 1 facility for an additional 20-year period, 2) HCP compliance activities, including offsite mitigation, and 3) decommissioning and restoration period of approximately two years. The temporal extent used to identify reasonably foreseeable future projects to be considered in the cumulative effects analysis is approximately 22 years (2026 to 2048), which includes the 20-year operational life of the Project and a 2-year decommissioning and rehabilitation period.

As the No Action Alternative is comprised of only the decommissioning and restoration phase, impacts would be similar to the decommissioning and restoration phase of the Proposed Action but would occur in the first two years of the analysis period (vs. at the end of the analysis period). Therefore, the analysis of cumulative impacts from the Proposed Action in Section 3.17.5, *Cumulative Impact Analysis* can be applied to the No Action Alternative as impacts to each resource would likely be equal to or less than those anticipated from the Proposed Action.

Table 3-42. Cumulative Impact Analysis Area by Resource

Resource	Definition of Cumulative Impact Analysis Area (CIAA)	Rationale for Area
Air Quality	Maui County (i.e., Maui, Moloka'i, and Lāna'i)	Air quality impacts occur at a regional scale.
Climate and Climate Change	Maui County	Climate change impacts occur at a regional and larger scale.
Geology, Topography, and Soils	Project Area, Project vicinity, and HCP mitigation sites	Impact restricted to immediate areas where ground disturbance would occur.
Water Resources	Project Area, Project vicinity (particularly downstream of the Project Area), and HCP mitigation sites	Impacts occur within the watersheds and aquifers intersected by the Project Area and HCP mitigation sites.

Resource	Definition of Cumulative Impact Analysis Area (CIAA)	Rationale for Area
Natural Hazards	Project Area, Project vicinity, and HCP mitigation sites	Where natural hazard impacts would occur in association with the Proposed Action.
Hazardous and Regulated Materials and Waste	Project Area, Project vicinity, HCP mitigation sites, and routes of travel to and from the Project	Impacts would be limited to where hazardous materials and heavy equipment are stored, used, and transported.
Vegetation	Project Area, Project vicinity, and HCP mitigation sites	Impact restricted to areas where ground disturbance would occur and where invasive plant introduction/spread impacts could occur.
Wildlife	Non-Covered Species – Project Area, Project vicinity, and HCP mitigation sites Covered Species – Island of Maui and HCP mitigation sites	Non-Covered Species - Reasonable distance beyond which the Proposed Action are unlikely to disturb nesting birds or other native wildlife. Covered Species – Captures impacts of other wind farms on the Maui populations of Covered Species.
Cultural and Archaeological Resources	Cultural Resources – Ukumehame Ahupua'a and HCP mitigation sites Archaeological Resources – Project Area, Project vicinity (0.5-mile buffer), and HCP mitigation sites	Includes areas where potential disturbance of cultural or archaeological resources would occur.
Noise	Project Area, parcels adjacent to Project Area, and HCP mitigation sites	Areas beyond which no noise from O&M and decommissioning activities for the Project would be detectable above EPA or Hawai'i Community Noise Control recommended levels.
Visual Resources	Project Area, areas in which the KWP 1 facility is visible to the public (up to 23 miles from the Project Area), and HCP mitigation sites	Encompasses the furthest points from which structures at the KWP facility and HCP mitigation sites are visible.
Land Use	Project Area, parcels adjacent to Project Area, and HCP mitigation sites	Area that would be impacted by existing or proposed land uses.
Transportation and Traffic	Project Area, access routes leading to the Project Area, HCP mitigation sites, and major harbors and airports (e.g., Kahului Harbor, Kapalua Airport, and Kahului International Airport)	Where traffic and transportation impacts would occur in association with the Proposed Action.
Public Infrastructure and Services	Project Area, HCP mitigation sites, and surrounding area serviced by the utility providers in Maui County	Where public infrastructure and service impacts would occur in association with the Proposed Action.
Socioeconomic Characteristics	Maui County	Area that would be affected by potential socioeconomic consequences of the Proposed Action.

3.17.3 Past Actions

Past actions are generally not identified individually; rather, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative impacts. Consequently, this cumulative impacts analysis does not attempt to quantify the impacts of past human actions by adding up all prior actions on an action-by-action basis. Past actions are reflected in the baseline information presented in Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures* which provides context for the cumulative impacts analysis.

3.17.4 Present and Reasonably Foreseeable Future Actions

This section discusses present and reasonably foreseeable future actions that have the potential to overlap spatially and temporally with the Proposed Action. Identified present and reasonably foreseeable future actions were reviewed to determine if they should be considered further in the cumulative impacts analysis. Factors considered when identifying other actions to be included in the cumulative impacts analysis included the following:

- Whether the other action is likely or probable (i.e., reasonably foreseeable), rather than merely possible or speculative.
- Whether the other action and the Proposed Action would affect the same resources.
- Whether the other action would create impacts to the same populations at the same time as the Proposed Action.
- The current conditions, trends, and vulnerability of resources affected by the other action.
- The duration and intensity of the impacts of the other action, with and without the Proposed Action.
- Whether the impacts would likely be truly meaningful, historically significant, or identified previously as a cumulative impact concern.

Table 3-43 lists specific projects considered in the cumulative effects analysis and indicates for which resources there are direct or indirect impacts of the Proposed Action that overlap in space and time with impacts of other present and reasonably foreseeable future actions.

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Table 3-43. Projects Considered in the Cumulative Effects Analysis

Location	Project Name/Activity (Source)	Project Sponsor	Year Planned	Project Description	Past, Present, or Future	Resource CIAAs Overlapped[1]
Ukumehame, Maui (Adjacent to and overlapping with the Project Area)	Kaheawa Wind Power II (SWCA 2019)	Kaheawa Wind Power II, LLC	Ongoing	KWP 2 is a 21-megawatt (MW) wind farm that has been in operating since July 2012. KWP 2 shares the use of the KWP 1 O&M building and warehouse storage facility and associated access roads. The KWP 2 substation and switchyard and BESS are also located within the KWP 1 lease area. The KWP 2 HCP, amended in 2019, provides coverage for the incidental take of four federally and state-listed threatened and endangered species: ʻŌpeʻapeʻa (Hawaiian hoary bat, *Lasiurus cinereus semotus*); Nēnē (Hawaiian goose, *Branta sandvicensis*); ʻUaʻu (Hawaiian petrel, *Pterodroma sandwichensis*); and ʻAʻo (Newell's shearwater, *Puffinus newelli*). The ITP and ITL each have a term of 20 years and are effective through 2032.	Present	Air Quality, Climate and Climate Change; Geology, Topography, and Soils; Water Resources, Natural Hazards; Hazardous and Regulated Materials and Waste, Vegetation, Wildlife, Cultural and Archaeological Resources, Noise, Visual Resources, Land Use, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Ukumehame, Maui (Adjacent to and overlapping with the Project Area)	DLNR Land Management	DLNR	Ongoing	DLNR conducts various activities within and adjacent to the Project Area and the Haleakalā Ranch and Puʻu O Hoku Ranch HCP mitigation areas as part of their land management operations. Activities may include vegetation management, ungulate control, wildlife surveys and monitoring.	Present	Air Quality, Climate and Climate Change; Geology, Topography, and Soils; Water Resources, Natural Hazards; Hazardous and Regulated Materials and Waste, Vegetation, Wildlife, Cultural and Archaeological Resources, Noise, Visual Resources, Land Use, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Ukumehame, Maui (Adjacent to and overlapping with the Project Area)	Hawaiian Electric O&M Activities	Hawaiian Electric	Ongoing	Hawaiian Electric conducts various O&M activities to maintain the two transmission lines and two switchyards that are within the Project Area.	Present	Air Quality, Climate and Climate Change; Geology, Topography, and Soils; Water Resources, Natural Hazards; Hazardous and Regulated Materials and Waste, Vegetation, Wildlife, Cultural and Archaeological Resources, Noise, Visual Resources, Land Use, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
'Ulupalakua Ranch, South Maui (Approx. 17 miles southeast of the Project Area)	Auwahi Wind Farm (Tetra Tech 2011, Tetra Tech 2019, DLNR 2019)	Auwahi Wind Energy LLC	Ongoing	The Auwahi Wind Farm consists of eight 3-MW wind turbines augmented by an 11-MW battery storage system. The wind farm has been operational since 2012. The Auwahi Wind Farm HCP, amended in 2019, provides coverage for the incidental take of four federally and state-listed threatened and endangered species: Ōpeʻapeʻa (Hawaiian hoary bat); Nēnē (Hawaiian goose); ʻUaʻu (Hawaiian petrel); and the Blackburn's sphinx moth (*Manduca blackburni*). The ITP and ITL each have a term of 25 years and are effective through 2037.	Present	Air Quality, Climate and Climate Change, Wildlife, Public Infrastructure and Services, Socioeconomic Characteristics

Location	Project Name/Activity (Source)	Project Sponsor	Year Planned	Project Description	Past, Present, or Future	Resource CIAAs Overlapped[1]
Lāhainā, Maui (Approx. 6 miles northwest of the Project Area)	Lāhainā Redevelopment Projects (County of Maui 2024d)	County of Maui	Ongoing	In December 2024, the County of Maui published the Lahaina Long-Term Recovery Plan, a roadmap that identifies 40 priority projects that are deemed vital to long-term recovery from the 2023 Maui wildfires. The following projects within this plan have the potential for cumulative impacts. Many of these projects are in the initial planning stages and are dependent on findings from feasibility studies and community input. - Rebuild Lahaina Plan - Enhance Emergency Communication Networks - Energy Resilience and Redundancy - Maui Emergency Management Agency (MEMA) Advancement Program - Street Connectivity and Extensions - Wildfire Risk Reduction and Mitigation - Lahaina Bypass Phase 1C - Inter-Island Ferry System Given its significance for both history and economic opportunity, Lāhainā redevelopment is the focus of considerable public policy as well as public and private investment. Therefore, over the long term, it is anticipated that West Maui would return to pre-fire levels of economic activity and travel demand, and would ultimately resume the anticipated long-range growth forecasts established by the Maui County Metropolitan Planning Organization. For the purposes of this assessment, Lāhainā would be anticipated to be substantially rebuilt by the 2047 analysis year of this cumulative effects analysis.	Present, Future	Air Quality, Climate and Climate Change, Wildlife, Cultural and Archaeological Resources, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Ukumehame to Launiupoko, Lāhainā, Maui (Approx. 2 miles southwest of the Project Area)	Honoapi'ilani Highway Improvements Project West Maui: Ukumehame to Launiupoko (HDOT 2024b)	HDOT Highways Division	Start Construction: 2026 Start Operations: 2030	In January 2025, an EIS was published for the Honoapi'ilani Highway Improvements Project in West Maui. Honoapi'ilani Highway (State Route 30) provides the main access between communities along the west coast of Maui and the rest of the island and is subject to periodic flooding and coastal erosion. The primary purpose of this project is to provide a reliable transportation facility in West Maui by reducing the highway's vulnerability to coastal hazards. Specifically, the project proposes to relocate about 6 miles of the highway away from the coastline from approximately milepost 11, in the vicinity of Pāpalaua Wayside Park to Launiupoko, at milepost 17, the existing southern terminus of Lāhainā Bypass.	Future	Air Quality, Climate and Climate Change, Wildlife, Cultural and Archaeological Resources, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Wailuku, Maui (Approx. 4 miles northeast of the Project Area)	Pu'uhona Homestead Subdivision (DHHL 2025a)	State of Hawai'i Department of Hawaiian Homelands (DHHL)	Start Construction: 2023 Start Operations: 2025	The Pu'uhona Homestead Subdivision project involves the development and construction of a new residential subdivision on roughly 47-acres in Wailuku. The subdivision would develop a maximum of 161 residential lots (137 turn-key single-family homes and 24 vacant improved lots) for DHHL beneficiaries.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Wailuku, Maui (Approx. 4.5 miles northeast of the Project Area)	Wailuku Single Family Residential Subdivision Project (DHHL 2025a; G70 2024)	DHHL	Start Construction: 2026 Start Operations: 2028	The Wailuku Single Family Residential Subdivision Project involves the development and construction of a new residential subdivision on roughly 77-acres in Wailuku. The subdivision would develop a maximum of 204 residential lots (173 turn-key single-family homes and 31 vacant improved lots) for DHHL beneficiaries.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Wailuku, Maui (Approx. 6 miles northeast of the Project Area)	Wai'ehu Mauka (DHHL 2025a)	DHHL	Start Construction: 2026 Start Operations: 2027	The Wai'ehu Mauka subdivision project involves the development and construction of a new residential subdivision on roughly 238 acres in Wailuku. The subdivision would be comprised of 398 lots (343 single family turn-key homes and 55 rural half acre owner-builder lots) for DHHL beneficiaries.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Lāhainā, Maui (Approx 10 miles northwest of the Project Area)	Villages of Leiali'i 1B (DHHL 2025a; Munekiyo Hiraga 2022)	DHHL	Not Specified (Start operations 3 to 4 years once land use entitlements are obtained)	The Villages of Leiali'i 1B project involves the development and construction of a new residential subdivision comprised of a maximum of 181 residential lots for DHHL beneficiaries in Lāhainā.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics

Location	Project Name/Activity (Source)	Project Sponsor	Year Planned	Project Description	Past, Present, or Future	Resource CIAAs Overlapped[1]
Lāhainā, Maui (Approx. 12 miles northwest of the Project Area)	Honokōwai Master Plan (DHHL 2025b; PBR Hawaii 2022)	DHHL	Start Construction: 2024 Start Operations: 2028	The Honokōwai Master Plan project would consist of the development of up to a maximum of 1,181 dwelling units across approximately 800 acres in Honokōwai ahupua'a. This project has been fast tracked as part of the Lāhainā redevelopment and is anticipated to be complete and occupied by 2045. The first phase would consist of approximately 56 subsistence agricultural homesteads, and the second phase would consist of approximately 394 single-family and subsistence agricultural homesteads. The remaining dwelling units would be constructed and occupied after Phases I and II.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Kīhei, Maui (Approx. 4.5 miles east of the Project Area)	Kamalani Increments 2 & 3 Project (DHHL 2025a)	DHHL	Not Specified	The Kamalani Subdivision Project involves the development and construction of a new residential subdivision on roughly 81-acres in Kīhei. The subdivision would develop 150 residential lots.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Visual Resources, Public Infrastructure and Services, Socioeconomic Characteristics
Wailuku, Maui (Approx. 7 miles northeast of the Project Area)	Ho'onani Village Mixed-Use Development (Pioneer Design Group 2025)	Ho'onani Development, LLC	Not Specified	The Ho'onani Village Mixed-Use Development Project is a high-density master-planned multi-use community that anticipates a total of approximately 1,600 residential apartment units, inclusive of about 50% workforce housing units, located across the approximately 166-acre site in the Kahului area of Central Maui. Development will be done in six phases, bringing 200 units per year. The phasing plan is preliminary and will be finalized with the construction plans for the project.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Wailuku, Maui (Approx. 6.5 miles northeast of the Project Area)	Waiehu Residential Community (Chris Hart 2022)	Genova Construction Development	Not Specified	The Waiehu Residential Community Project proposed to develop approximately 158 acres of land in Wailuku into a new affordable, 752-unit residential community along with associated infrastructure. Out of the proposed 752 dwelling units, 184 will be multi-family units and 568 will be single-family units.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Public Infrastructure and Services, Socioeconomic Characteristics
Kīhei, Maui (Approx. 4.5 miles east of the Project Area)	Ledcor South Maui Properties and Improvements (PBR Hawaii 2025)	Ledcor Maui LP	Not Specified (Next 15 to 20 Years)	A mix of single family and multifamily residential communities are proposed for eight properties in the Kīhei and Wailea Resort communities, which have a permitted density of over 1,991 residential units (or up to 2,137 residential units with permitted Planned Development bonuses). Ledcor is proposing an estimated total of 925-975 units and will be developing comprehensive plans for these remaining owned and leased infill parcels.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Visual Resources, Public Infrastructure and Services, Socioeconomic Characteristics
Makena, Maui (Approx. 10 miles southeast of the Project Area)	Makena Mauka project (Munekiyo Hiraga 2024)	Mākena Golf & Beach Club Owners	Not Specified	Mākena Mauka, a low-density master planned residential community that incorporates two existing 18-hole golf courses in the Makena area. The preliminary conceptual land plan anticipates a total of 850 to 900 residential units, inclusive of 94 to 100 onsite workforce housing units, located across an approximately 1,040-acre area including approximately 473 acres that are planned for residential development.	Future	Air Quality, Climate and Climate Change, Wildlife, Transportation and Traffic, Visual Resources, Public Infrastructure and Services, Socioeconomic Characteristics
Hāna, Maui (Approx. 20 miles east of the Project Area)	Pilot Release of 'Alalā (*Corvus hawaiiensis*) on East Maui, Hawai'I (DLNR 2023)	DLNR DOFAW / USFWS	Not Specified	In January 2024, a Final EA and finding of no significant impact was published for the Pilot Release of 'Alalā (*Corvus hawaiiensis*) on East Maui, Hawai'i. The 'alalā or Hawaiian crow is extinct in the wild, but a captive population survives in conservation breeding centers in Hawai'i. The purpose of this short duration pilot project is to evaluate the suitability of east Maui as 'alalā habitat. Montane native forest on east Maui is similar to native forest on Hawai'i island, except east Maui is generally wetter, and 'io (Hawaiian hawk) are not present on Maui. The Proposed Action would allow managers to evaluate whether 'alalā would survive and breed in east Maui and have better survival in habitat absent of 'io.	Future	Wildlife

1. Indicates that a past, present, or foreseeable project/activity effect overlaps in space and time with the same type of direct or indirect effect of the Proposed Action.

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3.17.5 Cumulative Impact Analysis

3.17.5.1 Air Quality

Cumulative air quality impacts would occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of air quality impacts on a given area over a longer period of time. The CIAA for air quality is the Maui County.

In general, air quality in Maui County is among the best in the nation. In the 5-year period from 2019 to 2023, the State of Hawai'i was in attainment of all NAAQS and SAAQS (HDOH CAB 2024). The existing air quality in the vicinity of the Project Area and HCP mitigation sites is generally well within regulatory limits because of the low levels of development and automobile emissions and exposure to prevailing trade winds that help disperse the emissions.

In the short-term, construction of new residential subdivisions in Wailuku, Kīhei, and Makana, the Lāhainā Redevelopment projects, the Honoapi'ilani Highway Improvements Project, as well as O&M activities conducted by KWP 2, DLNR and Hawaiian Electric within the Project Area would generate fugitive dust and exhaust emissions. However, emissions would have a localized, temporary impact on air quality. In combination with the negligible to minor air emissions anticipated from the Proposed Action, there would not be a significant cumulative impact on air quality from these projects.

The Proposed Action's principal effect on air quality would be through the long-term reduction in emissions from combustion of the fuels that would otherwise be burned to generate the electricity that KWP 1 would provide during the 20-year operational period. In combination with the actions of KWP 2 and Auwahi Wind Farm, the two other wind farms in the region, the Proposed Action would result in a net benefit on air quality impacts in the CIAA.

See Section 3.2, *Air Quality* for additional information.

3.17.5.2 Climate and Climate Change

Climate change impacts from greenhouse gases occur at regional, continental, and global geographic scales. The CIAA for climate and climate change is Maui County. In contrast to ambient air quality conditions, climate change conditions at any point in time are driven primarily by cumulative historical greenhouse gas emissions on a regional or larger geographic scale, rather than recent greenhouse gas emissions on a local scale.

In the short-term, construction of new residential subdivisions in Wailuku, Kīhei, and Makana, the Lāhainā Redevelopment projects, the Honoapi'ilani Highway Improvements Project, as well as O&M activities conducted by KWP 2, DLNR and Hawaiian Electric within the Project Area would generate greenhouse gas emissions from vehicles and construction equipment; however, these emissions would be temporary and minor. In combination with the negligible greenhouse gas emissions anticipated from operations and decommissioning of the Proposed Action, no significant cumulative contribution on greenhouse gas emissions is anticipated.

The new residential subdivision projects may contribute to long-term greenhouse gas emissions from residential energy consumption, landscaping equipment, residential vehicular travel, water use, and waste generation. However, as the Proposed Action would displace fossil fuel combustion as a source of power generation, the long-term climate change impact of the Proposed Action is anticipated to be a beneficial one. Consequently, the Proposed Action would have a net benefit on cumulative climate change impacts in combination with the actions of KWP 2 and Auwahi Wind Farm which also aim to increase climate resiliency.

See Section 3.3, *Climate and Climate Change* for additional information.

3.17.5.3 Geology, Topography, and Soils

The CIAA for geology, topography, and soils is the Project Area, Project vicinity, and HCP mitigation sites.

Geology, topography, and soils within the Project Area have been disturbed from previous land uses including the construction and operation of the existing KWP 1 and KWP 2 facilities. The Project Area and HCP mitigation areas are not known to contain areas of geologic or topographic importance and would not result in significant impacts to geology or geologic hazards. The Proposed Action would result in the disturbance of up to 58 acres of previously disturbed area. Ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint. Offsite mitigation activities at the four HCP mitigation areas may include minor improvements that would require limited ground disturbance and temporarily increase the risk of soil loss, erosion, and sedimentation of surface waters. Implementation of standard BMPs for soil erosion and restoring disturbed areas would minimize these impacts. In the long term, reforestation and restoration of roosting and foraging habitats would have the benefit of stabilizing soil and reducing risk of erosion.

KWP 2 and ongoing DLNR land management and Hawaiian Electric O&M activities have overlapping CIAAs that include the Project Area and together these projects have the potential to cause cumulative impacts on geology, topography, and soils. Like KWP 1, KWP 2 implements avoidance and minimization measures to prevent adverse impacts from erosion, sedimentation, and potential pollutants. Assuming similar BMPs and mitigation measures are implemented for the other projects in the CIAA, the Proposed Action, in conjunction with other projects, would not have a significant cumulative impact on geology, topography, and soils.

See Section 3.4, *Geology, Topography, and Soils* for additional information.

3.17.5.4 Water Resources

The CIAA for water resources is the Project Area, Project vicinity (particularly downstream of the Project Area), and HCP mitigation sites.

The Proposed Action would result in temporary, localized impacts to hydrology and surface water resources within the analysis area through erosion and stormwater runoff potentially affecting surface waters including Malalowaiaʻole Gulch and an unnamed stream, which intersect the Project Area, and the four branches of Kapohaku Gulch that are within the Puluma Lānaʻi mitigation area. Implementation

of mitigation measures would minimize these impacts. There are no streams, wetlands, or other surface waters within the Makamakaʻole, Haleakalā Ranch, and Puʻu O Hoku mitigation sites. No measurable impacts would occur from the Proposed Action to groundwater quality or quantity or marine waters within the CIAA.

KWP 2 and ongoing DLNR land management and Hawaiian Electric O&M activities have overlapping CIAAs that include the Project Area and together these projects have the potential to cause cumulative impacts on water resources. Like KWP 1, KWP 2 implements avoidance and minimization measures to prevent adverse impacts from erosion, sedimentation, and other water pollutants. Assuming similar BMPs and mitigation measures are implemented for the other projects in the CIAA, the Proposed Action, in conjunction with other projects, would not have a significant cumulative impact on water resources in the CIAA.

See Section 3.5, *Water Resources* for additional information.

3.17.5.5 Natural Hazards

The CIAA for natural hazards is the Project Area, Project vicinity, and HCP mitigation sites.

The Project Area and HCP mitigation sites are outside flood hazard areas, tsunami inundation zones, and lava-flow hazard zones. During the operational period of the Proposed Action, Project facilities could be exposed to seismic, hurricane, high wind, lightning, and fire hazards. The only natural hazard likely to be impacted by the Proposed Action is a minor, increased fire risk. To avoid and minimize this risk, KWP 1 would continue to implement its Emergency Response Plan, Wildfire Prevention Plan, and other operational BMPs the event of a weather emergency. KWP 2 also implements similar emergency and safety plans. To address the ongoing risk of wildfires in Maui, Hawaiian Electric implemented a PSPS program, which would allow them to preemptively shut off power during times of increased fire risk. The portion of Honoapiʻilani Highway adjacent to the main access road is designated as a PSPS Affected Area. Hawaiian Electric also maintains two ALERTWest camera stations within the Project Area to monitor electrical infrastructure for potential ignitions. Collectively, the Proposed Action in combination with other projects in the CIAA would not result in a significant cumulative impact to people and property in the event of a natural hazard.

See Section 3.6, *Natural Hazards* for additional information.

3.17.5.6 Hazardous and Regulated Materials and Waste

As impacts from hazardous and regulated materials and waste are limited to where hazardous materials are stored, used, and transported, the CIAA for hazardous and regulated materials and waste is the Project Area, Project vicinity, HCP mitigation sites, and routes of travel to and from the Project Area.

The Proposed Action would involve the use, storage, transport, and disposal of hazardous and regulated materials including waste oil from the WTG turbines and transformers, hazardous materials and wastes required for and derived from KWP 1 equipment and facilities, and hazardous materials and petroleum products used for heavy equipment and vehicles. The Proposed Action would comply with all relevant

laws, ordinances, and regulations and implement standard industry BMPs related to hazardous materials management. So long as avoidance, minimization, and mitigation measures are implemented, the Proposed Action would have negligible to minor adverse impacts from hazardous and regulated materials and waste. It is assumed that the KWP 2, DLNR land management and Hawaiian Electric O&M activities, which overlap the CIAA, would also adhere to all relevant laws, ordinances, and regulations and implement standard industry BMPs. Therefore, cumulative impacts from the use and presence of hazardous and regulated materials and wastes at the CIAA would be minor.

See Section 3.7, *Hazardous and Regulated Materials and Wastes* for additional information.

3.17.5.7 Vegetation

The CIAA for vegetation is the Project Area, Project vicinity, and HCP mitigation sites. Other projects in the CIAA include KWP 2, DLNR land management, and Hawaiian Electric O&M activities.

Vegetation at the Project Area is dominated by non-native species and consists of primarily non-native grassland and non-native and native dry shrublands. No listed or otherwise rare plant species have been recorded in the Project Area in previous or recent surveys for the existing wind farm or in post-construction monitoring over the last 19 years. Native plant species were observed in the April 2025 botanical survey (Appendix D), including 7 species which are endemic to and found only in the Hawaiian Islands. The native plant species observed are considered common species throughout the Hawaiian Islands.

Direct impacts to vegetation from ground disturbance and continued vegetation management activities would be the primary impact to vegetation from the Proposed Action and other projects within the CIAA. Operations and decommissioning of KWP 1 and KWP 2 and other operational activities of DLNR and Hawaiian Electric in the Project Area and vicinity could also indirectly impact vegetation through the introduction or spread of invasive species. In order to minimize adverse effects on vegetation, KWP 1 would implement a Vegetation Management Plan (Appendix F) and Invasive Species Prevention Plan (Appendix G). Assuming similar BMPs and mitigation measures are implemented for these other projects, the Proposed Action, in conjunction with other projects would not have a significant cumulative impact on vegetation.

See Section 3.8, *Vegetation* for additional information.

3.17.5.8 Wildlife

Non-listed Wildlife and MBTA-protected Species

The CIAA for non-listed wildlife and MBTA-protected species and other avian species of concern is the Project Area, Project vicinity, and HCP mitigation sites. This area encompasses the areas where potential direct and indirect effects to wildlife could occur. Past, present, and reasonably foreseeable actions that overlap in space and time with the impacts of the Proposed Action include KWP 2, DLNR land management, and Hawaiian Electric O&M activities.

The Proposed Action, KWP 2 and operational activities of DLNR and Hawaiian Electric may result in a minor contribution to the reduction of habitat for some non-listed wildlife species; however, all of the non-listed wildlife species occurring in the Project Area are common and widespread, and generally tolerant of development. Mitigation measures proposed under the Proposed HCP would improve habitat for non-listed wildlife, including MBTA-protected species, by removing invasive plant and animal species, protecting habitat, and restoring native vegetation within the HCP mitigation areas. Continued operation of the KWP 1 and KWP 2 wind farms and the existing Hawaiian Electric transmission lines present a potential collision risk for MBTA-protected species and other avian species. Post-construction monitoring within the Project Area would continue to assess effects to all species. Therefore, the Proposed Action, in conjunction with other projects occurring in the CIAA would not have a significant cumulative impact on non-listed wildlife and MBTA-protected species.

Threatened and Endangered Species

The analysis area for cumulative effects for threatened and endangered species encompasses the Island of Maui and the HCP mitigation sites to capture other operating wind farms on Maui that could impact, the same population of species that are the focus of the Proposed HCP.

The Proposed Action is one of many projects that have the potential to impact threatened and endangered species on a range-wide basis. KWP 1 and other commercial wind projects on Maui have the potential to result in incidental take of listed species through collisions or other interactions with wind turbines. KWP 1, KWP 2 and Auwahi implement project-specific HCPs in consultation with DLNR DOFAW and USFWS to manage minimize and mitigate the incidental take of threatened and endangered species. It is the objective of each HCP to result in a net benefit to Covered Species through off-site mitigation activities.

Further, rapid population growth and real estate development have occurred on Maui and, as evidenced by the numerous subdivision projects listed in Table 3-43, is expected to continue. Risk of Covered Species becoming disoriented by human light sources, loss of nesting or roosting habitat, pesticide use, increased obstacles that could pose collision risks, and increased predation may also result from this development. It is assumed that future development projects would be conducted in compliance with all applicable local, State, and Federal environmental regulations; however, projects involving the development of HCPs are among the few that would implement measures to offset take of listed species.

For these reasons, the Proposed Action in combination with past, present, and reasonably foreseeable projects, would not significantly contribute to adverse cumulative effects to threatened and endangered species.

See Section 3.9, *Wildlife* for additional information.

3.17.5.9 Cultural and Archaeological Resources

Cultural Resources

The CIAA for cultural resources encompasses the Ukumehame Ahupua'a, the Project Area, and the immediate surrounding regions. The analysis area captures the indirect and direct cultural impacts of the Proposed Action on the ahupua'a and broader cultural context. KWP 2, DLNR land management, Hawaiian Electric O&M activities, the Honoapi'ilani Highway Improvements Project, and the Lahaina redevelopment projects have an overlapping CIAA for cultural resources.

With implementation of existing and proposed avoidance, minimization, and mitigation measures, the Proposed Action is anticipated to have minor impacts to cultural resources including valued cultural resources, culturally valued natural resources, archaeological and historic features, and traditional Native Hawaiian practices. KWP 1 and KWP 2, particularly the turbines, represent a highly visible aspect of the contemporary West Maui landscape and this visibility could alter the character or experience of specific ritual practices. Since KWP 1 and KWP 2 are existing facilities that have been in operation for over a decade, and in consideration of the avoidance and minimization measures described in Section 3.10, *Cultural and Archaeological Resources*, it is anticipated that there would be no new impacts to traditional and customary Native Hawaiian rights as a result of continued operations. The presence of the KWP 1 and KWP 2 facility and Hawaiian Electric infrastructure may also restrict access of Native Hawaiians to cultural sites and the surrounding areas, particularly during maintenance and decommissioning periods, however these restrictions would be temporary and as noted in Section 3.10, *Cultural and Archaeological Resources*, the Applicant would provide access to cultural practitioners to lands above and adjacent to KWP 1's lease area.

It is assumed that future development projects within the CIAA including the Honoapi'ilani Highway Improvements and the Lahaina redevelopment projects would conduct their own cultural impact assessments and implement project-specific avoidance and minimization measures to reduce cultural impacts. As such, it is not expected that the Proposed Action in conjunction with the project listed in Table 3-43, would have a significant cumulative impact on cultural resources.

Archaeological Resources

The CIAA for archaeological resources is the Project Area and a 0.5-mile buffer around the Project Area to account for potential indirect impacts to archaeological resources. KWP 2, DLNR land management, and Hawaiian Electric O&M activities overlap with the CIAA for archaeological resources.

With implementation of existing and proposed avoidance, minimization, and mitigation measures, the Proposed Action is anticipated to have minor impacts to archaeological resources. Operational and maintenance activities conducted by KWP 1, KWP 2, DLNR, and Hawaiian Electric as well as the decommissioning/restoration of the KWP 1 facility could unintentionally damage historic sites. Under the Proposed Action, ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint. Therefore, the Proposed Action is anticipated to have a negligible impact on archaeological resources. Additionally, historic properties recommended for preservation by SHPD, such

as the heiau and Lāhainā Pali Trail, may require maintenance, monitoring and/or protection during the maintenance period, as needed. The Proposed Action would implement or support measures identified in applicable historic site preservation plans to protect archaeological sites identified for preservation within and immediately adjacent the Project Area. It is expected that the actions in the overlapping CIAA would have project-specific archaeological evaluations and mitigation measures. As such, it is not expected that the Proposed Action would have a substantially contribute to cumulative impacts on archaeological resources.

See Section 3.10, *Cultural and Archaeological Resources* for additional information.

3.17.5.10 Noise

Cumulative effects to noise can result when sound levels generated by more than one source within the CIAA are individually minor but collectively exceed regulatory thresholds. The CIAA for noise is the Project Area, parcels adjacent to the Project Area, and HCP mitigation sites – areas beyond which noise would not be detectable above national or state noise control recommended levels.

During continued operations, noise levels at the Project Area would remain unchanged, as there would be no significant increase in personnel, changes to O&M activities, or additional vehicle trips. The facility is located away from sensitive receptors and KWP 1 would continue to implement operational BMPs to minimize noise from the facility. Although modeling results show that there are exceedances of the daytime and nighttime noise limits at the parcel boundary due to the Class A Zoning District maximum permissible levels being the most restrictive, NSRs are not expected to be in proximity to the parcel boundary given the surrounding land use and terrain. Therefore, no meaningful noise impacts would occur at the parcel boundary. Noise levels at Lāhainā Pali Trail could exceed Class A zoning district noise limits during maintenance and decommissioning activities. A noise permit or variance would be obtained from HDOH, as needed. Modeled sound levels at all other NSRs are well below the daytime and nighttime limits for the Class A zoning district. Overall, the continued operation of the KWP 1 facility is anticipated to have a negligible to minor impact on noise.

KWP 2 and ongoing DLNR land management and Hawaiian Electric O&M activities have overlapping CIAAs and the potential to have cumulative impacts on noise. Noise impacts from KWP 2 are anticipated to be similar to KWP 1 although the facility is located further from the property boundaries but closer to Lāhainā Pali Trail. Both KWP 1 and 2 have implemented operational and design BMPs to minimize noise from these facilities. Ongoing DLNR land management and Hawaiian Electric O&M activities would likely result in temporary, short-term noise impacts from equipment and vehicles. No additional sources of noise, such as indirect commercial or industrial development, are known to be planned in the near future in proximity to the Project Area. Therefore, the Proposed Action would not be expected to contribute to cumulatively significant noise impacts.

See Section 3.11, *Noise* for additional information.

3.17.5.11 Visual Resources

Cumulative impacts associated with visual resources would generally occur where the Project visibility is added to other dominant visual structures. The CIAA for visual resources encompasses the furthest points from which the components of the KWP 1 facility is visible, which is up to 23 miles from the Project Area.

The KWP 1 WTGs, which stand approximately 296 feet tall, are visible from a significant portion of the island. However, because the Proposed Action is a continuation of the existing KWP 1 facility, the continued use of the existing WTG do not represent a new feature on the landscape. KWP 1's WTGs have been visible since 2006 and under the Proposed Action would continue to be an existing visual feature of the West Maui Mountains during the additional 20 year operational period. The facility would continue to be visible from scenic roadways, parks, and other public access points, including the Lāhainā Pali Trail and coastal sections of Honoapi'ilani Highway, as well as from Kīhei and Wailea.

KWP 2, ongoing DLNR land management and Hawaiian Electric O&M activities, and several residential subdivision projects in Kīhei, and Makena have overlapping CIAAs and potential to have cumulative impacts on visual resources. Like KWP 1, KWP 2 is visible from large portions of Kīhei and Wailea but has been a visual feature of the West Maui Mountains since its construction in 2012. The other projects within the CIAA would be low-lying and are not expected to result in significant changes to the visual character of the area. Therefore, the Proposed Action, in conjunction with other projects, would not change the existing viewshed within the CIAA and therefore not further contribute to the cumulative impacts on visual resources in the CIAA.

See Section 3.12, *Visual Resources* for additional information.

3.17.5.12 Land Use

The CIAA for land use is the Project Area, parcels adjacent to Project Area, and HCP mitigation sites, as these are the areas that would be impacted by current and proposed land uses at the KWP 1 Facility. KWP 2, ongoing DLNR land management and Hawaiian Electric O&M activities have overlapping CIAAs with the Proposed Action and potential to have cumulative impacts on land use.

The Proposed Action is anticipated to have a negligible impact on current and planned land uses with the Project Area or of adjacent parcels. KWP 1 would continue over the 20-year additional operational period. Likewise, the four HCP mitigation sites would continue to be used for the conservation of the Covered Species. No changes to the current land uses or land use designations are proposed. The KWP 1 facility has the potential to create dust, noise, visual and traffic nuisances for adjacent property owners. However, these impacts would be avoided or minimized such that no significant impacts are anticipated.

KWP 2, ongoing DLNR land management and Hawaiian Electric O&M activities are anticipated to continue through the 22 year lifespan of the Proposed Action. No significant changes to these existing uses are anticipated. Activities at the KWP 1 and other projects within the CIAA would continue to be

compatible with State and County land use designations and, the Proposed Action would not contribute to significant cumulative impacts on land use.

See Section 3.13, *Land Use* for additional information.

3.17.5.13 Transportation and Traffic

The CIAA for transportation and traffic includes the Project Area and HCP mitigation sites, access routes leading to these sites, and major harbors and airports on Maui.

The Proposed Action is anticipated to have minor, short-term impacts on traffic during the initial maintenance period and decommissioning and restoration phases of the Project. The Proposed Action would have negligible impact on pedestrian, air, and marine transportation. Likewise, the HCP mitigation activities are anticipated to have a negligible impact on traffic and transportation.

The Honoapi'ilani Highway Improvements Project and construction activities associated with residential subdivision projects listed in Table 3-43 would likely contribute to traffic congestion, fugitive dust emission, and noise along those project areas and transportation routes. The initial maintenance and decommissioning/restoration of the KWP 1 facility would result in increased traffic to and from the Project Area and has the potential to result in short-term adverse impacts to traffic if simultaneously overlapping with the construction phases of the reasonably foreseeable future actions. The short-term adverse traffic impacts would be mitigated with a traffic management plan and transporting oversized loads during off-peak traffic times. Additionally, transportation of oversized loads that would disrupt traffic would require a permit from HDOT and the County of Maui and would take into account other traffic disruptions. Therefore, the Proposed Action would not contribute to significant cumulative impacts to traffic or transportation within the CIAA.

See Section 3.14, *Transportation and Traffic* for additional information.

3.17.5.14 Public Infrastructure and Services

The CIAA for public infrastructure and services is the Project Area, HCP mitigation sites, and the surrounding area serviced by utility providers in Maui County.

The existing infrastructure systems are adequate to support the needs of the KWP 1 facility and HCP mitigation areas for the next 20 years. The Proposed Action would result in short-term, minor adverse impacts during the initial maintenance period when power generation from KWP 1 would cease. In the long-term, the continued operation of KWP 1 for an additional 20-year period would have beneficial impacts on electric services by providing affordable, renewable power for the Hawaiian Electric grid and its customers. In combination with the actions of KWP 2 and Auwahi Wind Farm, the two other wind farms in the region, the Proposed Action would result in a beneficial, cumulative impact on electric services in the CIAA.

The Proposed Action is anticipated to have negligible to minor adverse impacts other public infrastructure and services, including telecommunications, water, wastewater, solid waste, police and fire

protection, healthcare and emergency medical services, and recreational facilities. The highway improvement and residential subdivision projects listed in Table 3-43 would likely increase demand for these public services and infrastructure. KWP 1 would continue to implement BMPs to minimize adverse effects on public infrastructure and services. Assuming similar BMPs and mitigation measures are implemented for the other projects in the CIAA, the Proposed Action, in conjunction with other projects, would not have a significant cumulative impact on public infrastructure and services.

See Section 3.15, *Public Infrastructure and Services* for additional information.

3.17.5.15 Socioeconomic Characteristics

The CIAA for socioeconomic characteristics is Maui County since cumulative economic and social impacts would affect the communities residing in the county.

The Proposed Action would have long-term, beneficial socio-economic impacts within the CIAA. KWP 1 would continue to contribute to the local economy by providing jobs to residents, expenditures for services, materials and equipment, and government revenues in the form of GET, lease revenues, and other payments for management of HCP mitigation sites. The Proposed Action also includes social and community contributions through the community benefits program as well as employment and expenditures related to HCP compliance activities.

The construction phases of the ongoing and reasonably foreseeable projects may overlap with the 6-to-9-month maintenance period of KWP 1. This could result in a collective, increased demand for construction labor, which is already limited in Maui County. However, the maintenance activities at the KWP 1 facility would typically require more specialized personnel compared to residential and commercial construction, which typically involves more commonly available construction specialties. Therefore, it is not anticipated that the Proposed Action, in conjunction with reasonable and foreseeable projects in the CIAA, would result in a significant, cumulative impact on labor.

The other ongoing and reasonably foreseeable projects would have positive impacts on the local economy through the local procurement of materials and equipment, employment and wages, and indirect and induced spending. Procurement and other expenditures would also generate state and county GET and use tax revenues. As such, the Proposed Action would contribute to cumulative beneficial impacts on the economy within the CIAA.

See Section 3.16, *Socioeconomic Characteristics* for additional information.

4.0 Regulatory Context/Consistency with Plans and Policies

In accordance with the requirements of HAR §11-200.1-24(j), this section discusses the relationship of the Proposed Action to "land use and natural and cultural resource plans, policies, and controls for the affected area." This section also discusses how the Proposed Action "may conform or conflict with objectives and specific terms of approved of proposed land use and resource plans, policies, and controls, if any, for the affected area." Where a conflict or inconsistency exists, described is the extent to which the Proposed Action has been reconciled "with the plan, policy, or control, and the reasons why the Applicant […] has decided to proceed, notwithstanding the absence of full reconciliation."

The applicable federal, state, and county regulations, policies, and resource plans to the Proposed Action are addressed in Sections 4.1 to 4.3, respectively. Section 4.4 includes a list of the permits and approvals that would be obtained pursuant to those regulations and policies.

4.1 Federal Regulations

4.1.1 Endangered Species Act

The purpose of the ESA is to provide a means whereby the ecosystems upon which threatened and endangered species depend may be conserved…" (16 USC 1531(b)). Section 9(a)(1)(B) of the ESA prohibits the take of any fish or wildlife species listed as endangered. Under federal regulation, take of fish or wildlife species listed as threatened is also prohibited, unless a species-specific exemption is granted (50 CFR 17.31(a)) Take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The USFWS defines "harm" (50 CFR 17.3) as "...an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." The USFWS further defines "harass" as "...an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 CFR 17.3).

Section 10(a) of the ESA allows, under certain terms and conditions, for the incidental take of species listed as threatened or endangered by non-federal entities that would otherwise be prohibited under Section 9 of the ESA. Incidental take is defined as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity" (16 USC 1539(a)(1)(B)). To obtain this incidental take authorization, the Applicant must develop, fund, and implement a USFWS-approved HCP to minimize and mitigate to the maximum extent practicable the impact of the proposed taking.

Incidental take may be permitted through the issuance of an ITP by the USFWS. An ITP can be issued only if the HCP meets the following six criteria listed in 50 CFR 17.22(b)(2), 50 CFR 17.32(b)(2), and 16 USC 1539:

- The taking will be incidental, and not the purpose of, carrying out an otherwise lawful activity
- The Applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the taking
- The Applicant will ensure that adequate funding for the conservation plan implementation will be provided.
- The applicant has provided procedures to deal with unforeseen circumstances.
- The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild;
- The measures and conditions, if any, required under paragraph (b)(1)(xi) of this section will be met.
- The applicant has provided any other assurances the Director requires to ensure that the conservation plan will be implemented.

The issuance of the ITP is a federal agency action that must also comply with Section 7 of the ESA (16 USC 1536). Section 7(a)(2) of the ESA requires federal agencies to consult with the USFWS to ensure that actions that the federal agencies authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in destruction or adverse modification of designated critical habitat of such species. In order to issue an ITP, the USFWS is required to conduct an internal formal consultation process, which includes preparation of a Biological Opinion that evaluates the impacts of the proposed action and establishes an overall effects determination. The resulting Biological Opinion will encompass issuance of the ITP and implementation of an HCP.

Discussion: As detailed in Section 3.9, *Wildlife*, seven federally listed wildlife species could occur within or transit the Project Area: ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), ʻaʻo (Newell's shearwater), ʻakēʻakē (Band-rumped Storm Petrel*)*, assimulans yellow-faced bee, and Blackburn's sphinx moth.

KWP 1 has been operating under the terms and conditions outlined in its current HCP (KWP 2006) and the associated federal ITP (TE72434A-1) and ITL (ITL-08). The ITP and ITL expire in January 2026, and cover incidental take of the following Covered Species: ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), and ʻaʻo (Newell's shearwater).

To proceed, the Proposed Action would require a new ITP from USFWS, a new ITL from DLNR DOFAW, and approval of the Proposed HCP (Tetra Tech 2025a) to cover incidental take of threatened and endangered species that may occur during the Proposed Action's extended operation period. The Covered Species for the Proposed Action include the four species covered in KWP 1's current HCP/ITP/ITL as well as the ʻakēʻakē (Band-rumped Storm Petrel) and assimulans yellow-faced bee. Under the Proposed Action, KWP 1 would implement mitigation measures as described in Section 2.1.3.3, *HCP Mitigation* and Section 3.9.2.2, *Proposed Action,* which is anticipated to result in an overall beneficial impact to the Covered Species.

Beyond the six Covered Species, one additional ESA-listed species, the Blackburn's sphinx moth, has the potential to occur in or transit the Project Area and was considered for coverage (Tetra Tech 2025a). KWP 1 would implement avoidance and minimization measures to avoid the take of these species. Therefore, HCP/ITL coverage is not being sought by KWP 1.

4.1.2 National Environmental Policy Act

Section 102(2)(C) of the NEPA of 1969 (42 USC 4321, 4322(2)(c)), as amended, requires federal agencies to evaluate and disclose the effects of their proposed actions on the natural and human environment. The purpose of the NEPA process is to ensure that the potential environmental impacts of any proposed federal action are fully considered and made available for public review. To comply with the NEPA, the federal agency must conduct and publish an environmental review. This may consist of preparing an EIS or EA that includes a detailed analysis of all impacts to the human environment resulting from the federal action. In circumstances where the federal action falls under a Categorical Exclusion, a category of actions which do not individually or cumulatively have a significant effect on the human environment, the NEPA review may be concluded with a Categorical Exclusion determination rather than preparation of an EIS or EA.

Discussion: The issuance of an ITP by the USFWS constitutes a federal action subject to NEPA compliance and review (42 USC 4321-4347), as amended. The USFWS would prepare and provide for public review an EA (40 CFR 1501.5) to evaluate the potential environmental impacts of issuing an amended ITP and approving an HCP (40 CFR 1508.1(g)). The USFWS would not make a decision on the amended ITP issuance until after the NEPA process is complete.

4.1.3 Migratory Bird Treaty Act

Migratory birds, as well as some non-migratory birds that are endemic to the Hawaiian Islands, are protected under the federal MBTA (50 CFR Part 21). The MBTA prohibits the take (including killing, capturing, selling, trading, and transport[84]) of protected migratory bird species without authorization from USFWS. Many species that were intentionally introduced to the Hawaiian Islands from the continental United States are now protected under the MBTA despite being non-native. MBTA does not exclude a species from protection in designated parts of its range, so a species protected by the MBTA is protected anywhere it might occur nationwide, even in locations where they are non-native and introduced by humans. On January 7, 2021, the USFWS published a final rule providing that the scope of the prohibition of take under the MBTA applies "only to actions directed at migratory birds, their nests, or their eggs," and does not prohibit incidental take (i.e., take that is not the purpose of an activity). 86 Fed. Reg. 1134 (January 7, 2021). On April 11, 2025, the Acting Solicitor for the USFWS issued a one page

[84] The MBTA statute does not define take. Regulations (50 CFR 10.12) define take to mean: "To pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." This definition applies to the MBTA and regulations in 50 CFR Part 21.

legal opinion[85] concluding that the prohibitions of the MBTA do not apply to the accidental or incidental taking or killing of migratory birds.

Discussion: Collisions with turbines, vehicles, and other structures have the potential to result in the incidental take of MBTA-protected birds. As described in Section 3.9.1.2, *Wildlife, Existing Environment, Non-Listed Wildlife Species and MBTA-Protected Birds*, MBTA-protected birds have been observed as fatalities during the 19 years of operation of KWP 1. Fatalities of a similar magnitude are likely to occur with the continued operations of KWP 1; however, such levels of take are not anticipated to adversely affect local or regional populations of these species. KWP 1 would implement the avoidance and minimization measures listed in Section 3.9, *Wildlife* to reduce potential impacts to non-listed, native species and MBTA-protected birds.

4.1.4 National Historic Preservation Act

The NHPA of 1966, as amended (Public Law 102-575), requires federal agencies to assure preservation or mitigation of effects to historic properties that are eligible for inclusion on the National Register of Historic Places.

Discussion: The issuance of an ITP is a federal undertaking subject to Section 106 of the NHPA. Cultural and archaeological resources surveys have been conducted for the Proposed Action as described in more detail in Section 3.10, *Cultural and Archaeological Resources* and the Proposed Action's CIA (ASM 2025; Appendix C). The USFWS would coordinate with the SHPD on cultural resources and address any potential issues in the NEPA EA.

4.1.5 Clean Water Act (Section 401 and 402)

The CWA (Federal Water Pollution Control Act, 33 USC 1251, et seq.) is the principal law governing pollution control and water quality of the nation's waterways. Sections 401 and 402 of the CWA require permits for actions that involve wastewater discharge or discharge of dredged or fill material into certain waters. The EPA has delegated responsibility for implementing these sections of the CWA to the states. HDOH Clean Water Branch is responsible for issuing or denying Section 401 Water Quality Certifications if the action may result in a discharge of a pollutant into state waters. Section 402 of the CWA established the NPDES program. The purpose of the NPDES program is to implement federal and state water pollution control requirements to help protect human health and the environment. As specified in HAR § 11-55-04, an NPDES permit is required before discharging any pollutant or beginning construction activities that would disturb a total of one or more acres of land.

Discussion: As described in Section 3.5, *Water Resources*, there are no perennial streams or wetlands within the Project Area. Two non-perennial streams intersect portions of the Project's access road—Malalowaiaʻole Gulch and an unnamed stream. In 2004, the USACE provided confirmation that there were no WOTUS within the Project Area (Young, November 8, 2004 as cited in Planning Solutions 2010).

[85] See: https://www.doi.gov/sites/default/files/documents/2025-04/m-37085.pdf

There are no streams, wetlands, or other surface waters within the Makamakaʻole, Haleakalā Ranch, and Puʻu o Hōkū mitigation sites. At the Pūlama Lānaʻi mitigation area, four branches of the non-perennial Kapohaku Gulch cross through the area.

The KWP 1 facility would continue to employ stormwater BMPs and vegetation management to minimize erosion and sedimentation, and the operation of the facility would be in compliance with state and federal regulations. It is not anticipated that the non-perennial Malalowaiaʻole Gulch and an unnamed stream in Manawainui Gulch within the Project Area would be altered by operations or maintenance activities.

As the Proposed Action would not result in the discharge of a pollutant into state waters, a Section 401 Water Quality Certification would not be required.

If needed, KWP 1 would also obtain a NPDES permit and develop and implement an ESCP and SWPPP setting forth ground disturbance limits and BMPs prior to the initial maintenance activities (i.e., disturbance of more than one acre of land).

4.1.6 Rivers and Harbors Act (Section 10) and Clean Water Act (Section 404)

USACE regulates navigable waters and WOTUS pursuant to both Section 10 of the RHA of 1899 and Section 404 of the CWA of 1972. Section 10 of the RHA requires approval from the USACE for any work in, over, or under navigable waters of the United States. Section 404 of the CWA requires USACE authorization for discharge of dredged or fill materials into WOTUS. Waters subject to Section 404 jurisdiction include traditional navigable waters, territorial seas, and certain wetlands, tributaries, and other waters as outlined by the 2023 "Revised Definition of 'Waters of the United States'" and the "Conforming Rule" (EPA 2024b). USACE authorizes activities subject to both Section 10 of the RHA and Section 404 of the CWA through Individual Permits or General Permits, depending on the type of activity and level of impact.

Discussion: As described in Section 3.5, *Water Resources*, there are no navigable waters or WOTUS within the Project Area or mitigation sites. Therefore, no Section 10 or Section 404 permit would be necessary for the implementation of the Proposed Action.

4.1.7 Clean Air Act

Air quality is regulated under the CAA. Under the authority of the CAA, EPA has established nationwide air quality standards to protect public health and the environment. These federal standards, known as National Ambient Air Quality Standards (NAAQS), represent the maximum allowable atmospheric concentrations for six criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (inhalable particulate matter [PM10] and fine particulate matter [PM2.5]). NAAQS are stated in terms of both primary and secondary standards for most of the regulated air pollutants. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare, which

includes protection against decreased visibility, and damage to animals, crops, vegetation, and buildings (HDOH CAB 2015).

The EPA requires that States monitor the ambient air to determine compliance with the NAAQS and to regulate both stationary and mobile sources that emit these and other pollutants. The State of Hawai'i HDOH CAB is responsible for implementing air pollution control in Hawai'i and has established State Ambient Air Quality Standards (SAAQS). In contrast to the NAAQS, SAAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality."

The maximum allowable atmospheric concentrations set forth by the NAAQS and SAAQS are described in Section 3.2, *Air Quality*.

Based on measurements of ambient criteria pollutant data, EPA designates areas of the United States as having air quality equal to or better than NAAQS (i.e., attainment) or worse than NAAQS (i.e., non-attainment). The CAA general conformity rule requires that projects occurring in nonattainment and maintenance areas be consistent with the applicable State Implementation Plan.

Discussion: The most recent publicly available information for air quality in Hawai'i is from 2023 (HDOH CAB 2024). In the 5-year period from 2019 to 2023, the State of Hawai'i was in attainment of all NAAQS (HDOH CAB 2024). The State of Hawai'i was in attainment of all SAAQS, except for exceedance of the carbon monoxide maximum 1-hour average in 2022, which was attributed to a fire located directly next to the monitoring station (HDOH CAB 2023a). The Proposed Action would not exceed state and/or federal ambient air quality standards (Section 3.2, *Air Quality)*.

4.1.8 Federal Aviation Regulations

Part 77 of the FAA Federal Aviation Regulations (14 CFR Part 77) applies to objects that may obstruct navigable airspace. A person must file a Notice of Proposed Construction or Alteration with the FAA before construction of an object whose height is 200 feet above ground level.

Discussion: The FAA reviewed the existing KWP 1 turbines and determined that, with proper lighting, they would not constitute a hazard to air navigation (Planning Solutions 2010). As no new construction above 200 feet is proposed, a Notice of Proposed Construction or Alteration is not required to be filed.

4.2 State Regulations

4.2.1 Hawai'i Environmental Impact Review Law (HRS Chapter 343)

HRS Chapter 343, also referred to as HEPA, establishes a system of environmental review which ensure that environmental concerns are given appropriate consideration along with economic and technical considerations in the decision-making process of existing planning procedures of the State and counties. HRS Chapter 343 environmental review is required for any action that (1) requires one or more

approvals[86] prior to implementation and (2) includes one or more triggers identified in HRS Chapter 343-5(a); these requirements are detailed in the HAR § 11-200.1, which are the implementing rules for compliance with HRS Chapter 343. Compliance with HEPA may be achieved through an exemption, an EA, or an EIS. Pursuant to HAR § 11-200.1-14, the approving agency shall assess the significance of the potential impacts of the action to determine the level of environmental review necessary for the action (i.e., Exemption, EA, or EIS).

Discussion: The Proposed Action would require the use of state-owned lands and use within the State Conservation District, which triggers HEPA environmental review per HRS Chapter 343-5(a)(1) and HRS Chapter 343-5(a)(2), respectively. The Proposed Action also requires a discretionary approval from BLNR to issue a state land lease. Pursuant to HAR § 11-200.1-14(b), DLNR has determined at the outset that an EIS is required for the Proposed Action and the applicant can proceed direct-to-EIS preparation notice, without preparing an EA. DOFAW/BLNR would also rely upon this EIS when taking final action on the Proposed HCP and request for an ITL.

This EIS was prepared in accordance with HAR § 11-200.1 Subchapter 10, *Preparation of Environmental Impact Statements*, and is intended to satisfy the HRS Chapter 343 requirements.

HAR 11-200.1-13

The determination of whether an action would have a significant impact is based on an evaluation of the expected consequences of the Proposed Action, including the cumulative and overall effects, relative to a set of established significance criteria, as defined in HAR § 11-200.1-13. Pursuant to HAR § 11-200.1-13 *(b) In determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected impacts, and the proposed mitigation measures. In most instances, an action shall be determined to have a significant effect on the environment if it may:*

(1) Irrevocably commit a natural, cultural, or historic resource;

Discussion: An irreversible commitment of resources applies to the loss of non-renewable resources and resources that are renewable only over a long period of time. As described in Section 5.2, *Irreversible and Irretrievable Commitment of Resources*, the Proposed Action would require the use of non-renewable resources used in the manufacturing of Project replacement components, repair materials, and fuel consumed during the operations of the Proposed Action. The Proposed Action would also require the temporary commitment of soils, water resources, vegetation, and wildlife. However, with the implementation of operational controls and BMP's, the Proposed Action's impacts to these resources are anticipated to be negligible to minor (i.e. not significant). See Section 3.4, *Geology, Topography, and Soils*; Section 3.5, *Water Resources*, Section 3.8, *Vegetation*, and Section 3.9, *Wildlife* for additional information.

(2) Curtail the range of beneficial uses of the environment;

[86] Pursuant to HAR §11-200.1-2, "Approval" is defined as a discretionary consent required from an agency prior to implementation of an action.

Discussion: The Proposed Action would not irreversibly curtail the range of potential beneficial uses of the Project Area or vicinity. The Project Area would use KWP 1's existing infrastructure to continue generating wind energy for an additional 20-year period. Under the Proposed Action, KWP 1 would continue to implement BMPs to avoid and minimize potential impacts to environmental resources as discussed in Section 3.2, *Air Quality*, Section 3.4, *Geology, Topography, and Soils*, Section 3.5, *Water Resources*, Section 3.8, *Vegetation*, Section 3.9 *Wildlife*, Section 3.11, *Noise*, Section 3.12, *Visual Resources*, and Section 3.14*, Transportation and Traffic,* respectively.

Following decommissioning, KWP would engage in restoration activities that would return the Project Area to as close to preconstruction conditions as practicable. The property would return to its pre-construction use as open space and would be available for a range of beneficial uses that are suitable to the rugged terrain and permitted in the state conservation district. See Section 3.13, *Land Use* for additional information.

> *(3) Conflict with the State's environmental policies or long-term environmental goals established by law;*

Discussion: Section 4, *Regulatory Context/Consistency with Plans and Policies* discusses the Proposed Action's compliance with the State's environmental policies or long-term environmental goals established by law. KWP 1, as an existing, operational wind power generation facility was previously approved by local, state, and federal authorities and has continued to comply with the State's environmental policies and contribute to the State's long-term renewable energy goals of 100% reliance on renewable energy by 2045. This compliance would not change under the Proposed Action. See Section 4.2.2, *State Environmental Policy (HRS Chapter 344)* below for more information.

> *(4) Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State;*

Discussion: As described in Section 3.16, *Socioeconomic Characteristics* and Section 3.10, *Cultural and Archaeological Resources* the Proposed Action would not have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.

As described in Section 3.16, *Socioeconomic Characteristics, t*he Proposed Action would have a long-term, beneficial impact on the local economic welfare. Continued operation of KWP 1 would allow for continued supply of local, renewable energy to the Maui grid at a low, fixed price and reduce Maui's exposure to fossil fuel price volatility. Further, under a No Action Alternative, the cost to replace energy from KWP 1 would be passed immediately to consumers, who already bear among the highest electricity costs in the U.S. During the extended operational lifespan of the facility, KWP 1 would continue to contribute direct, indirect, and induced economic benefits to the Maui economy. KWP 1 would provide direct benefits in the form of employment and wages to employees, purchasing goods and services from other local industries, funding conservation efforts in compliance with the Proposed HCP, and funding distributed by the community benefits program. During the initial maintenance period, WTG components would be inspected, repaired and/or replaced, which would result in a temporary increase in project expenditures for professional and technical services, contractors, materials, and equipment.

Continued operations are not expected to induce changes in the pattern of land use, population density, or growth rate. The KWP 1 facility is not located in communities that have disproportionately minority or low-income populations and would not adversely or unreasonably impact such communities.

With implementation of existing and proposed avoidance, minimization, and mitigation measures, the Proposed Action is anticipated to have negligible to minor impacts to cultural resources including valued cultural resources, culturally valued natural resources, archaeological and historic features, and traditional Native Hawaiian practices. Since KWP 1 is an existing facility that has been in operation for over a decade, it is anticipated that there would be no new impacts to traditional and customary Native Hawaiian practices as a result of continued operations. The Applicant would continue to provide access to cultural practitioners to lands above and adjacent to KWP 1's lease area under the Proposed Action.

Under the Proposed Action, ground disturbance is not anticipated to extend beyond the limits of the original KWP 1 construction footprint. For those archaeological features that are within or immediately adjacent to the LOD, the Applicant would consult with SHPD under the HRS 6E review process and would coordinate with SHPD on compliance with existing mitigation commitments. Temporary indirect impacts to archaeological and historic features could result from noise, dust, and vibrations caused by earthmoving and heavy equipment during maintenance activity. Potential indirect impacts from noise, dust, and vibration are anticipated to be minimal. Of the 15 historic properties recorded as being located within or intersecting with the Project Area or its immediate vicinity, three have preservation or management plans: Site 02946 - Lāhainā Pali Trail, Site 05648 – Habitation Complex, and Site 05232 – Upland Heiau. As discussed in Section 3.10.2.2, *Proposed Action*, the Proposed Action would comply with the measures described in these preservation plans. Therefore, the Proposed Action is anticipated to have a negligible impact on archaeological resources.

There is a minor risk of the inadvertent discovery of archaeological artifacts or remains during ground disturbing activities, however, this risk is very low given the numerous archaeological studies conducted in the area and the fact that all ground disturbance would occur in areas already disturbed during the construction of KWP 1. There would be minor, temporary adverse impacts to archaeological resources during decommissioning activities.

(5) Have a substantial adverse effect on public health;

Discussion: The Proposed Action is not anticipated to have a substantial adverse effect on public health.

There is a low risk of damage to people and property from environmental accidents including natural hazards such as wildfire, high winds created by hurricanes and tropical storms, or a significant earthquake; releases of hazardous and petroleum-based materials; and equipment failure. Implementation of the SPCC Plan, wildfire preventive measures, and Emergency Response Plan would mitigate this risk. The Project's wind turbines are designed with multiple safety systems and undergo rigorous maintenance to ensure reliability. See Section 3.6, *Natural Hazards* and Section 3.7, *Hazardous and Regulated Materials and Waste* for additional information.

As described in Section 3.5, *Water Resources*, the aquifers underlying the Project Area are either currently used or have the potential for use as drinking water. However, there are few potential sources of groundwater pollutants in the Project Area and would implementation of the site-specific SPCC Plan (WSP 2023), the Proposed Action is anticipated to have a negligible impact on groundwater resources.

The Proposed Action would not have a significant adverse impact on air quality and, within implementation of BMPs, would not exceed State and Federal ambient air quality standards and would limit fugitive dust emissions in compliance with HAR § 11-60.1-33 (See Section 3.2, *Air Quality* for more information).

> *(6) Involve adverse secondary impacts, such as population changes or effects on public facilities;*

Discussion: As discussed in Section 3.15, *Public Infrastructure and Services* and Section 3.16, *Socioeconomic Characteristics*, the Proposed Action is not anticipated to have a substantial adverse effect on the population surrounding the Project Area or public facilities in the region. Continued operations of the existing facility are not expected to induce changes in the pattern of land use, population density, or growth rate. KWP 1 would not markedly promote or discourage economic activity or induce changes to the population. Consequently, it would not lead to growth or changes in the economic or demographic character of the ROI that might have secondary impacts to land use. Continued operations would also not require an increase in demand for public services, utilities, or housing beyond existing capacity (see Section 3.15, *Public Infrastructure and Services*).

> *(7) Involve a substantial degradation of environmental quality;*

Discussion: The Proposed Action is not anticipated to have a substantial adverse effect on environmental quality. KWP 1 would continue to implement BMPs to avoid and minimize potential impacts to environmental resources as discussed in Sections 3.2, *Air Quality*, 3.4, *Geology, Topography, and Soils*, 3.5, *Water Resources*, 3.8, *Vegetation*, 3.9 *Wildlife*, and 3.11, *Noise,* respectively. Impacts to these resources are anticipated to be negligible to moderate under the Proposed Action.

> *(8) Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions;*

Discussion: As discussed in Section 3.17, *Cumulative Impacts*, the Proposed Action is not anticipated to contribute to a substantial adverse effect on the environment, nor does it involve a commitment for larger actions.

> *(9) Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat;*

Discussion: As detailed in Section 3.9, *Wildlife*, the Proposed Action is not anticipated to have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat.

To proceed, the Proposed Action would require a new ITP from USFWS, a new ITL from DLNR DOFAW, and approval of the Proposed HCP to cover incidental take of threatened and endangered species that

may occur during the Proposed Action's extended operation period. The Covered Species for the Proposed Action are: ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), ʻaʻo (Newell's shearwater), ʻakēʻakē (Band-rumped Storm Petrel*)*, and assimulans yellow-faced bee,. Under the Proposed Action, KWP 1 would implement avoidance, minimization, and mitigation measures*,* which are designed to result in an overall beneficial impact to the Covered Species.

Beyond the six Covered Species, one additional ESA-listed species, the Blackburn's sphinx moth, has the potential to occur in or transit the Project Area and was considered for coverage (Tetra Tech 2025a). KWP 1 would implement avoidance and minimization measures to avoid the take of these species. Therefore, HCP/ITL coverage is not being sought by KWP 1.

Other native birds protected by the MBTA are known to or have the potential to occur in or fly through the Project Area; these include (but are not limited to) the koaʻe kea (white-tailed tropicbird), ʻewaʻewa (sooty tern), ʻuaʻu kani (wedge-tailed shearwater), ʻūlili (wandering tattler), pueo (Hawaiian short-eared owl), and ʻapapane (Nishibayashi 1997, Nishibayashi 1998, First Wind 2013; KWP 2006, KWP 2024a, Tetra Tech 2025a). The continued operation of KWP 1 may directly impact native birds, as a result of removal of habitat, temporary disturbance or displacement, or collisions with wind turbines, vehicles, or other structures. However, given the facility's long-term operation spanning over 19 years, resident wildlife populations have likely become habituated to the facility. With implementation of avoidance and minimization measures, impacts from continued operations would be negligible to moderate.

Native invertebrates may be injured or killed by collisions with equipment and vehicles used as part of KWP 1 operations and mitigation activities. However, as on-site traffic is infrequent and low speed limits are observed, the likelihood of impacts to invertebrates is low.

(10) Have a substantial adverse effect on air or water quality or ambient noise levels;

Discussion: The Proposed Action is not anticipated to have a substantial adverse effect on air or water quality or ambient noise levels.

As described in Section 3.2, *Air Quality*, The Proposed Action's principal effect on air quality would be through the long-term reduction in emissions by offsetting electricity that would otherwise be produced by fossil fuel combustion. The Proposed Action would generate vehicle and heavy machinery exhaust emissions and fugitive dust from earthmoving activities. These emissions are anticipated to be negligible to minor, temporary, and, except for the vehicles traveling to and from the site, isolated to the Project Area. The Proposed Action would not exceed state and/or federal ambient air quality standards.

As described in Section 3.5, *Water Resources*, the Proposed Action would result in minor ground disturbance and could create new semi-impervious surfaces, which increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and could increase sedimentation in down-gradient areas or water bodies. Ground disturbance would be limited to the original KWP 1 construction and operations footprint and implementation of BMPs, including a ESCP and SWPPP, would minimize potential impacts. It is not anticipated that the non-perennial Malalowaiaʻole Gulch and an unnamed stream in Manawainui Gulch within the Project Area would be altered by the Proposed Action.

The types and sources of potential water pollutants within the Project Area would not change with continued operations. KWP 1 operators would continue to implement a SPCC (WSP 2023) to protect water resources from hazardous materials that are transported, stored, and used at the Project Area. Given the relatively minimal increase in semi-impervious surfaces, coupled with the Project BMPs, the Proposed Action is anticipated to have a negligible to minor impact on water resources.

As described in Section 3.11, *Noise*, noise levels at the Project Area would remain unchanged during continued operations, as there would be no significant increase in personnel, changes to O&M activities, or additional vehicle trips. The facility is located away from sensitive receptors and KWP 1 would continue to implement operational BMPs to minimize noise from the facility. Although modeling results show that there are exceedances of the daytime and nighttime noise limits at the parcel boundary due to the Class A Zoning District maximum permissible levels being the most restrictive, NSRs are not expected to be in proximity to the parcel boundary given the surrounding land use and terrain. Therefore, no meaningful noise impacts would occur at the parcel boundary. Noise levels at Lāhainā Pali Trail could exceed Class A zoning district noise limits during maintenance and decommissioning activities. A noise permit or variance would be obtained from HDOH, as needed. Modeled sound levels at all other NSRs are well below the daytime and nighttime limits for the Class A zoning district. Overall, the continued operation of the KWP 1 facility is anticipated to have a negligible to minor, long-term impact on noise.

> *(11) Have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;*

Discussion: The Project Area is not located within an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, or coastal waters. Immediately south of the Project Area are coastal waters, however, as described in Section 3.4, *Geology, Topography, and Soils,* Section 3.5, *Water Resources* and Section 3.7, *Natural Hazards* the Proposed Action would adversely impact marine waters.

> *(12) Have a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies; or*

Discussion: As described in Section 3.12, *Visual Resources*, the Proposed Action is not anticipated to have a substantial adverse effect on scenic vistas or view planes, during the day or night. No scenic vistas and view planes were identified in county or state plans or studies within the vicinity of the Project Area. However, both the Maui Island Plan and the community plans generally emphasize the importance of protecting mauka-to-makai and makai-to-mauka view planes, as well as preserving views of significant geographic features and landforms, such as the West Maui Mountains. This protection is particularly relevant for public views from scenic roadways, parks, and other public access points.

Because the Proposed Action is a continuation of the existing KWP 1 facility, the WTG do not represent a new feature on the landscape. KWP 1 is and would continue to be an existing visual feature of the West

Maui Mountains. The facility would be visible from scenic roadways, parks, and other public access points, including the Lāhainā Pali Trail and coastal sections of Honoapiʻilani Highway, as well as from Kīhei and Wailea. During continued operations, visual impacts would remain unchanged, as there would be no significant changes to the turbines, facilities, or O&M activities. There would be minor, temporary adverse impacts to visual resources during decommissioning activities and long-term, beneficial impacts once KWP 1 equipment is removed and the Project Area restored.

(13) Require substantial energy consumption or emit substantial greenhouse gases.

Discussion: As discussed in Section 3.3, *Climate and Climate Change*, the Proposed Action would generate clean, renewable wind energy for the Maui gird and would result in a long-term reduction in greenhouse gas emissions by offsetting electricity that would otherwise be produced by fossil fuel combustion. KWP 1 operations would continue to generate minor greenhouse gas emissions from O&M activities, including carbon dioxide from operation of gas-powered vehicles and equipment. These greenhouse gas emissions are negligible, temporary, and, except for the vehicles traveling to and from the site, would be isolated to the Project Area.

4.2.2 State Environmental Policy (HRS Chapter 344)

In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines set forth in HRS § 344-4:

(1) Population.

(A) Recognize population impact as a major factor in environmental degradation and adopt guidelines to alleviate this impact and minimize future degradation;

(B) Recognize optimum population levels for counties and districts within the State, keeping in mind that these will change with technology and circumstance, and adopt guidelines to limit population to the levels determined.

Discussion: As discussed in Section 3.16, *Socioeconomic Characteristics*, the Proposed Action is not anticipated to have an adverse effect on local or regional population or demographics. Continued operations are not expected to induce changes in the pattern of land use, population density, or growth rate. KWP 1 would not markedly promote or discourage economic activity or induce changes to the population.

(2) Land, water, mineral, visual, air, and other natural resources.

(A) Encourage management practices which conserve and fully utilize all natural resources;

(B) Promote irrigation and waste water management practices which conserve and fully utilize vital water resources;

(C) Promote the recycling of waste water;

(D) Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas;

(E) Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;

(F) Maintain an integrated system of state land use planning which coordinates the state and county general plans;

(G) Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.

Discussion: Section 3.13, *Land Use*, Section 3.5, *Water Resources*, Section 3.2, *Air Quality*, and Section 3.15, *Public Infrastructure and Services*, and Section 3.12, *Visual Resources* address impacts to land, water, mineral, visual, air, and other natural resources from the Proposed Action. The Proposed Action is anticipated to have negligible to minor impacts on these resources.

(3) Flora and fauna.

(A) Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard;

(B) Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.

Discussion: Section 3.8, *Vegetation* and Section 3.9, *Wildlife* address impacts from the Proposed Action related to flora and fauna.

(4) Parks, recreation, and open space.

(A) Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;

(B) Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;

(C) Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.

Discussion: Section 3.13, *Land Use* addresses impacts to parks, recreation, and open space from the Proposed Action.

(5) Economic development.

(A) Encourage industries in Hawaii which would be in harmony with our environment;

(B) Promote and foster the agricultural industry of the State; and preserve and conserve productive agricultural lands;

(C) Encourage federal activities in Hawaii to protect the environment;

(D) Encourage all industries including the fishing, aquaculture, oceanography, recreation, and forest products industries to protect the environment;

(E) Establish visitor destination areas with planning controls which shall include but not be limited to the number of rooms;

(F) Promote and foster the aquaculture industry of the State; and preserve and conserve productive aquacultural lands.

Discussion: Section 3.16, *Socioeconomic Characteristics* addresses impacts related to economic development from the Proposed Action.

(6) Transportation.

(A) Encourage transportation systems in harmony with the lifestyle of the people and environment of the State;

(B) Adopt guidelines to alleviate environmental degradation caused by motor vehicles;

(C) Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.

Discussion: Section 3.14, *Transportation and Traffic* addresses impact related to transportation from the Proposed Action.

(7) Energy.

(A) Encourage the efficient use of energy resources.

Discussion: Section 3.15, *Public Infrastructure and Services* addresses impacts to energy resource use from the Proposed Action.

(8) Community life and housing.

(A) Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods which reflect the culture and mores of the community;

(B) Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation;

(C) Encourage the reduction of environmental pollution which may degrade a community;

(D) Foster safe, sanitary, and decent homes;

(E) Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape plans and designs in urban areas; and preserve and promote mountain-to-ocean vistas.

Discussion: Section 3.13, *Land Use* and Section 3.16, *Socioeconomic Characteristics* address impacts related to community life and housing from the Proposed Action.

(9) Education and culture.

(A) Foster culture and the arts and promote their linkage to the enhancement of the environment;

(B) Encourage both formal and informal environmental education to all age groups.

Discussion: Section 3.16, *Public Infrastructure and Services* addresses impacts related to education and Section 3.10, *Cultural and Archaeological Resources* address cultural impacts of the Proposed Action.

(10) Citizen participation.

(A) Encourage all individuals in the State to adopt a moral ethic to respect the natural environment; to reduce waste and excessive consumption; and to fulfill the responsibility as trustees of the environment for the present and succeeding generations; and

(B) Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.

Discussion: Section 6, *Consulted Parties* provides information on citizen participation during the development of the Proposed Action.

4.2.3 Hawai‘i Coastal Zone Management Program (HRS Chapter 205A)

The Hawai‘i CZM Program was formalized in HRS Chapter 205A, as amended, which complies with the Federal Coastal Zone Management Act of 1972 (16 USC 1451-1456). The Hawai‘i CZM Program provides guidance on managing the state‘s coastal areas including beaches, fishponds, scenic areas, marinas, wetlands, recreational areas open spaces, and ecosystems. The Hawai‘i CZM Program uses broad management to integrate decisions made by state and county agencies and provide better coordination of existing laws and rules. All lands of Hawai‘i are considered to be within the coastal zone as defined by HRS Chapter 205A.

The Hawai‘i CZM Program gives the County of Maui regulatory control over development within the SMA and Shoreline Setback Area of the coastal zone. The following is a discussion of the proposed Project‘s consistency with the ten objectives and associated policies of HRS Chapter 205A.

Recreational Resources

- Objective: *Provide coastal recreational opportunities accessible to the public.*
- Policies:
    - *Improve coordination and funding of coastal recreational planning and management; and;*

- *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
  - *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
  - *Requiring replacement of coastal resources having significant recreational value including, but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*
  - *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
  - *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
  - *Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
  - *Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*
  - *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
  - *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

Discussion: Section 3.15, *Public Infrastructure and Services* addresses impacts to recreational facilities and Section 3.5, *Water Resources* addresses impacts to coastal waters. The Proposed Action would not prohibit or otherwise impact the recreational use of the shoreline. The Lāhainā Pali Trail runs south of the KWP 1 facility; access to and use of the trail would not be further impacted by the Proposed Action.

Historic Resources

- Objective*: Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*
- Policies:

- *Identify and analyze significant archaeological resources;*
- *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- *Support state goals for protection, restoration, interpretation and display of historic resources.*

Discussion: Section 3.10, *Cultural and Archaeology Resources* and the Proposed Action's CIA (ASM 2025; Appendix C) provides information on the potential impacts of the Proposed Action on cultural, historic and archaeological resources.

Scenic and Open Space Resources

- Objective: *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*
- Policies:
  - *Identify valued scenic resources in the coastal zone management areas;*
  - *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
  - *Preserve, maintain and where desirable, improve and restore shoreline open space and scenic resources; and*
  - *Encourage those developments that are not coastal dependent to locate in inland areas.*

Discussion: Section 3.12, *Visual Resources* and Section 3.13, *Land Use* addresses potential impacts of the Proposed Action on scenic resources and open space. The Proposed Action would have a moderate impact on visual resources. The open space characteristic of the Project Area would be restored upon decommissioning of the KWP 1 facility and restoration of the Project Area to pre-construction conditions.

Coastal Ecosystems

- Objective: *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*
- Policies:
  - *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
  - *Improve the technical basis for natural resource management;*
  - *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*

- *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- *Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.*

Discussion: Section 3.5, *Water Resources* addresses potential impacts related to near shore and marine waters. The Proposed Action would result in minor ground disturbance and could create new semi-impervious surfaces, which increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and could increase sedimentation in down-gradient areas or water bodies. With implementation of BMPs, including a ESCP and SWPPP, the Proposed Action is anticipated to have a negligible impact on near shore and marine waters.

Economic Uses

- Objective: *Provide public or private facilities and improvements important to the state's economy in suitable locations.*
- Policies:
  - *Concentrate coastal dependent development in appropriate areas;*
  - *Ensure that coastal dependent development such as harbors and ports, visitor industry facilities and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area;*
  - *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
    - *Use of presently designated locations is not feasible;*
    - *Adverse environmental effects are minimized; and*
    - *The development is important to the State's economy;*

Discussion: Section 3.16, *Socioeconomic Characteristics* address potential impacts to economic uses and development within the coastal area. The Proposed Action would not constitute or induce development or economic activity within coastal areas.

Coastal Hazards

- Objective: *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

- Policies:
    - *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
    - *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;*
    - *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*
    - *Prevent coastal flooding from inland projects.*

Discussion: Section 3.6, *Natural Hazards* addresses potential impacts related to coastal hazards. The Project Area is not located within an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, or coastal waters. Immediately south of the Project Area are coastal waters, however, as described in Section 3.4, *Geology, Topography, and Soils,* Section 3.5, *Water Resources* and Section 3.7, *Natural Hazards* the Proposed Action would adversely impact marine waters.

Managing Development

- Objective: *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*
- Policies:
    - *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
    - *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*
    - *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Discussion: Throughout the planning process, KWP LLC has engaged government regulators, stakeholders, community groups, and individuals. Section 6, *Consulted Parties* provides information on citizen participation during the development of the Proposed Action.

Public Participation

- Objective*: Stimulate public awareness, education, and participation in coastal management.*
- Policies:
    - *Promote public involvement in coastal zone management processes;*

- *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*
- *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Discussion: Throughout the planning process, KWP LLC has engaged government regulators, stakeholders, community groups, and individuals. Section 6, *Consulted Parties* provides information on citizen participation during the development of the Proposed Action.

Beach Protection

- Objective: *Protect beaches for public use and recreation.*
- Policies:
  - *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*
  - *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities;*
  - *Minimize the construction of public erosion-protection structures seaward of the shoreline;*
  - *Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and*
  - *Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.*

Discussion: Section 3.15, *Public Infrastructure and Services* addresses impacts to recreational facilities and Section 3.5, *Water Resources* addresses impacts to coastal waters. The Proposed Action would not prohibit or otherwise impact the recreational use or quality of beaches in the vicinity.

Marine Resources

- Objective: *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*
- Policies:
  - *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*

- *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
- *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
- *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion: Section 3.5, *Water Resources* addresses impacts to coastal and marine waters. Negligible impacts to marine resources are anticipated from the Proposed Action.

4.2.4 State Land Use Law (HRS Chapter 205)

The State Land Use Law (HRS Chapter 205) establishes the State LUC and authorizes this body to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation. Permitted uses within the state land use districts are prescribed under HRS Chapter 205 and the LUC's Administrative Rules prescribed under HAR Chapter 15-15.

Discussion: The Proposed Action is located entirely within the Conservation Land Use District. Pursuant to HAR §15-15-26, uses within the conservation district are governed by DLNR per HRS §183C and HAR Chapter 13-5. See Section 4.2.5, *State Conservation District Law (HRS Chapter 183C)*, for more information.

4.2.5 State Conservation District Law (HRS Chapter 183C)

Under HRS Chapter 205-2, the State LUC has the authority to designate all land within the state as one of four districts – urban, rural, agricultural, or conservation – based on the general activities and uses of the land. HRS Chapter 205-5 specifies that State Conservation Districts shall be governed by the State of Hawai'i DLNR. Uses in the State Conservation District are regulated by the DLNR OCCL under HRS §183C and HAR Chapter 13-5. HAR Chapter 13-5 classifies conservation lands into five subzones: Protective, Limited, Resource, General, and Special. The Proposed Action is situated primarily in the General Subzone with a portion of the KWP 1 lease area located in the Protective Subzone. The subzones are intended to balance the need for resource conservation with sustainable use and development. The specific purposes of the General and Protective Subzones within Hawai'i's Conservation District are described below as follows:

- General Subzone: This subzone is intended to allow for a variety of land uses that are consistent with the conservation of natural resources. It includes areas that can support sustainable use

and development, such as agriculture, aquaculture, and other activities that do not significantly impact the environment.

- Protective Subzone: This subzone is designed to protect valuable natural and cultural resources. It includes areas that require strict management to preserve their ecological, historical, and cultural significance. Activities in this subzone are highly regulated to prevent any adverse effects on these sensitive resources.

HAR Chapter 13-5 also identifies the land uses that are allowed in each of the subzones and the specific type of permit required for those land uses, per the following designations: A) requires no permit from the department or board, B) requires a site plan approval by the department, C) requires a departmental permit, or D) requires a board permit and where indicated, a management plan.

Discussion: As shown on Figure 1-3, the entire Project Area is within State Conservation District (general and protective subzones). HAR §13-5-22 (P-12) identifies "wind generation" as a *"Power Generation from Renewable Resources".* This type of land use is permitted in the general and protective subzones with the issuance of a CDUP approved by the BLNR. KWP 1 currently operates under the terms and conditions of CDUP No. MA-3103 as approved by the BLNR on January 24, 2003, and amended on June 24, 2005. The facility's existing CDUP does not have an expiration date. Since the approval of the 2003 CDUP, the Project has continually complied with the permit's 44 conditions, as detailed in Appendix B.

4.2.6 State Endangered Species Act (HRS Chapter 195D)

HRS Chapter 195D states that any species recognized as endangered or threatened by the ESA shall be listed as such by state statute. HRS Chapter 195D also authorizes the state to list other species that are not also listed under the ESA. In many cases these species' listings are island-specific, rather than statewide. Like the ESA, the unauthorized "take" of such endangered or threatened species is prohibited (HRS §195D-4[e]).

HRS Chapter 195D is administered by the State of Hawai'i DLNR DOFAW. Under HRS §195D-4(g), the BLNR, after consultation with the State's ESRC, may issue an ITL to allow take otherwise prohibited if the take is incidental to the carrying out of an otherwise lawful activity. As part of the ITL application process, an applicant must develop, fund, and implement a BLNR-approved HCP to minimize and mitigate the effects of the incidental take. The State of Hawai'i also requires that all HCPs and their actions authorized under the HCP must result in an overall net benefit to the species being authorized for incidental take (HRS §195D-21).

Discussion: As detailed in Section 3.9, *Wildlife*, seven federally listed wildlife species could occur within or transit the Project Area: 'ōpe'ape'a (Hawaiian hoary bat), nēnē (Hawaiian goose), 'ua'u (Hawaiian petrel), 'a'o (Newell's shearwater), 'akē'akē (Band-rumped Storm Petrel*)*, assimulans yellow-faced bee, and Blackburn's sphinx moth.

KWP 1 has been operating under the terms and conditions outlined in its current HCP (KWP 2006) and the associated federal ITP (TE72434A-1) and ITL (ITL-08). The ITP and ITL expire in January 2026, and

cover incidental take of the following Covered Species: ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), and ʻaʻo (Newell's shearwater).

To proceed, the Proposed Action would require a new ITP from USFWS, a new ITL from DLNR DOFAW, and approval of the Proposed HCP (Tetra Tech 2025a) to cover incidental take of threatened and endangered species that may occur during the Proposed Action's extended operation period. The Covered Species for the Proposed Action include the four species covered in KWP 1's current HCP/ITP/ITL as well as the ʻakēʻakē (Band-rumped Storm Petrel) and assimulans yellow-faced bee. Under the Proposed Action, KWP 1 would implement mitigation measures as described in Section 2.1.3.3, *HCP Mitigation* and Section 3.9.2.2, Wildlife, *Proposed Action,* which is anticipated to result in an overall beneficial impact to the Covered Species.

Beyond the six Covered Species, one additional ESA-listed species, the Blackburn's sphinx moth, has the potential to occur in or transit the Project Area and was considered for coverage (Tetra Tech 2025a). KWP 1 would implement avoidance and minimization measures to avoid the take of these species. Therefore, HCP/ITL coverage is not being sought by KWP 1.

4.2.7 Hawaiʻi State Plan (HRS Chapter 226)

The Hawaiʻi State Plan (HRS Chapter 226) serves as a guide for the long-range development of the State. The purpose of the plan is to:

- Identify the goals, objectives, policies, and priorities for the State;
- Provide a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources;
- Improve coordination of Federal, State, and county plans, policies, programs, projects, and regulatory activities; and
- To establish a system for plan formulation and program coordination to provide for an integration of all major State and county activities.

The sections of the plan that are most relevant to the Proposed Action are HRS § 226-18(a) and (b), which present the objectives and policies for energy facility systems. These are listed as follows:

> *(a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:*
>
> > *(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;*
> >
> > *(2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;*
> >
> > *(3) Greater energy security in the face of threats to Hawaii's energy supplies and systems;*

(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and

(b) To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.

In addition, sustainability guidelines and priorities of the plan that are most relevant to the Proposed Action in relation to HRS § 226-108 Sustainability are listed below:

(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;

Discussion: The Proposed Action would have a beneficial impact to public electric services on the Island of Maui would help the State to meet its energy and sustainability goals. With the renewable power generated by continued operation of KWP 1, Hawaiian Electric would be able to eliminate the use of fossil fuels that would otherwise, presumably, be consumed to produce conventional electric power. Additionally, the Proposed Action would continue to contribute to the goals outlined in the Hawai'i RPS and the HCEI and would support state and county statutes designed to promote energy efficiency and renewable energy sources. Hawaiian Electric has demonstrated that the KWP 1 facility would continue to play an important role in supporting Maui grid reliability; Hawaiian Electric's Integrated Grid Plan concludes that extending the life of the KWP 1 facility would reduce risks of future rolling outages on Maui (Hawaiian Electric 2024b).[87] The KWP 1 facility is an essential contributor to resource diversity, generating power during the day and night, as well as when it is cloudy. The existing KWP 1 facility is also among the lowest cost electricity generators in the State and saves customers approximately $10 million per year compared to fossil fuels. In 2024, the KWP 1 facility provided energy at 15 to 30 percent below the cost of fossil-fueled generators on Maui.[88] KWP 1 would continue to deliver energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility, a cost that is otherwise directly passed along to consumers and contributes to unpredictable electricity costs. See Section 1.3.1, *State Energy Goals and Power Production* and Section 3.15*, Public Infrastructure and Services* for more information.

4.2.8 Historic Preservation (HRS Chapter 6E)

HRS Chapter 6E, Historic Preservation, outlines the state's policies and procedures for the identification, evaluation, and protection of historic properties. It establishes the framework for the SHPD, which is responsible for maintaining the state's historic sites and ensuring compliance with federal and state preservation laws.

[87] Updated grid reliability analysis based on Integrated Grid Plan 2024 Annual Update – see pp. 132-169 for discussion of Maui grid reliability. New analyses quantified reliability risks of aging conventional generation fleet, decreases in generating capacity with upcoming retirements, and potential delays/withdrawals of Stage 3 renewable energy projects.

[88] Energy cost comparison based on avoided energy costs and energy cost recovery filings for Maui.

The State of Hawai'i has developed a system for evaluating significance of historic properties under HAR Chapters 13-275 and 13-284. For a historic property to be considered significant, it must possess integrity of location, design, setting, materials, workmanship, feeling, and/or association and meet one or more of the following cultural/historic criteria as defined by HAR §§ 13-275-6 and 13-284-6:

HAR Chapter 13-276 outlines the Rules Governing Standards for Archaeological Inventory Surveys and Reports required by HAR Chapters 13-275 and 13-284. According to HAR §§ 13-276-7 and -8, significance evaluations must be included in all survey reports, along with recommendations for mitigation measures. These evaluations and recommendations are required to be summarized in a table listing all sites to fulfill the mandates outlined in HRS § 6E.

Discussion: Due to the Applicant's request for a lease to use State lands, the Proposed Action is subject to review under HRS Chapter 6E-42 and the implementing regulations under HAR Chapter 13-284.

As further described in Section 3.10.1.6, *Archaeological and Historic Features*, there have been numerous previous archaeological investigations conducted in the Project Area including an AIS completed by Rechtman Consulting, LLC for the KWP 1 wind turbine survey corridor, access road, and staging area (Clark and Rechtman 2005). This survey report was accepted by SHPD on August 29, 2005 (SHPD Correspondence Log No: 2005.1794, Doc No: 05087MK24 dated August 29, 2005), documenting the Project's compliance with the following steps under HRS 6E review:

- Documentation of historic properties in the project area in accordance with HAR 13-275/284-5(b);
- Evaluation of the significance of these properties in accordance with HAR 13-275/284-6(d);
- Determination of effects to significant historic properties (in accordance with HAR 13-275/284-7(b);
- Proposed mitigation measures in accordance with HAR 13-275/284-8(a); and
- Development of mitigation plans in accordance with HAR 13-275/284-8(h).

More information about the documented historic properties, evaluation of significance, determination of effect, and proposed mitigation measures is included in Section 3.10.1.6, *Archaeological and Historic Features* and the Proposed Action's CIA (ASM 2025; Appendix C).

4.2.9 Na Ala Hele Trails & Access Program (HRS Chapter 198D)

The State of Hawai'i established the Na Ala Hele Trails and Access Program in 1988 by adopting Act 236 (HRS Chapter 198D). Program responsibility, assigned to DLNR, includes planning, developing, acquiring, constructing and coordinating a statewide trail and access system. The program's intent is to ensure adequate public access to coastal and mountain areas consistent with sound conservation principles. The program's vision statement calls for the State to develop, via the Na Ala Hele Program, a trail and access network and management system which:

- Provides a broad range of recreational, cultural, religious, and subsistence opportunities for all of Hawai'i's people, and
- Helps to conserve Hawai'i's cultural heritage and environment.

Discussion: The Lāhainā Pali Trail is part of the Na Ala Hele Statewide Trail and Access System and passes across the Kaheawa Pastures access road, south of KWP 1. KWP 1 provides $1,500 annually to the Na Ala Hele Program to produce educational and interpretive materials under CDUP condition 4 (CDUP MA-3103).

Acoustic and visual impacts to the Lāhainā Pali Trail would remain unchanged during continued operations, as discussed in Section 3.11, *Noise* and Section 3.12, *Visual Resources*, respectively. The existing KWP 1 turbines are visible from portions of the Lāhainā Pali Trail, but the existing O&M building and substation are not easily visible from areas south of the KWP 1 facility due to the mountainous terrain. The KWP 1 facility can also be heard from portions of the trail. Occasionally, vehicular and heavy equipment traffic would cross the portion of Lāhainā Pali Trail that intersects with Kaheawa Pastures access road. For safety purposes, it would be necessary to interrupt use of that portion of the trail for short periods during maintenance activities. In most cases the interruption would be for no more than fifteen minutes at a time. Overall, the Proposed Action is in compliance with the intent of the Na Ala Hele Trails and Access Program to protect and preserve its trail systems for Hawai'i's people.

4.3 Local Regulations

4.3.1 County Zoning

Land use is also regulated by the various counties through zoning districts, within which development standards may be specified for different activities. Title 19 of the Maui County Code defines zoning districts and regulates development within them.

Discussion: The Proposed Action is within the State Conservation District. Therefore, as provided by HRS §205-5(a)[89], land use is governed by DLNR. Consequently, County zoning regulations are not applicable to the Proposed Action.

4.3.2 Special Management Area and Shoreline Setback

The SMA is a designated area that extends inland from the shoreline (ranging from 100 yards to several miles in width) and is regulated by the Counties under the Hawai'i CZM program. Land uses within the SMA are regulated under HRS §205A and Maui County §12-202, SMA Rules for the Maui Planning Commission (i.e., SMA Rules). Pursuant to HRS §205A and the SMA Rules, any use, activity, or operation proposed within the SMA defined as a "development" shall be subject to the review of the Planning

[89] HRS §205-5 Zoning states "(a) Except as herein provided, the powers granted to counties under section 46-4 shall govern the zoning within the districts, other than in conservation districts. Conservation districts shall be governed by the department of land and natural resources pursuant to chapter 183C".

Department Director and the Planning Commission. "Development" is defined in HAR §205A-22 and includes: A) placement or erection of any solid material, and B) grading of any materials. Development with a construction value of less than $500,000 must obtain an SMA minor permit and development valued at more than $500,000, or would have a significant adverse effect, must obtain an SMA use permit.

Discussion: As shown in Figure 1-3, the lowest portion of the existing Kaheawa Pastures access road (approximately 1,200 feet of the roadway) and the existing parking lot/staging area are within the SMA. In February 2005, Maui County issued a SMA minor permit[90] for construction of driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapi'ilani Highway. The Project has complied with the permit's seven conditions since Project inception. The Proposed Action does not propose any "development" within the SMA and would continue to use the driveway / access road under its existing SMA permit (SMA 2005/0029).

4.3.3 Maui General Plan

The Maui County 2030 General Plan establishes a vision and a set of long-range guiding principles, goals, objectives, policies and maps to guide the growth and development of the island. The Plan is the principal tool for the County and its citizens to use when evaluating public and private projects and their impacts on land use, the economy, environment, infrastructure, and cultural resources.

The Maui County 2030 General Plan includes a series of planning documents organized into three tiers:

- The Countywide Policy Plan, which was adopted by Ordinance No. 3732 in March 2010. The Countywide Policy Plan presents the overall goals, objectives, policies, and implementing actions that portray the desired direction for the County (County of Maui 2010). It provides the overarching policy framework for the Maui Island Plan, as well as the respective community plans.
- The Maui Island Plan (adopted as Ordinance No. 4004 in December 2012) provides more specific direction for growth and decision-making with goals, objectives, policies and actions for the island of Maui. It delineates areas for future urban and rural growth as part of a Directed Growth Strategy, and identifies and addresses key environmental, housing and economic development issues (County of Maui 2012).
- The Community Plans are specific community plans which provide focused recommendations to address the goals, objectives and policies of the General Plan, based on the values and unique attributes of each community plan area. A total of nine community plan areas have been identified within the county.

[90] Special Management Area Minor Permit – for Construction of Driveway Apron & Parking Lot Improvements at Ukumehame, TMK (2) 3-6-001:014 (SMX 2005/0037; SM2 2005/0029). Approved and issued February 25, 2005.

The following sub-sections discuss the Proposed Action's consistency with each of these planning documents.

4.3.3.1 Countywide Policy Plan

The Countywide Policy Plan (County of Maui 2010) serves as an overarching policy document with broad goals, objectives, policies, and implementing actions. It also has the policy framework for the development of the Maui Island Plan and the nine Community Plans. The Countywide Policy Plan includes a list of countywide goals, objectives, policies, and implementing actions related to the following themes:

A. Protect the Natural Environment
B. Preserve Local Cultures and Traditions
C. Improve Education
D. Strengthen Social and Healthcare Services
E. Expand Housing Opportunities for Residents
F. Strengthen the Local Economy
G. Improve Parks and Public Facilities
H. Diversify Transportation Options
I. Improve Physical Infrastructure
J. Promote Sustainable Land Use and Growth Management
K. Strive for Good Governance

The following discussion identifies those themes most relevant to the Proposed Action and discusses consistency with related goals, objectives, and policies.

Protect the Natural Environment

- *Goal: Maui County's natural environment and distinctive open spaces will be preserved, managed, and cared for in perpetuity.*
    - *Objective 1. Improve the opportunity to experience the natural beauty and native biodiversity of the islands for present and future generations.*
        - *Policy a. Perpetuate native Hawaiian biodiversity by preventing the introduction of invasive species, containing or eliminating existing noxious pests, and protecting critical habitat areas.*
        - *Policy c. Restore and protect forests, wetlands, watersheds, and stream flows, and guard against wildfires, flooding, and erosion.*

- *Policy f. Protect the natural state and integrity of unique terrain, valued natural environments, and geological features.*
- *Policy h. Expand coordination with the State and nonprofit agencies and their volunteers to reduce invasive species, replant indigenous species, and identify critical habitat.*

- *Objective 2. Improve the quality of environmentally sensitive, locally valued natural resources and native ecology of each island.*
  - *Policy e. Mitigate the negative effects of upland uses on coastal wetlands, marine life, and coral reefs.*
  - *Policy f. Strengthen coastal-zone management, re-naturalization of shorelines, where possible, and filtration or treatment of urban and agricultural runoff.*
- *Objective 3. Improve the stewardship of the natural environment.*
  - *Policy a. Preserve and protect natural resources with significant scenic, economic, cultural, environmental, or recreational value.*
  - *Policy f. Reduce air, noise, light, land, and water pollution, and reduce Maui County's contribution to global climate change.*
- *Objective 4. Educate residents and visitors about responsible stewardship practices and the interconnectedness of the natural environment and people.*
  - *Policy b. Align priorities to recognize that the health of the natural environment and the health of people are inextricably linked.*
  - *Policy c. Promote programs and incentives that decrease greenhouse-gas emissions and improve environmental stewardship.*

Discussion: The Proposed Action is consistent with the above goals and objectives. As described in Section 3.2, *Air Quality*, Section 3.4, *Geology, Topography, and Soils*, Section 3.5, *Water Resources*, Section 3.8, *Vegetation,* and Section 3.9, *Wildlife*, the Proposed Action was designed to avoid and minimize impacts to natural resources. Section 3.10, *Cultural and Archaeology Resources* and the Proposed Action's CIA (ASM 2025; Appendix C) provides information on the potential impacts of the Proposed Action on cultural, historic and archaeological resources. Section 3.12, *Visual Resources* address impacts to culturally-valued view planes. Section 3.12, *Visual Resources* and Section 3.13, *Land Use* addresses potential impacts of the Proposed Action on scenic resources and open space. The Proposed Action would have a moderate impact on visual resources. The open space characteristic of the Project Area would be restored upon decommissioning of the KWP 1 facility and restoration of the Project Area to pre-construction conditions. As discussed in Section 3.3, *Climate and Climate Change*, the Proposed Action would generate clean, renewable wind energy for the Maui gird and would result in a long-term reduction in greenhouse gas emissions by offsetting electricity that would otherwise be produced by fossil fuel combustion.

Preserve Local Cultures and Traditions

- *Goal: Maui County will foster a spirit of pono and protect, perpetuate, and reinvigorate its residents' multi-cultural values and traditions to ensure that current and future generations will enjoy the benefits of their rich island heritage.*
    - *Objective 1. Perpetuate the Hawaiian culture as a vital force in the lives of residents.*
        - *Policy a. Protect and preserve access to mountain, ocean, and island resources for traditional Hawaiian cultural practices.*
        - *Policy b. Prohibit inappropriate development of cultural lands and sites that are important for traditional Hawaiian cultural practices and establish mandates for the special protection of these lands in perpetuity.*
    - *Objective 2. Emphasize respect for our island lifestyle and our unique local cultures, family, and natural environment.*
        - *Policy a. Acknowledge the Hawaiian culture as the host culture, and foster respect and humility among residents and visitors toward the Hawaiian people and their practices.*
        - *Policy d. Recognize the interconnectedness between the natural environment and the cultural heritage of the islands.*
    - *Objective 4. Preserve and restore significant historic architecture, structures, cultural sites, cultural districts, and cultural landscapes.*
        - *Policy a. Support the development of island-wide historic, archaeological, and cultural resources inventories.*
        - *Policy j. Support the registering of important historic sites on the State and Federal historic registers.*

Discussion: The Proposed Action is consistent with the above goal and objectives. Section 3.10, *Cultural and Archaeology Resources* and the Proposed Action's CIA (ASM 2025; Appendix C) provides information on the potential impacts of the Proposed Action on cultural, historic and archaeological resources.

Strengthen the Local Economy

- *Goal: Maui County's economy will be diverse, sustainable, and supportive of community values.*
    - *Objective 1. Promote an economic climate that will encourage diversification of the County's economic base and a sustainable rate of economic growth.*
        - *Policy a. Support economic decisions that create long-term benefits.*

        - *Policy b. Promote lifelong education, career development, and technical training for existing and emerging industries.*
        - *Policy c. Invest in infrastructure, facilities, and programs that foster economic diversification.*
        - *Policy e. Support programs that assist industries to retain and attract more local labor and facilitate the creation of jobs that offer a living wage.*
    - *Objective 4. Expand economic sectors that increase living-wage job choices and are compatible with community values.*
        - *Policy a. Support emerging industries, including the following:*
            - *Renewable-energy industry.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As described in Section 3.16, *Socioeconomic Characteristics, t*he Proposed Action would have a long-term, beneficial impact on the local economy. Continued operation of KWP 1 would allow for continued supply of local, renewable energy to the Maui grid at a low, fixed price and reduce Maui's exposure to fossil fuel price volatility. During the extended operational lifespan of the facility, KWP 1 would continue to contribute direct, indirect, and induced economic benefits to the Maui economy. KWP 1 would provide direct benefits in the form of employment and wages to employees, purchasing goods and services from other local industries, funding conservation efforts in compliance with the Proposed HCP, and funding distributed by the community benefits program. During the initial maintenance period, WTG components would be inspected, repaired and/or replaced, which would result in a temporary increase in project expenditures for professional and technical services, contractors, materials, and equipment.

Diversify Transportation Options

- *Goal: Maui County will have an efficient, economical, and environmentally sensitive means of moving people and goods. Objective 1. Provide an effective, affordable, and convenient ground-transportation system that is environmentally sustainable.*
    - *Policy a. Execute planning strategies to reduce traffic congestion.*
    - *Policy i. Collaborate with transit agencies, government agencies, employers, and operators to provide planning strategies that reduce peak-hour traffic.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As discussed in Section 3.14*, Transportation and Traffic* the Proposed Action would not have a significant impact to transportation or traffic in the ROI.

Improve Physical Infrastructure

- *Goal: Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.*

- *Objective 3. Significantly increase the use of renewable and green technologies to promote energy efficiency and energy self-sufficiency.*
  - *Policy a. Promote the use of locally renewable energy sources, and reward energy efficiency.*
  - *Policy e. Expand renewable-energy production.*
  - *Policy k. Reduce Maui County's dependence of fossil fuels and energy imports.*
  - *Policy m. Promote and support environmentally friendly practices in all energy sectors.*

Discussion: The Proposed Action is consistent with the above goal and objectives. The Proposed Action would have a beneficial impact to public electric services on the Island of Maui would help the State to meet its energy and sustainability goals. With the renewable power generated by continued operation of KWP 1, Hawaiian Electric would be able to eliminate the use of fossil fuels that would otherwise, presumably, be consumed to produce conventional electric power. Additionally, the Proposed Action would continue to contribute to the goals outlined in the Hawai'i RPS and the HCEI and would support state and county statutes designed to promote energy efficiency and renewable energy sources. Hawaiian Electric has demonstrated that the KWP 1 facility would continue to play an important role in supporting Maui grid reliability; Hawaiian Electric's Integrated Grid Plan concludes that extending the life of the KWP 1 facility would reduce risks of future rolling outages on Maui (Hawaiian Electric 2024b). The KWP 1 facility is an essential contributor to resource diversity, generating power during the day and night, as well as when it is cloudy. The existing KWP 1 facility is also among the lowest cost electricity generators in the State and saves customers approximately $10 million per year compared to fossil fuels. In 2024, the KWP 1 facility provided energy at 15 to 30 percent below the cost of fossil-fueled generators on Maui. KWP 1 would continue to deliver energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility, a cost that is otherwise directly passed along to consumers and contributes to unpredictable electricity costs. See Section 1.3.1, *State Energy Goals and Power Production* and Section 3.15*, Public Infrastructure and Services* for more information.

Promote Sustainable Land Use and Growth Management

- *Goal: The community character, lifestyles, economies, and natural assets will be preserved by managing growth and using land in a sustainable manner.*
  - *Objective 4. Improve and increase efficiency in land use planning and management.*
    - *Policy a. Assess the cumulative impact of developments on natural ecosystems, natural resources, wildlife habitat, and surrounding uses.*
    - *Policy b. Ensure that new development projects requiring discretionary permits demonstrate a community need, show consistency with the General Plan, and provide an analysis of impacts.*

- *Policy e. Coordinate with Federal, State, and County officials in order to ensure that land use decisions are consistent with County plans and the vision local populations have for their communities.*
- *Policy g. Improve land use decision making through the use of land- and geographic information systems.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As discussed in Section 3.13, *Land Use*, the Proposed Action is the continuation of an existing land use for an additional 20-years. No changes in the current land use, land ownership, or the land use district or zoning classifications are required for Project implementation. Similarly, while the decommissioning phase would involve a change in land use within the Project Area from wind farm operations to open space, the resulting use would be a minor change that is consistent with adjacent land uses as well as state and county land use designations and community plans. Throughout the planning process, KWP LLC has engaged government regulators, stakeholders, community groups, and individuals. Section 6, *Consulted Parties* provides information on citizen participation during the development of the Proposed Action.

4.3.3.2 Maui Island Plan

The Maui Island Plan provides specific policy-based strategies for future growth and delineates areas for future urban and rural growth as part of a Directed Growth Strategy. The following discussion identifies those areas most relevant to the Proposed Action and discusses consistency with related relevant goals, objectives, and policies.

Chapter 1. Population

- *Goal 1.1: Maui's people, values, and lifestyles thrive through strong, healthy, and vibrant island communities.*
    - *Objective 1.1.1 Greater retention and return of island residents by providing viable work, education, and lifestyle options.*

Discussion: The Proposed Action would continue to employ local residents in the renewable energy industry during KWP 1 operation. Therefore, the Project is consistent with this goal and objective. See Section 3.16, *Socioeconomic Characteristics* for additional information.

Chapter 2. Heritage Resources – Cultural, Historical, and Archaeological Resources

- *Goal 2.1: Our community respects and protects archaeological and cultural resources while perpetuating diverse cultural identities and traditions.*
    - *Objective 2.1.: An island culture and lifestyle that is healthy and vibrant as measured by the ability of residents to live on Maui, access and enjoy the natural environment, and practice Hawaiian customs and traditions in accordance with Article XII, Section 7, Hawai'i State Constitution, and Section 7-1, Hawai'i Revised Statutes (HRS).*

- *Objective 2.2: A more effective and efficient planning and review process that incorporates the best available cultural resources inventory, protection techniques, and preservation strategies.*
- *Objective 2.3: Enhance the island's historic, archaeological, and cultural resources.*

Discussion: The Proposed Action is consistent with the above goal and objectives as described in Section 3.10, *Cultural and Archaeology Resources* and the Proposed Action's CIA (ASM 2025; Appendix C).

Chapter 2. Heritage Resources – Shoreline, Reefs, and Nearshore Waters

- *Goal 2.2: An intact, ecologically functional system of reef, shoreline, and nearshore waters that are protected in perpetuity.*
  - *Objective 2.2.1 A more comprehensive and community-based ICZM program.*
    - *Policy 2.2.1.d Incorporate the following into the Maui Island Plan, where consistent with the Maui Island Plan:*
      - *Beach Management Plan for Maui;*
      - *Coastal Nonpoint Pollution Control Program Management Plan;*
      - *Implementation Plan for Polluted Runoff Control; and*
      - *Ocean Resource Management Plan.*
    - *Policy 2.2.1.e Support greater coordination among governmental agencies involved with the protection of the island's marine resources.*
  - *Objective 2.2.2: Improved reef health, coastal water quality, and marine life.*
    - *Policy 2.2.2.a. Create additional mechanisms where needed to contain and control runoff and pollution.*
  - *Objective 2.2.3: Water quality that meets or exceeds State Clean Water Act standards.*
    - *Policy 2.2.3.a Reduce the amount of impervious surface and devise site plan standards that aim to minimize storm runoff and NPS pollution.*
    - *Policy 2.2.3.b Support the revision of existing regulations to require an Erosion and Sedimentation Control Plan (ESCP) for development activities that may pose a threat to water quality.*
    - *Policy 2.2.3.c Require an on-site monitoring program, where applicable, when grading may pose a threat to water quality or when recommended in the ESCP.*
    - *Policy 2.2.3.d Avoid development actions that impair Maui's reef systems and remove identified stressors.*
    - *Policy 2.2.3.e Phase out cesspools and restrict the use of septic systems in ecologically sensitive coastal areas by converting to environmentally friendly*

alternative sewage treatment systems, and connecting to central sewerage systems when and where feasible.

- *Policy 2.2.3.f Prohibit the development of new wastewater injection wells, except when unavoidable for public health and safety purposes.*
- *Policy 2.2.3.g Ensure that the County upholds its affirmative duty under the Clean Water Act by monitoring and reducing point and NPS pollution to help safeguard coastal waters.*

Discussion: The Proposed Action is consistent with the above goal and objectives. Section 3.5, *Water Resources* addresses potential impacts related to near shore and marine waters. The Proposed Action would result in minor ground disturbance and could create new semi-impervious surfaces, which increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and could increase sedimentation in down-gradient areas or water bodies. With implementation of BMPs, including a ESCP and SWPPP, the Proposed Action is anticipated to have a negligible impact on near shore and marine waters.

Chapter 2. Heritage Resources – Watersheds, Streams, and Wetlands

- *Goal 2.3: Healthy watersheds, streams, and riparian environments.*
  - *Objective 2.3.1: Greater protection and enhancement of watersheds, streams, and riparian environments.*
    - *Policy 2.3.1.h Maui will protect all watersheds and streams in a manner that guarantees a healthy, sustainable riparian environment.*
  - *Objective 2.3.2: Decreased NPS and point source pollution.*
    - *Policy 2.3.2.a Enforce water pollution related standards and codes.*
    - *Policy 2.3.2.b Support the use of LID Techniques such as those described in the State of Hawai'i LID Practitioner's Guide (June 2006), as amended.*
  - *Objective 2.3.3 Preserve existing wetlands and improve and restore degraded wetlands.*
  - *Objective 2.3.4: Greater preservation of native flora and fauna biodiversity to protect native species.*
    - *Policy 2.3.4.a Work with appropriate agencies to eliminate feral ungulate populations and invasive species.*
    - *Policy 2.3.4.b Encourage the State to provide adequate funding to preserve biodiversity, protect native species, and contain or eliminate invasive species.*
    - *Policy 2.3.4.c Support the work of conservation groups and organizations that protect, reestablish, manage, and nurture sensitive ecological areas and threatened indigenous ecosystems.*

- *Objective 2.3.5 Limited development in critical watershed areas.*
- *Objective 2.3.6: Enhance the vitality and functioning of streams, while balancing the multiple needs of the community.*
  - *Policy 2.3.6.a Protect and enhance natural streambeds and discourage stream alteration.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As described in Section 3.5, *Water Resources*, the Proposed Action would result in minor ground disturbance and could create new semi-impervious surfaces, which increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and could increase sedimentation in down-gradient areas or water bodies. Ground disturbance would be limited to the original KWP 1 construction and operations footprint and implementation of BMPs, including a ESCP and SWPPP, would minimize potential impacts. It is not anticipated that the non-perennial Malalowaiaʻole Gulch and an unnamed stream in Manawainui Gulch within the Project Area would be altered by the Proposed Action. The types and sources of potential water pollutants within the Project Area would not change with continued operations. KWP 1 operators would continue to implement a SPCC (WSP 2023) to protect water resources from hazardous materials that are transported, stored, and used at the Project Area. Given the relatively minimal increase in semi-impervious surfaces, coupled with the Project BMPs, the Proposed Action is anticipated to have a negligible to minor impact on water resources.

As described in Section 3.8, *Vegetation* and Section 3.9, *Wildlife*, KWP 1 would implement a Vegetation Management Plan (Appendix F) and Invasive Species Prevention Plan (Appendix G) to protect native species and control the introduction and spread of invasive species. Under the Proposed Action regular scavenger trapping would continue at KWP 1 and the mitigation areas to contribute to reduce the predation risk to listed species.

Chapter 2. Heritage Resources – Wildlife and Natural Areas

- *Goal 2.4: Maui's natural areas and indigenous flora and fauna will be protected.*
  - *Objective 2.4.1 A comprehensive management strategy that includes further identification, protection, and restoration of indigenous wildlife habitats.*
    - *Policy 2.4.1.a Identify and inventory the following:*
      - *Natural, recreational, and open space resources;*
      - *Flora and fauna with medium, high, and very high concentrations of threatened or endangered species; and*
      - *Location and extent of invasive species.*
    - *Policy 2.4.1.b Require flora and fauna assessment and protection plans for development in areas with concentrations of indigenous flora and fauna; development shall comply with the assessment and protection plan and shall use*

the avoidance, minimization, and mitigation approach respectively, with an emphasis on avoidance.

- *Policy 2.4.1.c Support the implementation of Hawai'i's Comprehensive Wildlife Conservation Strategy (October 2005).*
  - *Objective 2.4.2 A decrease in invasive species through programs and partnerships that eradicate undesirable species and protect native habitat.*
- *Policy 2.4.2.a Prevent the introduction of invasive species at all of Maui's airports and harbors.*
- *Policy 2.4.2.b Encourage the State to increase funding in support of invasive species interception, control, and eradication.*
- *Policy 2.4.2.c Encourage the State to develop programs that allow students to participate in invasive species eradication projects.*

- *Objective 2.4.3 Greater protection of sensitive lands, indigenous habitat, and native flora and fauna.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As described in Section 3.8, *Vegetation* and Section 3.9, *Wildlife*, KWP 1 would implement a Vegetation Management Plan (Appendix F) and Invasive Species Prevention Plan (Appendix G) to protect native species and control the introduction and spread of invasive species. Under the Proposed Action regular scavenger trapping would continue at KWP 1 and the mitigation areas to reduce the predation risk to listed species.

Chapter 2. Heritage Resources – Scenic Resources

- *Goal 2.5: Maui will continue to be a beautiful island steeped in coastal, mountain, open space, and historically significant views that are preserved to enrich the residents' quality of life, attract visitors, provide a connection to the past, and promote a sense of place.*
  - *Objective 2.5.1: A greater level of protection for scenic resources.*
    - *Policy 2.5.1.a. Protect views to include, but not be limited to, Haleakalā, 'Iao Valley, the Mauna Kahalawai (West Maui Mountains), Pu'u Ō'la'i, Kaho'olawe, Molokini, Moloka'i, and Lāna'i, Mauna Kea, Mauna Loa, sea stacks, the Pacific Ocean, and significant water features, ridgelines, and landforms.*
    - *Policy 2.5.1.b. Identify, preserve, and provide ongoing management of important scenic vistas and open space resources, including mauka-to-makai and makai-to-mauka view planes.*
    - *Policy 2.5.1.c. Protect "night sky" resources by encouraging the implementation of ambient light ordinances and encouraging conversion of*

all sources that create excessive light pollution, affecting our ability to view the stars.

- *Policy 2.5.1.d. Protect ridgelines from development where practicable to facilitate the protection of public views.*
- *Policy 2.5.1.e Protect scenic resources along Maui's scenic roadway corridors.*

- *Objective 2.5.2: Reduce impacts of development projects and public-utility improvements on scenic resources.*
  - *Policy 2.5.2.a Enforce the policies and guidelines of the SMA [Special Management Unit] regarding the protection of views.*
  - *Policy 2.5.2.b Require any new subdivision of land, development, or redevelopment adjacent to a "high" or "exceptional" scenic corridor to submit an impact assessment of the project's scenic impacts; this assessment shall use the avoidance, minimization, and mitigation steps respectively, with an emphasis on avoidance.*
  - *Policy 2.5.2.c Require appropriate building setbacks and limits on wall heights to protect views along scenic corridors.*
  - *Policy 2.5.2.d Encourage the State of Hawai'i Board of Land and Natural Resources to deny any development within the State Conservation District that interferes with a scenic landscape or disrupts important open space resources.*
  - *Policy 2.5.2.e Require Urban Design and Review Board (UDRB) review and approval of utility poles, facilities, and other visible infrastructure improvements along scenic corridors.*
  - *Policy 2.5.2.f Ensure little or no effect on scenic resources from utility improvements, primarily power poles.*
  - *Policy 2.5.2.g Protect scenic vistas from intrusion by power poles.*
- *Objective 2.5.3 Greater protection of and access to scenic vistas, access points, and scenic lookout points.*
  - *Policy 2.5.3.a Protect, enhance, and acquire access to Maui's scenic vistas and resources.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As described in Section 3.12, *Visual Resources*, the Proposed Action is not anticipated to have a substantial adverse effect on scenic vistas or view planes, during the day or night. No scenic vistas and view planes were identified in county or state plans or studies within the vicinity of the Project Area. However, both the

Maui Island Plan and the community plans generally emphasize the importance of protecting mauka-to-makai and makai-to-mauka view planes, as well as preserving views of significant geographic features and landforms, such as the West Maui Mountains. This protection is particularly relevant for public views from scenic roadways, parks, and other public access points.

Because the Proposed Action is a continuation of the existing KWP 1 facility, the WTGs do not represent a new feature on the landscape. KWP 1 is and would continue to be an existing visual feature of the West Maui Mountains. The facility would be visible from scenic roadways, parks, and other public access points, including the Lāhainā Pali Trail and coastal sections of Honoapi‘ilani Highway, as well as from Kīhei and Wailea. During continued operations, visual impacts would remain unchanged, as there would be no significant changes to the turbines, facilities, or O&M activities. There would be minor, temporary adverse impacts to visual resources during decommissioning activities and long-term, beneficial impacts once KWP 1 equipment is removed and the Project Area restored.

Chapter 3. Natural Hazards

- *Goal 3.1: Maui will be disaster resilient.*
    - *Objective 3.1.2 Greater protection of life and property.*
        - *Policy 3.1.2.a Identify critical infrastructure, lifelines, roads, and populations that are vulnerable to coastal hazards, and encourage strategic retreat and relocation to safer areas.*
        - *Policy 3.1.2.d Encourage the use of construction techniques that reduce the potential for damage from natural hazards.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As discussed in Section 3.6, *Natural Hazards*, the Project Area is not located within an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, or coastal waters. During the Proposed Action, facilities could be exposed to seismic, hurricane, high wind, lightning, and fire hazards, but minimal impacts are anticipated due to the planned preventive and response measures. The Proposed Action would not increase the risk to human life and property in the event of a natural disaster.

Chapter 4. Economic Development

- *Goal 4.1: Maui will have a balanced economy composed of a variety of industries that offer employment opportunities and well-paying jobs and a business environment that is sensitive to resident needs and the island's unique natural and cultural resources.*
    - *Objective 4.1.1 A more diversified economy.*
        - *Policy 4.1.1.a Encourage an economy that is driven by innovation, research and development, and human resource development, including but not limited to, increasing technology- and knowledge-based sectors to be a major component in Maui County's economic base.*

        - *Policy 4.1.1.b Support the creation of new jobs and industries that provide a living wage.*
    - *Objective 4.1.2 Increase activities that support principles of sustainability.*
        - *Policy 4.1.2.a Support industries that are sustainable, and culturally and environmentally sensitive.*
        - *Policy 4.1.2.b Encourage and support local businesses.*
        - *Policy 4.1.2.c Substitute imports with locally-produced services and products where practicable.*
        - *Policy 4.1.2.d Support the development of economic development clusters in targeted industry sectors.*
        - *Policy 4.1.2.e Encourage all businesses to save energy, water, and other resources.*
    - *Objective 4.1.3 Improve the island's business climate.*
- *Goal 4.4: A diverse array of emerging economic sectors.*
    - *Objective 4.4.1 Support increased investment and expanded activity in emerging industries.*
        - *Policy 4.4.1.f Work with appropriate organizations to support the development of high technology clusters around renewable energy, diversified agriculture, ocean sciences, health sciences, and other knowledge-based industries.*
    - *Objective 4.4.2 Increase the development of renewable energy technologies that are supported by the local community.*
        - *Policy 4.4.2.a Support the expansion of the renewable energy sector and the use of solar, wind, wave, and biofuel technologies.*
        - *Policy 4.4.2.b Provide incentives to encourage renewable energy development, the use of green energy technologies, and energy conservation.*
        - *Policy 4.4.2.c Ensure an adequate supply of land and facilitate permitting to meet the needs for renewable energy technologies such as solar, wind, wave, biofuel, and other technologies, provided that environmental, view plane, and cultural impacts are addressed.*
        - *Policy 4.4.2.d Support the Maui County Energy Alliance Plan where consistent with the Maui Island Plan.*

Discussion: The Proposed Action is consistent with the above goals and objectives. As described in Section 3.16, *Socioeconomic Characteristics, t*he Proposed Action would have a long-term, beneficial impact on the local economy. Continued operation of KWP 1 would allow for continued supply of local, renewable energy to the Maui grid at a low, fixed price and reduce Maui's exposure to fossil fuel price volatility. During the extended operational lifespan of the facility, KWP 1 would continue to contribute direct, indirect, and induced economic benefits to the Maui economy. KWP 1 would provide direct benefits in the form of employment and wages to employees, purchasing goods and services from other local industries, funding conservation efforts in compliance with the Proposed HCP, and funding distributed by the community benefits program. During the initial maintenance period, WTG components would be inspected, repaired and/or replaced, which would result in a temporary increase in project expenditures for professional and technical services, contractors, materials, and equipment.

Chapter 6 - Infrastructure and Public Facilities

- *Goal 6.1: Maui will have implemented the ISWMP thereby diverting waste from its landfills, extending their capacities.*
- *Goal 6.2: Maui will have wastewater systems that comply with or exceed State and Federal regulations; meet levels-of-service needs; provide adequate capacity to accommodate projected demand; ensure efficient, effective, and environmentally sensitive operation; and maximize wastewater reuse where feasible.*
    - *Objective 6.2.2 Adequate levels of wastewater service with minimal environmental impacts.*
        - *Policy 6.2.2.a Meet or exceed all State and Federal standards regulating wastewater disposal or reuse.*
- *Goal 6.3: Maui will have an environmentally sustainable, reliable, safe, and efficient water system.*
    - *Objective 6.3.1 More comprehensive approach to water resources planning to effectively protect, recharge, and manage water resources including watersheds, groundwater, streams, and aquifers.*
    - *Objective 6.3.3 Improve water quality and the monitoring of public and private water systems.*
        - *Policy 6.3.3.a Protect and maintain water delivery systems.*
- *Goal 6.4: An interconnected, efficient, and well-maintained, multimodal transportation system.*
- *Goal 6.5: An island-wide transit system that addresses the needs of residents and visitors and contributes to healthy and livable communities.*

- *Goal 6.6: Maui will have a diverse range of active and passive recreational parks, wilderness areas, and other natural-resource areas linked, where feasible, by a network of greenways, bikeways, pathways, and roads that are accessible to all.*
- *Goal 6.7: Maui will have adequate public facilities that meet the diverse needs of residents.*
- *Goal 6.8: Maui will have school and library facilities that meet residents' needs and goals.*
- *Goal 6.9: All of Maui residents will have the best possible health care to include healthy living, disease prevention, as well as acute and long-term care.*
- *Goal 6.10: Maui will meet its energy needs through local sources of clean, renewable energy, and through conservation.*
    - *Objective 6.10.1. Reduce fossil fuel consumption. Using the 2005 electricity consumption as a baseline, reduce by 15 percent in 2015; 20 percent by 2020; and 30 percent by 2030.*
        - *Policy 6.10.1.a Support energy efficient systems, processes, and methods in public and private operations, buildings, and facilities.*
        - *Policy 6.10.1.b Support the Maui Solar Rooftop initiative.*
        - *Policy 6.10.1.c Support Hawai`i Energy and other Public Utility Commission (PUC) approved energy efficiency programs*
    - *Objective 6.10.2 Increase the minimum percentage of electricity obtained from clean, renewable energy sources. By 2015, more than 15 percent of Maui's electricity will be produced from locally-produced, clean, renewable energy sources, 25 percent by 2020, and 40 percent by 2030.*
        - *Policy 6.10.2.a Evaluate available renewable energy resource sites and applicable technologies.*
        - *Policy 6.10.2.b Encourage the installation of renewable energy systems, where appropriate.*
        - *Policy 6.10. 2.c Support the establishment of new renewable energy facilities at appropriate locations provided that environmental, view plane, and cultural impacts are addressed.*
        - *Policy 6.10.2.d Encourage all new County facilities completed after January 1, 2015, to produce at least 15 percent of their projected electricity needs with onsite renewable energy.*
    - *Objective 6.10.3. Increased use of clean, renewable energy.*
        - *Policy 6.10.3.a Support efforts in the PUC to upgrade Maui's power grid to integrate renewable energy from multiple sources and wheeling of electricity.*

        - *Policy 6.10.3.b Encourage the PUC to work with the County to implement and expedite community supported renewable energy projects.*
        - *Policy 6.10.3.d Encourage import substitution by MECO and the broader community to become more self-sufficient in energy production.*
        - *Policy 6.10.3.e Educate the public on the economic and environmental benefits from the increased use of renewable energy.*
        - *Policy 6.10.3.g Encourage incentives to support the development and use of renewable energy.*
    - *Objective 6.10.4 More efficient distribution of power throughout the island while preserving island beauty.*
- *Goal 6.11: Maui will have harbors and airports that will efficiently, dependably, and safely facilitate the movement of passengers and cargo.*

Discussion: The Proposed Action is consistent with the above goals and objectives. As discussed in Section 3.15, *Public Infrastructure and Services* and Section 3.16, *Socioeconomic Characteristics*, the Proposed Action is not anticipated to have a substantial adverse effect on the population surrounding the Project Area or public facilities in the region. Continued operations are not expected to induce changes in the pattern of land use, population density, or growth rate. KWP 1 would not markedly promote or discourage economic activity or induce changes to the population. Consequently, it would not lead to growth or changes in the economic or demographic character of the ROI that might have secondary impacts to land use.

Continued operations would also not require an increase in demand for public services, utilities, or housing beyond existing capacity (Section 3.15, *Public Infrastructure and Services*). Continued operation of KWP 1 would allow for continued supply of local, renewable energy to the Maui grid at a low, fixed price and reduce Maui's exposure to fossil fuel price volatility. The Proposed Action would not have a significant impact on transportation infrastructure or services or on traffic in the ROI (Section 3.14*, Transportation and Traffic*).

Chapter 7. Land Use

- *Goal 7.1: Maui will have a prosperous agricultural industry and will protect agricultural lands.*
    - *Objective 7.1.2 Reduction of the island's dependence on off-island agricultural products and expansion of export capacity.*
- *Goal 7.2: Maui will have a rural landscape and lifestyle where natural systems, cultural resources and farm lands are protected and development enhances and compliments the viability and character of rural communities.*
- *Goal 7.3: Maui will have livable human-scale urban communities, an efficient and sustainable land use pattern, and sufficient housing and services for Maui residents.*

Discussion: The Proposed Action is consistent with the above goals and objectives. As discussed in Section 3.13, *Land Use*, the Proposed Action is the continuation of an existing land use for an additional 20-years. No changes in the current land use, land ownership, or the land use district or zoning classifications are required for Project implementation. Similarly, while the decommissioning phase would involve a change in land use within the Project Area from wind farm operations to open space, the resulting use would be a minor change that is consistent with adjacent land uses as well as state and county land use designations and community plans. Throughout the planning process, KWP LLC has engaged government regulators, stakeholders, community groups, and individuals. Section 6, *Consulted Parties* provides information on citizen participation during the development of the Proposed Action.

The Proposed Action would not irreversibly curtail the range of potential beneficial uses of the Project Area or vicinity. The Project Area would use KWP 1's existing infrastructure to continue generating wind energy for an additional 20-year period. Under the Proposed Action, KWP 1 would continue to implement BMPs to avoid and minimize potential impacts to environmental resources as discussed in Section 3.2, *Air Quality*, Section 3.4, *Geology, Topography, and Soils*, Section 3.5, *Water Resources*, Section 3.8, *Vegetation*, Section 3.9 *Wildlife*, Section 3.11, *Noise*, Section 3.12, *Visual Resources*, and Section 3.14*, Transportation and Traffic,* respectively.

Following decommissioning, KWP would engage in restoration activities that would return the Project Area to as close to preconstruction conditions as practicable. The property would return to its pre-construction use as open space and would be available for a range of beneficial uses that are suitable to the rugged terrain and permitted in the state conservation district. See Section 3.13, *Land Use* for additional information.

Chapter 8. Directed Growth Plan

- *Goal 8.1: Maui will have well-serviced, complete, and vibrant urban communities and traditional small towns through sound planning and clearly defined development expectations.*
- *Goal 8.2: Maui will maintain opportunities for agriculture and rural communities through sound planning and clearly defined development expectations.*
- *Policy 8.3.a The Protected Areas in Diagrams E-1, NW-1, N-1, NE-1, S-1, SE-1, and WC-1 should be concurrently reviewed with Table 8-2 and with any proposed land uses that may result in an adverse impact on a Protected Area. The County Council and the Administration should be notified if a Protected Area may be compromised by a development proposal.*

Discussion: The Proposed Action is located outside any Urban or Rural Growth Boundary and is not within a protected area or sensitive land identified in the Maui Island Plan. Although development is generally encouraged to occur within the urban and rural growth boundary areas, Chapter 8 of the Maui Island Plan includes a specific exception for alternative energy systems to be located outside of urban, small town, and rural growth boundaries when consistent with community plans and zoning. The Proposed Action supports the Maui Island Plan's regional framework theme one: "Limit Development in Northwest and East Maui," as no new development is proposed and would instead continue an existing

operation. The Proposed Action supports the Maui Island Plan's regional framework theme two as well: "Protect Maui's agricultural resource lands, especially prime and productive agricultural lands," as the Proposed Action is not located on agricultural resource lands, thus protecting those lands for future agricultural uses.

4.3.3.3 Community Plans

Maui County is divided into nine community plan regions, each governed by a Community Plan which is a strategic planning document that guides government action and decision-making. Each Community Plan sets forth goals, objectives, and policies that are specific to the Community Plan's region. Additionally, the plan sets forth the desired land use patterns, goals, objectives, policies, and implementing actions for a number of functional areas, including economic activity, land use, environment, cultural resources, urban design and housing, physical and social infrastructure, and government.

Discussion: The Project Area is located within the boundaries of the West Maui Community Plan (County of Maui 2022) and the Kīhei-Mākena Community Plan (Maui County 1998a).[91]

West Maui Community Plan

The West Maui Community Plan was approved on December 17, 2021 and amended on December 23, 2024 (County of Maui 2022). The West Maui Community Plan Area covers the majority of the traditional moku of Lāhainā and Kā'anapali. The goals, policies, and actions provided in this Plan aim to direct the County in its planning, programs, and decision making. The policies and actions outlined in this plan direct the County's decisions related to managing land use, review of development projects, changes to zoning and development regulations, prioritizing funding for projects, and establishing new programs and initiatives.

Section 2: Policy Framework

The following lists the most relevant goals, objectives, and policies of West Maui Community Plan to KWP 1 and discusses the Proposed Action's consistency with them.

- *Goal 2.1: Ready and resilient systems.*
    - *Climate Change and Sea Level Rise*
        - *2.1.2 | To minimize impacts from future coastal erosion, new permanent structures must be located landward of the State-recognized SLR-XA for coastal erosion, except a minimum buildable area must be provided. This restriction does not apply to structures needed as part of an approved beach restoration project*

[91] As a requirement of Maui County Code 2.80B, the Community Plans will be updated every 10 years. Following the approval of the Countywide Policy Plan, the process to update the Community Plans began in 2010. The South Maui Community Plan Update is currently underway (https://southmaui.wearemaui.org/). See County Resolution No. 13-13 for the order of the nine Community Plan updates.

or cultural project, such as loko i'a, and which must be evaluated on a case-by-case basis.

- *2.1.4 | Prioritize projects that provide multiple benefits from resilience actions.*
- *2.1.5 | Protect the shoreline and beaches by preserving waterfront land within the SLR-XA as open space wherever possible*

- *Fire and Emergency Management*
  - *2.1.6 | Support the goals, objectives, and actions of the West Maui Community Wildfire Protection Plan and the Maui County Multi-Hazard Mitigation Plan Update.*
  - *2.1.7 | Require all projects to incorporate defensible space around their perimeter and on-going maintenance as recommended by the Maui Fire Department.*
  - *2.1.9 | Encourage the development of firebreaks and bioswales that can be used for recreational paths and greenways around existing communities and between new communities.*
- *Water*
  - *2.1.11 | Require new developments to install landscaping that reduces water use, using drought resistant and micro-climate appropriate design and plants including native species, and gray water and water catchment systems where the State Department of Health allows it.*
- *Wastewater*

Discussion: The Proposed Action is consistent with the above goal and policies. Given its elevation, the Project Area is not within the sea level rise exposure area and therefore is consistent with this policy. Section 3.7, *Natural Hazards* discusses wildfire risks in the Project Area vicinity and avoidance and minimization measures to prevent wildfires. KWP 1 designed to employ multiple layers of fire prevention and suppression measures to reduce fire risk or damage, including maintenance of a defensible space and establishment of fire breaks. Continued operations would not require an increase in demand for fire or emergency services beyond existing capacity. KWP 1 is not connected to the municipal water or wastewater systems and the Proposed Action would have no impact on water or wastewater infrastructure or services (see Section 3.15, *Public Infrastructure and Services)*

- *Goal 2.2: A complete, balanced and connected transportation network.*
  - *2.2.7 | Support improvements for the safe, lighted, and convenient movement of all users, including alternative modes and non-motorized vehicles in the Lāhainā region, particularly along Honoapi'ilani Highway, Front Street, Lahainaluna Road, Waine'e Street and Lower Honoapi'ilani Road.*

Discussion: The Proposed Action is consistent with the above goal and policies. The Proposed Action would not have a significant impact on transportation infrastructure or services or on traffic in the ROI (see Section 3.14*, Transportation and Traffic*). Traffic during typical daily operations and maintenance activities for KWP 1 generate minimal traffic. Decommissioning of the existing facilities would generate vehicle traffic on area roadways throughout the decommissioning period; however, most of these trips would be associated with employee commute trips to and from working areas and with the delivery of decommissioning materials to off-site areas. The transport of large pieces of equipment may cause temporary traffic delays and may require traffic control measures to minimize disruption. A Traffic Control Plan would be developed for decommissioning and restoration activities in coordination with HDOT Highways, County of Maui Department of Public Works, and the Maui Police Department, as necessary to mitigate those impacts. No work is anticipated to be required in existing highway rights-of-ways to accommodate decommissioning.

- *Goal 2.3: Responsible stewardship of resources, culture and character.*
    - *2.3.2. Gulches, as identified in the map in Figure 2.3 of this Plan, shall remain in open space and no new permanent structures shall be developed in or within 100 feet of the top of the bank of identified gulches unless Low Impact Development strategies are implemented to prevent stormwater runoff.*
    - *2.3.3. Protect ocean and stream water quality by requiring that wetlands, as defined by traditional historic knowledge or by Section 404 of the Clean Water Act, be preserved with vegetated buffer areas that are adequate to protect them from pollutants.*
    - *2.3.4. All development shall implement recommendations of the Maui County Planting Plan for street and parking area trees, encouraging the use of native and endemic plants. Plants that are on the Hawai'i Pacific Weed Assessment high risk list shall not be utilized.*
    - *2.3.5. Require implementation of Low Impact Development practices in developments in West Maui to reduce stormwater runoff and protect water quality.*
    - *2.3.10. Existing areas of open space, including agricultural lands and gulches, should be viewed as a resource to be protected and enhanced.*
    - *2.3.11. Protect public mauka to makai view corridors in each subarea and scenic vistas.*
    - *2.3.13. The marine and near-shore environment and open space areas are important assets of the region and should be protected and preserved. Habitat connectivity for threatened and endangered species, watersheds, undeveloped shoreline areas and other environmentally sensitive lands must be preserved.*
    - *2.3.14. Reuse of treated effluent and the reduction of sedimentation of near shore waters shall be pursued to protect and enhance the region's land, water, and marine environments.*

- *2.3.16. All development projects must engage in consultation with the Aha Moku ʻo Maui representative associated with the project area – either Moku ʻo Lāhainā or Moku ʻo Kāʻanapali – and provide evidence of this engagement to the Department.*
- *2.3.18. Any ground-altering activities in the areas described in this Plan's ascription list must have a cultural monitor on site, due to the sensitive nature of these areas, until cultural overlay policies are established by the Council.*

Discussion: The Proposed Action is consistent with the goal and policies above. The Proposed Action is not a new development project.

As discussed in Section 3.5, *Water Resources* the Proposed Action would implement low impact development practices to prevent stormwater runoff and minimize impacts to the existing drainages and surface waters. These measures would protect surface and marine water quality.

As described in Section 3.8, *Vegetation* and Section 3.9, *Wildlife*, KWP 1 would implement a Vegetation Management Plan (Appendix F) and Invasive Species Prevention Plan (Appendix G) to protect native species and control the introduction and spread of invasive species.

As described in Section 3.12, *Visual Resources*, although KWP 1 is visible to varying degrees from surrounding areas, it does not block public view corridors or scenic vistas such as *mauka*-to-*makai* and *makai*-to-*mauka* view planes, views of the West Maui Mountains, or coastal scenic vistas. Because the Proposed Action is a continuation of the existing KWP 1 facility, the WTG do not represent a new feature on the landscape. KWP 1 is and would continue to be an existing visual feature of the West Maui Mountains.

Section 3.10, *Cultural and Archaeology Resources* and the Proposed Action's CIA (ASM 2025; Appendix C) provides information on the potential impacts of the Proposed Action on cultural, historic and archaeological resources. As part of the CIA, ASM Affiliates carried out targeted community consultation efforts. These efforts aimed to identify and engage knowledgeable individuals and organizations with cultural, historical, or ancestral ties to the Project Area. See Section 6.2, *Cultural Consultation* for more information.

- *Goal 2.4: Economic opportunity through innovation and collaboration.*
  - *2.4.8 | Support expansion of renewable energy that is broadly supported throughout the community, including small-scale community options, all of which include plans for disposal that does not burden County landfills and decommissioning at the end of the project's intended use.*

Discussion: The Proposed Action is consistent with the goal and policy above. The Proposed Action would continue to generate affordable, renewable power for the Hawaiian Electric grid and its customers for an additional 20 years. The KWP 1 community outreach and engagement activities are summarized in Section 6, *Consulted Parties*.

As discussed in Section 3.15, *Public Infrastructure and Services*, debris generated during decommissioning of KWP 1 would temporarily increase solid waste streams from current levels. The decommissioning contractor would be responsible for the provision of waste collection facilities including maintenance, sorting, off-site transportation, and disposal. Decommissioned components and demolition debris would be salvaged or recycled to the extent feasible and in coordination with qualified sub-contractors, local waste haulers, and/or other facilities that recycle similar types of waste materials. Non-recyclable waste would be transported by a licensed waste disposal contractor to the Central Maui Landfill (or another licensed waste disposal facility on Maui if Central Maui Landfill has reached capacity and is closed by the time of decommissioning). No whole major turbine components would be disposed of in any landfill in the State of Hawai'i. If necessary, decommissioned components may be shipped to off-island facilities for processing and disposal as to not overburden Maui landfill facilities. Although the capacity of Maui County waste disposal facilities is finite, it would be sufficient to accommodate demolition waste from decommissioning of KPW 1. Therefore, waste from decommissioning and restoration activities would not cause significant impacts to the existing facilities or exceed the capacity of the facilities.

- *Goal 2.5: Safe, healthy, livable communities for all.*
    - *2.5.3. Support the development of trails and greenways in West Maui as part of a larger integrated recreation and transportation network and manage existing public mauka to makai access along the tops of gulches as identified in Figure 2.3 (pg. 60) to prevent the spread of rapid 'Ōhi'a death, feral ungulates, and other invasive species in upper watersheds.*
    - *2.5.8. Ensure existing government trails are preserved through the subdivision process or other approval process, such as land use designation change; reviews under Chapter 343, Hawai'i Revised Statutes; and reviews under Chapter 205A, Hawai'i Revised Statutes. Refer to the West Maui Trails Map (Figure 2.4, pg. 61) and consult with the Nā Ala Hele Trails and Access Program*.

Section 3: Growth Framework

Section 3: Growth Framework depicts land uses that will achieve the vision and goals desired by the West Maui community during the next 20 years. The Community Plan Designation Descriptions and the Community Plan Map work together with the Policy Framework to carry out the community's vision for the future. Although the designations are less detailed than the zoning code that implements them, community plan designations determine what zoning districts can be established and, therefore, what uses can be conducted.

Discussion: The portion of the Project Area with the West Maui Community boundaries is designated as State Conservation and is outside of the Planned Growth Area on the Community Plan Designations Map (County of Maui 2022). The State Conservation community plan designation is intended to recognize the designation of lands in the State Conservation District and is used to protect and preserve wilderness areas, beach reserves, scenic areas, historic sites, open ranges, wetlands, and watersheds; to conserve

fish and wildlife; and to promote forestry and grazing. This area is also designated as an "area of stability," meaning growth should be concentrated on existing developed areas with existing infrastructure and resources. Specifically in the South of Puamana region, which includes portions of the Project Area, the community seeks to protect and preserve the upper watersheds, open space characteristics, natural and cultural resources, and customary and traditional practices.

As described in Section 3, *Existing Environment, Potential Impacts, and Mitigation Measures*, the Proposed Action was designed with BMPs to avoid and minimize impacts to waters, vegetation, wildlife, scenic view planes, and historic and cultural resources and is consistent with the State Conservation designation and general goals of the South of Puamana region. The Proposed Action is consistent with the area of stability framework as it would be a continued use of an existing developed area with existing infrastructure and resources.

The Kīhei-Mākena Community Plan was first adopted in 1985 and updated in 1998 (Ordinance No. 2641, County of Maui 1998a). An update to the Kīhei-Mākena plan, renamed as the South Maui Community Plan, is currently in progress (County of Maui 2024a, County of Maui 2024b). The portion of the Project Area located in this community plan district is designated as State Conservation and is outside of the Planned Growth Area on the Community Plan Designations Map (County of Maui 1998b; County of Maui 2024a, page 73). The gulches within the Project Area are also designated as an "area of stability," meaning the community seeks to protect these natural drainage systems and adjacent floodplains from development. Both the Kīhei-Mākena Community Plan and draft South Maui Community Plan identify Lāhainā Pali Trail as an important cultural resource. More broadly, the draft South Maui Community Plan supports renewable energy. There are two policies in the Kīhei-Mākena Community Plan specific to renewable energy: "Encourage research, development, and use of alternate energy sources" (page 27) and "Promote environmentally and culturally sensitive use of renewable energy resources like biomass, solar, wind, and hydroelectric energy in all sectors of the community" (page 35). In the draft South Maui Community Plan Goal 2.3, Policy 2.3., "Support expansion of community-supported renewable energy deployment, including small-scale community options and decentralized energy systems, all of which include plans for maintenance and disposal that do not burden County landfills and decommissioning at the end of the project's intended use as well as safeguarding our endangered flora and fauna" (County of Maui 2022, page 93).

Kīhei-Mākena Community Plan

The Kīhei-Mākena Community Plan focuses on three central planning themes. These themes provide the foundation for the functional areas addressed by the plan: provision of needed public facilities and infrastructure, preservation and enhancement of significant natural resources, and the enhancement of neighborhoods (County of Maui 1998). The plan articulates goals, objectives, policies and implementing actions for the following subject areas:

A. Land Use

B. Environment

C. Cultural Resources

D. Economic Activity

E. Housing and Urban Design

F. Physical and Ssocial Infrastructure

G. Government

H. Indigenous Architecture

The following discussion identifies those themes most relevant to the Proposed Action and discusses consistency with related goals, objectives, and policies.

Land Use

- *Goal: A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructural and community needs while preserving and enhancing the unique character of Ma'alaea, Kīhei, Wailea and Mākena as well as the region's natural environment, marine resources and traditional shoreline uses.*
- *Objectives and Policies:*
    - *a. Identify priority growth areas to focus public and private efforts on the provision of infrastructure and amenities to serve existing residents and to accommodate new growth.*
    - *c. Upon adoption of this plan, allow no further development unless infrastructure, public facilities, and services needed to service new development are available prior to or concurrent with the impacts of new development.*
    - *m. Maintain State Conservation District boundaries in the planning region. However, State Conservation District reclassification of lands may be warranted to enhance environmental preservation.*

Discussion: By continuing operation of KWP 1, no new infrastructure, public facilities, or services are needed. No changes in the current land use, land ownership, or the land use district or zoning classifications are required for Project implementation. In this manner, the Proposed Action is consistent with the community plan objectives and policies for land use. See Section 3.13, *Land Use* and Section 3.15, *Public Infrastructure and Services* for additional information.

Environment

- *Goal: Preservation, protection, and enhancement of Kīhei-Mākena's unique and fragile environmental resources.*
    - *Objectives and Policies:*
        - *b. Preserve, protect, and restore unique natural areas with significant conservation values.*

- *e. Protect the quality of nearshore waters by ensuring that land-based discharges meet water quality standards. Continued monitoring of existing and future waste disposal systems is necessary to ensure their efficient operation. Programs should be implemented to reduce the reliance on injection wells for wastewater disposal.*
- *h. Encourage such land uses as would serve to reduce hazardous fire conditions in the developed community plan areas.*

Discussion: The Proposed Action is consistent with the above goals and objectives. As described in Section 3.2, *Air Quality*, Section 3.4, *Geology, Topography, and Soils*, Section 3.5, *Water Resources*, Section 3.8, *Vegetation,* and Section 3.9, *Wildlife*, the Proposed Action was designed to avoid and minimize impacts to natural resources, including native vegetation and wildlife and unique natural features within and in the vicinity of the Project Area.

Section 3.5, *Water Resources* addresses potential impacts related to near shore and marine waters. With implementation of BMPs, including a ESCP and SWPPP, the Proposed Action would not have a significant impact on soil erosion and runoff, drainage patterns, or increased sedimentation in down-gradient areas or water bodies.

As described in Section 3.6, *Natural Hazards*, the presence of electrical equipment, petroleum-fueled mobile equipment (trucks, cranes, etc.), petroleum-based lubricants, and other flammable materials means that there is a potential of fire from the continued operation and decommissioning of KWP 1. Implementation of the Fire Contingency Plan (DLNR 2005), Wildfire Prevention Plan (TerraForm 20250), SPCC Plan (WSP 2023), and Emergency Response Plan (Brookfield 2022) would minimize fire risk. Therefore, wildfire-related impacts are expected to be minor with the Proposed Action.

Cultural Resources

- *Goal: Identification, preservation, enhancement, and appropriate use of cultural resources, cultural practice, and historic sites that (a) provide a sense of history and define a sense of place for the Kīhei-Mākena region; and (b) preserve and protect native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in accordance with Article XII, Section 7, of the Hawai'i State Constitution, and the Hawai'i Supreme Court's PASH opinion, 79 Haw. 425 (1995).*
    - *Objectives and Policies:*
        - *a. Identify, preserve, protect and restore significant historical and cultural sites.*
        - *c. Encourage and protect traditional mauka and makai accesses, cultural practices and rural lifestyles.*
        - *d. Protect those areas, structures and elements that are a significant and functional part of Hawaii's ethnic and cultural heritage.*
        - *f. Preserve and restore historical roads and paths as cultural resources, and require such resources to be available to the public.*

- *Implementing Actions:*
  - *b. Require development projects to identify all cultural resources located within or adjacent to the project permit area, prior to application, as part of the County development review process. Further require that all proposed activity include recommendations to mitigate potential adverse impacts on cultural resources, including site avoidance, adequate buffer areas and interpretation. Particular attention should be directed toward the southern areas of the planning region.*
  - *g. Important sites and areas in the Kihei-Makena Community Plan region include the following:*
    - *1) Lahaina-Pali Trail*

Discussion: The Proposed Action is consistent with the above goal and objectives. Section 3.10, *Cultural and Archaeology Resources* and the Proposed Action's CIA (ASM 2025; Appendix C) identifies significant historical and cultural sites within the Project Area and vicinity and provides information on the potential impacts of the Proposed Action on cultural, historic and archaeological resources. The Proposed Action would implement or support measures identified in applicable historic site preservation plans to protect archaeological sites.

Kihei-Makena Community Plan specifically identifies Lāhainā Pali Trail as an important site in the region. Lāhainā Pali Trail is part of the Na Ala Hele Statewide Trail and Access System and passes across the Kaheawa Pastures access road, south of KWP 1. KWP 1 provides $1,500 annually to the Na Ala Hele Program to produce educational and interpretive materials under CDUP condition 4 (CDUP MA-3103). Acoustic and visual impacts to the Lāhainā Pali Trail would remain unchanged during continued operations, as discussed in Section 3.11, *Noise* and Section 3.12, *Visual Resources*, respectively. Occasionally, vehicular and heavy equipment traffic would cross the portion of Lāhainā Pali Trail that intersects with Kaheawa Pastures access road. For safety purposes, it would be necessary to interrupt use of that portion of the trail for short periods during maintenance activities. In most cases the interruption would be for no more than fifteen minutes at a time.

Economic Activity

- *Goal: A diversified and stable economic base which serves resident and visitor needs while providing long-term resident employment.*
  - *Objectives and Policies:*
    - *c. Encourage research, development, and use of alternate energy sources.*
    - *d. Establish balance between visitor industry employment and non-visitor industry employment.*

Discussion: The Proposed Action is consistent with the above goal and objectives. As described in Section 3.16, *Socioeconomic Characteristics*, the Proposed Action would have a long-term, beneficial impact on the local economy. Continued operation of KWP 1 would allow for continued supply of local, renewable energy to the Maui grid at a low, fixed price and reduce Maui's exposure to fossil fuel price

volatility. During the extended operational lifespan of the facility, KWP 1 would continue to provide non-visitor industry employment opportunities and contribute direct, indirect, and induced economic benefits to the Maui economy.

Physical and Social Infrastructure

- *Goal: Provision of facility systems, public services and capital improvement projects in an efficient, reliable, cost effective, and environmentally sensitive manner which accommodates the needs of the Kīhei-Mākena community, and fully support present and planned land uses, especially in the case of project district implementation.*
    - *Objectives and Policies – Drainage:*
        - *a. Design drainage systems that protect coastal water quality by incorporating best management practices to remove pollutants from runoff. Construct and maintain, as needed, sediment retention basins and other best management practices to remove sediments and other pollutants from runoff.*
        - *d. Minimize the increase in discharge of storm water runoff to coastal waters by preserving flood storage capacity in low-lying areas, and encouraging infiltration of runoff.*
    - *Objectives and Policies – Energy and Public Utilities:*
        - *d. Promote environmentally and culturally sensitive use of renewable energy resources like biomass, solar, wind, and hydroelectric energy in all sectors of the community.*
        - *g. Encourage the provision of public utilities which will meet community needs in a timely manner.*
        - *h. Require proper site selection, facility construction and monitoring of power generation facilities in order to minimize adverse environmental impacts upon the Kīhei-Mākena community.*

Discussion: Section 3.5, *Water Resources* addresses potential impacts related to drainage and surface waters. The Proposed Action would result in minor ground disturbance and could create new semi-impervious surfaces, which increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and could increase sedimentation in down-gradient areas or water bodies. With implementation of BMPs, including a ESCP and SWPPP, the Proposed Action is anticipated to have a minor impact on drainage and surface water quality and a negligible impact on near-shore waters.

As discussed in Section 3.15, *Public Infrastructure and Services*, the Proposed Action would have a beneficial impact to public electric services on the Island of Maui would help the State to meet its energy and sustainability goals. Under the Proposed Action, KWP 1 would continue to generate affordable, renewable power for the Hawaiian Electric grid and its customers for an additional 20 years using existing infrastructure.

4.4 Required Permits for the Proposed Action

Under the Proposed Action, several approvals and permits would be necessary, including:

- Public Utility Commission approval of Power Purchase Agreement
- Hawai‘i Board of Land and Natural Resources approval of a land lease
- Habitat Conservation Plan; State Incidental Take License from Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW); and Federal Incidental Take Permit (ITP) from U.S. Fish and Wildlife Service (USFWS)
- National Environmental Policy Act Compliance by USFWS for Federal Action of Issuance of an ITP
- National Historic Preservation Act Section 106 Compliance by USFWS for the Federal Action of Issuance of an ITP
- Hawai‘i Revised Statutes (HRS) Chapter 6E Compliance (Historic Preservation Review)
- Hawai‘i Department of Health Community Noise Permit (TBD)
- Hawai‘i Department of Transportation Permit to Operate or Transport Oversize and/or Overweight Vehicle and Loads (TBD)
- National Pollutant Discharge Elimination System Permit (TBD)

5.0 Other HRS Chapter 343 Requirements

The content requirements for a HEPA EIS are defined in HAR § 11-200.1-24. Most of these components are addressed in the previous chapters. This chapter addresses additional components required under HAR § 11-200.1-24 including a discussion of short-term uses of the environment versus long-term productivity, irreversible and irretrievable commitment of resources, unavoidable adverse environmental effects, and unresolved issues.

5.1 Relationship Between Short-Term Uses and Long-Term Productivity

Pursuant to HAR § 11-200.1-24(m), an EIS shall include a discussion of the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity. HAR § 11-200.1-24(m) requires a brief discussion of the extent to which the Proposed Action "involves tradeoffs between short-term losses and long-term gains and losses" and "forecloses future options, narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety."

Short-term tradeoffs from the Proposed Action include minor adverse impacts to soil, water resources, and vegetation within and in the vicinity of the Project Area. The Project would result in minor ground disturbance during maintenance activities and decommissioning, much of which would be temporary and restored/revegetated upon completion of that phase of activity. Ground disturbance increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, and potentially would alter natural vegetation and increase the opportunity for the introduction and spread of invasive species. Implementation of BMPs, including implementation of a SWPPP, SPCC, Vegetation Management Plan (Appendix F), and Invasive Species Prevention Plan (Appendix G), would minimize these impacts such that the short-term impacts to soils, water resources, and vegetation would not be significant. Following decommissioning, KWP would perform restoration activities to return the Project Area to preconstruction conditions to the extent practicable. The return of the Project Area to preconstruction conditions would result in an overall long-term beneficial impact on soil, water resources, and vegetation. See Section 3.4, *Geology, Topography, and Soils*; Section 3.5, *Water Resources*, and Section 3.8, *Vegetation* for additional information.

The Proposed Action would impact wildlife during the operational and decommissioning phases, which would span approximately 22 years (20 years of operation plus up to two years of decommissioning). However, the proposed mitigation in the Proposed HCP (Tetra Tech 2025a) would result in a net-benefit to Covered Species (Section 3.9, *Wildlife*). In accordance with the Proposed HCP, KWP 1 would continue to implement measures with the Project Area to minimize take, monitor fatality, and trap scavengers. KWP 1 would also implement off-site mitigation programs to offset any unavoidable take of Covered Species. The Proposed Action aims to deliver a net positive impact on Covered Species through mitigation programs across Maui Nui.

The Proposed Action also would have negligible to minor impacts on cultural and archaeological resources during the operational and decommissioning phases. The CIA (ASM 2025; Appendix C) and Section 3.10, *Cultural and Archaeological Resources* concluded that continued operation of the KWP 1 facility may impact specific view planes, archaeological and historic properties, and culturally valued natural resources. However, these potential impacts can be addressed by the mitigation measures described in the CIA report and Section 3.10, *Cultural and Archaeological Resources*. Further, mitigation measures for cultural and archaeological resources would result in some long-term benefits to these resources such as implementation of relevant preservation measures in the preservation plan for the Upland Heiau (Site 05232) and the habitation complex (Site 05648). Following decommissioning, KWP would undertake restoration activities to return the Project Area to preconstruction conditions to the extent practicable, thus removing impacts to culturally sensitive viewsheds (i.e., views from the Lāhainā-Pali Trail and Kahoʻolawe) and impacts to culturally important flora and fauna.

The Proposed Action also would create minor noise impacts and moderate impacts on visual resources during the operational and decommissioning phases, which would span approximately 22 years. During continued operations, ambient noise levels and visual impacts would remain unchanged, as there would be no significant changes to the turbines, facilities, or O&M activities. See Section 3.9, *Wildlife*; Section 3.10, *Cultural and Archaeological Resources*; Section 3.13, *Noise*; and Section 3.14, *Visual Resources* for additional information.

Long-term impacts from the Proposed Action would primarily be beneficial. Operation of the Proposed Action would continue to provide a source of electrical energy generated from an abundant, clean, local, and infinitely renewable energy source. Generation and integration of wind energy into the electric grid further reduces fossil fuel consumption, thereby reducing greenhouse gas emissions, particulate-related health effects, and other forms of pollution associated with fossil fuel electric generation. The use of a local renewable resource, as compared to imported foreign fuels, also provides greater security in maintaining an energy supply and reduces state expenditures on imported fossil fuels. The power generated by the Proposed Action would continue to be sold to Hawaiian Electric under a long-term, set base price contract with fixed annual escalation, providing long-term price stability for Hawaiian Electric consumers. The Proposed Action would also provide short- and long-term economic benefits to the state and county. These economic impacts would include direct wages to local workers and secondary spending by workers for housing, food, and other goods and services that would further stimulate the local economy. The Proposed Action would continue to provide a stable, long-term source of revenue for the state and county government in the form of taxes and lease payment and direct benefits to the host community through the community benefits program. See Section 3.16, *Socioeconomic Characteristics* for additional information.

The Proposed Action is not anticipated to result in long-term risks to health or safety. KWP 1 implements an Emergency Response Plan (Brookfield 2022) and Site Safety Handbook, which include safety measures and precautions as well as emergency response protocols for natural disasters and equipment malfunction or failure. KWP 1 staff and contractors are also required to adhere to the site-specific SPCC Plan (WSP 2023) that identifies preventive, control and response measures and procedures to prevent

the discharge of petroleum-based and hazardous substances from the KPW 1 facility. The turbines were designed in accordance with robust engineering standards to prevent potential safety issues. KWP would engage in routine maintenance over the lifetime of the Proposed Action to keep the turbines in good working order and prevent safety issues. Additionally, the distance of the facility from residences and other public areas makes it virtually certain that an equipment failure would not cause significant damage to life or property (beyond the existing facilities at the site). Additionally, the risk of fire from operation of the turbines is relatively low and minimized by implementation of the site-specific Fire Prevention Plan (TerraForm 2025) and operational BMPs. See Section 3.6, *Natural Hazards* and Section 3.7, *Hazardous and Regulated Materials and Waste* for additional information.

The Proposed Action would not foreclose future options, nor would it narrow the range of beneficial uses of the Project Area. The Project Area would use KWP 1's existing infrastructure to continue generating wind energy for an additional 20-year period. No new land uses or facilities are proposed. Following decommissioning, KWP would undertake restoration activities to return the Project Area to as close to preconstruction conditions as practicable. The property would return to pre-construction use as open space and would be available for a range of beneficial uses that are suitable for the rugged terrain and are permitted in the state conservation district. There are no residential or commercial structures within 2 miles of the Project Area; the parcels adjacent to the Project Area are mostly used for conservation, open space, and low intensity agricultural uses. The Proposed Action would not impact the ability of the adjacent landowners to use their sites for current or future land uses. Therefore, the Proposed Action would not negatively affect or displace an existing use or affect the suitability of an area for its current or planned use. See Section 3.13, *Land Use* for additional information.

5.2 Irreversible and Irretrievable Commitment of Resources

Pursuant to HAR § 11-200.1-24(n), an EIS must disclose the irreversible and irretrievable commitments of resources associated with the Proposed Action should it be implemented. HAR § 11-200.1-24(n), requires identification of "unavoidable impacts and the extent to which the action makes use of non-renewable resources" or "irreversibly curtails the range of potential uses of the environment". The possibility of environmental accidents resulting from any phase of the Proposed Action must be considered. An irreversible commitment of resources applies primarily to the loss of non-renewable resources and resources that are renewable only over a long period of time. Nonrenewable resources generally include biological habitat, mineral deposits, water, cultural resources, and some energy sources. Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the Proposed Action is implemented.

The Proposed Action would require the use of non-renewable resources used in the manufacturing of Project replacement components, repair materials, and fuel consumed during the operations of the Proposed Action. Waste generated by the operations, maintenance and eventual decommissioning of the facility would be salvaged or recycled to the extent feasible. Materials that cannot be recycled or reused would be disposed of at authorized sites, in accordance with applicable laws.

The incidental take of threatened and endangered species would comprise a small environmental change associated with implementation of the Proposed Action. However, this take should be considered reversible through the mitigation commitments enforced through the KWP 1 ITP/ITL and implemented through the Proposed HCP over the extended operational period. Avoidance, minimization, and mitigation measures outlined in the Proposed HCP are designed to result in a net benefit to the Covered Species. Additionally, operations of the Project would impact some species of wildlife that are considered culturally important (i.e., Pueo); however, the mitigation measures outlined in the Proposed HCP would reduce these impacts. See Section 3.9, *Wildlife* for additional information.

Pursuant to HAR § 11-200.1-24(n), the possibility of environmental accidents resulting from any phase of the Proposed Action shall be considered. There is a low risk of damage to people and property from environmental accidents including natural hazards such as wildfire, high winds created by hurricanes and tropical storms, or a significant earthquake; releases of hazardous and petroleum-based materials; and equipment failure. Implementation of the SPCC Plan, wildfire preventive measures, and Emergency Response Plan would mitigate this risk. The Project's wind turbines are designed with multiple safety systems and undergo rigorous maintenance to ensure reliability. Structures at the KWP 1 facility have been designed and constructed to withstand damage from high winds and earthquakes and minimize fire risks. The likelihood of a catastrophic failure of the wind turbines or substation is extremely low. Additionally, the distance of the facility from residences and other public areas makes it virtually certain that an equipment failure would not cause significant damage to life or property (beyond the existing facilities at the site). See Section 3.6, *Natural Hazards* and Section 3.7, *Hazardous and Regulated Materials and Waste* for additional information.

The Proposed Action would not irreversibly curtail the range of potential beneficial uses of the Project Area. The Project Area would use KWP 1's existing infrastructure to continue generating wind energy for an additional 20-year period. No new land uses or facilities are proposed. Following decommissioning, KWP would engage in restoration activities that would return the Project Area to as close to preconstruction conditions as practicable. The property would return to its pre-construction use as open space and would be available for a range of beneficial uses that are suitable to the rugged terrain and permitted in the state conservation district. See Section 3.13, *Land Use* for additional information.

5.3 Environmental Effects which Cannot Be Avoided and Rationale for Proceeding

Pursuant to HAR § 11-200.1-24(o), an EIS must disclose all probable adverse environmental effects which cannot be avoided, including consequences adverse to the environmental goals and guidelines established by state law. HAR § 11-200.1-24(o) further requires a discussion of "the rationale for proceeding with a proposed action, notwithstanding unavoidable effects." An EIS shall also indicate "other interests and considerations are thought to offset the adverse environmental effects of the Proposed Action and to what extent reasonable alternatives to the Proposed Action would avoid some or all adverse effects".

A summary of the adverse environmental effects of the Proposed Action is provided below. A full discussion of these impacts is provided in Section 3, *Existing Environment, Potential Impacts, and Mitgation Measures*. Section 4, *Regulatory Context/Consistency with Plans and Policies* describes the Proposed Action's compliance with environmental goals and guidelines established by state law.

- **Air Quality and Climate Change** - The Proposed Action would generate vehicle and heavy machinery exhaust emissions and fugitive dust from earthmoving activities. These emissions are anticipated to be negligible to minor, temporary, and, except for the vehicles traveling to and from the site, isolated to the Project Area. Emissions from the operation and decommissioning of the KWP 1 facility would be negligible compared to electricity that would otherwise be produced by Maui's existing fossil fuel burning power plants.
- **Soil, Water Resources, and Vegetation** - The Project would result in minor ground disturbance during maintenance activities and decommissioning, much of which would be temporary and restored/revegetated upon completion of that phase of activity. Ground disturbance increases the potential for soil erosion and runoff, has the potential to alter drainage patterns, could increase sedimentation in down-gradient areas or water bodies, and would alter natural vegetation and increase the opportunity for the introduction and spread of invasive species. Implementation of BMPs, including implementation of SWPPP, SPCC, Vegetation Management Plan (Appendix F), and Invasive Species Prevention Plan (Appendix G), would minimize these impacts such that the short-term impacts to soils, water resources, and vegetation would be minor. Following decommissioning, the return of the Project Area to preconstruction conditions would result in an overall long-term, beneficial impact on soils, water resources, and vegetation.
- **Natural Hazards** - Under the Proposed Action, there would be a temporary, minor risk of damage to people and property from wildfire, high winds created by hurricanes and tropical storms, or from a significant earthquake. Implementation of the SPCC Plan, wildfire preventive measures, Site Safety Plan, and Emergency Response Plan would mitigate this risk. Additionally, structures at the KWP 1 facility have been designed and constructed to withstand damage from high winds and earthquakes and minimize fire risks.
- **Hazardous and Regulated Materials and Waste -** Operation, maintenance, and decommissioning activities would require the use and storage of hazardous and petroleum-based materials and present the potential for release of these materials into the environment. Implementation of the control measures and BMPs described in the SPCC Plan are designed to prevent and respond to spills and releases and would ensure that impacts remain less than significant. Implementation of the SPCC would minimize the risk of these materials being released into the environment. There would be long-term, beneficial impacts once KWP 1 equipment is removed and the Project Area restored.
- **Wildlife** - Operation of the KWP 1 facility potentially would result in the take of federally and state listed wildlife species including ʻōpeʻapeʻa (Hawaiian hoary bat), nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), ʻaʻo (Newell's shearwater), ʻakēʻakē (Band-rumped storm petrel*)*, and

assimulans yellow-faced bee (Tetra Tech 2025a). In accordance with the Proposed HCP, KWP 1 would continue to implement measures to minimize take, monitor fatality, and trap scavengers. KWP 1 also would implement off-site mitigation programs to offset the unavoidable take of Covered Species and deliver a net positive impact on Covered Species across Maui Nui.

- **Cultural and Archaeological Resources** - There is a minor risk of the inadvertent discovery of archaeological artifacts or remains during ground disturbing activities; however, this risk is very low given the numerous archaeological studies conducted in the area and the fact that all ground disturbance would occur in areas already disturbed during the construction of KWP 1. There would be minor, temporary adverse impacts to archaeological resources during decommissioning activities and long-term, beneficial impacts once KWP 1 equipment is removed and the Project Area restored.
- **Noise and Visual Resources** - Operation of the existing KWP 1 facility also has a minor impact in terms of noise and a moderate impact on visual resources. During continued operations, ambient noise levels and visual impacts would remain unchanged, as there would be no significant changes to the turbines, facilities, or O&M activities. There would be minor, temporary adverse impacts to noise and visual resources during decommissioning activities and long-term, beneficial impacts once KWP 1 equipment is removed and the Project Area restored.
- **Public Infrastructure and Services** - Debris generated during decommissioning of the KWP 1 facility would temporarily increase solid waste streams from current levels but would not cause significant impacts to the existing solid waste management facilities or exceed the capacity of the facilities. The increased presence of personnel and equipment during decommissioning would also temporarily increase the potential for injury, illness, and fires; BMPs would be implemented to avoid and minimize these risks. The existing police, fire, and emergency medical services would be adequate to respond should an emergency arise.

The Applicant is committed to avoiding or mitigating adverse effects to the extent practical. To the extent that some adverse environmental impacts may be unavoidable, they are acceptable when weighed against the benefits of the Proposed Action which include:

- Use of existing energy generation infrastructure. The Proposed Action would continue to use existing electrical infrastructure, including transmission lines, limiting the impacts of the Proposed Action. The transportation infrastructure to the area has already proven sufficient for delivery of KWP 1 components and maintenance equipment, without the need for significant offsite improvements. In addition, implementation of the Proposed Action does not require extensive, new land disturbance.
- Contribution towards meeting Hawai‘i Clean Energy Initiative and RPS. The Maui Stage 3 RFP responds to the HCEI and the State of Hawai‘i’s RPS, which requires that electric utility companies use renewable energy for the equivalent of 100 percent of net electricity sales by 2045.

- Provision of critical grid reliability support and resource diversity on Maui's grid. Hawaiian Electric relies on the existing KWP 1 facility to provide resource adequacy, grid reliability, and energy affordability (see Section 1.3.1, *State Energy Goals and Power Production*). KWP 1 is located on a highly productive wind site and is capable of producing enough clean energy to power the equivalent of an estimated 17,000 homes annually on the island of Maui, or roughly 23 percent of all Maui housing units (Census Bureau 2020). It has been a reliable energy generator on the Maui Electric grid since it began operating in 2006, and Maui Electric relies upon this facility to address its energy generation needs on the island of Maui.
- Contributes to stabilized energy costs. KWP 1 provides energy at a low, fixed price that reduces Maui's exposure to fossil fuel price volatility.
- Continued contribution of both short- and long-term economic benefits to the county and state. Short-term benefits would arise from steady local employment during operations and secondary spending in the local economy by KWP 1 workers. Long-term benefits include a stable, long-term source of tax revenue for the State and county, and long-term revenue for the State through lease payments. Additionally, the Proposed Action would also provide a community benefit program to the local Maui community for the life of the Proposed Action.

The only alternative analyzed in the EIS is the No Action Alternative. No other alternatives were identified that would meet the purpose and need of the Proposed Action, which is to utilize the existing wind energy infrastructure to provide 30-MW of clean, renewable energy to the island of Maui in response to Hawaiian Electric's Maui Stage 3 RFP, the HCEI, and the State of Hawai'i's RPS.

Under the No Action Alternative, the impacts associated with the continued operation of KWP 1 and from the Proposed HCP activities would not occur. The power that would have been generated by the continued operation of KWP 1 would instead be produced by Maui's existing fossil fuel burning power plants resulting in a moderate, long-term, adverse impact to air quality and greenhouse gas emissions. The potential impacts from decommissioning and restoration activities would be as described above, but would occur immediately, rather than at the end of the 20-year extended operational period. Compared to the No Action Alternative, the Proposed Action represents the best balance of impacts and benefits.

5.4 Unresolved Issues

HAR § 11-200.1-24(q) calls for a discussion of issues that remain unresolved at the time of publication of the EIS, along with "a discussion of how such issues will be resolved prior to commencement of the action, or what overriding reasons there are for proceeding without resolving the problems."

There are no significant issues related to Proposed Action that remain unresolved. However, the following issues are still under discussion with the relevant regulatory agencies.

- Wildlife Resources:

- Because the Proposed Action is likely to impact federal and state listed endangered and threatened species, the Applicant is preparing a Proposed HCP to accompany its application for an ITP from USFWS, and an ITL from the DLNR DOFAW. The Proposed HCP for the Proposed Action was referenced throughout this Draft EIS and is subject to change.
- Proposed mitigation for the nēnē (Hawaiian goose), ʻuaʻu (Hawaiian petrel), and ʻaʻo (Newell's shearwater) is described in detail in the Proposed HCP. Proposed mitigation for the ʻōpeʻapeʻa (Hawaiian hoary bat), ʻakēʻakē (band-rumped storm petrel), and assimulans yellow-faced bee is outlined in the Proposed HCP, but additional details are still being determined and will be provided as available in the Final HCP. All mitigation is subject to change pending ongoing consultation with USFWS and DOFAW or through adaptive management.

- Archaeological and Cultural Resources:
  - The Applicant is in coordination with SHPD. This consultation and, if required, completion of the 6E process, will be completed under the Proposed Action.

6.0 Consulted Parties

6.1 Informal Consultation

The Applicant began community outreach with pre-development activities beginning in 2022 extending through 2023, followed by formal consultations and permitting starting in 2024. In 2022 and 2023, the Applicant consulted with stakeholders, knowledgeable local leaders, and government agencies regarding continued use of the KWP 1 facility and Maui Electric's Stage 3 RFP. The Maui Electric draft Stage 3 RFP was issued in May 2022 and the final RFP was issued in January 2023. The Applicant submitted a bid in April 2023 and final award groups were selected in December 2023 and included the Proposed Action.

In early 2023, 12 informal in-person meetings were conducted as part of the Maui Electric Stage 3 RFP process. These meetings engaged various community leaders and stakeholders to discuss the Project's history, economic benefits, and future opportunities. A list of participants is shown in Table 6-1. Insights from these interactions helped to inform the Project's goals and priorities.

Table 6-1. Informal Consultation Meetings, 2023

Participant Name	Title/Position
Troy Hashimoto	Representative, House District 10
Ekolu Lindsey	Maui Cultural Lands
Alice Lee	Maui County Councilmember
Ike Guru	Maui County's Energy Commissioner
Leo Caires	Maui County Mayor's Chief of Staff
Aaron "Motuki" Drake	Maui County's Office of Innovation and Sustainability
Leslie Wilkins	Maui Economic Development Board
Tom Cook	Maui Councilmember
Justin Woodson	Representative, House District 9
Angus L.K. McKelvey	Senate District 6
Elle Cochran	Representative, House District 14
Mark Glick	Hawai'i State Energy Office

In December 2023, the Applicant established the Community Outreach and Communications Plan, which serves as a strategic framework for engaging with the Maui community. A more detailed description of this plan is included in Section 6.4, *Other Outreach Efforts*.

As part of the Maui Electric's Stage 3 RFP process, the Applicant held a public outreach meeting on August 14, 2024, to discuss the proposed community benefits program and considerations for the upcoming HRS Chapter 343 analysis. Attendees were invited to provide feedback via index cards, and

contact information for the Project was made available through telephone, email, and the Project website (https://www.kaheawawind.com). However, no public comments were received during this meeting.

Leading up to the start of the HRS 343 process with the publication of the EISPN in October 2024 (see Section 6.3, *HRS Chapter 343 Consultation*), meetings and coordination with DLNR Land Division and DLNR OCCL were conducted to coordinate on the appropriate level of HRS Chapter 343 review and on who would serve as the primary contact for the Accepting Authority (the BLNR). Coordination with DLNR DOFAW and USFWS also occurred in 2024 and 2025 on the Proposed HCP and ITL and ITP.

Information regarding consultation for the HRS Chapter 343 process including consultation on the EISPN and Draft EIS is provided in Section 6.3, *HRS Chapter 343 Consultation*. Additional information on other outreach efforts in addition to the formal consultation under HRS 343 is included in Section 6.4, *Other Outreach Efforts*.

6.2 Cultural Consultation

To identify individuals knowledgeable about traditional cultural practices and uses associated with the Project Area, a public notice was submitted to the Office of Hawaiian Affairs on September 3, 2024, for publication in the October 2024 edition of Ka Wai Ola. The notice included the Project location, a description of the Proposed Action, and contact information. No responses were received following its publication. A copy of the notice is attached to the Project's CIA (ASM 2025; Appendix C).

As part of the CIA conducted in support of this EIS, ASM Affiliates carried out targeted community consultation efforts. These efforts aimed to identify and engage knowledgeable individuals and organizations with cultural, historical, or ancestral ties to the Project Area. ASM Affiliates Ethnographer Ms. Candace Gonzalez contacted 18 individuals and three organizations (listed in Table 6-2) via phone or email. For phone contacts, she introduced the ASM team and explained the Proposed Action and the scope of the CIA study before providing a consultation packet. Email contacts received the packet directly, which included Project details, staff contact information, and Project Area maps. In several cases, community members referred others for participation or did not respond. Each contact received at least two follow-up attempts.

ASM Affiliates also attempted to reconnect with participants from the 2009 CIA study (Ah Sam and Rechtman 2009), successfully reaching Dr. Hōkūlani Holt-Padilla. In total, four individuals agreed to interviews: Mr. Edwin "'Ekolu" Lindsey III, Mr. Keoki Pfaeltzer, Mr. Foster Ampong, and Dr. Holt-Padilla. Other individuals responded to initial outreach but either declined or were unable to schedule interviews.

Table 6-2. Parties Contacted for the CIA

Name, Title, Organization	Date of First Attempted Contact	Results
Keeaumoku Kapu CEO, Aha Moku o Maui Cultural Programs Coordinator, Na ʻAikane o Maui	October 28, 2024 (email)	No response.
Lāhainā Hawaiian Civic Club	September 23, 2024 (email)	No response.
Maui Arts League	October 4, 2024 (mail)	No response.
Liliʻuokalani Trust – Kīpuka Maui	October 4, 2024 (mail)	No response.
ʻEkolu Lindsey III, President, Maui Cultural Lands, Inc.	September 23, 2024 (email)	Agreed to interview; interview completed.
REDACTED	October 4, 2024 (email)	No response.
REDACTED	October 4, 2024 (email)	No response.
Nicole McMullan Bailey House Museum, Maui Historical Society	October 4, 2024 (email)	No response.
Felimon Sadang Aha Moku o Maui	September 23, 2024 (email)	No response.
Kyle Nakanelua Aha Moku o Maui	September 23, 2024 (email)	No response.
Keoki Pfaeltzer Mālama Kamāʻalaea	August 21, 2024	Agreed to interview; interview completed.
Vernon Kalanikau	September 23, 2024 (email)	Declined to participate. Deferred to Mr. ʻEkolu Lindsey.
Wilmont Kamaunu Kahaialii, Jr.	October 15, 2024 (email)	Agreed to interview; unable to schedule to date.
Hinano Rodrigues	September 23, 2024 (email)	No response.
Dane Uluwehiokalani Maxwell Cultural Advisor, Maui Ocean Center Owner, Pilina Media, LLC	September 23, 2024 (email)	Requested more info; did not respond further.
Puanani Lindsey	September 23, 2024 (email)	Declined interview. Deferred to Mr. ʻEkolu Lindsey (her son).
Kealana Phillips Burial Sites Specialist (Maui, Molokaʻi, and Lānaʻi), SHPD	October 16, 2024 (email)	Forwarded to Maui/Lānaʻi Islands Burial Council.
Leinoa Kong Burial Sites Specialist (Maui, Molokaʻi, and Lānaʻi), SHPD	October 16, 2024 (email)	No response.

Name, Title, Organization	Date of First Attempted Contact	Results
Ikaika Nakahashi Cultural Historian (Maui, Moloka'i, Lāna'i, and Kaho'olawe), SHPD	October 16, 2024 (email)	Submitted letter on behalf of SHPD, signed by Administrator Dr. Jessica Puff.
Foster Ampong	November 7, 2024 (email)	Agreed to interview; interview completed.
Hōkūlani Holt-Padilla Ka Hikina O Ka La; Hawai'i Papa O Ke Ao	December 4, 2024 (email)	Agreed to interview; interview completed.

On November 15, 2024, Mr. Ikaika Nakahashi submitted a letter on behalf of the DLNR-SHPD, signed by Administrator Dr. Jessica Puff, in response to the Project's EISPN, as further described in Section 6.3, *HRS Chapter 343 Consultation*. In response to the letter, representatives from KPW LLC, along with cultural consultants ASM Affiliates and Aina Archaeology, met with SHPD on April 23, 2025, to review and address each comment raised. The meeting also served as a forum to solicit additional input and clarify any outstanding concerns. Coordination with SHPD is ongoing.

6.3 HRS Chapter 343 Consultation

6.3.1 EISPN Distribution, Scoping Meeting, and Comments Received

The EISPN was published in *The Environmental Notice* on October 23, 2024 (https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf), marking the beginning of a 30-day public review (scoping) period aimed at facilitating early identification of data gaps and public concerns to be addressed in the Draft EIS. An article in *The Maui News* on October 24, 2024, highlighted the EISPN and provided information about the public comment period. The EISPN was distributed to approximately 133 stakeholders via the United States Postal Service and electronic mail, including community groups, government agencies, and elected officials (see Table 6-3). Information about the EISPN and scoping meeting were also published on the Project's website[92].

A public scoping meeting took place on October 29, 2024, from 5:30 to 7:30 PM at the Malcom Center (1305 N. Holopono Street, Suite 5, Kihei, HI 96753), in which 6 community members and other interested parties attended. Appendix A, *Public Scoping Documen*ts includes the presentation and outreach materials used during the meeting. No comments were received from the public scoping meeting.

At the end of the public scoping period, a total of 35 comments were received from 13 parties and agencies via letter or electronic mail. A Comment Response Matrix is provided in Appendix B, which lists

[92] https://www.kaheawawind.com/environmental-review/

the comments received during public scoping, along with responses and explanations of how these comments were addressed in the Draft EIS.

6.3.2 Draft EIS Distribution

The Draft EIS was published in *The Environmental Notice* on August 8, 2025, marking the beginning of a 45-day public comment period extending from August 8, 2025, to Sept 22, 2025. Table 6-3 lists the parties that were provided a notice of availability letter containing information on how to obtain a copy of the Draft EIS. Hard copies of the Draft EIS were deposited at the Kihei Public Library and the Hawai‘i State Library, Hawai‘i Documents Center.

Table 6-3. EISPN and Draft EIS Distribution List and Comments Received

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Federal Agencies						
Department of the Navy		x		x		
Federal Aviation Administration	Gordon Wong	x		x		
Federal Highways Administration		x		x		
Federal Transit Administration		x		x		
National Marine Fisheries Service		x		x		
National Park Service	David Szymanski, Regional Director Pacific West Region	x		x		
National Resources Conservation Service	J.B. Martin, Director	x		x		
U.S. Army Corps of Engineers		x		x		
U.S. Environmental Protection Agency		x		x		
U.S. Fish and Wildlife Service		x		x		
U.S. Geological Survey		x		x		
State Agencies						
Department of Accounting and General Services (DAGS) Archives Division	Keith Regan, Comptroller	x		x		
DAGS Public Works Division	Gordon Wood, Public Works Administrator Dora Choy-Johnson, Planning Branch	x	x	x		
Department of Agriculture	Sharon Hurd, Chairperson	x		x		
Department of Business, Economic Development and Tourism (DBEDT)	James Kunane Tokioka, Director	x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Department of Education	Roy Ikeda, Interim Public Works Manager, Planning Section Cori China, Professional Worker of the Facilities Development Branch, Planning Section	x	x	x		
Department of Hawaiian Home Lands	Kali Watson, Chairperson	x		x		
Department of Health (DOH), Environmental Health Administration	Kathleen Ho, Deputy Director	x		x		
DOH Solid and Hazardous Waste Branch	Lene Ichinotsubo, P.E., Acting Chief	x		x		
Department of Land and Natural Resources (DLNR)	Dawn Chang, Chairperson	x		x		
DLNR Aha Moku Advisory Committee	Leimana DeMata, Executive Director	x		x		
DLNR Commission on Water Resource Management	Dean D Uyeno, Acting Deputy Director	x		x		
DLNR Division of Forestry and Wildlife	David Smith, Administrator	x	x	x		
DLNR Engineering Division	Carty Chang, Chief Engineer	x	x	x		
DLNR Land Division	Russell Y. Tsuji, Administrator Lauren Yasaka	x	x	x		
DLNR Office of Conservation and Coastal Lands	Michael Cain, Administrator Tiger Mills	x	x	x		
DLNR State Historic Preservation Division	Jessica Puff, Administrator Christopher "Ikaika" Nakahashi, Cultural Historian	x	x	x		
Department of Transportation (DOT), Airports Division	Ford Fuchigami, Deputy Director for Airports	x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
DOT, Highways Division	Robin Shishido, Deputy Director for Highways George Abcede, Highways Administrator	x		x		
DOT, Statewide Transportation Planning Office	Edward Sniffen, Director of Transportation Blayne Nikaido, Planner, Land Use Section	x	x	x		
Hawai'i Community Development Authority	Craig Nakamoto, Executive Director	x		x		
Hawai‘i Emergency Management Agency	James DS Barros, Administrator	x		x		
Hawai‘i State Energy Office	Mark Glick, Chief Energy Officer	x	x	x		
Land Use Commission	Daniel Orodenker, Executive Officer	x		x		
Office of Hawaiian Affairs	Stacy Kealohalani Ferreira, Chief Executive Officer	x		x		
Office of Planning and Sustainable Development	Mary Alice Evans, Director Aaron Setogawa	x	x	x		
Public Utilities Commission (PUC), Honolulu, HI	Leodoloff R. Asuncion, Chair	x		x		
PUC, Wailuku, HI				x		
Maui County						
Department of Environmental Management	Shayne Agawa, P. E., Director Nadine Orikasa, Private Secretary	x		x		
Department of Fire and Public Safety	Bradford Ventura, Chief Gavin Fujioka, Dept Fire Chief	x	x	x		
Department of Human Concerns	Lori Tsuhako, Director Jessica Crouse, Deputy Director	x		x		
Department of Management	Josiah Nishita, Managing Director Cynthia Sasada, Private Secretary	x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Department of Parks and Recreation	Patrick McCall, Director Lisa Sakumoto, Private Secretary	x		x		
Department of Public Works	Jordan Molina, Director Summer Enfield-Carlos, Private Secretary	x		x		
Department of Transportation	Marc Takamori, Director Coralyn Dumlao, Private Secretary	x		x		
Department of Water Supply	John Stufflebean, P.E., Director Linda Kimura, Private Secretary	x		x		
Office of Economic Development	Luana Mahi, Director Aulani Delatori, Office Manager	x		x		
Office of the Mayor	Mayor Richard T. Bissen Jr. Cynthia Lallo, Chief of Staff Leo Caires, Maui Energy Commissioner	x		x		
Planning Department	Kate Blystone, Director Joy Paredes, Private Secretary	x		x		
Police Department	John Pelletier, Chief Jenny Nakama, Private Secretary	x		x		
Elected Officials						
U.S. Senator	Senator Brian Schatz Senator Mazie Hirono	x		x		
U.S. Senator	Senator Mazie Hirono	x		x		
U.S. Representative	Representative Jill Tokuda	x		x		
State Senator	Senator Troy Hashimoto Senator Angus L.K. McKelvey	x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
State Representative	Representative Elle Cochran Representative Justin Woodson Representative Tyson K. Miyake Representative Terez Amato	x		x		
Maui County Council	Alice Lee, Council Chair Yuki Lei Sugimura, Vice-Chair Tasha Kama, Presiding Officer Pro Tempore Tamara Paltin, Councilmember Shane Sinenci, Councilmember Tom Cook, Councilmember Nohe Uu Hodgins, Councilmember Gabe Johnson, Councilmember Keani Rawlins-Fernandez, Councilmember	x		x		
Organizations						
Aha Moku o Maui Island Council	Ke‘eaumoku Kapu, CEO	x		x		
Bailey House Museum/Maui Historical Society	Nicole McMullan	x		x		
Maui Economic Development Board	Leslie Wilkins, CEO	x		x		
Global Energy and Water Communities of Practice	Erin Derrington	x		x		
Hawai‘i Community Foundation		x		x		
Hawaiian Electric	Melissa Gabriel Shayna Decker Makenna Anderson	x		x		
Hawaiian Electric	Greg Shimokawa			x		
Kihei Community Association	Mike Moran	x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Kihei Youth Center	Lehua Huddleston-Hafoka, Executive Director	x		x		
Kihei Youth Center	Lehua Huddleston-Hafoka	x		x		
Lahaina Hawaiian Civic Club		x		x		
Mahi Pono	Tiare Lawrence	x		x		
Maui Cultural Lands	Edwin "Ekolu" Lindsey	x		x		
Maui Ocean Center	Tapani Vuori	x		x		
Maui Tomorrow	Albert Perez, Executive Director	x		x		
Nene Research and Conservation	Jordan Lerma, Executive Director		x	x		
Rotary Club of Maui	Heather Mueller	x		x		
Sierra Club of Hawai'i, Maui Group		x		x		
University of Hawai'i at Manoa	Andrea Kealoha			x		
Condominium Associations and Properties						
Alliance of Maui Community Associations		x		x		
Hono Kai		x		x		
Kana'i A Nalu		x		x		
Ma'alaea Village Association		x		x		
Maalaea Banyans		x		x		
Maalaea Kai Condominium		x		x		
Maalaea Maui Lauloa Condo		x		x		
Maalaea Mermaid		x		x		
Maalaea Yacht Marina Condos		x		x		
Makani A Kai		x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Maui Island Sands Resort		x		x		
Maui Lani Community Association		x		x		
Milowai Condominium Resort		x		x		
Libraries and Schools						
Hawai'i State Library, Hawai'i Documents Center	Stacey A. Aldrich, State Librarian	x		x		
Kihei Public Library		x		x		
Legislative Reference Bureau Library	Karen Mau, Head Research Librarian	x		x		
University of Hawai'i, Maui College Library		x		x		
News Media (print, digital, community)						
Civil Beat		x		x		
Hawaii Tribune-Herald		x		x		
Maui News		x		x		
Maui Now		x		x		
Pacific Business News		x		x		
Pilinamedia	Dane Maxwell	x		x		
Star Advertiser		x		x		
The Garden Island		x		x		
The Molokai Dispatch		x		x		
West Hawaii Today		x		x		
Community Members						
Allan Bayless		x		x		
Bryn Turner		x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Butch Buenconsejo				x		
Comet Enos-Nakanelua		x		x		
Cynthia Snell		x		x		
Dan Davis		x		x		
Derrick Meyer				x		
Felimon Sadang		x		x		
Gary Shay		x		x		
Hannah Bruce		x		x		
Haunani Young Uu		x		x		
Ipo Akana				x		
Jack Wallace		x		x		
Jay Griffin				x		
Jeff Pearson		x		x		
Jenavi Williams				x		
Jerry Isdale		x		x		
John Harrison		x		x		
Joshua Cooper		x		x		
Kamuela Samudio		x		x		
Kandice Johns				x		
Karen Mattock		x		x		
Keoki Pfaeltzer		x		x		
Kyle Nakanelua		x		x		
La‘a Kea Webb		x		x		

Entity/Agency	Contact Name	EISPN		Draft EIS		Final EIS
		Notice Sent	Comment Received	Notice Sent	Comment Received	Notice Sent
Leah Stolley				x		
Louele, Brian, and Charles Haia		x		x		
Mary Alleca		x		x		
Mary Gary		x		x		
Mila Kehano		x		x		
Nate Rogers		x		x		
Patty Nishiyama		x		x		
Puanani Lindsey		x		x		
Richard Seiler		x		x		
Rob Weltman		x		x		
Rod Antone		x		x		
Scott Kenar				x		
Thomas Rouse				x		
Vernon Kalanikau		x		x		
Wilmont Kahaialii		x		x		
Yoko Toyama		x		x		

6.4 Other Outreach Efforts

As mentioned in Section 6.1, *Informal Consultation*, the Applicant established a Community Outreach and Communications Plan[93] in December 2023 to serve as a strategic framework for engaging with the Maui community. The outreach plan aims to achieve several key objectives: actively listening to community members to convey genuine care and commitment, fostering strong relationships through transparent communication, empowering local voices by incorporating their feedback into the Project process, and honoring the cultural and historical significance of the Project site. The plan includes summaries of cultural briefs, stakeholder engagement efforts, and discussions with knowledge leaders, as well as an overview of public outreach methods such as public hearings, presentations, and updates via the Project website and email distribution lists.

In alignment with the Maui Electric's Stage 3 RFP, the Community Outreach and Communications Plan features a long-term community benefits program designed to deliver meaningful benefits tailored to local priorities. This program would be implemented in collaboration with non-profit partners. Since the Project's inception, it has invested over $1.8 million annually in direct spending on local businesses, taxes, and fees, reinforcing its commitment as a long-term neighbor to the community. The community benefits program would build on these ongoing investments, with further development scheduled during public consultation and outreach phases in 2025 and 2026, ensuring that community input remains central to its design.

As noted in Section 6.1, *Informal Consultation*, the Applicant held a public outreach meeting on August 14, 2024, to discuss the proposed community benefits program and considerations for the HRS Chapter 343 EIS review. No public comments were received during this meeting.

Moving forward, KWP LLC plans to conduct multiple community meetings, including public hearings, throughout the 2024-2026 permitting and outreach phase. Additionally, one-on-one meetings and government briefings would be organized as needed, with small group meetings arranged to enhance efficiency and collaboration. Community meetings may be promoted through various channels, including the Kaheawa Wind website, social media platforms, mailing lists, and paid media ensuring that the community remains well-informed about the Proposed Action's scope and benefits.

[93] The Community Outreach and Communications Plan can be found online at https://www.kaheawawind.com/.

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8.0 List of Preparers

This EIS was prepared by Tetra Tech by staff based out of Tetra Tech's Honolulu, HI and Portland, OR offices.

Tetra Tech
737 Bishop Street, Suite 2000
Honolulu, HI 96813
(808) 533-3366

Tetra Tech
1750 S. Harbor Way, Suite 400
Portland, OR 97201
(503) 221-8636

Table 8-1 lists those involved in the preparation of the EIS and their respective roles and experience.

Table 8-1. List of Preparers

Name	Role	Degree/School	Years of Experience
Management Team			
McClain, Leslie	EIS Project Manager	BA Environmental Studies and Public Administration (Carroll College)	21
Nagai, Stephanie	EIS Deputy Project Manager	MA Urban and Regional Planning (University of Hawai'i at Mānoa) BS Natural Resources and Environmental Management (University of Hawai'i at Mānoa)	12
Yost, Kayla	Sr. Land Use and Environmental Planner / HRS Chapter 343 Subject Matter Expert	MS Environmental Science (Imperial College London) BS Public Health (The George Washington University)	12
Interdisciplinary Team			
Agostini, Tiffany	Sr. Biologist (Water Resources, Vegetation, and Wildlife)	MS Botany (University of Hawai'i at Mānoa) BA Urban Studies & Planning / Environmental Science (University of California, San Diego)	14
Arp, Megan	Biologist (Vegetation and Wildlife)	BS Biology (California State University East Bay)	6
McBride, Carter	Land Use and Environmental Planner (Hazardous and Regulated Materials, Noise, Public Services and Utilities, Regulatory Context sections)	MPS Renewable Energy and Sustainability Systems (Penn State University) BA Environmental Studies (University of Colorado at Boulder)	7

Name	Role	Degree/School	Years of Experience
McLane-Godwin, Linsey	Land Use and Environmental Planner (Socioeconomic Characteristics, Regulatory Context, Other HRS Chapter 343 Requirements)	MLA Landscape Architecture (University of Oregon) MCRP Community & Regional Planning (University of Oregon) Certificate, Ecological Design (University of Oregon) BLA Landscape Architecture (University of California, Davis)	12
Reesor, Meg	GIS Specialist	BA Environmental Geography (Michigan State University)	6
Reynolds, Lara	Botanist (Vegetation)	MS Botany (University of Hawai'i at Mānoa) BA Botany (University of Hawai'i at Mānoa)	17
Shahid, Saira	Land Use and Environmental Planner (Geology, Topography and Soils, Water Resources, Natural Hazards, Transportation and Traffic)	MUP Urban Planning (University of Washington) BS Anthropology (UCLA)	3
Production Support			
Rusty Childers	Technical Editor	MFA Writing (Goddard College) BA Creative Writing (Pacific University of Oregon)	21

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Figures

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Kaheawa Wind 1 Continued Use Project

Figure 1-1
Project Vicinity

MAUI COUNTY, HI

Project Area
State Highway
City/Town

Waikapu
Olowalu
Ma'alaea
30
310
380
311
31

Reference Map



1:50,000
WGS 1984 UTM Zone 4N
0 1 2 4 Miles
NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_II\Maps\EIS_20241231\TerraFormPower_KaweawaPowerI_EIS_11i17i_20250325.aprx

Kaheawa Wind 1 Continued Use Project

Figure 1-2
Site Plan

MAUI COUNTY, HI



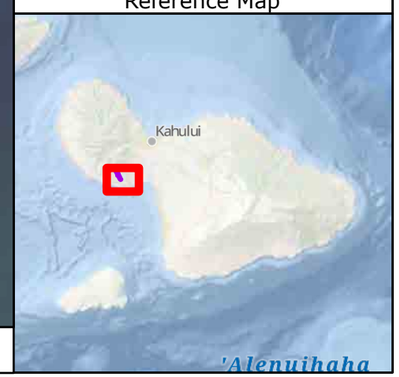
- Project Area
- TMK Boundary
- State Highway

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 1 Existing Met Tower
- HECO Switchyard and KWP 1 Substation
- HECO Switchyard and KWP 2 Substation
- O&M Building and Yard
- Warehouse Building and Yard
- KWP 2 Battery Storage Facility
- Existing Rain Catchment Structure
- Hawaiian Electric Transmission Lines

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186.

Reference Map



1:23,000 WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\ess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\EIS_20250410\TerraFormPower_KaheawaPowerI_EIS_11i17i_2025410.aprx

Kaheawa Wind 1 Continued Use Project

Figure 1-3
Land Use Districts

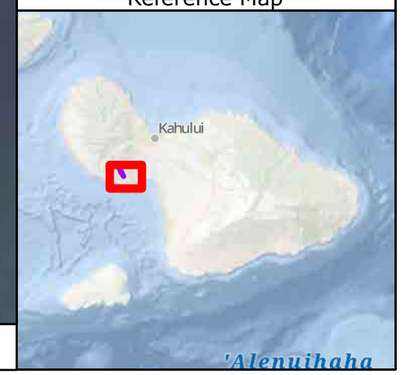
MAUI COUNTY, HI

- Project Area
- State Highway
- Local Roads
- Special Management Area
- Conservation District

Conservation District Subzone

- G- General
- L- Limited
- P- Protective
- R- Resource

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

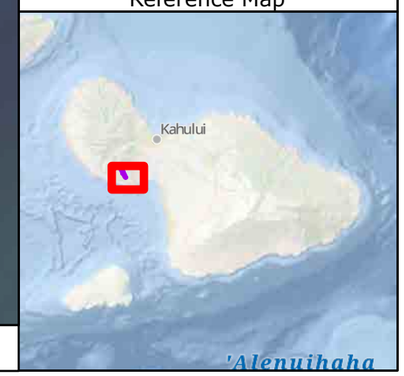
Figure 1-4
Adjacent Uses

MAUI COUNTY, HI

- Project Area
- West Maui Forest Reserve
- TMK Boundary
- Lahaina Pali Trail
- State Highway
- Local Roads

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186. The West Maui Forest Reserve boundary was modified to match the TMK boundary for TMKs 4-8-001:010 and 3-6-001:052 as reserve boundaries are generally based off of TMK boundaries (see: geodata.hawaii.gov/arcgis/rest/services/Terrestrial/MapServer/1)

Reference Map



(2) 4-8-001:001

(2) 3-6-001:014

KWP 2 Wind Farm

Kuihelani Hwy

Honoapiilani Hwy

N Kihei Rd

Maalaea Boat Harbor Rd

Maalaea Rd

Hauoli St

380

310

30

1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

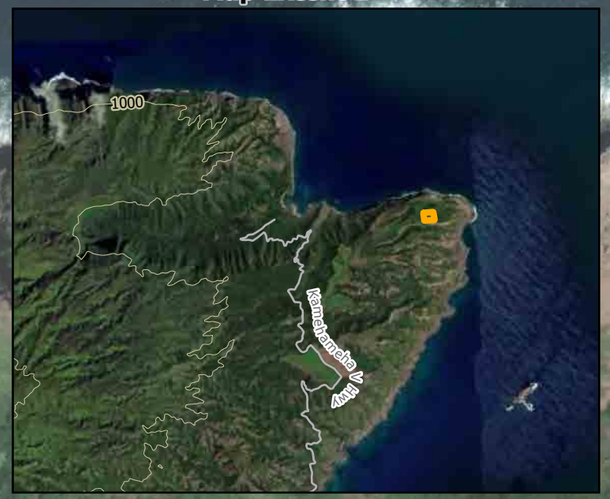
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Kaheawa Wind 1 Continued Use Project

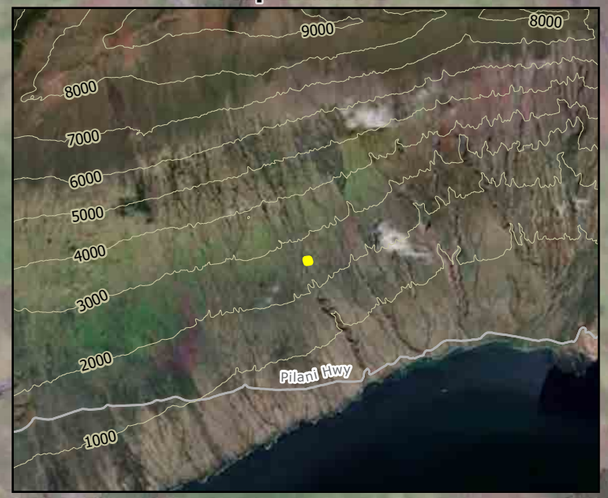
Figure 1-5
Nēnē Mitigation Sites

MAUI COUNTY, HI

Map Extent 1



Map Extent 2



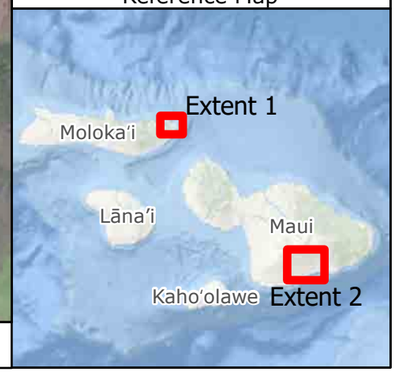
0 250 500 1,000 Feet

0 250 500 1,000 Feet

- Haleakalā Ranch Pen
- Pu'u O Hoku Ranch Pen
- 1,000-ft Contours
- Roads

KWP 1 Habitat Conservation Plan (Tetra Tech 2025a)

Reference Map



1:3,000

WGS 1984 UTM Zone 4N

NOT FOR CONSTRUCTION

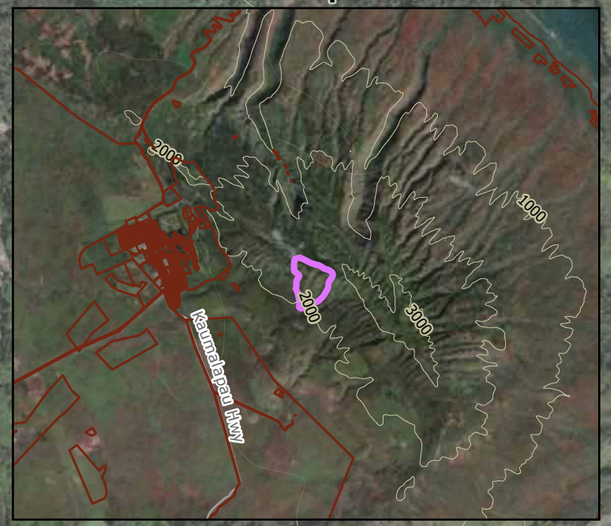
\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\EIS_20250410\TerraFormPower_KaheawaPowerI_EIS_11i17i_20250711.aprx

Kaheawa Wind 1 Continued Use Project

Figure 1-6
Ua`u Mitigation Site

LĀNA'I ISLAND, HI

Overview Map Extent

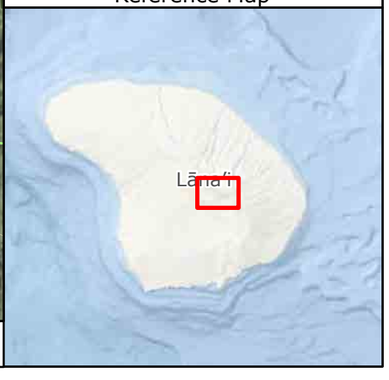


Munro Trail

- Pūluma Lāna'i Mitigation Area
- Munro Trail
- 1,000-ft Contours
- Roads

KWP 1 Habitat Conservation Plan (Tetra Tech 2025a)

Reference Map



1:12,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

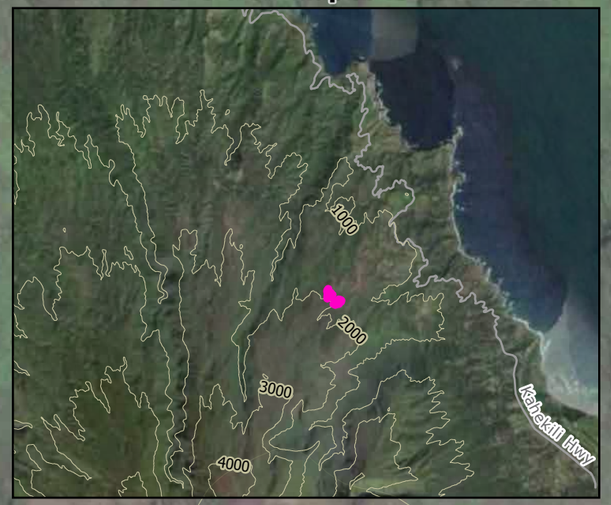
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Kaheawa Wind 1 Continued Use Project

Figure 1-7
ʻAʻo and ʻAkēʻakē Mitigation Site

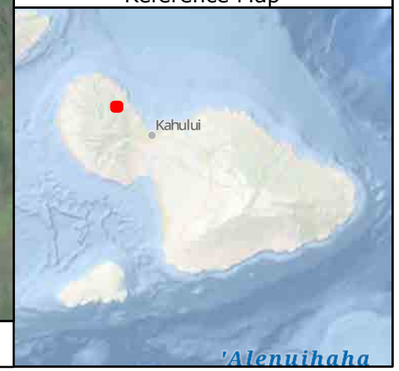
MAUI COUNTY, HI



- Makamaka'ole Original Fenced Exclosures
- 1,000-ft Contours
- Roads

KWP 1 Habitat Conservation Plan (Tetra Tech 2025a)

Reference Map



1:3,500

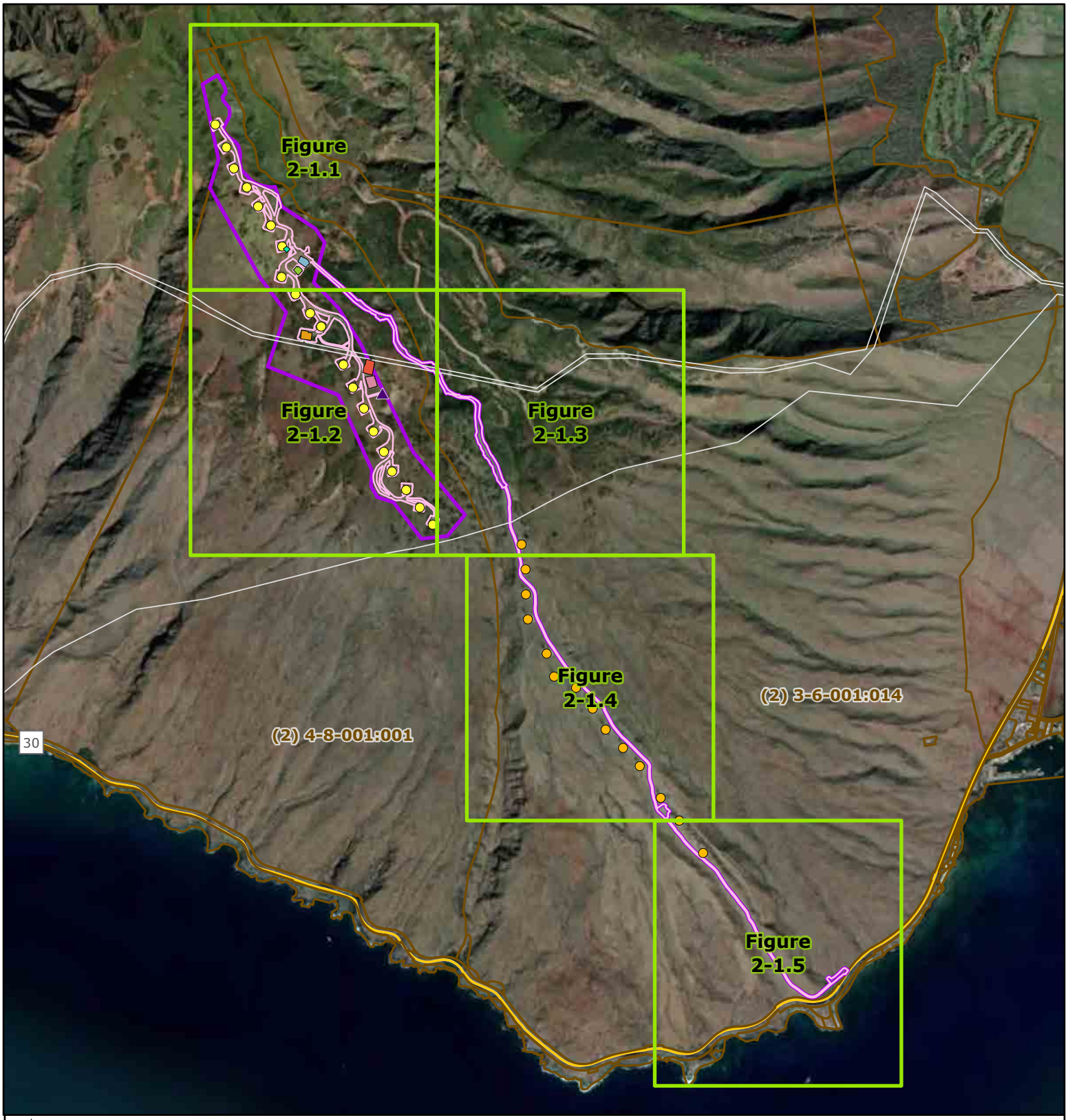
WGS 1984 UTM Zone 4N

0 250 500 1,000 Feet

NOT FOR CONSTRUCTION

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1:30,000 WGS 1984 UTM Zone 4N 0 0.25 0.5 1 Miles NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 2-1 Limits of Disturbance Index Map

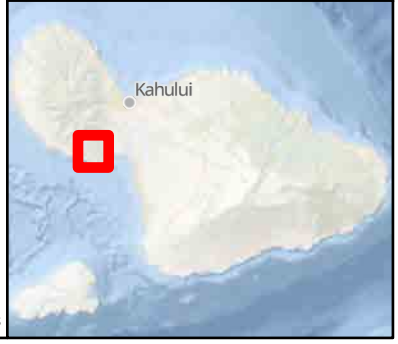
MAUI COUNTY, HI

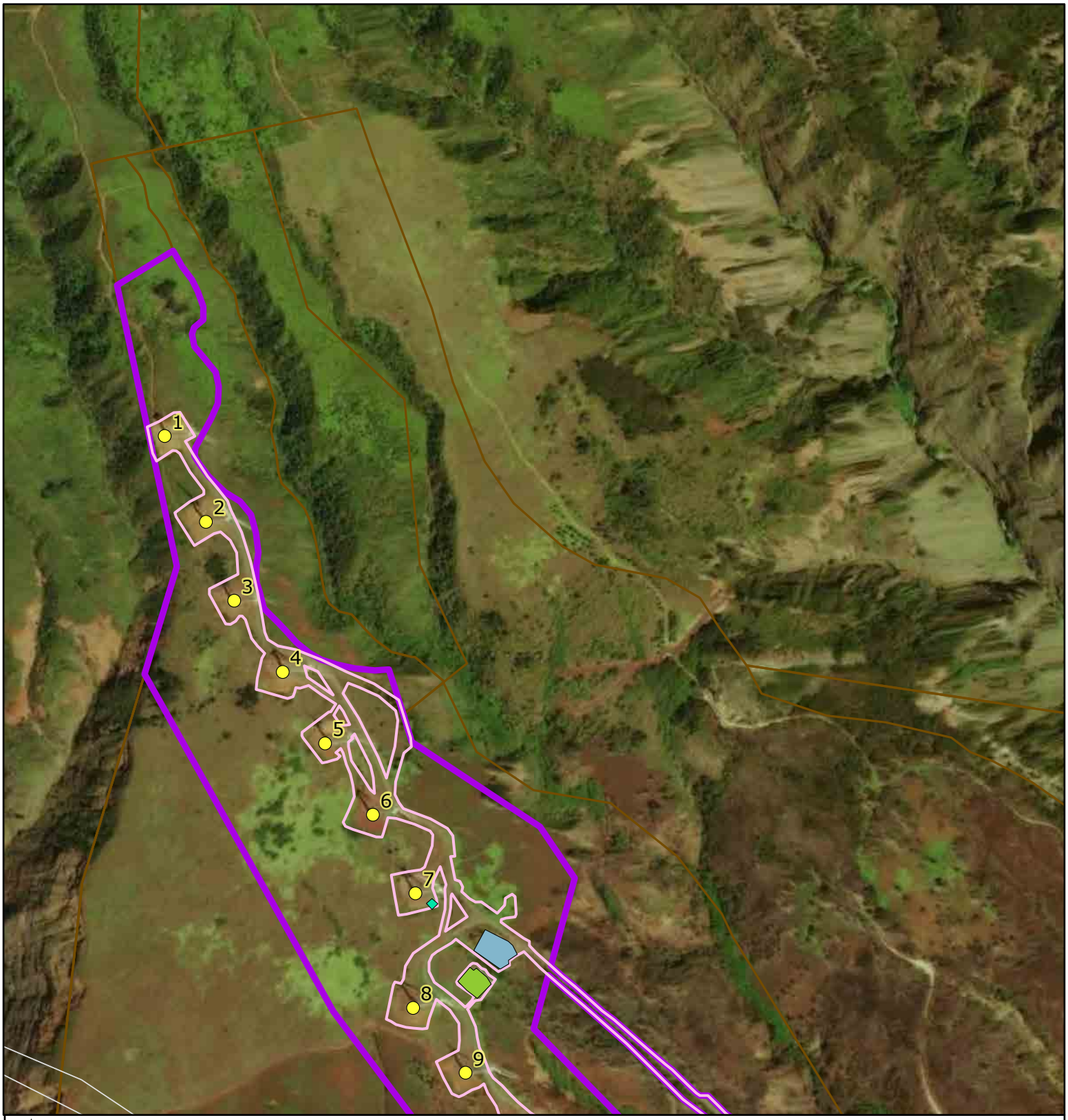
- Detail Map Grid
- Project Area
- Limit of Disturbance
- TMK Boundary
- State Highway

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 2 Existing Wind Turbines
- Warehouse Building and Yard
- HECO Switchyard and KWP 2 Substation
- HECO Switchyard and KWP 1 Substation
- KWP 2 Battery Storage Facility
- O&M Building and Yard
- Existing Rain Catchment Structure
- KWP 1 Existing Met Tower
- Hawaiian Electric Transmission Lines

Reference Map





\\ces706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_IMaps\LOD_20250317\TerraForm_KWP1_LOD_20250410.aprx

1:8,000 WGS 1984 UTM Zone 4N 0 250 500 1,000 US Feet NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 2-1.1
Limits of Disturbance Index Map

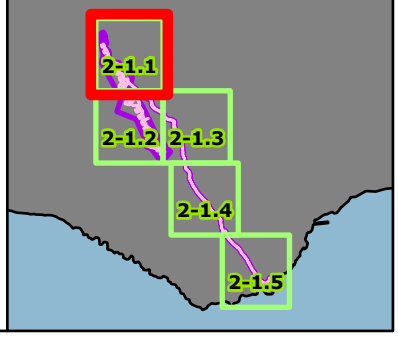
MAUI COUNTY, HI

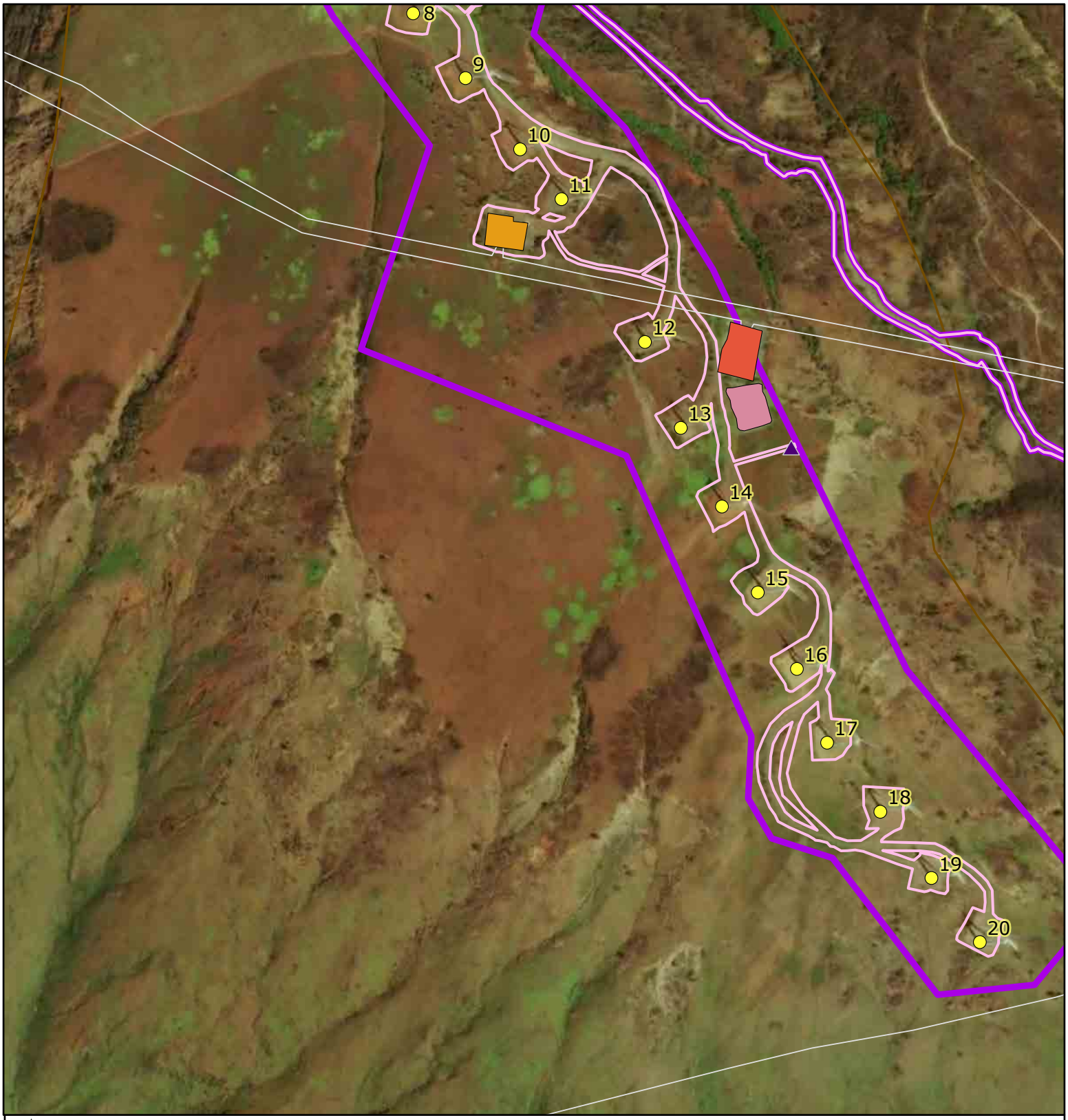
- Project Area
- Limit of Disturbance
- TMK Boundary

Existing Facilities

- KWP 1 Existing Wind Turbines
- Warehouse Building and Yard
- O&M Building and Yard
- Existing Rain Catchment Structure

Reference Map





\\ces706gisfs1\CESIProjects\PDX\TerraForm_Power\Kaheawa_Wind_Power_IMaps\LOD_20250317\TerraForm_KWPI_LOD_20250410.aprx

1:8,000 WGS 1984 UTM Zone 4N 0 250 500 1,000 US Feet NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 2-1.2
Limits of Disturbance Index Map

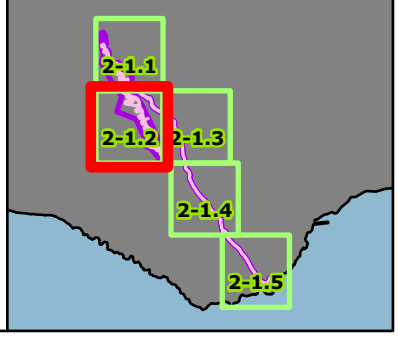
MAUI COUNTY, HI

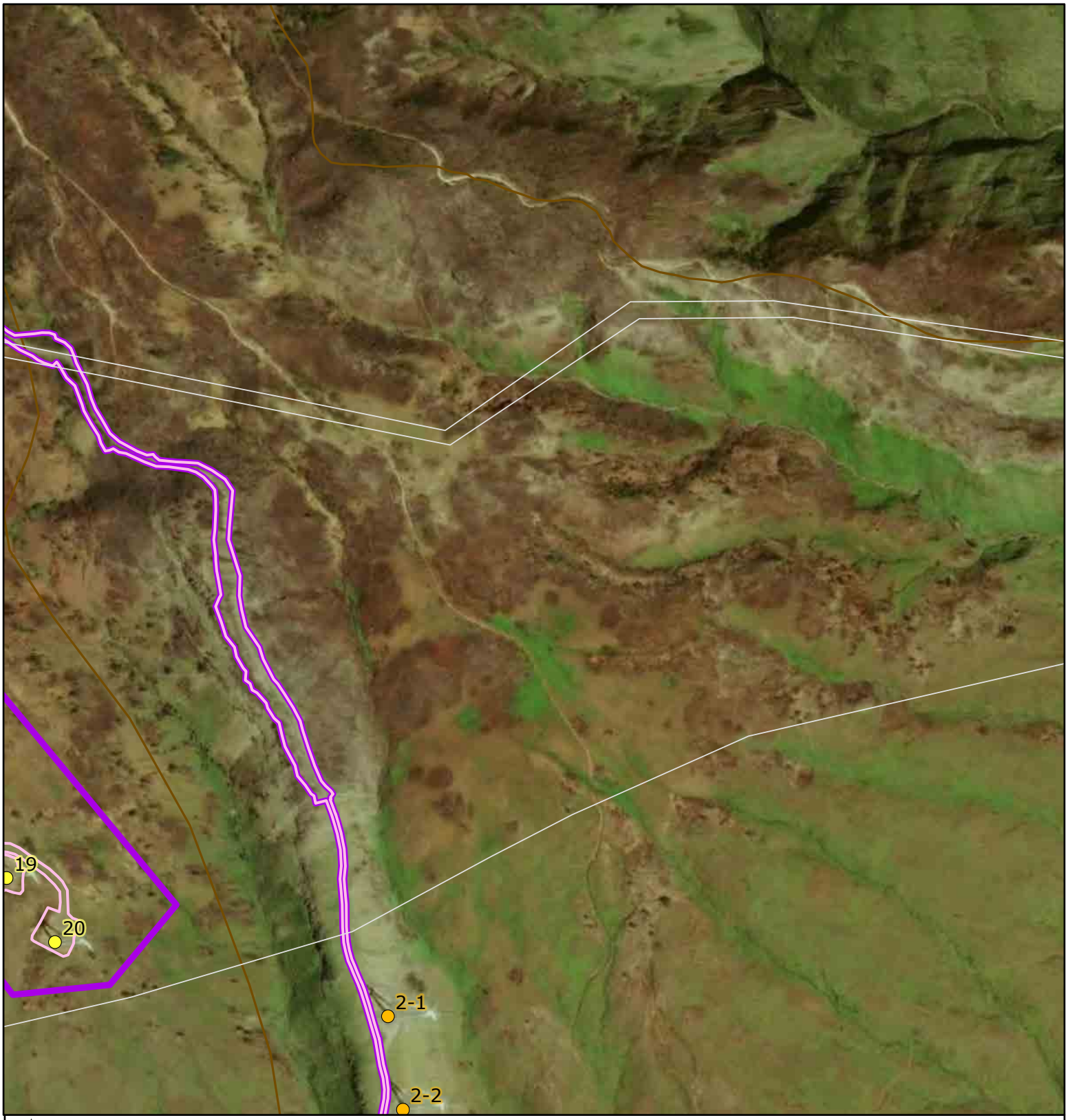
- Project Area
- Limit of Disturbance
- TMK Boundary

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 1 Existing Met Tower
- HECO Switchyard and KWP 2 Substation
- HECO Switchyard and KWP 1 Substation
- KWP 2 Battery Storage Facility
- Hawaiian Electric Transmission Lines

Reference Map





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Kaheawa Wind 1 Continued Use Project

Figure 2-1.3
Limits of Disturbance Index Map

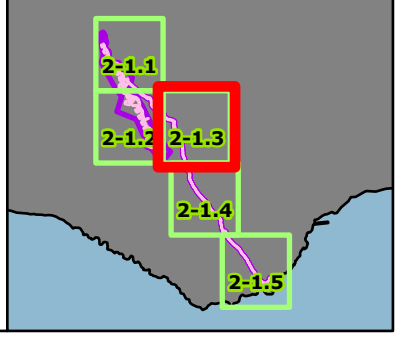
MAUI COUNTY, HI

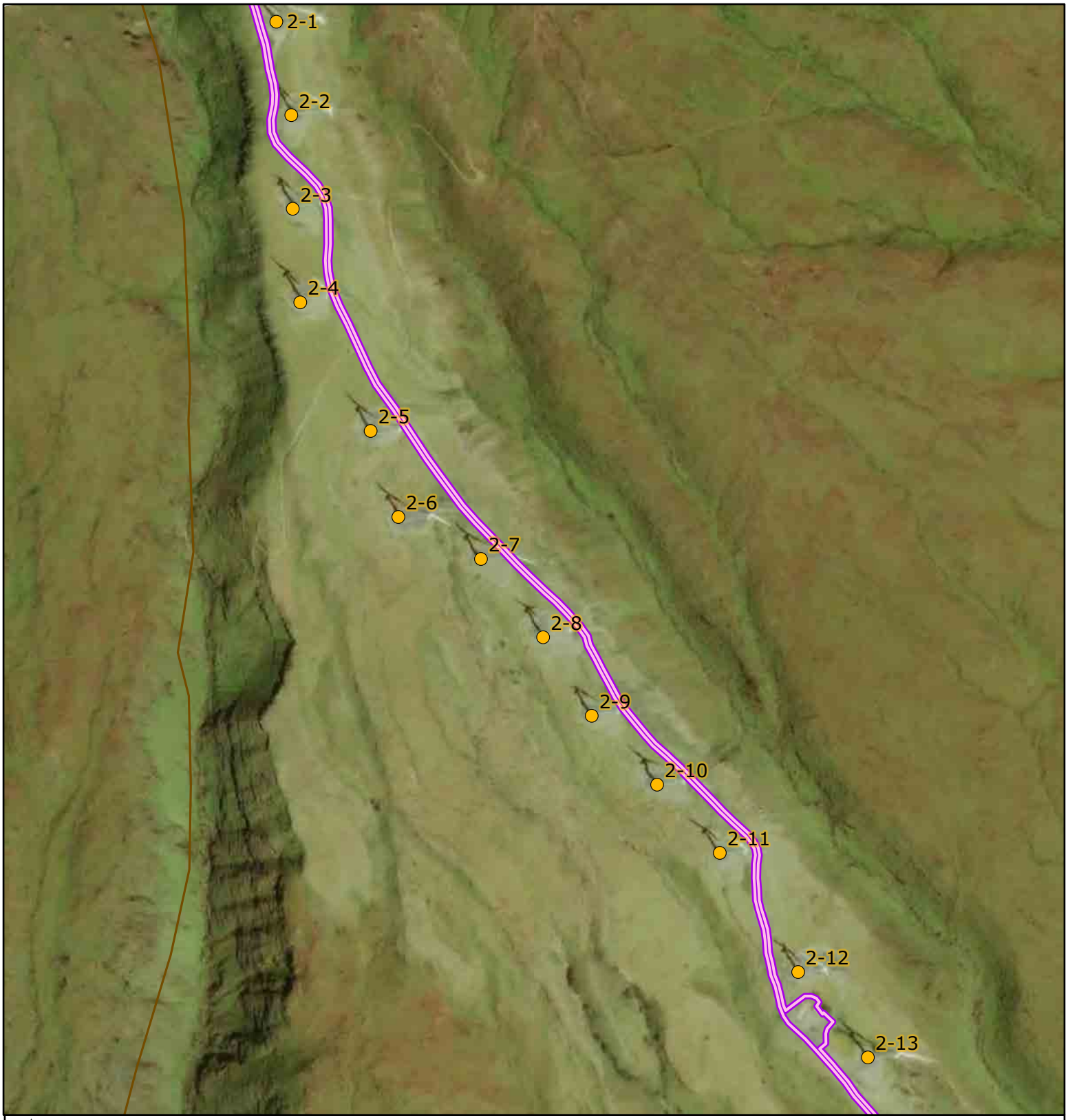
- Project Area
- Limit of Disturbance
- TMK Boundary

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 2 Existing Wind Turbines
- Hawaiian Electric Transmission Lines

Reference Map





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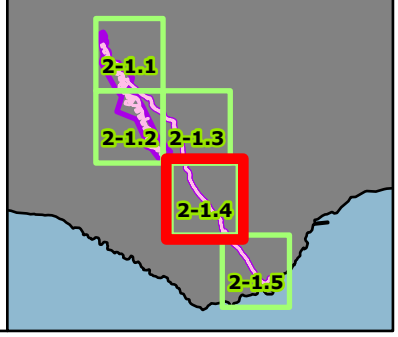
Kaheawa Wind 1 Continued Use Project

Figure 2-1.4
Limits of Disturbance Index Map

MAUI COUNTY, HI

Project Area
Limit of Disturbance
TMK Boundary
Existing Facilities
KWP 2 Existing Wind Turbines

Reference Map





\\ces706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_IMaps\LOD_20250317\TerraForm_KWPI_LOD_20250410.aprx

1:8,000 WGS 1984 UTM Zone 4N 0 250 500 1,000 US Feet NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 2-1.5
Limits of Disturbance Index Map

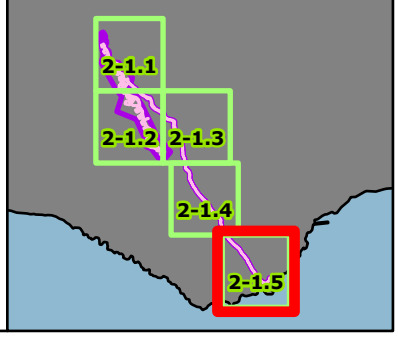
MAUI COUNTY, HI

- Project Area
- Limit of Disturbance
- TMK Boundary
- State Highway
- Local Roads

Existing Facilities

- KWP 2 Existing Wind Turbines

Reference Map



Kaheawa Wind 1 Continued Use Project

Figure 2-2
Photo Locations

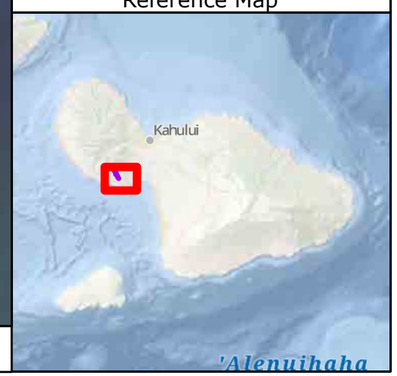
MAUI COUNTY, HI

- Project Area
- TMK Boundary
- KWP 1 Existing Met Tower
- HECO Switchyard and KWP 1 Substation
- HECO Switchyard and KWP 2 Substation
- O&M Building and Yard
- Warehouse Building and Yard
- KWP 2 Battery Storage Facility
- Existing Rain Catchment Structure
- Hawaiian Electric Transmission Lines
- State Highway
- Photo Location*

*Location of the photos is approximate and rotated to indicate direction of the photo

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186.

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Photo 1. View north. KWP 1 turbine 3 (foreground), followed by turbines 2 and 1.



Photo 2. View west. Base of turbine 6 and pad mounted transformer.



Photo 3. View north. Exterior of O&M building.



Photo 4. View northwest. Exterior of warehouse building with O&M building in background (right).

NOT FOR CONSTRUCTION

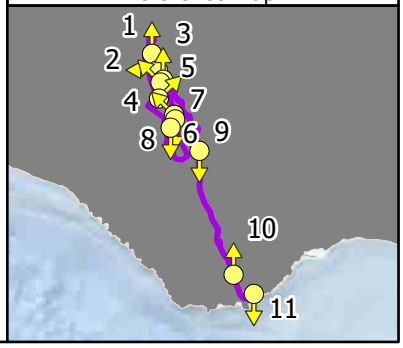
Kaheawa Wind 1 Continued Use Project

Figure 2-2.1
Photos of
Existing KWP 1 Facility

MAUI COUNTY, HI

Source: J. Turban, April 30, 2025

Reference Map



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Photo 5. View northeast. KWP 1 substation.



Photo 6. View northwest. Exterior of KWP 2 battery storage facility.



Photo 7. View south. Non-functioning meteorological tower.



Photo 8. View south. View from turbine 15. Turbine 16 in foreground followed by turbines 17, 18, 19, and 20. KWP 2 turbines in background (left).

NOT FOR CONSTRUCTION

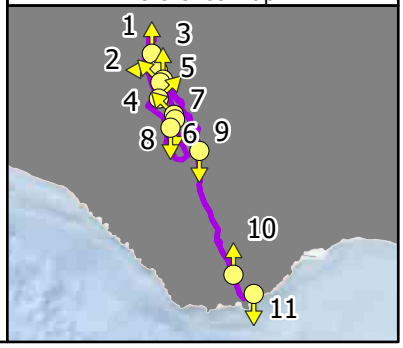
Kaheawa Wind 1 Continued Use Project

Figure 2-2.2
Photos of
Existing KWP 1 Facility

MAUI COUNTY, HI

Source: J. Turban, April 30, 2025

Reference Map



\Cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_IMaps\EIS_20250410\TerraFormPower_KaheawaPowerI_EIS_11i7I_20250711.aprx



Photo 9. View south. Kaheawa Pastures access road with KWP 2 wind turbines in background.



Photo 10. View north. Kaheawa Pastures access road with KWP 2 wind turbines in background.



Photo 11. View south. View from parking/staging area towards the access gate off Honoapiilani Highway.

NOT FOR CONSTRUCTION

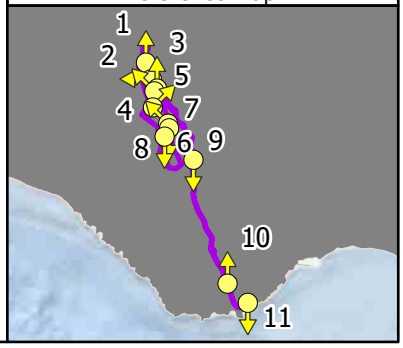
Kaheawa Wind 1 Continued Use Project

Figure 2-2.3
Photos of
Existing KWP 1 Facility

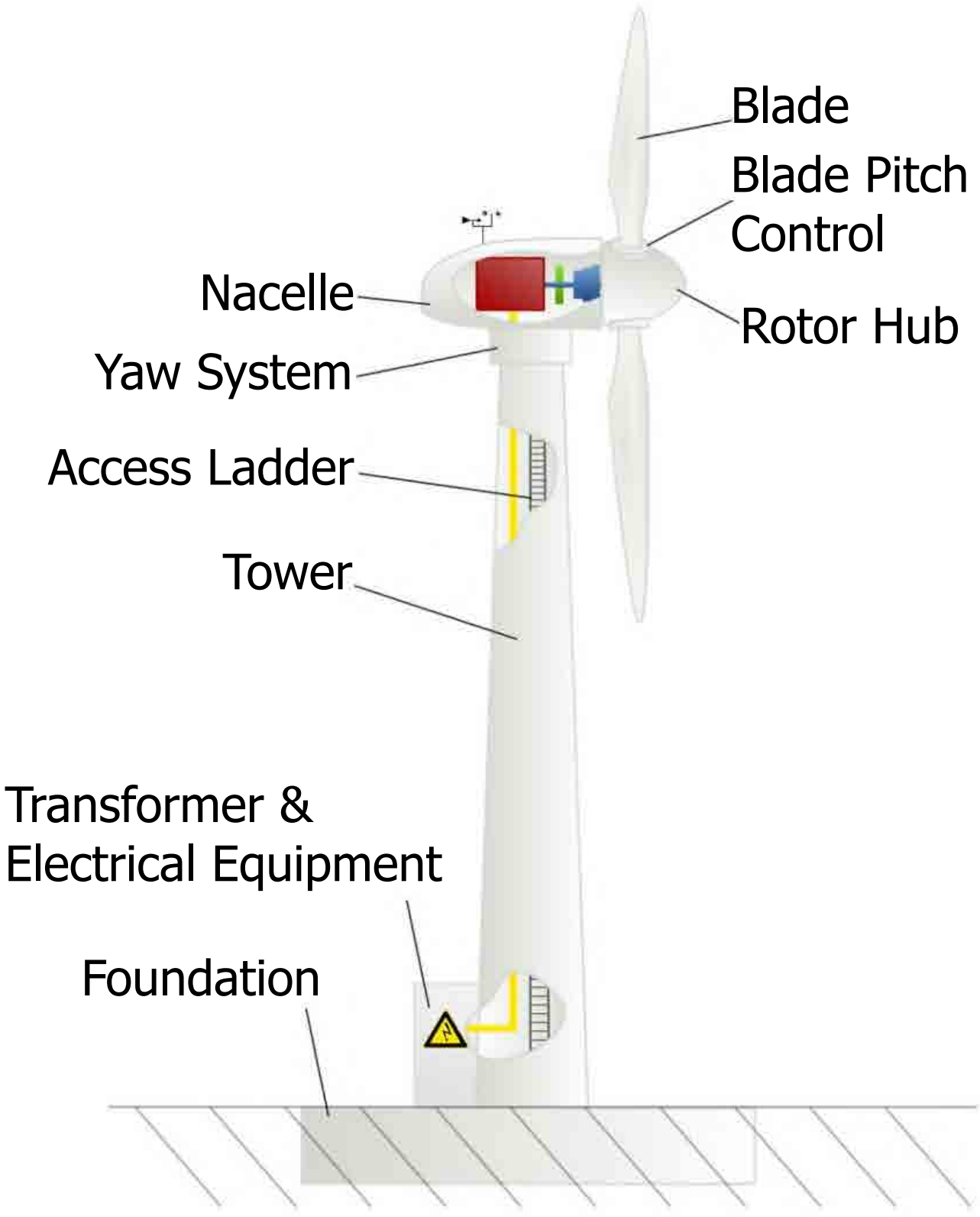
MAUI COUNTY, HI

Source: J. Turban, April 30, 2025

Reference Map



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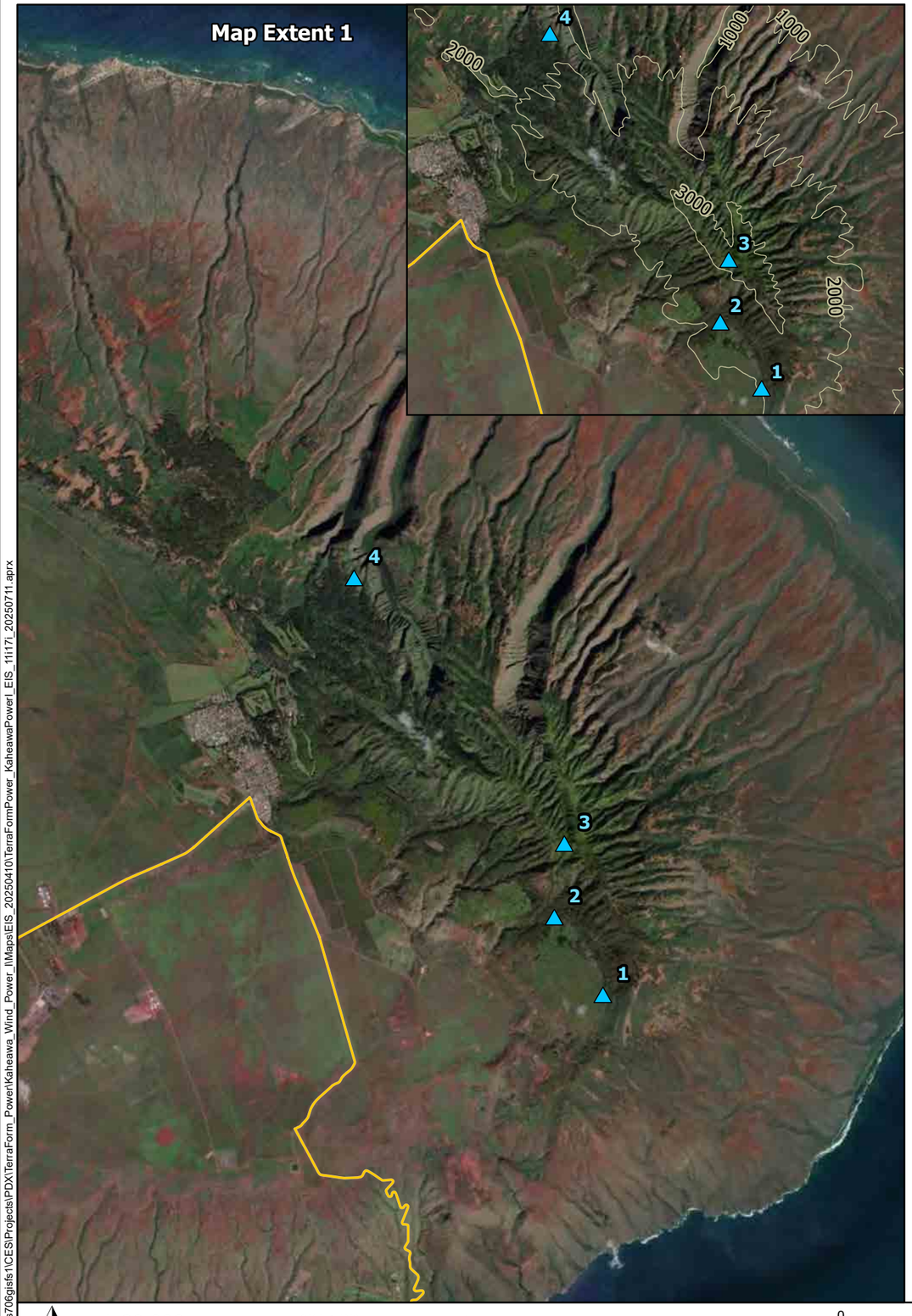
NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 2-3
Schematic of a Typical Wind Turbine

MAUI COUNTY, HI

Source: A. Nordmann 2007 (modified)





Kaheawa Wind 1 Continued Use Project

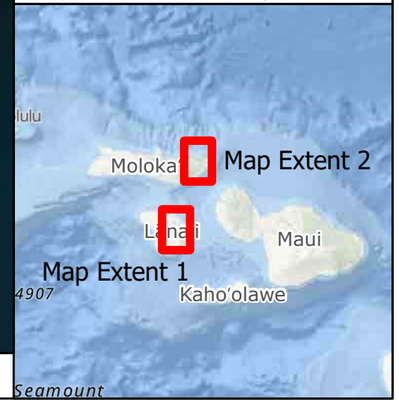
Figure 2-4
ʻŌpeʻapeʻa Mitigation Study Area

MAUI COUNTY, HI

- Lānaʻi Acoustic Monitoing Location
- Moloka'i Acoustic Monitoring Location
- State Highway
- 1,000-ft Contours

KWP 1 Habitat Conservation Plan (Tetra Tech 2025a)

Reference Map



1:80,000

WGS 1984 UTM Zone 4N

0 1 2 4 Miles

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

Figure 3-1 Geology

MAUI COUNTY, HI

Project Area
State Highway
Local Roads

Geological Map Units (Sherrod, D. R., Sinton, J. M., Watkins, S. E., & Brunt, K. M., 2007)

Geological Map Units

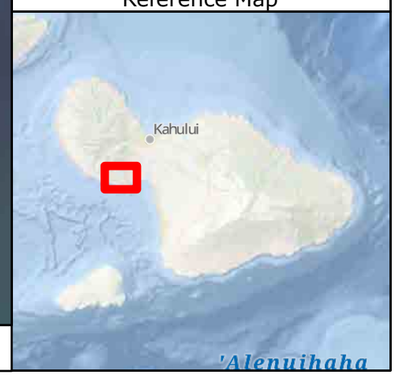
Alluvium
- Sand and gravel
- Older alluvium, Lithified sand and gravel

Honolua Volcanics
- Bulbous dome of massive lava
- Lava flows

Lahaina Volcanics
- Vent deposits

Wailuku Volcanics
- Pit crater
- Cinder and spatter
- Collapse pit from which no lava issued
- Dike complex
- Intrusive rocks
- Lava flows
- Near-vent lava flows

Reference Map



1:23,000 WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\ess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11i17i_20250423.aprx

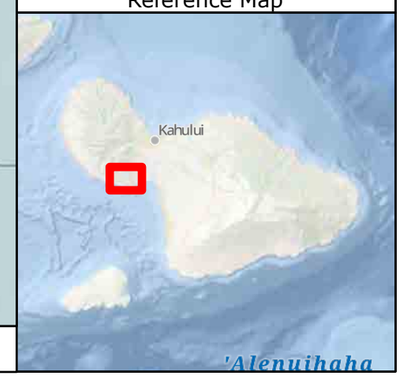
Kaheawa Wind 1 Continued Use Project

Figure 3-2
Topographic Map

MAUI COUNTY, HI

- Project Area
- State Highway
- Local Roads

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\ess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_II\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17i_20250423.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-3
NRCS Soils

MAUI COUNTY, HI

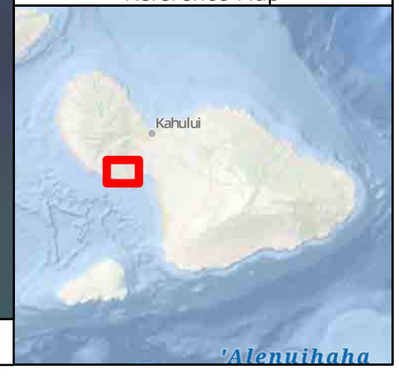
- Project Area
- State Highway
- Local Roads

NRCS Soil Type

- NAC - Naiwa silty clay loam, 13 to 45 percent slopes, MLRA 164
- OFC - Olelo silty clay, 15 to 50 percent slopes, MLRA 164
- OMB - Oli medial silt loam, 13 to 45 percent slopes, MLRA 164
- rRK - Rock land; rRO - Rock outcrop
- rRS - Rough broken and stony land

NRCS Soil Type (Soil Survey Staff, 2023)

Reference Map



1:23,000 WGS 1984 UTM Zone 4N 0 0.25 0.5 1 Miles NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17I_20250423.aprx

Kaheawa Wind 1 Continued Use Project

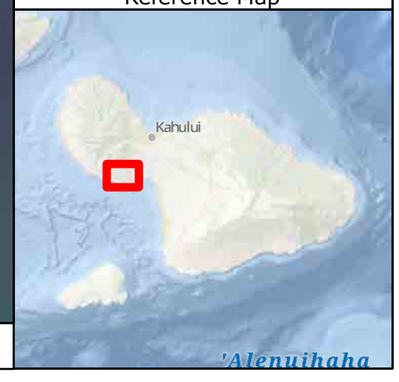
Figure 3-4 Groundwater Aquifers

MAUI COUNTY, HI

Project Area
State Highway
Local Roads

Aquifers (Hawai'i State Department of Health, 2011)

Reference Map



Aquifers

System; Type; Developmental Stage; Utility; Salinity (mg/l Cl-); Uniqueness; Vulnerability to Contamination

- Ukumehame; Basal Unconfined Dike; Potential use; Drinking; Low (250-1,000); Replaceable; High Vulnerability
- Ukumehame; High Level Unconfined Dike; Currently used; Drinking; Fresh (<250); Irreplaceable; High Vulnerability
- Waikapu; Basal Unconfined Flank; Potential use; Drinking; Low (250-1,000); Replaceable; High Vulnerability
- Waikapu; High Level Unconfined Dike; Potential use; Drinking; Fresh (<250); Irreplaceable; High Vulnerability

1:23,000 WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17l_20250423.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-5
Surface Water Resources

MAUI COUNTY, HI



- Project Area
- State Highway
- Local Roads

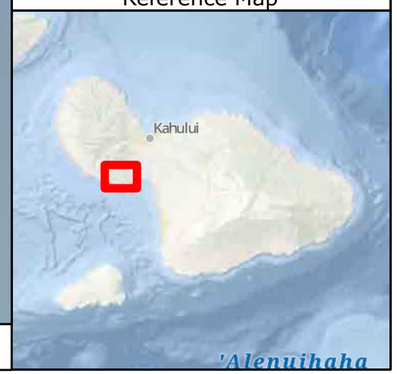
Division of Aquatic Resources
- Streams

National Hydrography Dataset
- Canal/Ditch
- Stream/River
- Coastline
- Lake Pond

National Wetlands Inventory
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

DAR (U.S. Geological Survey et al., 2008)
NHD (U.S. Geological Survey, 2022)
NWI (U.S. Fish and Wildlife Service, 2024)

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

Figure 3-6
Flood Zones

MAUI COUNTY, HI

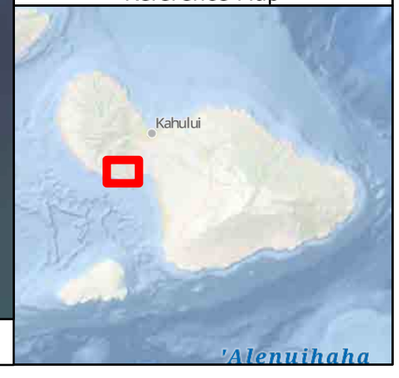
- Project Area
- State Highway
- Local Roads

Flood Zone

- Zone A - 1% Annual Chance Flood Hazard
- Zone AE - 1% Annual Chance Flood Hazard
- Zone VE - 1% Annual Chance Flood Hazard
- Zone X - 0.2% Annual Chance Flood Hazard

Flood Zone (FEMA Flood Map Service Center, 2021)

Reference Map



380
Kuihelani Hwy
Honoapiilani Hwy
N Kihei Rd
310
Maalaea Boat Harbor Rd
Maalaea Rd
Hauoli St
30

1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\ces708gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17I_20250423.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-7
Coastal Hazards

MAUI COUNTY, HI



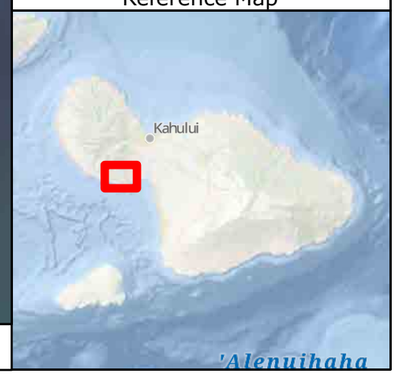
- Project Area
- State Highway
- Local Roads

Sea Level Rise Exposure Area
- 3.2 Feet

Tsunami Zones
- Evacuation Zone
- Extreme Evacuation Zone

Sea level Rise Exposure Area (School of Ocean and Earth Science and Technology et al., 2021)
Tsunami Evacuation Zone (Pacific Disaster Center, 2013)
Extreme Tsunami Evacuation Zone (County of Maui, 2016)

Reference Map



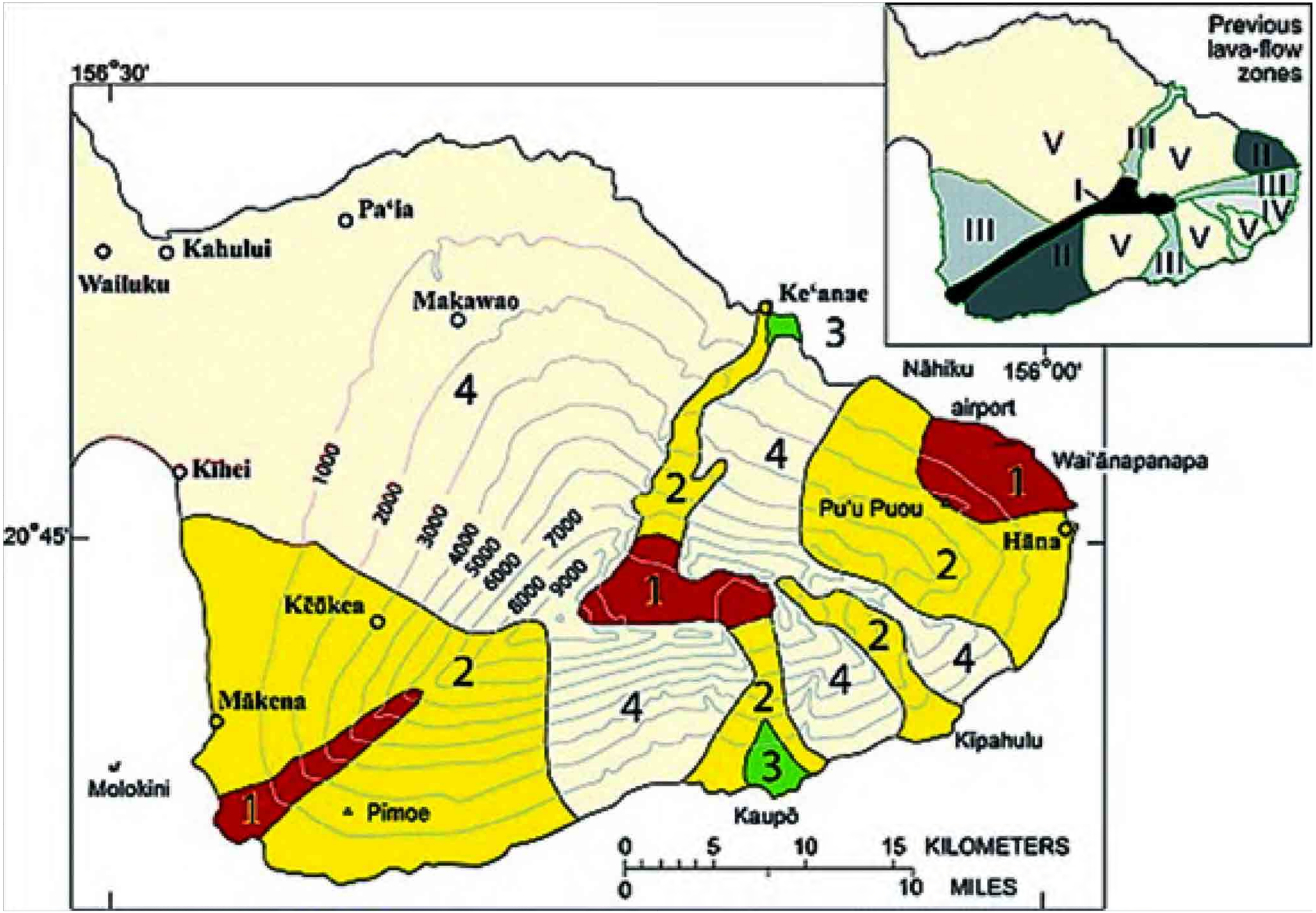
1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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NOT FOR CONSTRUCTION

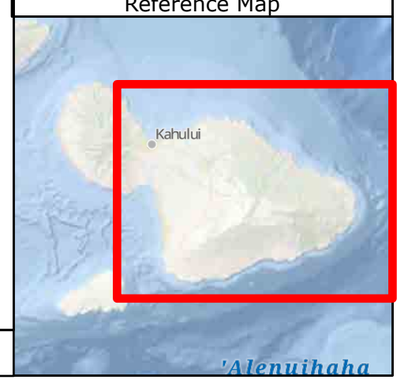
Kaheawa Wind 1 Continued Use Project

Figure 3-8
Lava Inundation Hazards Map

MAUI COUNTY, HI

Lava Inundation Hazard Map (Journal of Geophysical Research: Solid Earth, 111(B5), 2006)

Reference Map

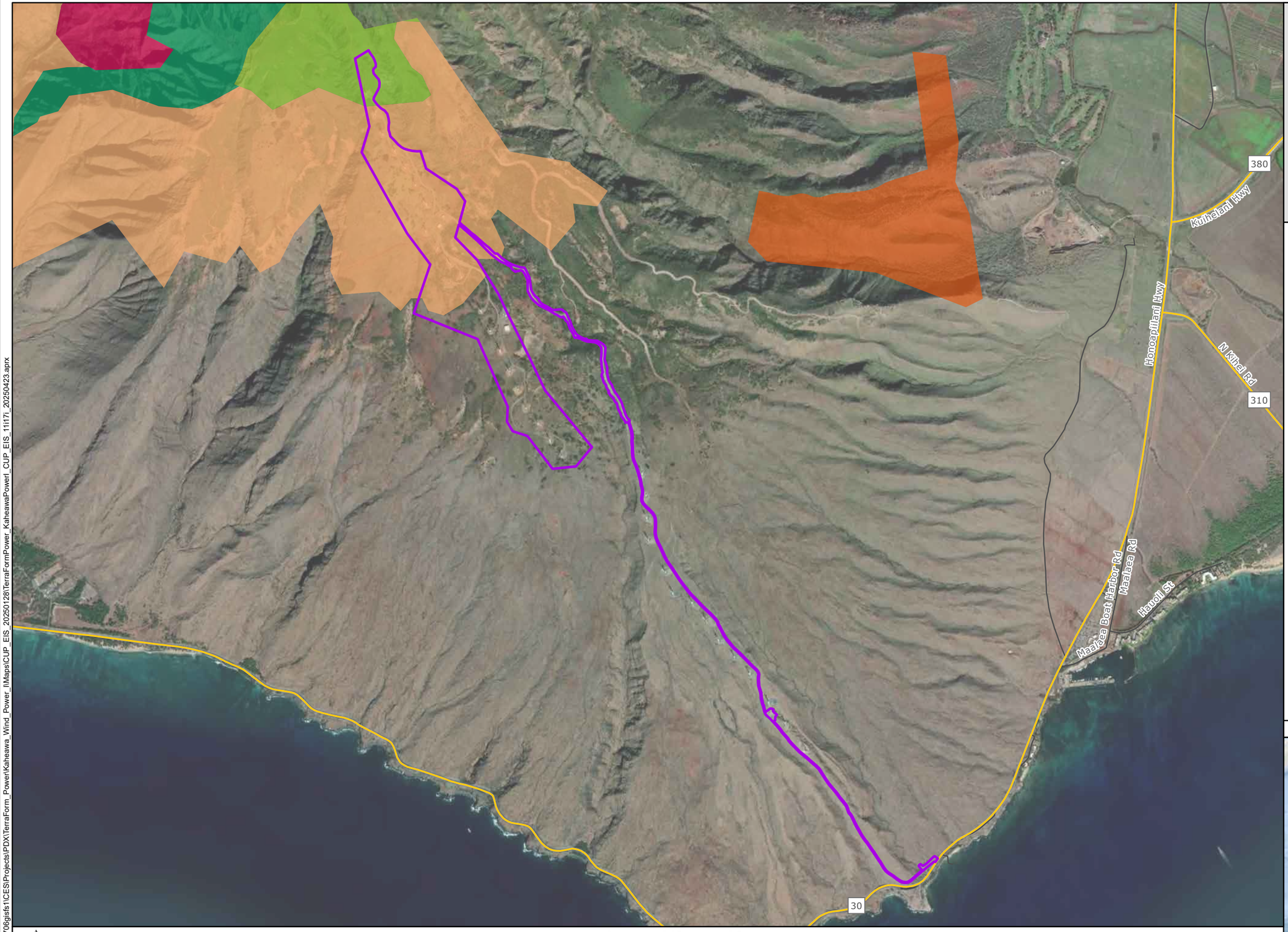


\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_IMaps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17I_20250423.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-9
Critical Habitat

MAUI COUNTY, HI



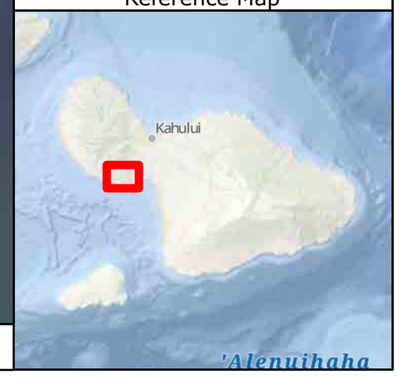
- Project Area
- State Highway
- Local Roads

Critical Habitat

- Dry Cliff 06
- Lowland Dry 05
- Lowland Dry 06
- Lowland Mesic 03
- Montane Mesic 05

Critical Habitat (U.S. Fish and Wildlife Service, 2016)

Reference Map



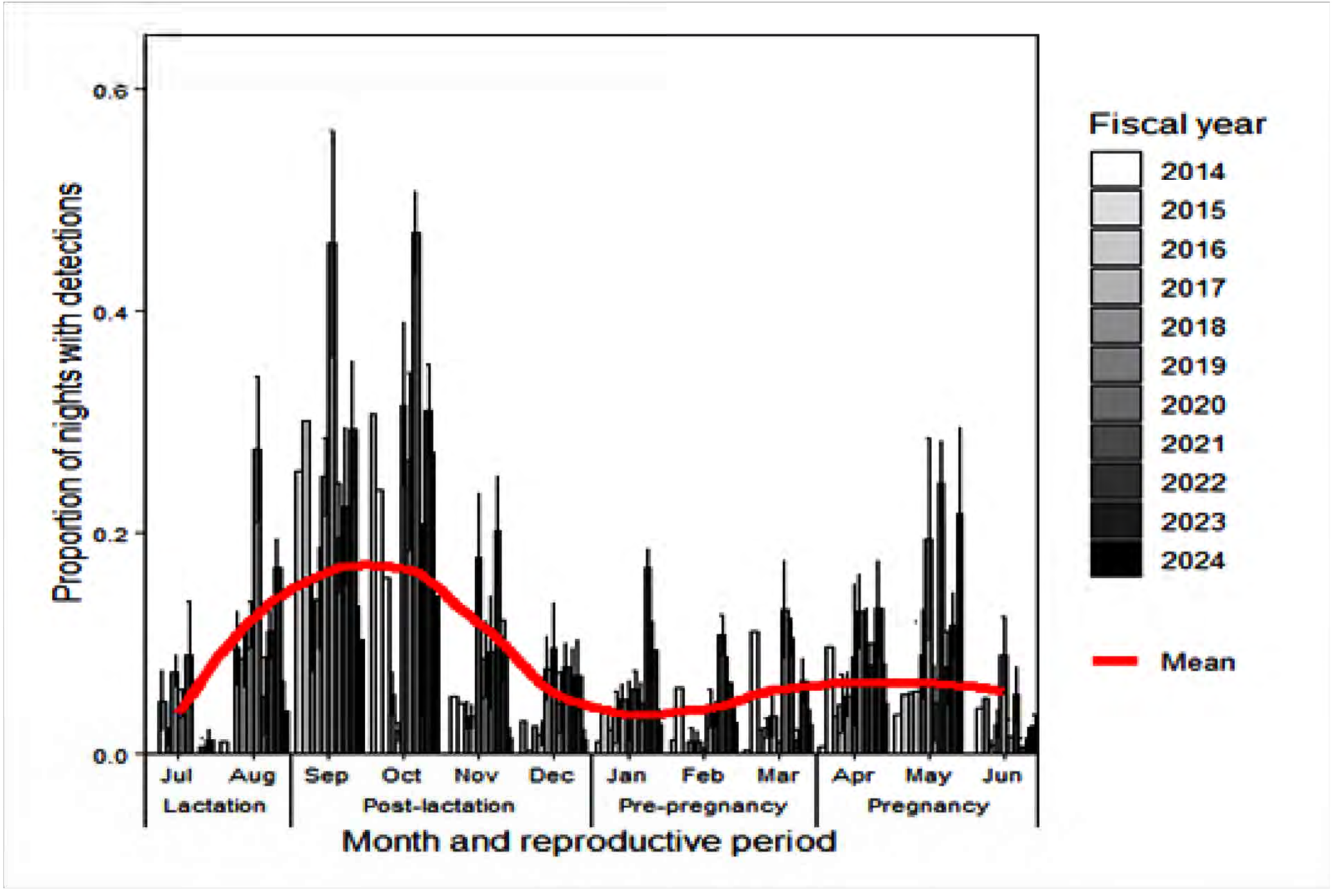
1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

Figure 3-10
Monthly Bat Detection Rates FY 2014 to FY 2024, with Monthly Mean and Corresponding Reproductive Periods

MAUI COUNTY, HI

NOT FOR CONSTRUCTION

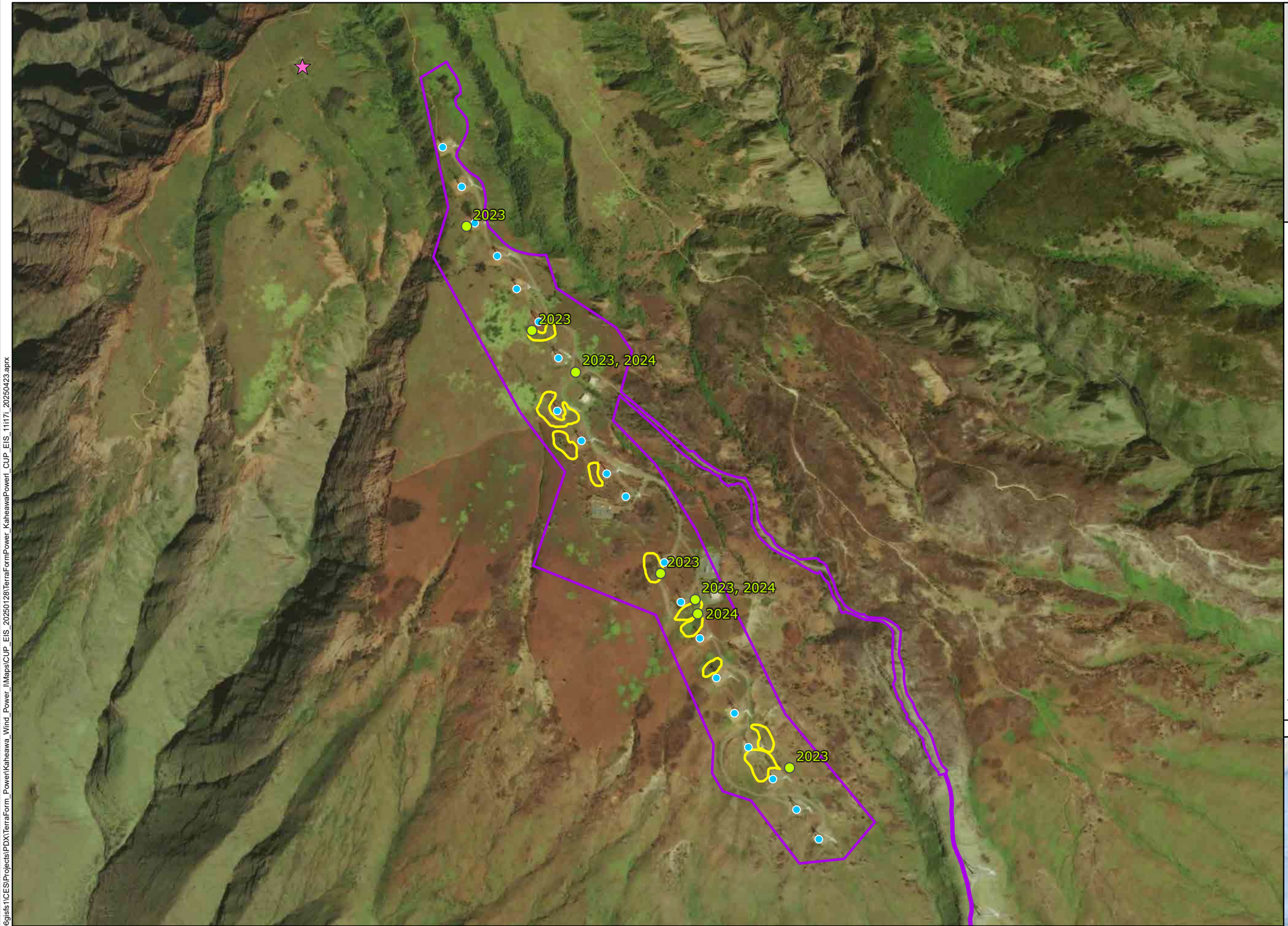
KWP I Habitat Conservation Plan (Tetra Tech 2025a)

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11i17i_20250423.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-11
Areas Where Nēnē Are Regularly Observed

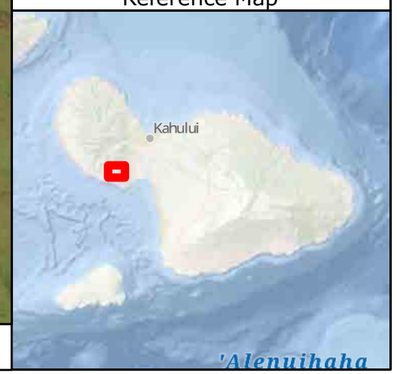
MAUI COUNTY, HI



- Project Area
- Areas Where Nēnē Are Regularly Observed
- Turbine
- Known Nesting Locations (Year Found)
- Former Hanaula Release Pen Site

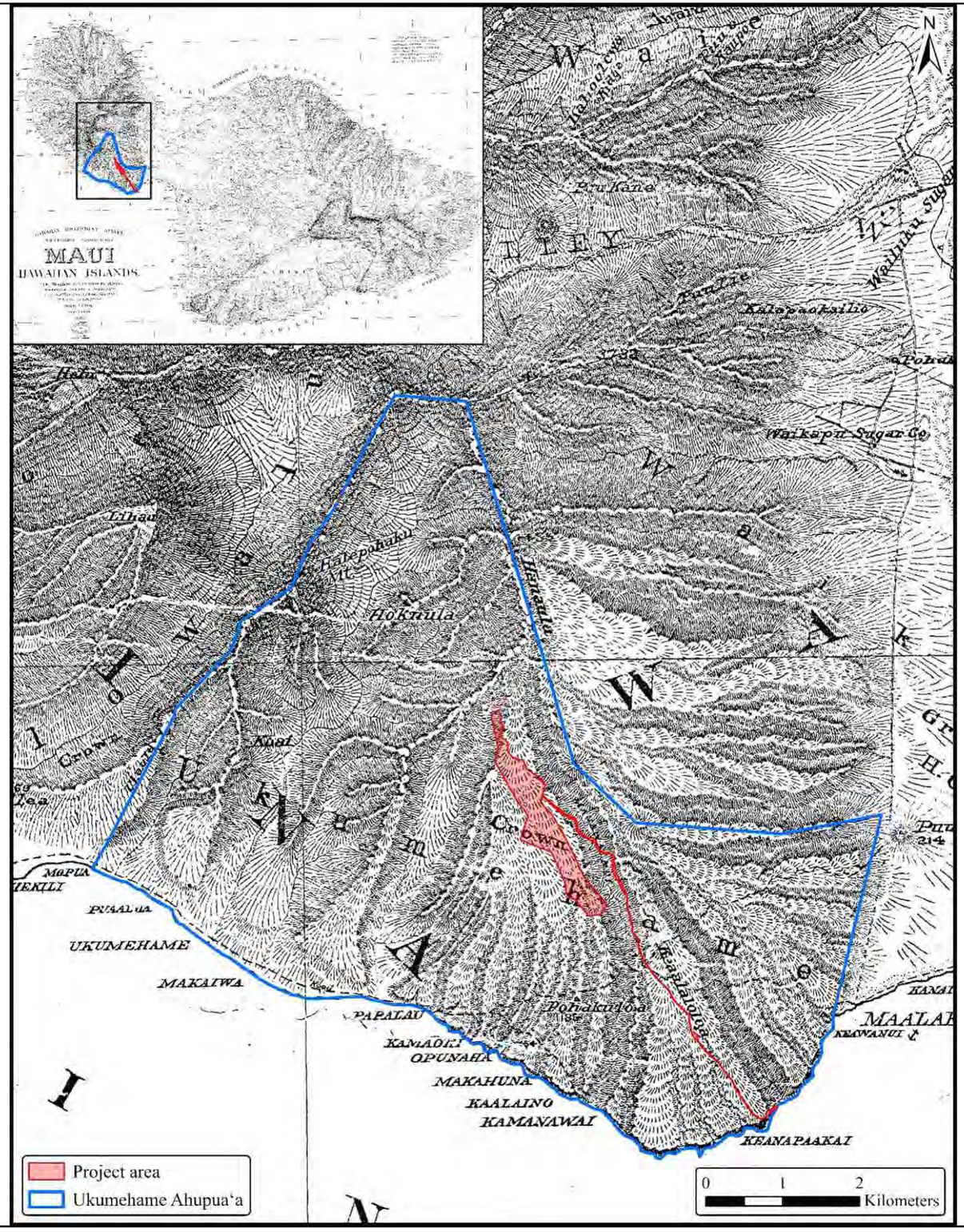
KWP I Habitat Conservation Plan (Tetra Tech 2025a)

Reference Map



1:12,000 WGS 1984 UTM Zone 4N 0 0.25 0.5 1 Miles NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_II\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17i_20250423.aprx



Kaheawa Wind 1 Continued Use Project

Figure 3-12
Ukumehame Ahupua'a

MAUI COUNTY, HI

KWP 1 Cultural Impact Assessment (ASM 2025)

Reference Map



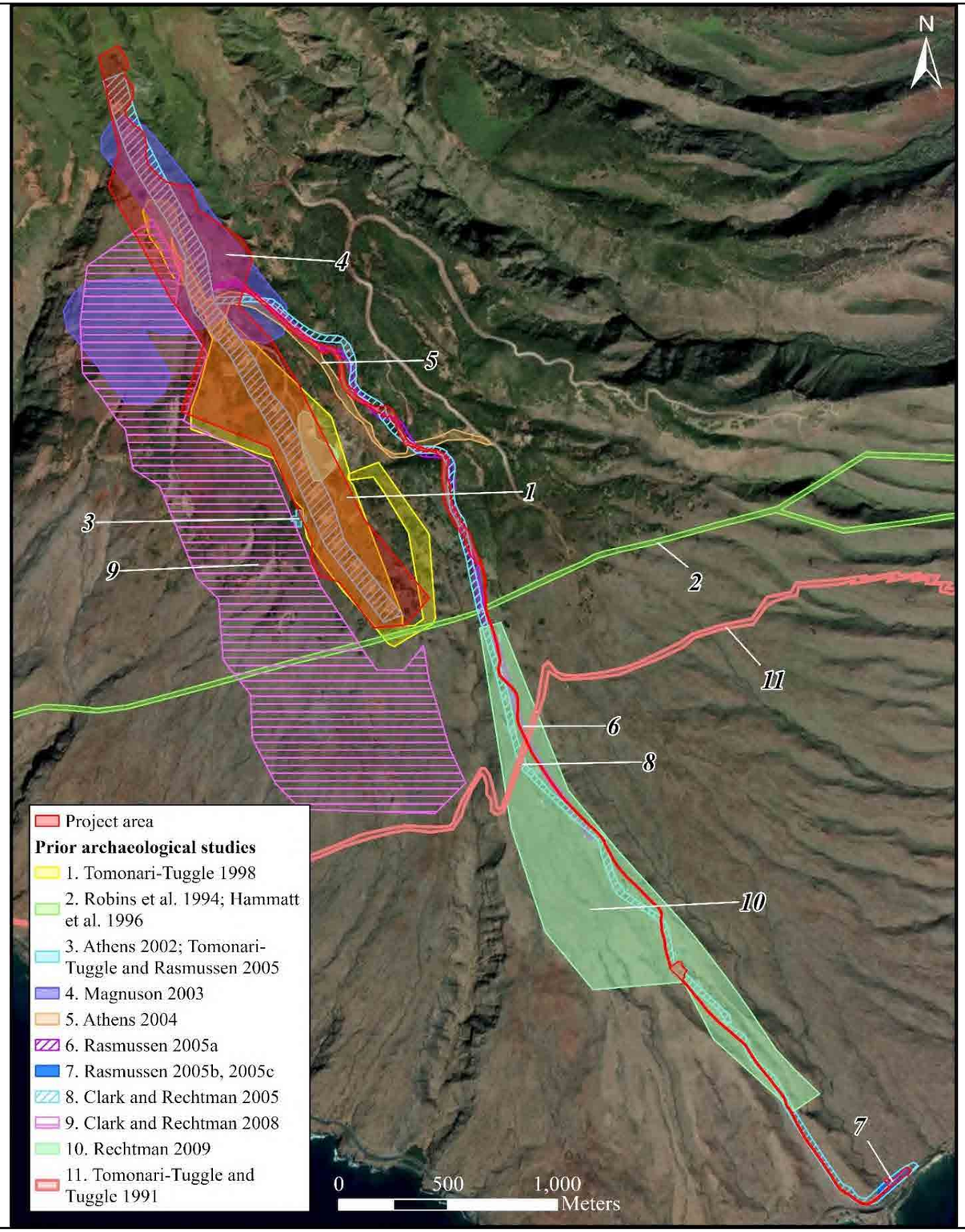
NOT FOR CONSTRUCTION

\\Cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17I_20250711.aprx

Kaheawa Wind 1 Continued Use Project

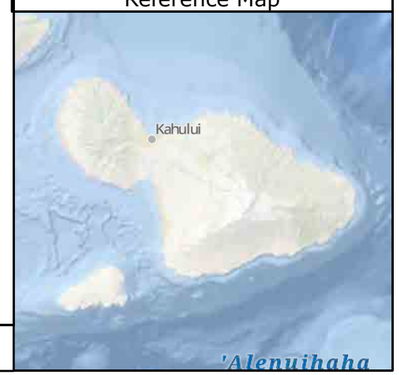
Figure 3-13 Archaeological Studies Within and Near the Project Area

MAUI COUNTY, HI



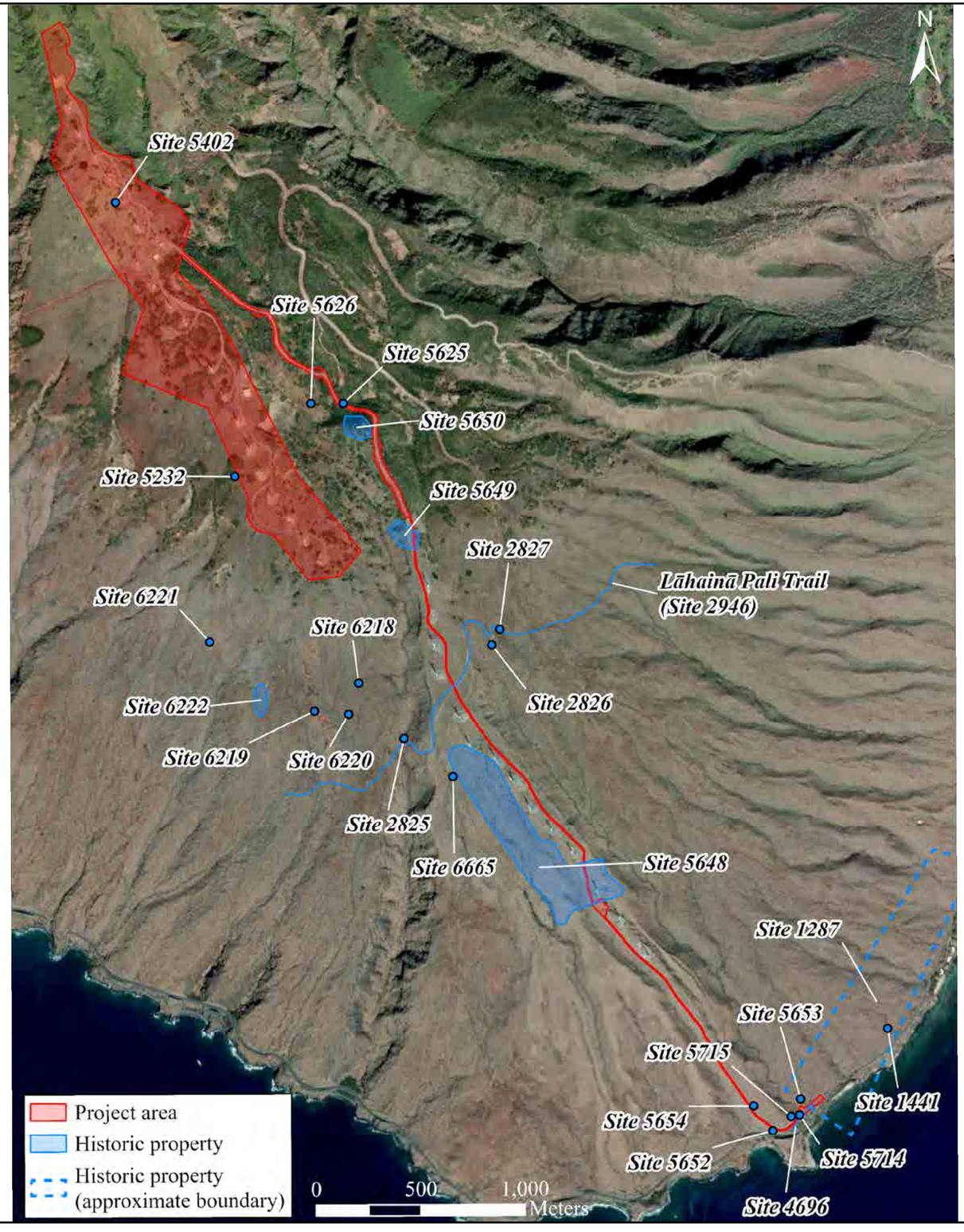
KWP 1 Cultural Impact Assessment (ASM 2025)

Reference Map



NOT FOR CONSTRUCTION

\\Cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_IMaps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17i_20250711.aprx



\\ces706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_II\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11i17i_20250711.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-14 Historic Properties Identified Within and Near the Project Area

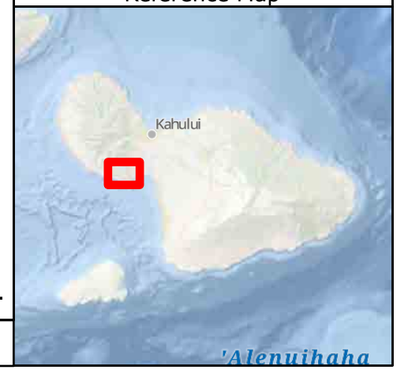
MAUI COUNTY, HI

Note: Historic property locations referenced in this figure are based on information included in relevant archaeological reports, which were georeferenced in relation to the Maui Island TMK shapefile and portions of the M'ālaea Quadrangle 7.5-minute USGS topographic map; as well as, legacy GIS data from the State Historic Preservation Division.

KWP 1 Cultural Impact Assessment (ASM 2025)

* Although the boundary of Site 1287 as contained in the DLNR-SHPD's legacy GIS data appears to intersect with the current Project Area, these boundaries are approximate and cannot be considered to represent the precise locations of any known archaeological features.

Reference Map



NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 3-15
Location of Upland Heiau

MAUI COUNTY, HI

13
14
15
16
17
18
19
20

- Project Area
- Limits of Disturbance
- KWP 1 Existing Wind Turbines

Heiau (SIHP-05232)

- Heiau lines
- Heiau polygons

Heiau Preservation Plan Buffers

- 200-foot Preservation Buffer
- 500-foot Monitoring Buffer

Reference Map



1:4,000

WGS 1984 UTM Zone 4N

0 250 500 1,000 Feet

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

Figure 3-16
Received Sound Levels, KWP 1 Operations

MAUI COUNTY, HI

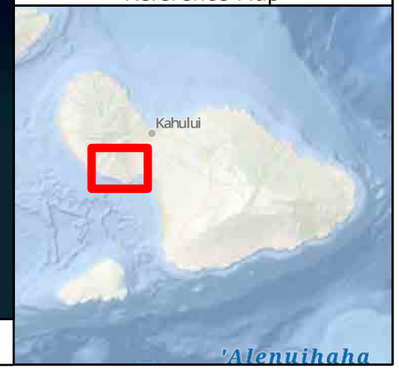
- Study Area
- TMK Boundary
- Local Roads
- O&M Building
- Substation
- Turbine
- Access Roads
- Noise Sensitive Receptors
- Class A Zoning District
- Class B Zoning District
- Class C Zoning District

Sound Level Contours (dBA)

- 45-50
- 50-55
- 55-60
- >60

KWP 1 Acoustic Assessment Report (Tetra Tech 2025d)

Reference Map



1:40,000

WGS 1984 UTM Zone 4N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\EIS_20250410\TerraFormPower_KaheawaPowerI_EIS_11i17i_20250711.aprx

Number of Visible Turbines:

0 | 1 - 3 | 4 - 6 | 7 - 9 | 10+

Lahaina
Kahului
Mā'alaea Harbor
Kihei
Wailea
Makawao
Haleakalā National Park
Honoapi'ilani Hwy
Mokulele Hwy
Haleakalā Hwy
Piilani Hwy

Existing Turbine Locations

0 2.5 5 10 Miles

NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 3-17 Viewshed: Existing KWP 1 Turbines

MAUI COUNTY, HI

KWP 2 EIS [Planning Solutions 2010]

Reference Map



\\ces706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11x17I_20250423.aprx

Kaheawa Wind 1 Continued Use Project

Figure 3-18
Land Ownership

MAUI COUNTY, HI

(2) 4-8-001:010
(2) 3-6-001:052
(2) 3-6-003:001
(2) 3-6-004:008
(2) 3-6-001:015
(2) 3-6-004:007
(2) 4-8-001:002
(2) 3-6-001:018
(2) 4-8-001:001
(2) 3-6-001:014
(2) 4-8-002:042
(2) 3-6-001:053
(2) 3-6-001:042

380
Kuihelani Hwy
N Kihei Rd
310
Maalaea Boat Harbor Rd
Maalaea Rd
Hauoli St
Honoapiilani Hwy
30

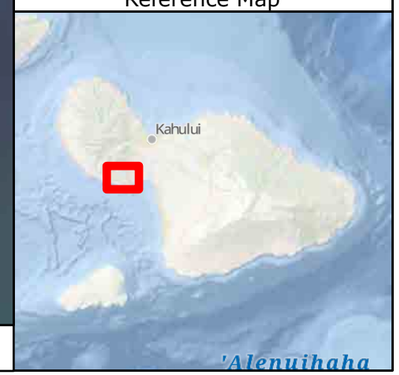
- Project Area
- State Highway
- Local Roads
- TMK Boundary

Land Ownership
- State Ownership
- County Ownership
- Federal Ownership

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186.

Land Ownership (County of Maui, 2022)

Reference Map



1:23,000 WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\CUP_EIS_20250128\TerraFormPower_KaheawaPowerI_CUP_EIS_11i7i_20250423.aprx

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Appendix A. Public Scoping Documents

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Appendix A. Public Scoping Documents

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EISPN

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JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIAʻĀINA

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKAʻOLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
DEPUTY DIRECTOR - WATER

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

October 15, 2024

Mary Alice Evans, Acting Director
Office of Planning and Sustainable Development
c/o Environmental Review Program
235 South Beretania Street, Room 702
Honolulu, Hawaiʻi 96813

SUBJECT: Publication of the Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Kaheawa Wind 1 Continued Use Project Located in Lahaina, Maui, Hawaiʻi, Tax Map Keys: (2) 4-8-001:001, 48-001:010, 3-6-001:052, and 3-6-001:014

Dear Ms. Evans:

With this letter, we hereby submit the Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Kaheawa Wind 1 Continued Use Project involving lands identified as Tax Map Keys (TMKs) (2) 4-8-001:001, 48-001:010, 3-6-001:052, and 3-6-001:014 in the Lahaina District on the island of Maui for publication in the next available edition of The Environmental Notice.

The DLNR has coordinated with the Applicant to determine the appropriate level of environmental review for the proposed action. So as to not overlook any potentially significant impacts to the natural and/or human environment, an Environmental Impact Statement will be prepared pursuant to Hawaiʻi Revised Statutes (HRS) §343-5(e) and Hawaiʻi Administrative Rules (HAR) §11-200.1-14(d)(2).

The required publication form and files have been provided electronically via the "Online Submittal Form" on the Office of Planning and Sustainable Development, Environmental Review Program website. The submittal includes a .pdf file of the EISPN and .zip file containing a shapefile of the project's location boundary.

Should you have any questions, please contact Lauren Yasaka at (808) 587-0431 or lauren.e.yasaka@hawaii.gov.

Sincerely,

Dawn N.S. Chang,
Chairperson RT

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Tuesday, October 15, 2024 10:00:46 AM

Action Name

Kaheawa Wind 1 Continued Use Project

Type of Document/Determination

Environmental impact statement preparation notice (EISPN)

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds
- (2) Propose any use within any land classified as a conservation district

Judicial district

Lahaina, Maui

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

(2) 4-8-001:001, (2) 4-8-001:010, (2) 3-6-001:052, and (2) 3-6-001:014

Action type

Applicant

Other required permits and approvals

Board of Land and Natural Resources approval of state land lease; State Incidental Take License from Department of Land and Natural Resources/Division of Forestry and Wildlife and Federal Incidental Take Permit from U.S. Fish and Wildlife Service, see EISPN for more information

Discretionary consent required

Issuance of State Land Lease (by State of Hawai‘i Board of Land and Natural Resources [BLNR])

Approving agency

State of Hawai‘i Board of Land and Natural Resources

Agency contact name

Lauren Yasaka

Agency contact email (for info about the action)

lauren.e.yasaka@hawaii.gov

Email address for receiving comments

leslie.mcclain@tetratech.com

Agency contact phone

(808) 587-0431

Agency address

Department of Land and Natural Resources, Land Division
1151 Punchbowl Street, Room 220

Honolulu, HI 96813
United States
Map It

Public Scoping Meeting information

October 29, 2024/5:30-7:30 pm Malcom Center, 1305 N. Holopono Street, Suite 5, Kihei, HI 96753

Accepting authority

State of Hawai‘i Board of Land and Natural Resources

Applicant

Kaheawa Wind Power, LLC

Applicant contact name

Molly Stephenson

Applicant contact email

molly.stephenson@brookfieldrenewable.com

Applicant contact phone

(612) 240-9830

Applicant address

200 Liberty Street, 14th Floor
New York, NY 10281
United States
Map It

Is there a consultant for this action?

Yes

Consultant

Tetra Tech, Inc.

Consultant contact name

Leslie McClain

Consultant contact email

leslie.mcclain@tetratech.com

Consultant contact phone

(503) 222-4536

Consultant address

737 Bishop Street, Suite 2000
Honolulu, HI 96813
United States
Map It

Action summary

Continue operation of the existing Kaheawa Wind 1 wind generation facility for an additional 20-year period to provide 30 MW of clean, renewable energy to the island of Maui. No construction or physical

improvements (beyond maintenance activities) are required as part of the proposed Project.

Attached documents (signed agency letter & EA/EIS)

- EISPN_KWP1_Final_10-15-2024.pdf
- ERP-Transmittal-for-KWP1-EISPN-signed.pdf

Action location map

- KaheawaWindPower1_ProjectArea_20241015.zip

Authorized individual

Leslie McClain

Authorization

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

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KAHEAWA WIND 1 CONTINUED USE PROJECT
MAUI, HAWAIʻI

October 2024

I. Project Overview

A. Applicant and Accepting Authority

APPLICANT:

Kaheawa Wind Power, LLC; Address: 200 Liberty Street, 14th Fl, New York, NY 10281; Contact: Molly Stephenson

ACCEPTING AUTHORITY:

State of Hawaiʻi Board of Land and Natural Resources; Address: 1151 Punchbowl Street, Honolulu, HI 96813; Contact: Lauren Yasaka, Planner, Department of Land and Natural Resources Land Division, (808) 587-0431

B. Description of Proposed Action and Location:

Kaheawa Wind Power, LLC (Applicant) proposes the Kaheawa Wind 1 (KWP 1) Continued Use Project (Project or Proposed Action) which involves continued operations of the existing KWP 1 wind generation facility for an additional 20-year period.

KWP 1 is an existing 30-megawatt (MW) wind energy generation facility located in the Kaheawa Pastures area of West Maui, Hawaiʻi. The wind generating turbines and ancillary facilities (e.g., substation, maintenance facility, access roads, and transmission interconnection) are located on approximately 200 acres of Tax Map Keys (TMK) (2) 4-8-001:001, (2) 4-8-001:010, and (2) 3-6-001:052, and the internal access roads and a parking/staging area are granted through access easements (20 feet wide centered on an existing access road, for a total of 8.5 acres) within TMK (2) 3-6-001:014 (Project area). Use of the Project area is secured through a long-term lease from the State of Hawaiʻi Department of Land and Natural Resources (DLNR) (General Lease No. S-5731). The Project location is shown in Figure 1 and the Project TMK boundaries and lease areas are shown in Figure 2.

The existing KWP 1 wind energy generation facility consists of 20 GE 1.5-MW wind-generating turbines, situated in a single articulated row at an elevation extending from approximately 2,000 to 3,200 feet. The height of each turbine tower is 55 meters (180 feet), and the diameter of the rotors is 70.5 meters (231 feet), for a total structural height (maximum blade tip height) of approximately 90 meters (296 feet). Each turbine is set on an approximately 163-square meter (1,752-square foot) foundation. In addition to the turbines the facility includes an operations and maintenance facility, a storage facility, a substation and wind monitoring equipment, all situated in proximity to the turbines. Located within the leased lands is also the substation for the adjacent Kaheawa Wind 2

(KWP 2) wind farm and the associated battery storage facility. The intra-turbine power collection system and connection to the substation are all located underground. Power generated by the facility interconnects with the Hawaiian Electric island-wide grid at the existing Hawaiian Electric switchyard and KWP 1 substation, which connects to the existing Hawaiian Electric 69- kilovolt transmission line that passes directly through the Project area to the south of the KWP 1 substation. KWP 1 is accessed by an existing four-wheel-drive roadway within TMK (2) 3-6-001:014 that leads from Honoapi‘ilani Highway through the existing (separate) KWP 2 wind facility, mauka to the KWP 1 turbines.

The KWP 1 facility has been operating since 2006. The construction and operation of the KWP 1 facility were initially analyzed and described in an Environmental Impact Statement (EIS) which was approved by the Board of Land and Natural Resources (BLNR) on October 8, 1999 (WSB-Hawaii 1999). A subsequent Environmental Assessment (EA) was prepared to analyze proposed changes to the wind farm layout, including a decrease in wind turbines from 27 to 20 and an increase in turbine height. The Final EA was approved by the BLNR on November 8, 2004 (KWP 2004) and the KWP 1 facility was constructed in accordance with the description in the Final EA and began operations in 2006. As stated above, the Proposed Action for the current environmental review process is the continued use of the existing KWP 1 wind generation facility for an additional 20-year period. The Proposed Action would require no construction or physical improvements beyond maintenance activities.

The KWP 1 facility has been operating under a 20-year Power Purchase Agreement (PPA) that is set to expire in 2026. The KWP 1 Continued Use Project was selected by Hawaiian Electric as part of the Maui Stage 3 Request for Proposal (RFP), a competitive bidding process developed by Hawaiian Electric in coordination with the Public Utilities Commission (PUC) to procure renewable energy sources for Maui’s electric grid in response to anticipated energy resource shortfalls identified by the PUC.[1] The KWP 1 Continued Use Project (Proposed Action) would continue to use the existing interconnection with Hawaiian Electric’s island-wide grid and the power would be sold to Hawaiian Electric under a new 20-year PPA that must be approved by the PUC.

The Project/Proposed Action would deliver clean, locally generated energy at substantially less than the cost of fossil fuels, provide essential energy resource diversity, and establish a new community benefits program.

If the Project were to proceed, it would require approval of a new 20-year lease from BLNR as the current DLNR land lease will expire in January 2026. Additionally, KWP 1’s current Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS)

[1] PUC. “RE: Docket No. 2017-0352 - To Institute a Proceeding Relating to a Competitive Bidding Process to Acquire Dispatchable and Renewable Generation - Guidance for Development of Stage 3 Renewable and Dispatchable Generation Request for Proposals on Oahu and Maui.” February 18, 2022. Available at: https://www.hawaiianelectric.com/documents/clean_energy_hawaii/selling_power_to_the_utility/competitive_bidding/04062022_cbre_rfp/20220218_docket_2017-0352.pdf

and Incidental Take License (ITL) from DLNR/Department of Forestry and Wildlife (DOFAW) are set to expire in January 2026; therefore, an amended ITP from USFWS and an amended ITL from DLNR/DOFAW covering the extended period of operations and approval of an associated Habitat Conservation Plan (HCP) are required for the Proposed Action's 20-year extended operation period. More information on the existing lease, permits, and approvals for KWP 1 is included in Section I.D below and a list of required permits and approvals is included in Section I.E below. Once the required environmental review is completed and required permits obtained, the Project could be implemented immediately to meet the anticipated electric grid demands. No construction is required to implement the Proposed Action.

C. Project Purpose and Need

The purpose of the Project is to utilize the existing wind energy infrastructure on land owned by DLNR to continue to provide 30-MW of clean, renewable energy to the island of Maui, thus contributing to the State of Hawai'i's Renewable Portfolio Standard (RPS) energy goals of generating 100 percent of the state's energy from renewable sources by 2045.

The need for the Project is established by Hawaiian Electric's competitive procurement process for locally produced renewable energy (Maui Stage 3 RFP) which responds to the Hawai'i Clean Energy Initiative (HCEI) and the State of Hawai'i's RPS which requires that electric utility companies use renewable energy for the equivalent of 100 percent of net electricity sales by 2045.

D. Background

The BLNR was the Accepting Authority for KWP 1's original 1999 EIS (WSB-Hawaii 1999) and subsequent 2004 EA (KWP 2004) due to the facility involving use of state land and use within a state conservation district. A Conservation District Use Permit (CDUP, MA-3103) was approved by the BLNR on January 24, 2003 and a modification to the permit was approved by the BLNR on June 24, 2005. A Special Management Area (SMA) minor permit was issued by the County of Maui in 2005 for construction of a driveway apron and parking lot improvements on TMK (2) 3-6-001:014 within the SMA (near Honoapi'ilani Highway) for the KWP 1 access road. Following completion of the Hawai'i Revised Statutes (HRS) 343 review process and issuance of the CDUP, the BLNR granted a 20-year lease for the use of state lands on February 22, 2005 (General Lease S-5731). In addition, KWP 1 was issued an ITP from the USFWS and an ITL from DLNR DOFAW on January 30, 2006. The ITP and ITL each have a term of 20 years and were most recently amended in 2016.

The KWP 1 facility began commercial operations on June 22, 2006 and based on the existing 20-year PPA approved by the PUC, is currently planned to operate until June 21, 2026.

E. Required Permits and Approvals

Although the Proposed Action would not require any physical changes to the existing KWP 1 facility, certain discretionary permits/approvals are anticipated to be required for implementation of the proposed project. The following is a preliminary list of permits and approvals anticipated to be required:

- Federal:
    - National Environmental Policy Act compliance by USFWS for the federal action of issuance of an ITP under Section 10(a)(1)(B) of the federal Endangered Species Act.
    - National Historic Preservation Act Section 106 compliance by USFWS for the federal action of issuance of an ITP.
    - Endangered Species Act compliance through USFWS issuance of an amended ITP and approval of a Habitat Conservation Plan (HCP) for the 20-year extended operational period.
- State:
    - BLNR approval of a land lease for approximately 20 years, coterminous with the KWP 1 Stage 3 PPA;
    - HRS Chapter 343 EIS to review the Applicant's use of State lands and land within the conservation district[2] for the proposed Project;
    - HRS Chapter 6E, Historic Preservation Compliance;
    - HRS Chapter 195D-21, HCP, including BLNR approval of a HCP and issuance of an amended ITL from the DLNR DOFAW for the 20-year extended operational period.
- County of Maui:
    - No permit identified[3].

The Applicant is currently working with DOFAW and USFWS on the preparation of a Draft HCP to support their request for an amended and extended ITL and ITP, in parallel

[2] The KWP 1 facility is located within the state conservation district. However, the facility's existing CDUP does not have an expiration date and is not anticipated to require modifications for the Proposed Action.
[3] The Project area is located in County Agriculture (AG) zone; however, as the Project area is within the State Conservation District, pursuant to HRS §205-5, land use is governed by DLNR therefore no county zoning permits are required. A portion of the Project's access road is located in the SMA. An existing SMA minor permit (SM2 2005/0029) was issued by the County of Maui in 2005 for construction of a driveway apron off Honoapiʻilani Highway for the KWP 1 access road on TMK (2) 3-6-001:014. As no changes to this access road and driveway are proposed, the Applicant does not anticipate an SMA permit modification or new SMA would be required. As no new structures or ground disturbance is proposed, no county building permits are anticipated.

with the HRS Chapter 343 EIS process. The Draft HCP will address four state and federal listed species that have the potential to be impacted by the Proposed Action during the 20-year extended operation of the Project (Covered Species). These are the same species covered by the existing ITL and ITP for the KWP 1 facility and include:

- ʻŌpeʻapeʻa or Hawaiian hoary bat (*Lasiurus cinereus semotus*);
- Nēnē or Hawaiian goose (*Branta sandvicensis*);
- ʻAʻo or Newell's shearwater (*Puffinus newelli*); and
- ʻAaʻu or Hawaiian petrel (*Pterodroma sandwichensis*).

The Draft HCP will be published for public review. Based on the analysis conducted for the Draft HCP, the EIS will consider impacts to the Covered Species along with other potential impacts from the Proposed Action.

F. Determination and Reasons Supporting the Determination

The State of Hawaiʻi DLNR has determined that the Applicant's use of State lands and land within the conservation district for the Proposed Action is subject to review under HRS Chapter 343 and has further determined, through its judgement and experience, that an EIS is likely to be required. BLNR will be the accepting authority for the EIS, which will be prepared by the Applicant in compliance with HRS Chapter 343 and Hawaiʻi Administrative Rules (HAR) Chapter 11-200.1. The authorizations that the Applicant is requesting have the potential to have significant effects on covered species because the requested authorizations would allow the incidental take of species listed as endangered or threatened under the federal Endangered Species Act and HRS Chapter 195D. Therefore, DLNR has authorized the Applicant to prepare an EIS without first preparing an EA.

II. Anticipated Scope of the Draft EIS

The Draft EIS will provide detailed information describing the purpose and need for the Project, a detailed description of the Proposed Action, a detailed description of the affected environment, a comprehensive analysis of the potential environmental consequences of the Proposed Action, and a detailed discussion of the alternatives to the Proposed Action. It will also disclose any significant short-term, long-term, and cumulative impacts on the human, natural, and built environment. The scope of the EIS will be informed by comments received on this Environmental Impact Statement Preparation Notice (EISPN) in accordance with HAR Chapter 11-200.1-23.

The following environmental resources have been tentatively identified for analysis in the Draft EIS:

- Air Quality
- Climate and Climate Change

- Geology and Topography
- Soils
- Surface and Ground Water
- Natural Hazards
- Hazardous Materials and Wastes
- Flora
- Fauna
- Historical and Archaeological Resources
- Cultural Resources
- Noise
- Visual Resources
- Land Use
- Transportation and Traffic
- Public Services and Utilities
- Socioeconomic Characteristics
- Secondary and Cumulative Impacts

Once prepared, the Draft EIS document will be reviewed by DLNR, published in the Office of Planning and Sustainable Development, Environmental Review Program's (ERP) *The Environmental Notice* bulletin and made available for a 45-day public review and comment period. Following this review process, the Applicant will prepare a Final EIS document responding to comments received on the Draft EIS.

III. Description of the Affected Environment and Scoping of Potential Impacts

The affected environment of many of these resources are anticipated to be commensurate with those described in the original 1999 EIS (WSP-Hawaii 1999) and 2004 EA (KWP 2004). However, some of these resources may have changed since the original environmental analysis and the Draft EIS for the Project will examine these pertinent features of the physical and natural environment. Existing data will be compiled from past environmental studies, and new studies will be completed to address the potential impacts within several resource areas, as needed. To inform the scoping process, this section provides a high-level description of the setting, or affected environment, in the Project vicinity. More detailed information and an analysis of potential impacts will be provided in the Draft EIS for each resource.

A. Air Quality

In general, the existing air quality in the vicinity of the Project area is good because of the low levels of development and automobile emissions and exposure to prevailing trade winds that help disperse the accumulation of emissions. The Project is not located within a Environmental Protection Agency designated non-attainment area. Sources of pollutant air emissions in the vicinity include vehicle exhaust from Honoapiʻilani Hwy/Hawaiʻi Route 30, dust from agricultural cultivation and construction, occasional smoke from wildfires, and emissions from the Maui Electric Company Ltd.'s Maʻalaea Generating Station located approximately 4 miles east-southeast of the Project area. The existing KWP 1 facilities does not contribute new air emissions, with the exception of vehicles driving to and from the facility for operations and maintenance.

The EIS for the Project will provide additional information and analyze potential impacts to air quality.

B. Climate and Climate Change

The Hawaiian Islands have a tropical climate, characterized by relatively mild temperatures and moderate humidity throughout the year (except at high elevations), persistent northeasterly trade winds, notable differences in rainfall across short distances, and infrequent, severe storms. Two primary seasons are recognized, including a 5-month summer season (May through September) when northeasterly trade winds are prevalent, and a winter period between October and April (Giambelluca and Schroeder 1998). Summer is typically warmer and drier than winter, with few storm events. Winter is characterized by more frequent cloud cover and rainfall as well as southerly and westerly winds (Giambelluca and Schroeder 1998). Due to the tempering influence of the surrounding Pacific Ocean and their low-latitude location, the Hawaiian Islands experience extremely small diurnal and seasonal variations in ambient temperature.

Local climate conditions in Hawaiʻi are influenced by its rugged, mountainous topography and the persistent flow of the trade winds (Giambelluca and Schroeder 1998). The proposed Project is located on the leeward side of the island of Maui. Mean annual rainfall in the Project area ranges from 14.23 inches to 71.91 inches, from lower elevation entrypoint off Honoapiʻilani Hwy to the uppermost portion of area, respectively (Giambelluca et al. 2014). Relatively higher rainfall typically occurs in winter months between November to March (Giambelluca et al. 2014).

In this vicinity, moisture zones are described as ranging from arid at the lowermost point of the Project area (i.e. the access road driveway) to very dry, dry, and seasonal mesic, in ascending order with increasing elevation throughout the Project area (Price et al. 2012). The daytime temperatures average in the 70s to 80s degrees Fahrenheit and nighttime temperatures in the 60s to 70s degrees Fahrenheit (Giambelluca et al. 2014). The prevailing wind direction is from the east.

The existing KWP 1 facility contributes a minor amount of greenhouse gases to the environment in the form of exhaust from vehicles traveling to and from the site. However, the continued operation of the KWP 1 facility would result in fewer greenhouse gas emissions than if the same energy were produced by fossil fuel power sources.

The EIS for the Project will provide additional information and analyze potential impacts to the climate and climate change.

C. Geology and Topography

The Project is located on the southwestern slope of the West Maui shield dome volcano on the dry leeward side of the island of Maui. The Project area and vicinity is underlain by basaltic and silicious rocks known as the Wailuku Volcanics (1.3 – 2.0 million years old) and Honolua Volcanics (1.1 – 1.3 million years old), respectively (Stearns and Gordon 1942). The Wailuku basalts are highly permeable and characterized by swarms of dikes that confine water at higher elevations. The Honolua rocks are relatively less porous and poor conductors of water (Stearns and Gordon 1942).

The Project is located on a narrow band of land running mauka to makai between Manawainui Gulch and Papalaua Gulch; the terrain within the Project area slopes downward, an average of 8-percent, toward the coastline (WSB-Hawaii 1999). Other notable topographic features in the vicinity of the Project area are Kealaloloa Ridge and two dome-shaped hills, or puʻu, located to the east (Puʻuanu and Puʻumoe), Puʻuluau and Pōhakuloa downslope of the Project area, and the gulches and ridges of West Maui Forest Reserve to the west. Topography within the Project area has been modified from previous land uses including the construction and operation of the existing KWP 1 wind facility.

The EIS for the Project will provide additional information and analyze potential impacts to geology and topography.

D. Soils

Soils in the Project area are derived from the volcanic history of the island and subsequent erosional processes. According to the U.S. Department of Agriculture Web Soil Survey (NRCS 2019), there are six soil associations in the area of proposed Project facilities: Naiwa silty clay loam, 3 to 10 percent slopes (51%); Olelo silty clay, 3 to 15 percent slopes (13%); Oli silt loam, 3 to 10 percent slopes (23%); rock land (3%); rock outcrop (<1%); and rough broken and stony land (10%).

According to the Soil Survey of the State of Hawaiʻi (Foote et al. 1972), these soil types are generally not suited to mechanized production of common field crops without special management; hence their agricultural usefulness is limited to pasture and wildlife habitat. In addition, the lands in the Project area exhibit properties such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, and drought that exclude them from being classified as prime or unique farmland.

Soils within the Project area have been disturbed from previous land uses including the construction and operation of the existing KWP 1 wind facility.

The EIS for the Project will provide additional information and analyze potential impacts to soils.

E. Surface and Ground Water

The Project area is primarily within the boundaries of the Island of Maui aquifer system area of Ukumehame (aquifer code 60206, as designated by the State of Hawai‘i Commission on Water Resource Management [CWRM]) while the access road is within the Waikapū aquifer system (aquifer code 60101, as designated by CWRM). The Ukumehame aquifer system is located in the Lahaina Aquifer Sector which since 2022 has been designated by CWRM as a Ground Water Management Area (CWRM 2022).

There are no perennial streams or wetlands within the Project area. According to the National Hydrography Dataset and National Wetlands Inventory data, two surface water features intersect portions of the Project's access road (USFWS 2022a, USGS 2022a). Malalowaia‘ole Gulch, an intermittent stream, parallels a portion of the Project's access road (east of the access road) and passes under the access road near the road's entry point off Honoapi‘ilani Highway. An unnamed stream in Manawainui Gulch originates northeast of the Project area, parallels a portion of its eastern boundary and passes under the Project's access road, and continues southwest to the Pacific Ocean. NWI and NHD characterize both of these streams as intermittent and seasonally flooded (USFWS 2022a, USGS 2022a).

Relative to the coastline, the Project area is approximately 200-feet from the shoreline at its lowest elevation near McGregor Point, near the Project's entry point, and is approximately 4-miles distant from its uppermost elevation point. Near shore marine waters off the coast near McGregor Point are classified as class "A" by the Hawaii Department of Health (HDOH) (Office of Planning 2020). According to HDOH Water Quality Standards, Class "A" waters are described as "waters that their use for recreational purposes and aesthetic enjoyment be protected" (HAR 11-54-03).

The existing KWP 1 facility includes impervious and semi-impervious surfaces, which contributes to a minor increase in stormwater runoff and does not measurable reduce groundwater recharge. The impermeable surfaces are widely scattered and stormwater runoff from them is not concentrated and flows onto adjacent permeable areas. The KWP 1 facility employs stormwater best management practices (BMPs) and vegetation management to minimize erosion and sedimentation. Water needed for operations is periodically trucked into the Project area.

The EIS for the Project will provide additional information and analyze potential impacts to surface and ground water resources.

F. Natural Hazards

A natural hazard is a naturally occurring event that could negatively affect people, infrastructure, and/or the environment. Many natural hazards can be triggered by another event, though they may occur in different geographical locations; for example, an earthquake can trigger a tsunami in an entirely different geographic area. Natural hazards that can affect Hawai‘i include tsunamis, flooding, hurricanes and tropical storms, earthquakes, volcanic eruptions, and wildfire.

Potential flood hazards are identified by the Federal Emergency Management Agency National Flood Insurance Program and are mapped on Flood Insurance Rate Maps. The maps classify land into zones depending on the potential for damage and inundation during flood events. The Project area is mapped by Flood Insurance Rate Maps as being located entirely within Zone X (FEMA 2021). Zone X includes areas determined to be outside the 0.2-percent-annual-chance (or 500-year) floodplain. No base flood elevations or depths are shown within this zone.

Tsunamis are large, rapidly moving ocean waves triggered both by disturbances around the Pacific Rim (i.e., teletsunamis) and by earthquakes and landslides near Hawai‘i (i.e., local tsunamis). No portion of the proposed Project is in the Civil Defense Tsunami Evacuation Zone (NOAA 2015).

The Hawaiian Islands are seasonally affected by Pacific hurricanes from the late summer to early winter months. The Central Pacific Hurricane season runs from June 1 to November 30. Hurricanes are relatively rare in Hawai‘i; only five hurricanes have caused serious damage to the main Hawaiian Islands since 1950 (NOAA 2023). No recorded hurricane has made landfall on the Island of Maui, although Hurricane Estelle (in 1986) affected Maui through high winds and surf (Businger 1998) and Hurricane Dora played an indirect meteorological role in the devastating wildfires on Maui in 2023 (NOAA 2023). Tropical storms are similar to hurricanes, except that the sustained winds are below 74 miles per hour (Businger 1998). These events can also produce torrential rains. Tropical storms occur more frequently in Hawai‘i than hurricanes and typically pass sufficiently close to Hawai‘i every 1 to 2 years to affect the weather and cause serious damage in some part of the islands.

Earthquakes in Hawai‘i are often linked with volcanic activity and the majority occur on and around the Island of Hawai‘i associated with its presently active volcanoes of Kīlauea, Hualālai, and Mauna Loa, and Kama‘ehuakanaloa off the coast (USGS 2022b). Numerous small volcanic earthquakes are triggered by eruptions and magma movement within these active volcanoes. The entire island of Maui is in seismic zone 2B, in which a g-force of 0.15g to 0.20g is expected to occur once every 50 years (USGS 1997).

Emissions of volcanic gases, such as sulfur dioxide, can react with oxygen and atmospheric moisture to produce volcanic smog (also known as vog) and acid rain (USGS 2017). Volcanic gases are emitted not only during all types of eruptions, but can also be released by inactive eruptive vents and fumaroles. Volcanic smog can increase

air pollution, decrease visibility and pose a health hazard by aggravating pre-existing respiratory conditions. Emissions of volcanic sulfur dioxide can also combine with water to form sulfuric acid which poses hazards to human health and can harm structures made of metal and other materials (USGS 2017).

Wildfires have resulted in extensive damage to life and property and pose an ecological threat to endemic flora and fauna in the Hawaiian Islands (DLNR 2016). With the cessation of cattle-grazing in the West Maui Mountains, a number of grass and weed species have proliferated, creating a heightened fire hazard. Furthermore, high wind and low relative humidity can create Red Flag conditions[4] that can set the stage for wildfire events, such as what happened with the Lahaina Fire in 2023 (Kerber and Alkonis 2024).

In the Project area vicinity, a large fire swept across the mountain in 1999 and again in 2006 (after the KWP I facility commenced operation), which affected a large portion of the West Maui Mountains from the coastal highway to the existing facility (Planning Solutions, Inc. 2010). The existing KWP 1 facility was not the cause of the fire, and the wind farm equipment was protected from damage by multiple firebreaks constructed by KWP 1 staff and by extensive watering. The roadways constructed for the KWP 1 project were instrumental in providing firefighting crews access to the fire line (Planning Solutions, Inc. 2010). On-site fire-fighting resources at the existing KWP 1 facility include fire extinguishers in the operations and maintenance (O&M) building, at the substation, and in all project vehicles, as well as shovels and backpack pumps in the O&M building and maintenance vehicles. The existing facility also maintains graveled, vegetation free buffers around the O&M building, the substation, and the WTG foundation pads. There is a minor risk of potential wildfires during operations due to the use of vehicles and electrical equipment. The turbines and other facilities that would be present for the operating life of the facility do not contain equipment or involve activities that represent an unusual fire hazard. If a fire does occur on (or spreads to) the KWP 1 facility, some equipment damage is possible but is not expected to be significant. The towers supporting the turbines are steel, mounted on concrete foundations; the interconnecting electrical systems are below ground. The axillary operations and maintenance facilities are constructed of noncombustible construction and exterior finishes.

The EIS for the Project will provide additional information and analyze potential impacts to and from natural hazards.

G. Hazardous Materials and Wastes

Phase I Environmental Site Assessments (ESA) for KWP 1 were completed in 2005 and again in 2007, once the facility was in operation (Vuich Environmental Consultants 2005, Malama Environmental, LLC 2007). The 2005 Phase I ESA identified a few products of

[4] Red Flag Warnings are issued by the National Weather Service and mean warm temperatures, very low humidities, and stronger winds are expected to combine to produce an increased risk of fire danger.

concern relating to any future development project or land-clearing activity (Vuich Environmental Consultants 2005). These consisted of earthen material (silt), paints, oils, antifreezes, and other fluids from automobile or on-site machinery, or leaks from on-site stocked items. All of these were present in small quantities and were determined not to constrain use of the area.

Operation of the existing KWP 1 facility requires storage of small quantities of several materials that require special handling and storage. These include mineral oil, hydraulic oil, waste oil, and cleaner/degreaser. These materials are presently stored in three container areas on the site: (1) the existing O&M building, (2) the 20 wind turbine sites; and (3) the existing substation. A Spill Prevention, Countermeasure, and Control Plan is in place for the facility and is updated every five years. The 2007 Phase I ESA report noted that regulated wastes and petroleum products are effectively managed on-site, and that secondary containment of petroleum-based wastes and effective spill management have been implemented in the daily operations of the facility (Malama Environmental, LLC 2007). Further, it noted that petroleum-based wastes and all other regulated wastes generated on-site are being properly managed and disposed of by certified waste contractors.

The EIS for the Project will provide additional information and analyze potential impacts from hazardous materials and waste.

H. Flora

Vegetation at the Project location is dominated by non-native species and consists of primarily non-native grasslands and shrublands in the lower elevation areas, and a mixture of non-native grasslands and predominately native shrublands in the uppermost elevations above 915 meters (3,000 feet). Native shrubland vegetation consists of low stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻulei (*Osteomeles anthyllidifolia*), and uluhe fern (*Dicranopteris linearis*). Vegetation has been disturbed from historic grazing, particularly in the mid- to lower elevations of the Project area, and construction and operation of the existing wind facility; vegetation is currently managed within the wind facility and along access roads using mechanical and chemical methods (KWP 2024). Native vegetation appears to become increasingly more dominant mauka of the Project area toward the summit of Mauna Kahālāwai (Jacobi et al. 2017).

Listed Plant Species

No listed or otherwise rare plant species have been recorded in the Project area in previous surveys for the existing wind farm (Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b). Additionally, no listed plant species or rare plants have been observed at the existing wind farm during operations or post-construction monitoring over the last 16 years (DOFAW n.d.).

Critical Plant Habitat

Although no listed plant species are known to occur in the Project area, USFWS have designated critical habitat for 28 listed plant species within the Project area. Montane Mesic Unit 5 encompasses approximately 11 acres of the northernmost portion of the Project area and is designated critical habitat for 10 listed plant species. The unit was only occupied by two of the species, *Remya mauiensis* and *Santalum haleakalae* var. *lanaiense*, at the time of designation (USFWS 2016). None of the 10 listed species with critical habitat in Montane Mesic Unit 5 occur in the Project area.

Lowland Dry Unit 5 encompasses approximately 98 acres of the Project area and is designated critical habitat for 18 listed species. At the time of designation, this unit was occupied by nine of the species: *Asplenium dielerectum*, *Bidens campylotheca* subsp. *pentamera*, *Cenchrus agrimonioides, Gouania hillebrandii, Kadua coriacea, Remya mauiensis, Santalum haleakalae* var. *lanaiense*, *Spermolepis hawaiiensis,* and *Tetramolopium capillare* (USFWS 2016). However, none of the 18 listed species with critical habitat in Lowland Dry Unit 5 occur in the Project area. The DOFAW Manawainui Plant Sanctuary, which is situated in Lowland Dry Unit 5 and located adjacent to the upper eastern boundary of the Project area, harbored two listed plant species, *Remya mauiensis* and *Asplenium dielerectum*, at the time of critical habitat designation (USFWS 2016).

BMPs and minimization measures for vegetation currently occurring as part of the KWP 1 project operations include the following:

- Minimizing the introduction and spread of invasive species associated with Project operations through the implementation of standard BMPs, such as washing equipment prior to entering the site from other areas.
- Implementing a Vegetation Management Plan to prevent the establishment of weeds within the Project area, including vegetation maintenance around turbine pads and relevant areas to eliminate any nēnē foraging attractions of new growth.
- Implementing a Wildland Fire Prevention and Response Plan to minimize fire impacts to vegetation.

The EIS for the Project will provide additional information and analyze potential impacts to flora in the Project vicinity.

I. Fauna

The primary habitat in the Project area is non-native grassland and woody shrubs, with a mix of non-native grasslands and native shrublands in the uppermost elevations above 915 meters (3,000 feet). No unique habitats or ecosystems occur in the Project area. The natural resources and ecosystems in the Project area are mostly disturbed from past land use and, in part, due to the construction and operation of the existing wind

facility. Wildfires, including a recent fire in 2019, have further transformed the habitats and ecosystems in the area. The Project area does not support any perennial streams or wetlands (see Section III.E).

The Project area provides habitat for both native and introduced wildlife. On-site knowledge of these species is well-known given years of post-construction monitoring and other HCP compliance activities in the Project area vicinity (KWP 2024). The Project area includes an operating wind facility and much of the area around the turbine pads and the site access roads is disturbed from the ongoing use. Non-native species documented are those common in lowland and mid-elevation environments, including avian species Eurasian skylark (*Alauda arvensis*), ring-necked pheasant (*Phasianus colchicus*), black francolin (*Francolinus francolinus*), gray francolin (*Ortygornis pondicerianus*), African silverbill (*Euodice cantans*), and house finch (*Carpodacus mexicanus*), and mammals such as mice (*Mus musculus*), rats (*Rattus* spp.), mongoose (*Herpestes javanicus*), feral cats (*Felis catus*), dogs (*Canus familiaris*), and axis deer (*Axis axis*) (DOFAW n.d., KWP 2006, KWP 2024).

Several indigenous birds protected by the Migratory Bird Treaty Act (MBTA) are known to or have the potential to occur in or fly through the Project area; these include (but are not limited to) the Pacific golden plover/kōlea (*Pluvialis fulva*), wandering tattler/ʻūlili (*Heteroscelus incanus*), white-tailed tropicbird/koaʻe kea (*Phaethon lepturus*), sooty tern/'ewa'ewa (*Sterna fuscata*), wedge-tailed shearwater/ʻuaʻu kani (*Puffinus pacificus*), and the endemic Hawaiian short-eared owl/pueo (*Asio flammeus sandwichensis*) (Nishibayashi 1997, Nishibayashi 1998, KWP 2006, KWP 2024). The Hawaiian short-eared owl has the potential to forage in or traverse the Project area; it is not a listed species on Maui but is state listed as endangered on the island of Oʻahu and has been found as a fatality at the Project. Additional MBTA-protected species that have been introduced to the Hawaiian islands and are known to occur in the Project Area include (but are not limited to) the barn owl (*Tyto alba*) and northern mockingbird (*Mimus polyglottos*).

Four federally and state-listed wildlife species have the potential to occur or use habitat in the Project area: the Hawaiian hoary bat/ʻōpeʻapeʻa (*Lasiurus cinereus semotus*), Hawaiian goose/nēnē (*Branta sandvicensis*), Hawaiian petrel/ʻuaʻu (*Pterodroma sandwichensis*), and Newell's shearwater/ʻaʻo (*Puffinus newelli*) (KWP 2006). Additionally, based on the Project location, two other listed species have the potential to occur in or transit the Project area or its vicinity—the band-rumped storm-petrel/ʻakēʻakē (*Oceanodroma castro*), and Blackburn's sphinx moth (*Manduca blackburni*). These listed species are discussed in further detail below.

Hawaiian hoary bat (ʻōpeʻapeʻa)

The endangered Hawaiian hoary bat has been recorded in the Project area and vicinity. Acoustic monitoring using detectors has been on-going within the existing wind farm since 2008 and intensive fatality monitoring has occurred since operations began in

June 2006 (KWP 2024). Results of acoustic monitoring show a significant increasing trend in detection rates across years (2015 to 2024), with bat activity detected on 5.4 percent of detector nights sampled during the period from July 2023 through June 2024 (KWP 2024). The Hawaiian hoary bat roosts in both native and non-native trees over 15 feet tall and forages over a wide variety of habitats and elevational ranges (Bonaccorso et al. 2015, USFWS 2021). USFWS and DOFAW recognize all woody vegetation greater than 15 feet tall as potential bat roosting habitat (DOFAW 2015, USFWS 2022b). Although trees are not abundant within the Project area, trees over 15 feet are present (e.g., Christmas berry [*Schinus terebinthifolia*] and ironwood [*Casuarina equisetifolia*]) and have the potential to be used for roosting and foraging. A total of 13 Hawaiian hoary bats have been found as fatalities at the Project, and low-wind speed curtailment was implemented as a minimization measure in 2014 and is in place annually from February 15 through December 15. Cumulative take through June 2024 is estimated at less than or equal to 32 Hawaiian hoary bats (1.78 bats per year; KWP 2024). KWP I has mitigated for the take of up to 50 Hawaiian hoary bats. Updated Hawaiian hoary bat fatality modeling will be completed as part of the HCP process for continuing operations of the existing facility, using KWP 1 post-construction monitoring data.

Hawaiian goose (Nēnē)

Nēnē (*Branta sandvicensis*) is listed as threatened by the USFWS and endangered by DOFAW. Nēnē have been regularly observed and documented within the Project area (KWP 2024), and active breeding has been recorded on-site (Tetra Tech, Unpublished Data). The Hana‘ula nēnē release pen (no longer in use by DOFAW) exists 0.34 miles to the northwest of the Project’s highest elevation point (KWP 2006). Nēnē have been observed to seek cover and nest under on-site vegetation, and to fly through or within the vicinity of the Project area in transit to and from areas with known populations. In addition to having strong breeding site fidelity, nēnē appear to be attracted to habitat features that are within the site, such as woody vegetation. Nēnē is a Covered Species under the HCP of the existing KWP 1 wind farm and 37 nēnē have been detected as fatalities during regular downed wildlife monitoring that occurs at the wind farm as part of HCP compliance or incidentally (KWP 2006, KWP 2024). Cumulative take through June 2024 is estimated at less than or equal to 55 nēnē (3.06 nēnē per year; KWP 2024). KWP 1 has mitigated for 45.4 nēnē and is currently expanding its mitigation activities for this species. Updated nēnē fatality modeling will be completed as part of the HCP process for continuing operations of the existing facility, using KWP 1 post-construction monitoring data.

Listed Seabirds

The endangered Hawaiian petrel/ ‘ua‘u, the threatened Newell’s shearwater/ ‘a‘o, and the endangered band-rumped storm-petrel/ ‘akē‘akē (collectively referred to as listed seabirds) have been observed within or transiting the Project area (‘ua‘u and ‘a‘o) or have the potential to occur (‘āke‘āke). Suitable nesting habitat does not exist in the Project area. However, because suitable nesting habitat exists in nearby areas at upper

elevations, it is possible these birds could fly over the Project area at night while transiting between nest sites and the ocean during the breeding season. Results from radar and night-visual surveys during the fledging period observed low numbers of both the Hawaiian petrel and Newell's shearwater regularly flying over the Project area to and from their nesting sites in the uplands of the West Maui mountains (Cooper and Day 2004). A total of eight Hawaiian petrel fatalities have also been detected during monitoring at the existing wind farm with an estimated cumulative take of 23 petrel (1.28 petrel per year) and has mitigated for more than 38 petrel (KWP 2024). No Newell's shearwater or band-rumped storm petrel have been observed as fatalities (KWP 2024).

There are an estimated 1,600 breeding pairs of Hawaiian petrel on the island of Maui, the majority of which may reside within Haleakalā National Park, which recorded 1,500 pairs by the 2010s with another 100 pairs in West Maui (as cited in Pyle and Pyle 2017). Newell's Shearwater have been documented breeding at the Makamaka'ole mitigation site in West Maui. Band-rumped storm petrel have not been observed at the site, and while suspected of breeding on Maui have not been confirmed (as cited in Pyle and Pyle 2017). Updated seabird fatality modeling for the Hawaiian petrel and Newell's shearwater will be completed as part of the HCP process for continuing operations of the existing facility, using KWP 1 post-construction monitoring data.

Blackburn's Sphinx Moth

The endangered Blackburn's sphinx moth occurs in dry to mesic areas on the islands of Maui, Hawai'i, and Kaho'olawe. Larvae of the Blackburn's sphinx moth feed on plants in the nightshade family (Solanaceae), including two listed 'aiea (*Nothocestrum*) species and the non-native tree tobacco (*Nicotiana glauca*). (USFWS 2005). Larvae take 65 days to develop to adulthood, but pupae may remain in torpor in the soil for up to a year. Adult moths are believed to feed on several native plant species, including hala pepe (*Pleomele auwahiensis*), maiapilo (*Capparis sandwichiana*), 'ilie'e (*Plumbago zeylanica*), and koali'awa (*Ipomea indica*) (USFWS 2003, USFWS 2005).

The native, larval host plants for Blackburn's sphinx moth (which are considered primary constituent elements required by the moth larvae for foraging, sheltering, maturation, and dispersal [USFWS 2003]) do not occur in the Project area. The non-native tree tobacco, one of its host plants, is common in disturbed lowland dry areas on Maui. While the non-native tree tobacco has rarely been observed in the Project area, current operation staff remove tree tobacco under 3 feet (according to agency guidelines; USFWS 2022b) to prevent attracting Blackburn's sphinx moth. By implementing this avoidance and minimization measure provided by USFWS, Blackburn's sphinx moth is unlikely to occur in the Project area.

Wildlife Critical Habitat

Critical habitat has been designated by the USFWS within the Project area for two endangered forest bird species—the crested honeycreeper/'akohekohe (*Palmeria dolei*)

and Maui parrotbill/kiwikiu (*Pseudonestor xanthophrys*) (USFWS 2016). Montane Mesic – Unit 5 encompasses approximately 11 acres of the northernmost portion of the Project area, and is unoccupied critical habitat for the crested honeycreeper and Maui parrotbill. Neither of these forest bird species are known to occur within or near the Project area. Additional critical habitat for these two birds occurs in the vicinity of the Project area including in Lowland Mesic – Unit 3 to the northwest and Wet Cliff – Unit 6 and Montane Wet –Unit 7 to the north (USFWS 2016).

Habitat Conservation Plan and Avoidance, Minimization, Mitigation

The Project would utilize over 18 years of post-construction monitoring data from implementation of the HCP for the existing wind farm to assess risk to listed species. A new HCP is currently being prepared to address potential impacts to listed species in the Project area as part of the continued use of the KWP 1 wind project (i.e. the Proposed Action) and will include mitigation measures for any authorized take.

General BMPs that may be implemented to minimize and avoid impacts to listed wildlife species include avoiding the use of nighttime lighting that could attract seabirds, and the use of operational on-site lighting at Project facilities known to minimize attraction. The Project would continue to avoid creating areas with standing water and would continue to manage woody vegetation to minimize attracting the Hawaiian goose. The Project would avoid trimming or removal of vegetation taller than 15 feet (4.6 meters) between June 1 and September 15, when juvenile Hawaiian hoary bat that are not yet capable of flying may be roosting in the trees and fitting any fences that are erected as part of the Project with barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. Additionally, to minimize impacts on Hawaiian hoary bat the Project would continue to implement low wind speed curtailment, and would also explore bat deterrents or other new technologies that may be available during the life of the project. Additional measures are expected to include (but may not be limited to) contractor training and education, and stop work requirements if a listed species is observed on site during construction or operations.

The EIS for the Project will provide additional information and analyze potential impacts to fauna in the Project vicinity.

J. Historical and Archaeological Resources

HRS Chapter 6E, Historic Preservation, requires the identification, evaluation, and assessment of adverse effects of State and local undertakings on cultural resources. Implementation of these requirements is accomplished by HAR 13-198, the Hawai'i Register of Historic Places and National Register of Historic Places programs, and HAR 13-276, Rules Governing Standards for Archaeological Inventory Surveys and Reports.

An archaeological survey was performed as part of the final EIS (WSB-Hawaii 1999) by Archaeological Research Institute, Inc. (Tomonari-Tuggle 1998). The project site is located in the ahupua'a of Ukumehame, which is part of the Lāhainā moku (DTL 2023). As no changes to the existing KWP 1 infrastructure are proposed and no ground

disturbance is proposed, impacts to historic and archaeological resources are not anticipated.

The KWP 1 CDUA permit requires preservation of Heiau 5232, which is located in the general vicinity of the facility site but a notable distance from any development. The existing access roadway crosses the historic Lahaina Pali Trail. At its closest point, the Lahaina Pali Trail is situated approximately 3,000 feet (more than one-half mile) from the closest wind turbine.

The EIS for the Project will provide additional information on historic and archaeological resources and will analyze potential impacts to these resources.

K. Cultural Resources

A Cultural Impact Assessment is being conducted by the Applicant and will be incorporated into the Draft EIS. A cultural brief was prepared by DTL on behalf of the Applicant and is available on the Applicant's website for review (DTL 2023).

According to the cultural brief, the Project area's most significant cultural and historical resource is an ancient trail that formed part of a larger ancient roadway, sections of which were paved with stone, that was known as Ke Alaloa. Near its highest elevation point, the trail intersects with the ridge line along which the KWP 1 wind turbines are situated (DTL 2023). It's not clear whether the trail that traverses the project site predates Ke Alaloa, but it served as the most direct land route between Lāhainā and Wailuku and was colloquially referred to as the "pali trail" ("pali" is Hawaiian for cliff)(DTL 2023). In circa 1900, a one-way dirt road was built closer to the base of the cliffs, at which point the pali trail fell out of use (DTL 2023). Today, the trail serves as a recreational hiking trail and is managed by Nā Ala Hele, the State of Hawai'i's trail and access program.

Many species of birds and bats that occur in the vicinity of the Project are recognized as culturally important. The native animal species that have been impacted by the wind turbines at Kealaloloa are well documented. The four state and federally-listed species covered in the KWP 1 HCP approved in January 2006, the 'ōpe'ape'a (Hawaiian hoary bat or *Lasiurus cinereus semotus*), the 'ua'u (Hawaiian petrel or *Pterodroma sandwichensis*), the 'a'o (Hawaiian shearwater or *Puffinus newelli*), and the nēnē (Hawaiian goose or *Branta sandvicensis*), are culturally important natural resources.

The EIS for the Project will provide additional information on cultural resources and will analyze potential impacts to these resources.

L. Noise

The State of Hawai'i regulates noise through HAR, Title 11, Chapter 46, "Community Noise Control," and provides for the prevention, control, and abatement of noise pollution in the State. "Noise" is defined as *"any sound that may produce adverse physiological or psychological effects or interfere with individual or group activities, including but not limited to communication, work, rest, recreation and sleep*." Under

certain conditions, noise can interfere with human activities at home or work and affect human health and well-being (HAR 11-46-2).

The HDOH regulates noise levels by imposing maximum allowable sound levels at property boundaries for various zoning districts (Table 1). These noise limits are absolute (i.e., not relative to ambient conditions), are prescribed by receiving zoning class and time period, and are enforceable at the facility property boundaries. Zoning districts are determined by ordinances adopted by the applicable local, county or state government agencies. For mixed zoning districts, the primary land use designation is used to determine the applicable zoning district class and maximum permissible sound level.

Table 1. Hawai'i Maximum Permissible Sound Levels by Zoning District

Receiving Zoning Class District	Maximum Permissible Sound Level (dBA)	
	Daytime (7:00 a.m. – 10:00 p.m.)	Nighttime (10:00 p.m. – 7:00 a.m.)
Class A Zoning districts include all areas equivalent to land zoned residential, conservation, preservation, public space, or similar type.	55	45
Class B Zoning districts include all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.	60	50
Class C Zoning districts include all areas equivalent to lands zoned agriculture, county, industrial, or similar type.	70	70
Source: HAR §11-46, "Community Noise Control."		

Because the KWP 1 site is in the State Conservation District, the Class A limits are applicable.

Noise levels may exceed the prescribed limits up to 10 percent of the time within any 20-minute period. The maximum permissible sound level for impulsive noise is 10 A-weighted decibels (dBA) above the maximum permissible sound levels for the given receiving zoning class district. HAR 11-46-5 provides further exemptions to these limits. Additionally, with issuance of a construction permit, noise produced by portable or movable equipment, such as construction equipment, are not subject to the 70 dBA limit under HDOH noise regulations. Instead, construction noise levels above these limits are regulated using a curfew system whereby noisy construction activities are not normally permitted during nighttime periods, on Sundays, and on holidays. Thus, with issuance of a construction permit, construction activities, which could typically exceed the sound level limit, are normally allowed during the normal daytime work hours on weekdays and on Saturdays. If construction activities exceeding the maximum permissible levels would

take place outside of these allowed construction hours, a community noise variance must be obtained from HDOH.

There are several ambient sound sources in the Project area. HAR defines “ambient or background noise” as the totality of sounds in a given place and time, independent of sound contribution of the specific source being measured. Ambient sound sources in the Project area include the turbines at the existing KWP 1 facility, vehicles traveling along the facility access road, rain, wind blowing through low brush and grass, insects, birds, and mammals.

The results of noise modeling for KWP 2, which is adjacent to KWP 1, suggest that the continued use of the KWP 1 facility would be in general compliance with the 55 dBA daytime limit but may exceed the Community Noise Rule, Class A nighttime property line sound level limit of 45 dBA during operations (Planning Solutions Inc. 2010). However, the only persons who would be in a position to hear the facility are (i) individuals working at the KWP 1 and II facilities, (ii) persons using the existing road to access the forest and conservation land above the KWP 1 and II facilities, and (iii) individuals and groups using the Lahaina Pali Trail. The first two categories of people are engaged in activities that would not be adversely affected by the forecast sound levels, either because they are present as part of their work on the wind farm itself or are simply briefly transiting the area (Planning Solutions Inc. 2010).

The EIS for the Project will provide additional information and analyze potential impacts from noise.

M. Visual Resources

The Project site is located on the upper slope of Ukumehame, above McGregor Point. The ridge and table lands afford sweeping panoramas of Haleakalā and Mā‘alaea Bay to the east, of Kaho‘olawe and Molokini Islands to the south, and of the West Maui Mountains to the west. The existing KWP 1 wind farm axillary facilities (e.g., substation, operation and maintenance building) are relatively low-lying; these structures are not visible/barely visible from the lowland areas where most people are present. However, the existing KWP 1 turbines approximately 90 meters (296 feet) and are visible from a substantial part of the island, including Mokulele Highway (at distances ranging from 5 to 8 miles) and the Kīhei and Wailea shorelines (at distances of 6 to 23 miles) to the east (Planning Solutions Inc. 2010). The existing KWP 1 turbines are also visible from portions of the Lahaina Pali Trail and from aircraft on approach to Kahului airport. The mountainous terrain obstructs most views of the KWP 1 facility from the north and west; the existing turbines are not visible from Kahului, from Honoapi‘ilani Highway or Highway 380 as they cross the Maui isthmus from Kahului to Mā‘alaea, or from Mā‘alaea Harbor (Planning Solutions, Inc. 2010). The existing turbines are also not visible from any points on West Maui except the mountainous area immediately surrounding the existing facilities.

HAR 11.200.1-13 requires applicants to identify potential adverse impacts on scenic vistas and view planes identified in county of state plans or studies. Neither the Maui Island Plan (County of Maui Planning Department 2012) nor the West Maui Community Plan (County of Maui Planning Department 2022) or Kihei-Makena Community Plan (County of Maui Planning Department 1998) identify scenic sites or visual plains within the Project area. However, it is the general policy of the Maui Island Plan and community plans to protect mauka-to-makai and makai-to mauka view planes and protection of views of significant geographic features and landforms including Mauna Kahalawai (West Maui Mountains) – especially as these views/view planes relate to public views from scenic roadways, parks, and other public access points.

Because the proposed Project is a continuation of the existing KWP 1 facility, the turbines do not represent a new feature on the mountainside. For viewers who have grown accustomed to the existing wind farm and have positive attitudes toward renewable energy, the continuation of the KWP 1 facility would tend to go largely unnoticed. For those who are already bothered by the intrusion of large structures into an area that is otherwise natural, the continued presence of the turbines would likely still be considered an imposition.

The EIS for the Project will provide additional information and analyze potential impacts to visual resources.

N. Land Use

The Project area is currently used for the existing 20-turbine, 30-MW KWP 1 wind farm including the turbines, ancillary facilities (e.g., substation, maintenance facility), internal access roads and a parking/staging area. Land within the Project area is within the State Conservation District, County Agricultural (AG) Zone and is located on the boundary of the West Maui and Kihei-Makena Community Plans. The very lower portion of the access road (approx. 1,200 ft) and the parking lot/staging area is within the SMA.

In addition to the KWP 1 wind farm facilities, a few low intensity uses are present near the area:

- The area *mauka* and west of the Project site is part of the West Maui Forest Reserve.
- The area makai and south of the Project site is the KWP 1I wind farm facility.
- The Lahaina Pali Trail traverses the hillside at an elevation of approximately 1,500 feet south of the Project area. The trail passes through the upper portion of the adjacent KWP 1I facility.
- Two Hawaiian Electric transmission line easements cross Kaheawa Pastures in a southwesterly direction from Māʻalaea. The first easement (with 2 power lines) crosses the existing KWP 1 facility at an elevation of approximately 2,300 feet;

the second easement (with 1 power line) crosses about 1,900 feet makai of the Project site.

Maalaea, the closest town located approximately 2.5 miles southeast of the Project area encompasses a diverse mix of land uses, including residential, business, and resort. The Project area is also located approximately 9 miles southwest of the Kahului International Airport and 12 miles southeast of Kapalua airport.

State Land Use District

The entire Project site is within state conservation district. HRS Chapter 205-5 specifies that conservation districts shall be governed by the State of Hawai‘i DLNR pursuant to HRS Chapter 183C; uses in the Conservation District are regulated by the DLNR Office of Conservation and Coastal Lands under HAR Title 13, Chapter 5.

HAR 13-5 classifies conservation lands into five subzones: protective, limited, resource, general, and special. HAR 13-5 identifies the land uses that are allowed in each of the subzones and the specific type of permit required for those land uses, per the following designations: (A) requires no permit from the department or board, (B) requires a site plan approval by the department, (C) requires a departmental permit, or (D) requires a board permit and where indicated, a management plan.

The Project Site is within the general and protective subzones. KWP 1 currently operates under the terms and conditions of CDUP No. MA-3103 as approved by the Board on January 24, 2003, and amended on June 24, 2005. The facility’s existing CDUP does not have an expiration date and as no construction or ground disturbance is proposed as part of the Project, the Applicant does not anticipate a modification to the CDUP would be required for the Proposed Action.

Maui County Zoning

Land use is also regulated by the county through zoning districts, within which district standards are specified according to different types of use. The County of Maui’s Comprehensive Zoning Ordinance identifies the uses that are considered appropriate in each of the County’s zoning districts and establishes the minimum standards and conditions that should be met if those uses are to be permitted.

The Project is located in County Zone (AG) Agriculture. As the Project is within the State Conservation District, pursuant to HRS §205-5, land use is governed by DLNR.

Maui County SMA

The SMA is a designated area extending inland from the shoreline (ranging from one hundred yards to several miles in width) and is regulated by the counties under the Hawai‘i CZM program. Within the Project area, the very lower portion of the existing access road (approximately 1,200 ft) and the existing parking lot/staging area are within the SMA. Kaheawa Wind’s intention is to utilize existing roads and staging areas and

avoid development in the SMA. Therefore, no SMA assessment or permit would be required.

West Maui and Kihei-Makena Community Plans

The Project site is located on the boundary of the West Maui and Kihei-Makena Community Plans. The Community Plans are vision plans and are not regulatory; however, the West Maui and Kihei-Makena Community Plans include policies in support of alternative energy.

The Project is not anticipated to impact the current land uses in the areas adjacent to the Project area and would not interfere with continuing recreational use of the Lahaina Pali trail. With the decommissioning and removal of Project facilities at the end of the Project's useful life (estimate 20 year) the land would be restored back to its previous use (open space). The EIS for the Project will provide additional information and analyze potential impacts to land use.

O. Transportation and Traffic

Roadways and Traffic

The existing KWP 1 wind farm facility is accessed by the Kaheawa Pastures access road that begins at Honoapi‘ilani Highway and runs north to the conservation lands mauka of the KWP 1 facility. The existing Kaheawa Pastures access road is owned by the State of Hawai‘i and was upgraded in conjunction with the development of KWP 1. Access is controlled by DLNR, which shares responsibility for the road's upkeep with KWP 1 LLC.

Honoapi‘ilani Highway is one of Maui's major coastal roadways; the State-owned highway is heavily traveled by tourists and commuters, especially during daylight hours. The Hawaii Department of Transportation conducts regular traffic counts on Honoapi‘ilani Highway, the annual average daily traffic count near the KWP access road (between MP 6.11 and 17.65) is 25,900 vehicles (HDOT 2022). It connects with other major highways and provides ready access to the harbor facilities at Kahului where the equipment and other construction materials needed for the proposed project would be landed.

Harbors

Kahului Harbor is the only harbor on Maui suitable for unloading heavy equipment and materials.

Airports

The Project site is located approximately 12 miles from the Kapalua Airport and about 9 miles from Kahului International Airport. Because of the height of the proposed replacement turbines, the Federal Aviation Administration reviewed the existing KWP 1 turbines and determined that, with proper lighting, they would not constitute a hazard to air navigation (Planning Solutions Inc. 2010).

The continued operation and maintenance of the KWP 1 facility would not generate significant amounts of passenger or cargo traffic on Maui's roads, harbors, or airports. Impacts on traffic during operations are expected to be negligible. The EIS for the Project will provide additional information and analyze potential impacts to transportation and traffic.

P. Public Services and Utilities

Electric

Hawaiian Electric provides electrical service to the Island of Maui. A Hawaiian Electric transmission line easement containing two 69-kilovolt transmission circuits cross the Project area in a southwesterly direction from Mā‘alaea. The existing KWP 1 facility obtains the electrical power it needs for operational loads from the uppermost of the three circuits via step-down transformers located at the existing KWP 1 substation. Likewise, power generated by the KWP 1 facility is fed into the Hawaiian Electric grid via the same circuit.

Telecommunications

A number of operators provide telephone, wireless, and internet services on the island of Maui. Telephone, wireless, and internet services are available throughout the urbanized areas of the West Maui region with minimal gaps in service (Chris Hart & Partners, Inc. 2006). Telecommunications provided by Hawaiian Telcom exist at the KWP 1 substation.

Water and Wastewater

There are no Maui County wastewater or water systems that service the existing KWP 1 facility. All of the water needed for the facility is trucked up to the site.

Solid Waste

The County of Maui Solid Waste Division operates and maintains all solid waste collection and transfer stations on the island. The Central Maui Landfill services the Project area.

Gas

Hawaii Gas is the only company responsible for providing gas to the State and is regulated by the Hawaii PUC. The KWP 1 facility is not connected to the Hawaii Gas supply.

The Project is not expected to negatively impact the existing electric, telecommunication, water and wastewater system, solid waste and gas utilities. During operations, the proposed Project would consume only small amounts of electrical power, and this would be delivered through the existing substation and power distribution equipment. All of the water needed for the facility operations would be trucked up to the site as currently occurs; no new potable water service would be required. Similarly, no significant impacts on telecommunications or other utilities are anticipated. The proposed Project would

continue to provide a renewable source of electricity to the existing power grid. The EIS for the Project will provide additional information and analyze potential impacts to public services and utilities.

Q. Socioeconomic Characteristics

No one lives on the parcel of the existing KWP 1 facilities or on immediately adjoining parcels. The nearest settlements are Mā‘alaea, which is approximately 2 miles to the southeast and Olowalu, which is approximately 5 miles to the west. Mā‘alaea’s population in 2020 was approximately 310 and approximately 100 in Olowalu (U.S. Census Bureau 2020). The median household income in Mā‘alaea was $91,250 in 2021 and $95,313 in Olowalu, which is higher than the median household income in Maui County, which was estimated at $88,249 in 2021 (U.S. Census Bureau 2021).

The existing KWP 1 facility contributes to the local economy by providing jobs to residents, expenditures for materials and outside services, and state revenues in the form of excise taxes, lease revenues, and other taxes.

The proposed Project is not expected to have an adverse impact on the existing population near the Project area and no persons would be displaced by the Project. Additionally, the Project is not anticipated to place unexpected demands or additional burdens on infrastructure, housing, or public services in the Project’s vicinity.

Direct economic effects of the continued operation of the KWP 1 facility include: (1) ongoing employment of facility staff (which would be relatively limited); (2) ongoing expenditures for materials and outside services; and (3) State revenues in the form of excise taxes, lease revenues, and other taxes.

The EIS for the Project will provide additional information and analyze potential impacts to socioeconomics.

R. Secondary and Cumulative Impacts

Cumulative impacts are defined under HAR Chapter 11-200.1-2 as:

> *[T]he impact on the environment that results from the incremental impact of the action when* added *to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

An assessment of the project’s potential cumulative impacts will be included in the Draft EIS.

The Draft EIS will also take into account ongoing and reasonably foreseeable actions that would overlap in time and space with the effects of operation of the Project.

“Secondary impacts” or “indirect effects” are defined under HAR Chapter 11-200.1-2 as:

> *[A]n effect that is caused by the action and is later in time or farther removed in distance, but is still reasonably foreseeable. An indirect effect may include growth-inducing effect and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air, water, and other natural systems, including ecosystems.*

Secondary impacts are those that are caused by the project, but occur later in time or farther removed in distance, but are still reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing one of the impediments to growth. Secondary impacts can also be favorable, for example, for renewable energy projects, such as this one, it is expected that secondary impacts could included improved air quality or long-term reduction in impacts from climate change. An assessment of the project's potential secondary impacts will be included in the Draft EIS.

IV. Alternatives to the Proposed Action

The Draft EIS will include a No Action Alternative where the Proposed Action would not occur. Under this alternative, the existing KWP 1 facility would not continue operations for 20 years and would instead be decommissioned. Other reasonable alternatives that could meet the purpose and need for the action may be developed in response to scoping comments.

V. Scoping Process

The Applicant has prepared this EISPN pursuant to the State Environmental Review process, as required and defined by HRS Chapter 343 and HAR Chapter 11-200.1. As part of the HRS 343 process, the Applicant will consult with elected officials, agency representatives, community leaders and community members during the scoping period. Information obtained from this consultation is important to identify issues and provide guidance on the scope of the analysis for the Draft EIS.

Publication of this EISPN in the State of Hawai'i's ERP semi-monthly publication *The Environmental Notice* starts a 30-day public review and comment period, within which agencies, groups and individuals have an opportunity to provide written comments regarding potential environmental effects from the Project. Information collected during the scoping process will be incorporated into the Draft EIS to identify important issues and provide guidance. The Applicant will respond to substantive comments (defined as those pertaining to the scope of the EIS), with comments and applicable responses included in the Draft EIS.

HAR Chapter 11-200.1-23 requires a public scoping meeting to be held during the 30-day EISPN comment period. An in-person public scoping meeting will be held at the Malcolm Center, 1305 North Holopono Street, Suite 5, Kihei, Hawaii on Tuesday, October 29, 2024, from 5:30 – 7:30 PM. In addition to receiving oral and written comments at the EIS scoping meeting, written comments may also be submitted if received or postmarked on or before November 22, 2024. All comments received are a part of the public record. All personal identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

Please submit copies of your comments to both the DLNR and the EIS Consultant (Tetra Tech, Inc.). Please send comments with the subject line of "KWP 1 Continued Use Project EIS Preparation Notice" and include your email address if possible. Transmission of comments may be via email or U.S. Postal Service (USPS) mail. However, attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only.

DLNR email:	Lauren.e.yasaka@hawaii.gov (include KWP1 Continued Use EISPN in the subject line)
DLNR USPS mail:	Attention: KWP 1 Continued Use EISPN Department of Land and Natural Resources/Land Division 1151 Punchbowl Street, Room 220 Honolulu, HI 96813
Consultant email:	Leslie.McClain@tetratech.com (include KWP1 Continued Use EISPN in the subject line)
Consultant USPS mail:	Attention: KWP1 Continued Use EISPN Tetra Tech, Inc. 737 Bishop St., Suite 2000 Honolulu, HI 96813

FOR FURTHER INFORMATION CONTACT:

Molly Stephenson, Senior Biologist – Wind Operations
Kaheawa Wind Power, LLC
200 Liberty Street, 14th Fl, New York, NY 10281
molly.stephenson@brookfieldrenewable.com
612-240-9830

VI. References

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Kaheawa Wind 1 Continued Use Project

Figure 1
Project Vicinity

MAUI COUNTY, HI

Project Area
City/Town
State Highway

Waikapu
Olowalu
Ma'alaea
'Alenuihaha
30
380
311
310
31

Reference Map

Kahului

1:50,000 WGS 1984 UTM Zone 4N 0 1 2 4 Miles

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

Figure 2
Site Plan

MAUI COUNTY, HI

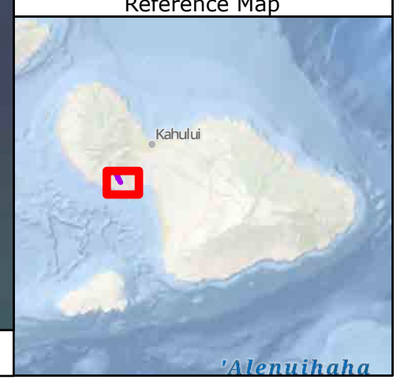
248001010
236001052
KWP 1 Point of Interconnection
KWP I Lease Area
200 Acres
Lease No. S-5731
248001001
236001014
KWP 2 Wind Farm
Existing Access Road and Non-Exclusive Access Easement (20' wide, 8.5 acres)
248001001
Kuihelani Hwy
Honoapiilani Hwy
N Kihei Rd
Maalaea Rd
Maalaea Boat Harbor Rd
Hauoli St
380
310
30

- Project Area
- TMK Boundary
- State Highway
- Local Roads

Existing Facilities

- KWP 1 Existing Wind Turbines
- HECO Switchyard and KWP 1 Substation
- HECO Switchyard and KWP 2 Substation
- O&M Building and Yard
- Warehouse Building and Yard
- Battery Storage Facility
- Hawaiian Electric Transmission Lines

Reference Map



1:23,000 WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Scoping Letter

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October 22, 2024

Subject: Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Use Project; Kaheawa Pastures, West Maui (Tax Map Key [TMK] (2) 4-8-001:001, 4-8-001:010, 3-6-001:052, and 3-6-001:014)

Dear Interested Party,

An Environmental Impact Statement (EIS) Preparation Notice (EISPN) for the Kaheawa Wind 1 (KWP 1) Continued Use Project (Project) has been prepared in accordance with the State of Hawai'i's EIS law (Hawai'i Revised Statutes [HRS], Chapter 343) and the State of Hawai'i's EIS rules (Hawai'i Administrative Rules [HAR], Title 11, Chapter 200.1). The EISPN will be published in the State of Hawai'i Environmental Review Program's October 23, 2024 edition of *The Environmental Notice*. The document will be accessible through the link below, which will become active on the publication date (an error message may be received if the link is used prior to October 23, 2024):

https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf

Kaheawa Wind Power, LLC (Applicant) proposes to continue operating the existing 30-megawatt KWP 1 energy generation facility located in the Kaheawa Pastures of West Maui. KWP 1 has been in operation since 2006 and provides power to approximately 17,000 households annually. KWP 1 has been operating under a 20-year lease agreement with the State of Hawai'i Department of Land and Natural Resources (DLNR) that expires in January 2025. A 1-year holdover lease has been requested by KWP 1 to extend the lease through January 2026 pursuant to HRS Section 171-40. KWP 1 has been operating under a 20-year Power Purchase Agreement (PPA) with Hawaiian Electric, and KWP 1 was recently awarded a new 20-year PPA in Hawaiian Electric's Stage 3 Request for Proposal Process. Consequently, the Applicant is seeking a new 20-year land lease agreement with the DLNR to serve its recently awarded 20-year PPA with Hawaiian Electric. In addition, KWP 1's Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS) and Incidental Take License (ITL) from the DLNR Department of Forestry and Wildlife (DOFAW) are set to expire in January 2026. Therefore, an amended ITP, amended ITL, and approval of an associated Habitat Conservation Plan (HCP) are being sought for the Project's proposed 20-year extended operation period.

The purpose of the Project is to utilize the existing wind energy infrastructure on land owned by DLNR to continue to provide 30 MW of locally produced, renewable energy to the island of Maui, thus contributing to the State of Hawai'i's Renewable Portfolio Standard (RPS) energy goals. The need for the Project is established by Hawaiian Electric Company's competitive procurement process for renewable energy which responds to the Hawai'i Clean Energy Initiative (HCEI) and the State of Hawai'i's RPS which requires that electric utility companies use renewable energy for the equivalent of 100 percent of net electricity sales by 2045.

The DLNR determined that the Project is subject to review under HRS Chapter 343 and has further determined, through its judgement and experience, that an EIS is likely to be required. The Project has the potential to result in significant impacts based on the authorizations that the Applicant is requesting, particularly the ITP/ITL to allow incidental take of species listed as endangered or

KAHEAWA WIND POWER LLC
200 Liberty Street, 14th Fl, New York, NY 10281
T +1 646.992.2400 F +1 646.992.2470 TerraForm.com

threatened under the federal Endangered Species Act and HRS Chapter 195D. Therefore, DLNR has authorized the Applicant to prepare an EIS without first preparing an EA. BLNR will be the accepting authority for the EIS, which will be prepared by the Applicant in compliance with HRS Chapter 343 and HAR Chapter 11-200.1. Site-specific data collected over the last 20 years to inform the EIS.

The Project would not involve any construction or physical improvements beyond maintenance activities. KWP 1's existing conservation programs would be extended and expanded to continue to provide a net benefit for covered species under the HCP. Coordination with DOFAW and the USFWS is underway to amend existing permits and carry out the most effective mitigation strategies. More information on the Project is available at https://www.kaheawawind.com/.

Publication of the EISPN in The Environmental Notice starts a 30-day public review and comment period, within which agencies, groups and individuals have an opportunity to provide written comments regarding potential environmental effects from the Project. Information collected during the scoping process will be incorporated into the Draft EIS.

If you would like to submit comments on the EISPN and the scope of the EIS, comments must be postmarked by November 22, 2024 (30-day comment period). Please submit written comments to the party listed below.

Email: Leslie McClain at leslie.mcclain@tetratech.com

Mail: Tetra Tech, Inc., Attn: Leslie McClain
737 Bishop Street, Suite 2000, Honolulu, Hawai'i 96813

In accordance with HAR Chapter 11-200.1-23 a public scoping meeting will be held on Tuesday, October 29, 2024 during the 30-day EISPN comment period. The public is invited and encouraged to attend the scoping meeting to provide oral and written comments on the Project and the scope of the EIS. The public scoping meeting information is as follows:

Time/Date: **Tuesday, October 29, 2024, 5:30 – 7:30 P.M.**

Location: **Malcolm Center, 1305 North Holopono Street, Suite 5, Kihei, Hawaii**

Thank you for participating in the environmental review process for the proposed Project.

Sincerely,

Kaheawa Wind Power, LLC

Molly Stephenson

Molly Stephenson
Senior Biologist – Wind Operations
molly.stephenson@brookfieldrenewable.com

Scoping Meeting Presentation

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KAHEAWA WIND 1

CONTINUED USE PROJECT

Public Scoping Meeting

October 29, 2024

Brief presentation to start at 5:50pm

Oral Comments to be recorded after brief presentation.

Introductions

- Consultants:
  - Kirra Downing
    - Moderator and public outreach consultant
  - Leslie McClain, Tetra Tech
    - Project manager for the Tetra Tech team who is preparing the Draft Environmental Impact Statement under HRS Chapter 343 on behalf of the Applicant.

- Applicant: Kaheawa Wind Power, LLC (owned by TerraForm Power)
  - Molly Stephenson, Senior Biologist Wind Operations
  - Tony Kawal, Manager Asset Development

TETRA TECH

TerraForm POWER

EIS Public Scoping Meeting | Agenda

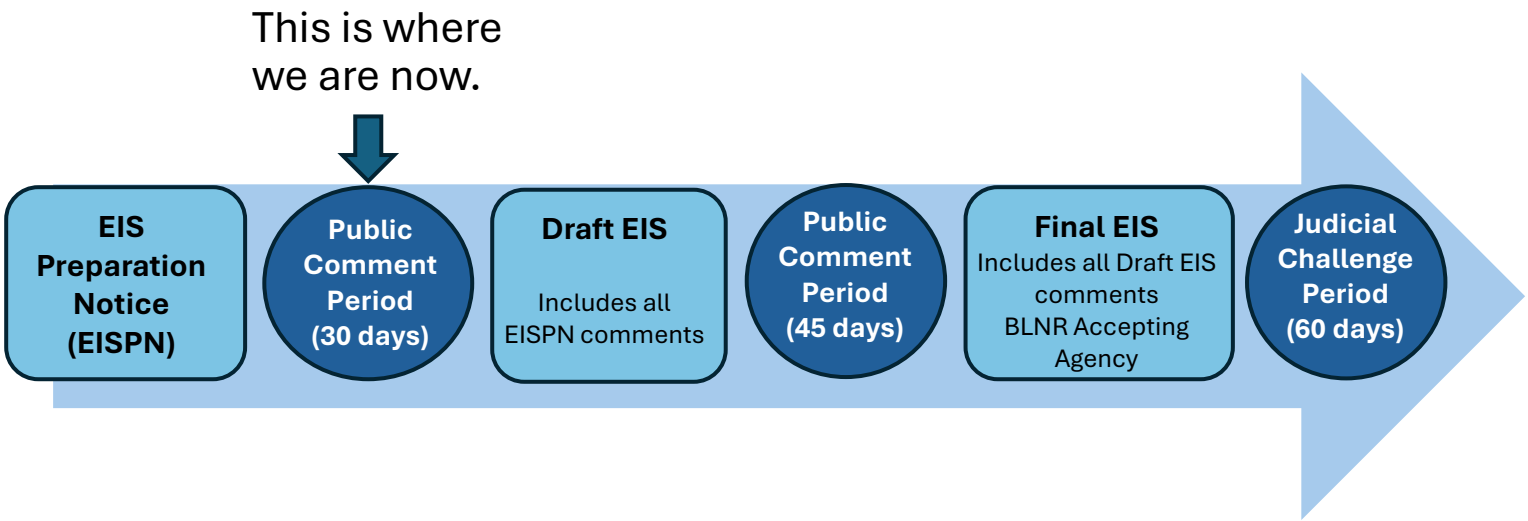
1. Purpose of tonight's meeting
2. Proposed Action overview
3. Environmental Impact Statement (EIS) Process
4. EISPN Public Comments
   - Opportunity to provide comments that will be included in the Draft EIS:
     - Oral comments provided tonight will be audio recorded and provided to the State Environmental Review Program (ERP) per HAR Chapter 11-200.1
     - Oral comments will be summarized and included the Draft EIS
     - Written comments will be collected and included in the Draft EIS



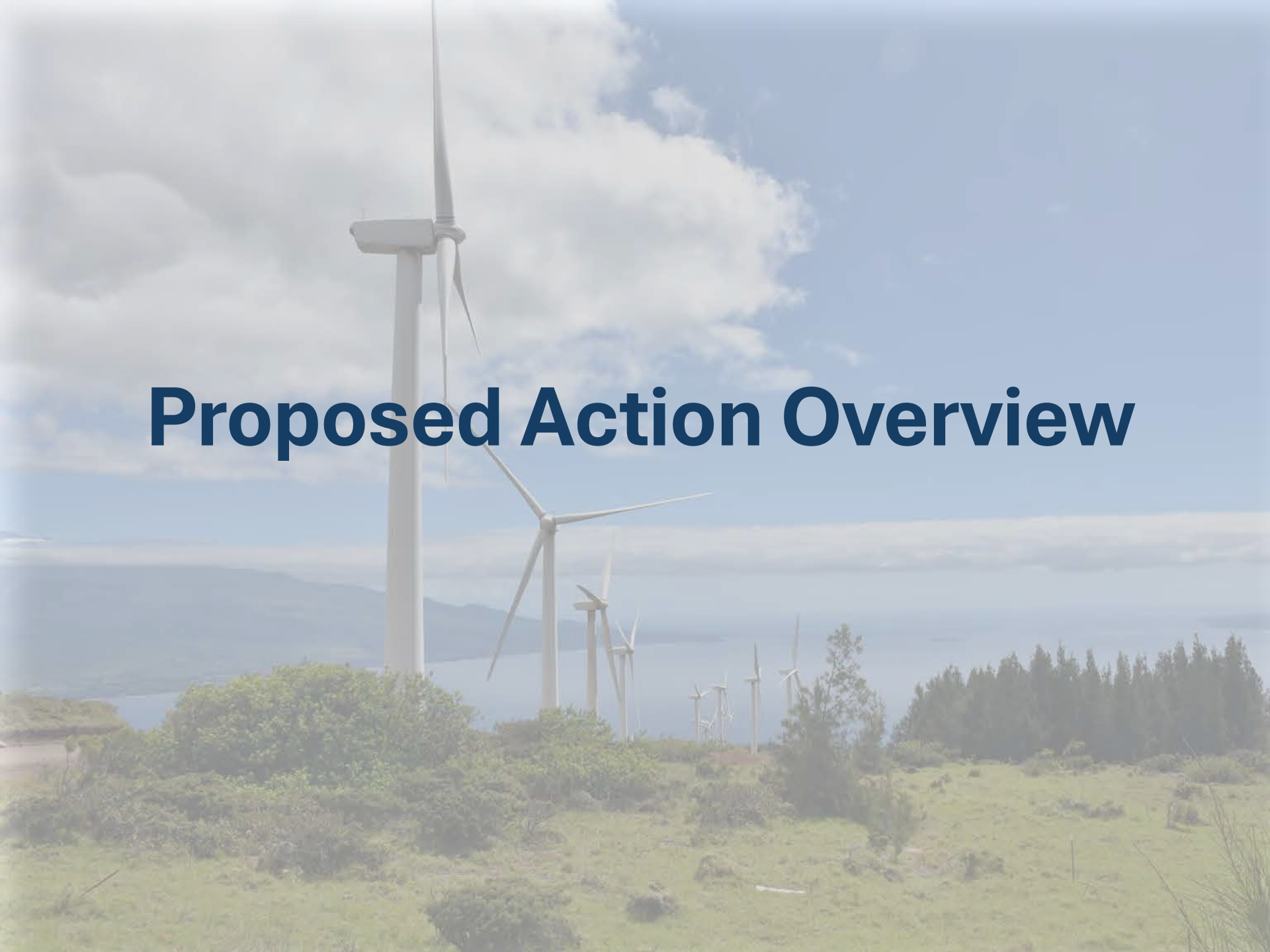
Purpose of Tonight's Meeting

EIS Public Scoping Meeting | Purpose

- Gather input on issues to be analyzed in the Draft EIS.
- Give interested parties an opportunity to provide comments on the scope of the Draft EIS including the range of alternatives, impacts, and proposed mitigation measures.
- This is not a question-and-answer session.



TETRA TECH



Proposed Action Overview

Proposed Action | Overview

- The Kaheawa Wind 1 (KWP 1) Continued Use Project (Proposed Action) involves continued operations of the existing KWP 1 wind generation facility for an additional 20-year period.
- Existing facility is a 20-turbine, 30-megawatt wind facility
- TMK(s) involved: (2) 4-8-001:001, 4-8-001:010, 3-6-001:052, and 3-6-001:014



Proposed Action | Overview

- KWP 1 has been operating since 2006 under:
  - 20-year Power Purchase Agreement (PPA) with Hawaiian Electric
  - 20-year lease agreement with Board of Land and Natural Resources
  - 20-year Incidental Take License and Incidental Take Permit
- Opportunity to continue operations for another 20 years under a new PPA
  - KWP 1 Continued Use Project selected by Hawaiian Electric under Stage 3 Request for Proposal Process
  - PPA will be subject to approval by State of Hawai‘i Public Utility Commission
- **The Proposed Action would require no construction or physical improvements beyond maintenance activities.**

Proposed Action | Site Plan



Proposed Action | Purpose

- Purpose of the Proposed Action:

  To utilize the existing wind energy infrastructure on land owned by DLNR to continue to provide 30-MW of clean, affordable, renewable energy to the island of Maui, thus contributing to the State of Hawai‘i’s Renewable Portfolio Standard (RPS) energy goals of generating 100 percent of the state’s energy from renewable sources by 2045.



TETRA TECH

Proposed Action | Project Benefits

- Affordability. KWP 1 proposes to deliver clean energy to Maui below the cost of fossil fuels and below its current rate.
- Reliability. Hawaiian Electric has demonstrated that KWP 1 is essential to maintaining grid reliability standards.
- Clean Air. The renewable energy generated at the wind farm decreases our reliance on fossil fuels, improving air quality and combating climate change.
- Community Benefits. KWP 1 will collaborate with the community on deign and delivery of a new community benefits program that reflects Maui's needs and choice, to be delivered with local, non-profit partners.







Proposed Action | List of Permits and Approvals

- Permits and approvals required before action can proceed:
  - State of Hawai‘i Board of Land and Natural Resources (BLNR) approval of land lease.
  - Approval of Power Purchase Agreement (PPA) by State of Hawai‘i Public Utility Commission (PUC).
  - Endangered Species Act compliance through the U.S. Fish and Wildlife Service’s issuance of an amended Incidental Take Permit (ITP) and approval of Habitat Conservation Plan (HCP) for 20-year extended operation period.
    - National Environmental Policy Act (NEPA) Review
    - National Historic Preservation Act (NHPA) Section 106
  - BLNR approval of HCP (pursuant to HRS 195D-21) and issuance of an amended Incidental Take License (ITL) for the 20-year extended operation period.

Proposed Action | List of Permits and Approvals

- Permits and approvals required before action can proceed:
  - HRS Chapter 6E, Historic Preservation Review
  - KWP 1 has an existing Conservation District Use Permit (CDUP) with no expiration date. It is not anticipated to require modifications for the Proposed Action but further consultation with Office of Conservation and Coastal Lands (OCCL) is ongoing.
  - No county permits anticipated as KWP 1 is in the conservation district.

Proposed Action | HCP Summary

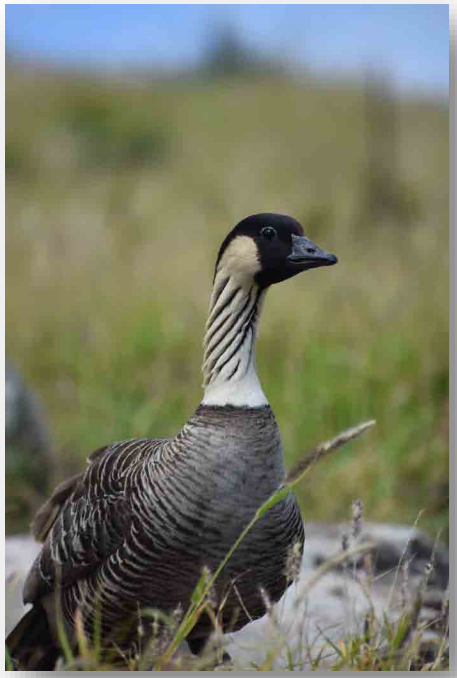
Covered Activities – Continued operation of KWP I Facility

Permit Area – same as existing

Permit Term – an additional 20 years, January 2026 – 2046

Covered Species – same as existing

- oʻŌpeʻapeʻa or Hawaiian hoary bat,
- o Nēnē or Hawaiian Goose,
- oʻAʻo or Newell's shearwater, and
- oʻUaʻu or Hawaiian petrel.



TETRA TECH



Environmental Impact Statement (EIS) Process

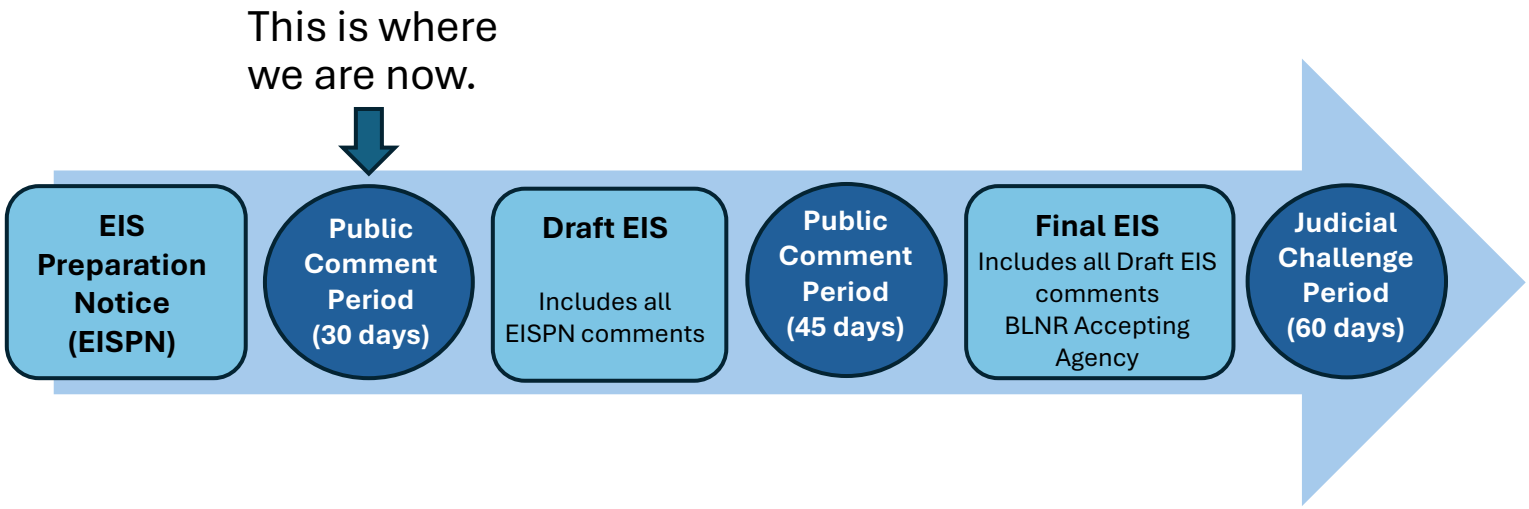
EIS Process | Proposed Action

- Chapter 343 Hawai‘i Revised Statutes (HRS) Trigger:
  - Use of State Lands (owned by DLNR)
  - Use of lands in the conservation district

- Accepting Authority/Approving Agency: DLNR/BLNR

- Purpose of Environmental Analysis: An EIS ensures that environmental concerns are given appropriate consideration in decision-making along with economic and technical considerations.

EIS Process | Process Chart



- The EISPN is available at the State of Hawaii Environmental Review Program (ERP) website:

  https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf

TETRA TECH

EIS Process | EISPN

- EISPN contains:
  - Project/Proposed Action overview
  - Project background
  - List of required permits and approvals
  - Description of the affected environment
  - Alternatives to the Proposed Action

- Draft EIS will be informed by:
  - Scoping comments
  - Draft Habitat Conservation Plan
  - Past environmental studies and 18 years of post-construction monitoring data
  - Cultural Impact Assessment
  - Ka Paʻakai analysis



EIS Public Comments

Public Comments | Purpose

- The EISPN is available at the State of Hawaii Environmental Review Program (ERP) website

  https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf

- Purpose of Scoping Comments
  - To gather input on issues to be studied in the Draft EIS.
  - To give agencies and interested parties an opportunity to provide comments on the scope of the Draft EIS and the environmental effects of the proposed action.

- Written Comments can be submitted until **November 22, 2024**

TETRA TECH

Public Comments | Next Steps

- Copies of all written comments, including the names of any commentors, will be included in the Draft EIS which will be published in *The Environmental Notice*.
- Oral comments will be summarized and included in the Draft EIS. A recording of the oral comments will be published along with the Draft EIS.
- Responses to substantive comments will be included in the Draft EIS pursuant to HAR 11-200.1-24.
    - Substantive comments are those pertaining to the scope of the EIS.
- The Draft EIS will be published in *The Environmental Notice* initiating a 45-day public comment period.
- Distribution letters will be mailed to all individuals/agencies on the project's distribution list.
- To be added to the distribution list – please fill out the sign-in sheet.

Public Comments | Written Comments

- ***How to comment:***
  - ***E-mail:*** Leslie.mcclain@tetratech.com
  - ***USPS:*** Attention: KWP1 Continued Use EISPN
    Tetra Tech, Inc.
    737 Bishop St., Suite 2000
    Honolulu, HI 96813

TETRA TECH

Public Comments | Oral Comments

- Names will be called in order they were written on the Sign-in Sheet.
- Please state your name before providing your comment.
- Please be respectful of time so that everyone who wishes to speak has an opportunity to share.
- Comments will be audio recorded and a recording of comments will be posted on the Environmental Review Program's website.

Oral Public Comments (Audio Recorded)

- Names will be called in order they were written on the Sign-in Sheet.
- Please be respectful of time so that everyone who wishes to speak has an opportunity to share.
- Please state your name before providing your comment.

Scoping Meeting Posters

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KAHEAWA WIND 1

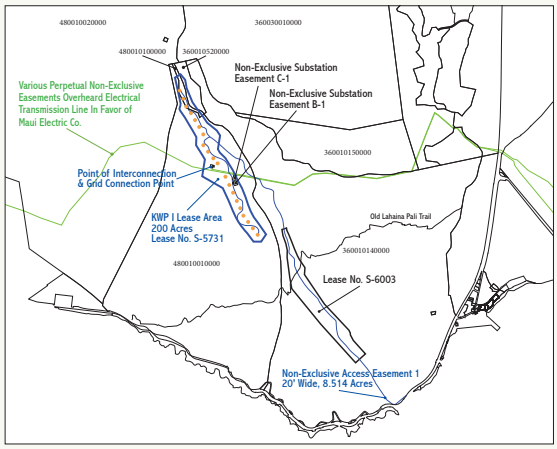
Continuing to Deliver Renewable Power to Maui for Future Generations

Project Description

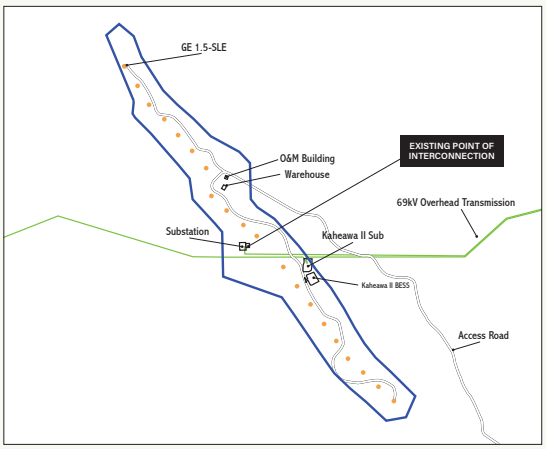
Operating the Wind Farm as it is Today

- **Delivering affordable renewable energy**
- **Extending the life for the next 20 years**
- **Providing grid reliability**

TerraForm Power operates Kaheawa Wind I and II in Kaheawa Pastures above Mā‘alaea. Maui’s first wind farm since 2006, Kaheawa Wind I has a production capacity of 30 MW, serving approximately 17,000 households annually, and contributing to energy affordability, grid reliability, energy security, and the state’s movement towards 100% renewable energy by 2045.



SITE MAP: No changes to the existing layout are proposed at TMK 4-8-001-001-6001



INTERCONNECTION ROUTE: Point of interconnection is located at the existing KWP I substation and the interconnection route will remain the same



KAHEAWA WIND 1

Continuing to Deliver Renewable Power to Maui for Future Generations

Project Benefits

Deliver clean, renewable, locally generated energy at far below the cost of fossil fuels

- Kaheawa Wind 1 proposes to deliver clean energy to Maui below the cost of fossil fuels and below its current rate
- Unlike fossil fuel powered generators that expose consumers to price volatility, Kaheawa Wind 1's cost of energy will remain fixed over its contract term
- Kaheawa Wind 1 is committed to offering prevailing wages for future refurbishments at the facility

Maximize value of existing infrastructure & provide essential energy resource diversity

- Kaheawa Wind is an essential contributor to resource diversity and system reliability on Maui, and is a highly productive wind site
- Hawaiian Electric has demonstrated that Kaheawa Wind 1 is essential to maintaining grid reliability standards
- Extending the life of Kaheawa Wind 1 will reduce future land disturbance required to build new generating resources to replace it

Deliver a new community benefits program

- Kaheawa Wind 1 will collaborate with the community on design and delivery of a new community benefits program that reflects Maui's needs and choice, to be delivered with local, non-profit partners
- Reflecting our commitment to a just transition for Maui, Kaheawa Wind 1 has committed to a program funding level significantly above HECO's Stage 3 guidance



KAHEAWA WIND 1

Continuing to Deliver Renewable Power to Maui for Future Generations

Community Engagement & Benefits

Furthering a legacy of safety, environmental stewardship, and respect for the land and community

Our Approach

Community engagement is connecting human to human. It is seeing and honoring the whole person. It is an opportunity to listen and learn, and collectively, strengthen relationships with each other. We believe in collaborative participation and ensuring decision making is developed through a community-led approach.

Community Benefits

Kaheawa Wind I is committed to providing **$300,000 per year for the 20-year PPA term of the project.** That's three times more than the Hawaiian Electric annual funding guidance.

With ongoing outreach and the community's input, a Community Benefits Program (CBP) will be tailored to the needs and choice of our host community. The CBP will be implemented in 2027 and administered through a local Maui-based partner(s).

We need your input!

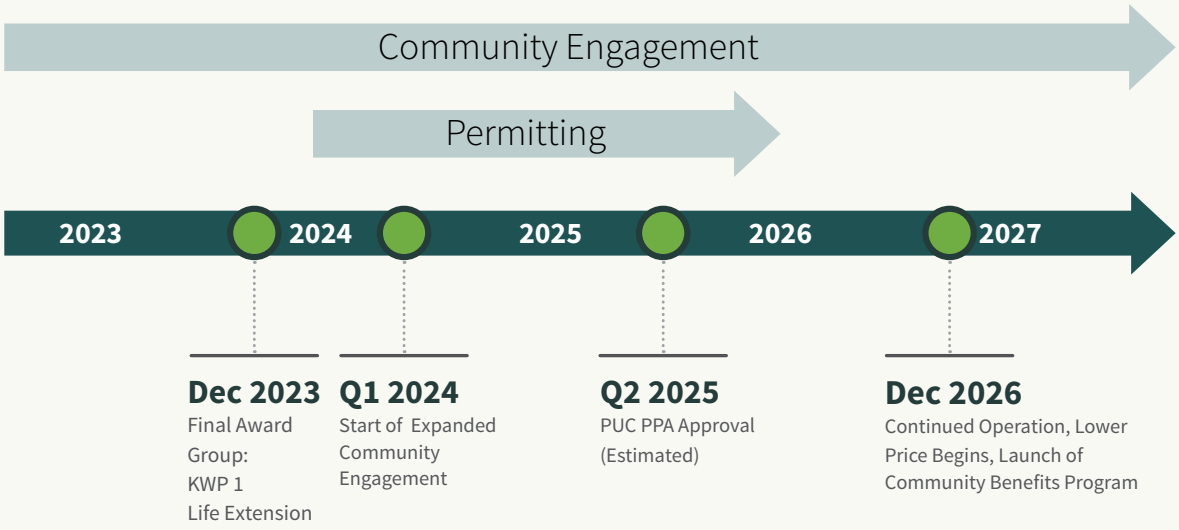
- What types of community benefits are you interested in?
- What community programs and initiatives would you like see supported on Maui?

Visit **www.kaheawawind.com**
to complete a short survey.

KAHEAWA WIND 1

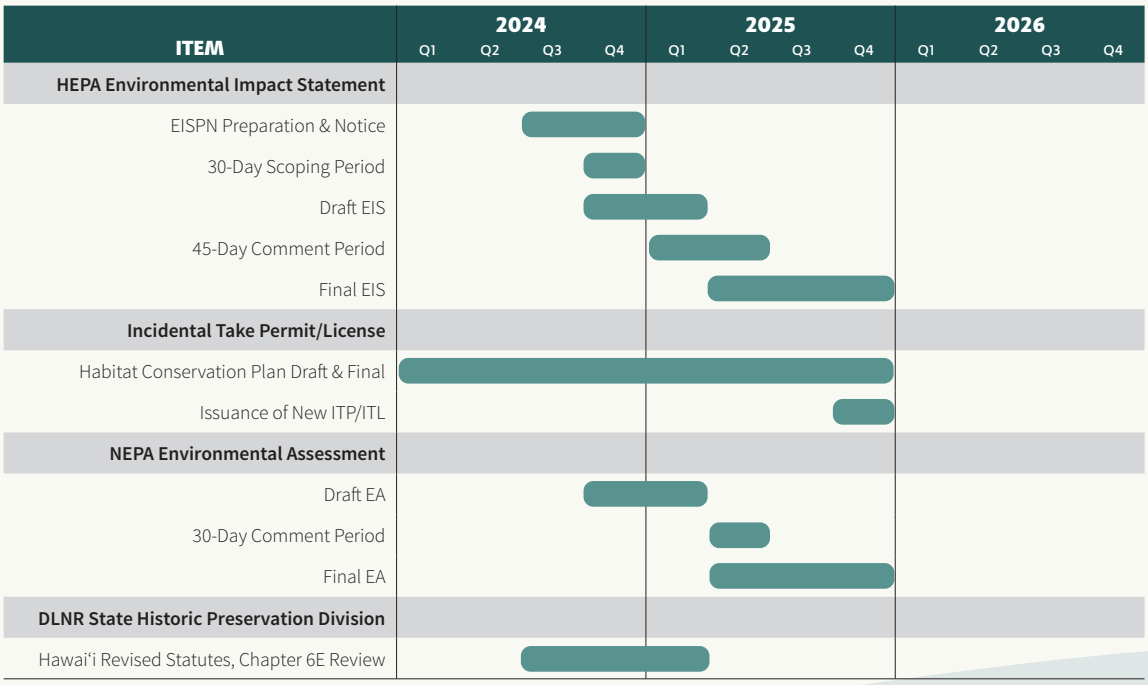
Continuing to Deliver Renewable Power to Maui for Future Generations

Project Timeline



Timeline Subject to Change

Government Permits and Approvals



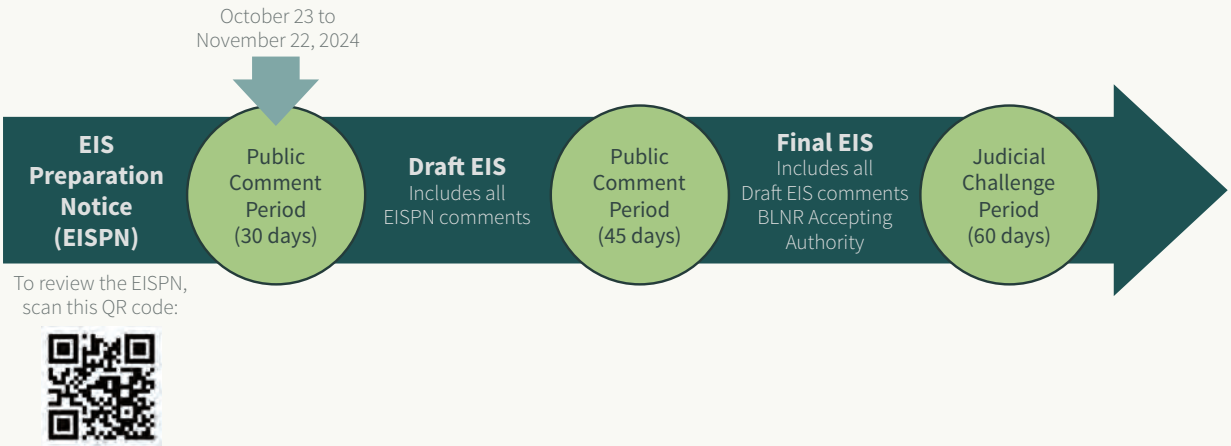
Schedule Subject to Change

KAHEAWA WIND 1

Continuing to Deliver Renewable Power to Maui for Future Generations

Hawai'i Revised Statutes (HRS) Chapter 343 Environmental Review

Environmental Impact Statement (EIS) Process



To review the EISPN, scan this QR code:

Scoping Meeting and 30-day Public Comment Period on EISPN

The purpose of the public scoping meeting is to gather input from the public on the scope of the EIS analysis. The public scoping meeting gives individual, citizen groups, and the general public an opportunity to assist the Applicant in determining the range of actions, alternatives, impacts, and proposed mitigation measures that will be considered in the draft EIS as well as the significant issues to be analyzed in depth in the EIS.

Written comments can be submitted through November 22, 2024.

Anticipated Scope of EIS

Comments received during the 30-day comment period will inform the scope of the analysis in the EIS. The EIS is anticipated to include the following:

- Detailed description of the Proposed Action and alternatives to the Proposed Action.
- Detailed description of the affected environment.
- Comprehensive analysis of the potential environmental consequences of the Proposed Action.
- Significant short-term, long-term, and cumulative impacts on the human, natural, and built environment.

All comments received during the 30-day comment period on the EISPN will be documented and responded to in the Draft EIS. A recording of the oral comments will be published along with the Draft EIS. Responses to substantive comments will be included in the Draft EIS pursuant to HAR 11-200.1-24

KAHEAWA WIND 1

Continuing to Deliver Renewable Power to Maui for Future Generations

HRS Chapter 343 Environmental Review

Proposed Action

- Kaheawa Wind 1 (Applicant) proposes the Kaheawa Wind 1 (KWP 1) Continued Use Project (Project or Proposed Action), which involves continued operations of the existing KWP 1 wind generation facility for an additional 20-year period.
- KWP 1 is an existing 20-turbine, 30-megawatt wind facility.
- TMK(s) involved in the Proposed Action: (2) 4-8-001:001, 4-8-001:010, 3-6-001:052, and 3-6-001:014.
- KWP 1 has been operating since 2006 under the following:
  - 20-year Power Purchase Agreement (PPA) with Hawaiian Electric
  - 20-year lease agreement with Board of Land and Natural Resources (BLNR)
  - 20-year incidental take license (ITL) and incidental take permit (ITP)
- Opportunity to continue operations for another 20 years under a new PPA (to be approved by the Hawai'i Public Utilities Commission).
- **The Proposed Action would require no construction or physical improvements beyond maintenance activities.**

HRS 343 Review Trigger and Accepting Authority

- The Applicant's use of State lands and land within the conservation district for the Proposed Action is subject to review under Hawai'i Revised Statutes (HRS) Chapter 343.
- The BLNR is the accepting authority for the Environmental Impact Statement (EIS), which will be prepared by the Applicant in compliance with HRS Chapter 343 and Hawai'i Administrative Rules (HAR) Chapter 11-200.1.

Required Permits and Approvals Anticipated

Although the Proposed Action would not require any physical changes to the existing KWP 1 facility, certain discretionary permits/approvals are anticipated to be required for implementation of the proposed project. The following is a preliminary list of permits and approvals anticipated to be required:

- Federal Endangered Species Act (ESA) compliance through U.S. Fish and Wildlife Service (USFWS) issuance of an amended ITP and approval of a Habitat Conservation Plan (HCP) for the 20-year extended operational period.
- National Environmental Policy Act (NEPA) compliance and National Historic Preservation Act Section 106 compliance by USFWS for the federal action of issuance of an ITP under Section 10(a)(1)(B) of the ESA.
- BLNR approval of a land lease for approximately 20 years, coterminous with the KWP 1 Hawaiian Electric Stage 3 PPA;
- HRS Chapter 343 EIS to review the Applicant's use of State lands and land within the conservation district for the proposed Project (KWP 1 has an existing Conservation District Use Permit);
- HRS Chapter 6E, Historic Preservation Compliance;
- BLNR approval of an HCP and issuance of an amended ITL from the DLNR Division of Forestry and Wildlife for the 20-year extended operational period;
- County of Maui: No permits identified as KWP 1 is in the conservation district.

KAHEAWA WIND 1

Continuing to Deliver Renewable Power to Maui for Future Generations

Environmental & Cultural Considerations

Environmental Conditions

- The renewable energy generated at the wind farm decreases our reliance on fossil fuels, improving air quality and combating climate change
- No new lands or habitats will be disturbed at the site
- An updated environmental review is being conducted to comply with the Hawai‘i Environmental Policy Act (HEPA) and National Environmental Policy Act (NEPA)
- Twenty years of site surveys have provided a thorough understanding of the wind farm, allowing for optimized management of its operations and wildlife ecology
- The existing conservation programs will be continued and expanded for the nēnē (Hawaiian goose), ‘ōpe‘ape‘a (Hawaiian hoary bat), ‘ua‘u (Hawaiian petrel) and ‘a‘o (Newell’s shearwater)
- Coordination with the State Division of Forestry and Wildlife (DOFAW) and the United States Fish and Wildlife Service (USFWS) is underway to amend existing permits and carry out the most effective mitigation strategies to further support our conservation efforts

Cultural Resources

- Existing operations will remain unchanged with no new land disturbances at the site
- A cultural-historical brief was created recording the past and present history of the area within the Ukumehame ahupua‘a
- An updated cultural impact assessment in support of a HRS Chapter 343 review will be prepared for the project including a Ka Pa‘akai Analysis
- Multiple archeological surveys and investigations have been performed over the history of the wind farm documenting the site’s characteristics
- Coordination will continue with the Department of Land and Natural Resources, State Historic Preservation Division (SHPD)



KAHEAWA WIND 1

Continuing to Deliver Renewable Power to Maui for Future Generations

Habitat Conservation Plan

A Habitat Conservation Plan (HCP) is a planning document that outlines the minimization and mitigation measures that will be implemented for listed species that are anticipated to be incidentally taken during otherwise lawful activities. It is written in support of issuance of an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) and an Incidental Take License (ITL) from the State of Hawai'i, DLNR Division of Forestry and Wildlife (DOFAW) and the Board of Land and Natural Resources (BLNR) under HRS Chapter 195D. These permits will only be issued if the individual agencies find that the HCP meets the specified criteria under the applicable federal or state laws, respectively. The plan is designed to provide long-term net benefits to covered species and their habitats. The HCP describes the anticipated effects of the proposed taking, how those impacts will be minimized and mitigated, and how the conservation measures included in the plan will be funded.

Kaheawa Wind 1's (KWP 1) current ITP and ITL are set to expire in January 2026; therefore, an amended ITP from USFWS and amended ITL from DLNR DOFAW covering the extended period of operations and approval of an associated HCP are required for the KWP 1 Continued Use Project's 20-year extended operation period.

Existing HCP and Permits

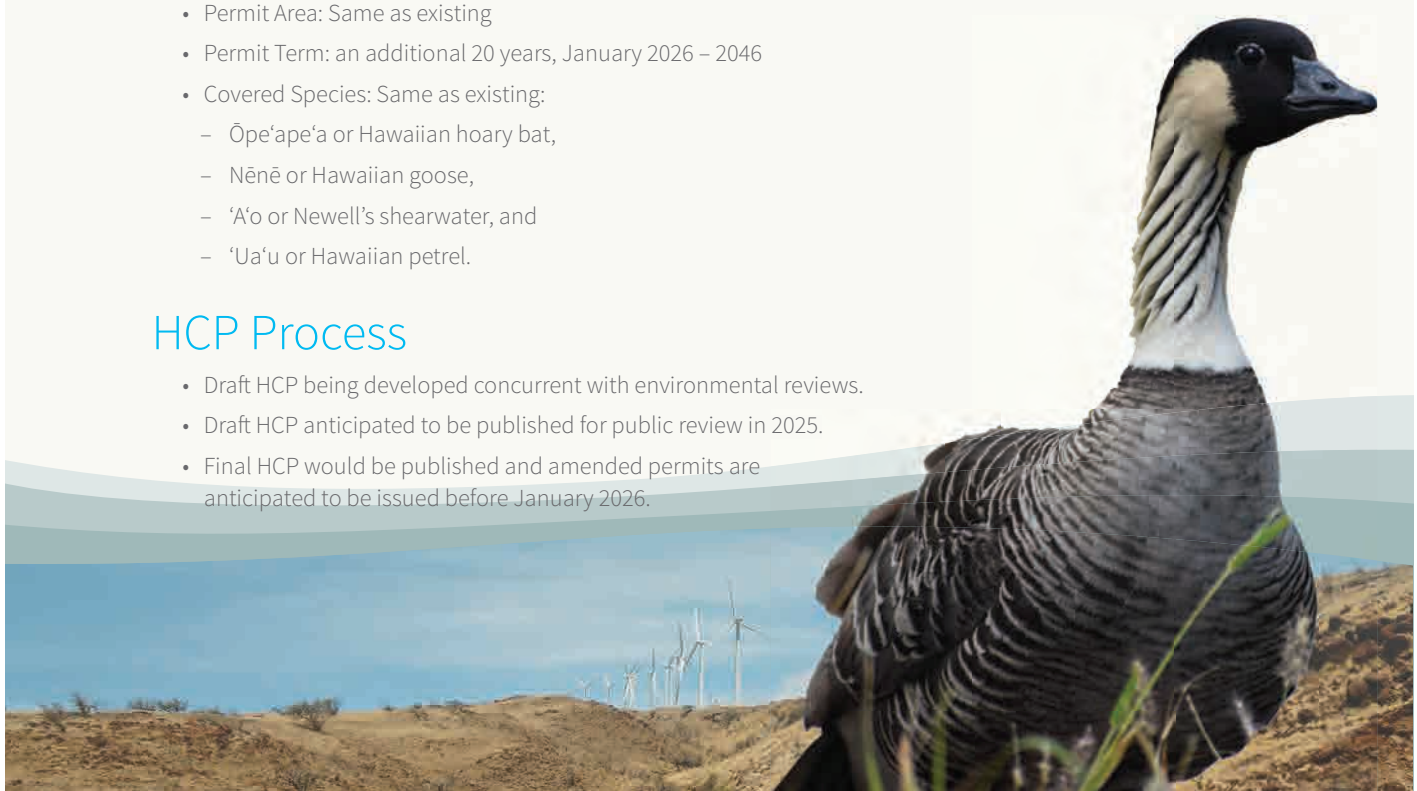
- Kaheawa Wind 1's existing HCP was approved in January 2006
- USFWS issued an ITP January 30, 2006 (20-year term)
- DLNR DOFAW issued an ITL (after receiving approval from the BLNR) January 30, 2006 (20-year term)

Preliminary HCP Summary for Extended Permit Term

- Covered Activity by the HCP: Continued operation of the KWP 1 Facility
- Permit Area: Same as existing
- Permit Term: an additional 20 years, January 2026 – 2046
- Covered Species: Same as existing:
  - Ōpe'ape'a or Hawaiian hoary bat,
  - Nēnē or Hawaiian goose,
  - 'A'o or Newell's shearwater, and
  - 'Ua'u or Hawaiian petrel.

HCP Process

- Draft HCP being developed concurrent with environmental reviews.
- Draft HCP anticipated to be published for public review in 2025.
- Final HCP would be published and amended permits are anticipated to be issued before January 2026.



Scoping Comment Form

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Kaheawa Wind 1 (KWP 1) Continued Use Project

Environmental Impact Statement Preparation Notice 30-day Public Comment Period

Public Comment Form

For more information visit: www.kaheawawind.com/ and
https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf

Comments can be submitted by email to **Leslie.mcclain@tetratech.com** or by U.S. Mail addressed to:

Tetra Tech, Inc., Attn: Leslie McClain,

737 Bishop Street, Suite 2000

Honolulu, Hawaiʻi 96813

All comments should be submitted/postmarked by **November 22, 2024.**

Name: _____

Address: _____

Email: _____

Comments: _____

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Scoping Meeting Sign-In Sheet

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SIGN-IN SHEET | KWP 1 CONTINUED USE PROJECT EIS SCOPING MEETING

October 29, 2024

Please print legibly so that we can accurately record your contact information.

Note that this information will become a part of the public record for this project and your information will be added to the Draft EIS Distribution List. Mahalo!

Name	Affiliation/Agency	Email and/or Mailing Address	Do you want to provide an oral comment at tonight's meeting?
Kamauu Kahaialii		Kamauu@gmail.com	
Vernon Kalanikau		frikumvk@gmail.com	
TOM COOK		COOKSYNERGY@GMAIL.COM	
Spencer Engles		englesspencer@gmail.com	
Zoe Krantz		[redacted]KKrantz@gmail.com	
MIGUEL ROSALES		miggr8@yahoo.com	

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Scoping Meeting – How to Comment Form

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Kaheawa Wind 1 Continued Use Project

EIS Public Scoping Meeting and How to Provide Comments

Kaheawa Wind Power, LLC (Applicant) proposes to continue operating the existing 30-megawatt Kaheawa Wind 1 (KWP 1) energy generation facility located in the Kaheawa Pastures of West Maui. More information is available at www.kaheawawind.com/.

An Environmental Impact Statement (EIS) Preparation Notice (EISPN) for the KWP 1 Continued Use Project (Project) was prepared in accordance with Hawai'i Revised Statutes (HRS), Chapter 343 and Hawai'i Administrative Rules (HAR), Title 11, Chapter 200.1. The EISPN was published in the State of Hawai'i Environmental Review Program's October 23, 2024 edition of *The Environmental Notice* and is available for review here:

https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf

Publication of the EISPN in *The Environmental Notice* started a 30-day public review and comment period, within which agencies, groups and individuals have an opportunity to provide written comments regarding potential environmental effects from the Project. Information collected during the scoping process will be incorporated into the Draft EIS.

If you would like to submit comments on the EISPN and the scope of the EIS, comments must be emailed or postmarked by **November 22, 2024** (i.e. end of the 30-day comment period). You can provide comments in the following ways:

- Oral comments will be received at the scoping meeting
- Fill out a written comment form available at the scoping meeting
- E-mail comments to: **Leslie.mcclain@tetratech.com**
- Mail comment letters or comment form to:

Tetra Tech, Inc., Attn: Leslie McClain,
737 Bishop Street, Suite 2000
Honolulu, Hawai'i 96813



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Appendix B. Public Comments and Responses

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Appendix B. Public Comments and Responses

Scoping Comment Response Matrix

Table B-1. KWP 1 Scoping Comment Response Matrix

Letter ID Number	Comment Number	Agency/Organization	Comment	Response	Section
1	1	State of Hawaii Department of Accounting and General Services (DAGS)	Thank you for the opportunity to comment on the subject project. We have no comments to offer at this time as the proposed project does not impact any of the DAGS projects or existing facilities.	Thank you for your comment.	N/A
2	1	County of Maui Department of Fire and Public Safety	Thank you for the opportunity to review your project. At this time, the Fire Prevention Bureau has no comments. Please feel free respond back should you want to identify or inquire about any specific fire-related public safety concerns for this or any additional future projects.	Thank you for your comment.	N/A
3	1	State of Hawaii Department of Education (DOE)	Thank you for your letter dated October 22, 2024. Based on the information provided, we have determined that the proposed project will not have an impact on the operations of Hawaii State DOE facilities.	Thank you for your comment.	N/A
4	1	State of Hawaii Department of Transportation (HDOT)	Thank you for your letter, dated October 15, 2024, requesting the HDOT review and comments on the subject project. HDOT understands Kaheawa Wind Power, LLC is proposing to continue operation of the existing KWP 1 wind generation facility for an additional 20-year period. Considering the project description and location, HDOT does not anticipate any significant adverse impacts therefore, we have no comments to provide. Please submit any subsequent land use entitlement-related requests for review or correspondence to the HDOT Land Use Intake email address at DOT.LandUse@hawaii.gov.	Thank you for your comment.	N/A
5	1	State of Hawaii Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD)	The location of the proposed Kaheawa Wind 1 Continued Use Project presents specific challenges for historical and cultural resource protection, largely due to its proximity to significant cultural landmarks such as the Lāhainā Pali Trail. This trail is historically important as a connector between Lāhainā and Wailuku, and it is still used for recreational purposes today. Another major concern is the continued negative impact that the Kaheawa Wind 1 Continued Use Project will have on culturally important natural, biological, cultural, and archaeological resources in the project area. SIHP #50-50-09-02946 Lāhainā-Pali Trail—5.5-mile historic trail that runs from the Mā'alaea Harbor across to the Lāhainā and Ukumehame area and reaches an elevation of 1600 feet. Trail was built over 200 years ago, is related to the larger ala loa island-wide trail, and is significant for its association with legends, missionary stories, and other historic accounts. It fell out of use in 1900 when the main road was built by prison labor.	The Lāhainā-Pali Trail has been previously recorded by several archaeological studies, as described in Section 3.10.1.6 of the EIS. Per Tomonari-Tuggle and Tuggle (1991)[1], the Lāhainā-Pali Trail was constructed in 1841 to accommodate horse traffic between Central Maui, near Pu'u Hele, and Lāhainā and was likely built over an older trail and fell out of use around the turn of the century when a carriage road was constructed along the coast. The Project's existing four-wheel-drive access roadway (which extends from Honoapi'ilani Highway mauka to the KWP 1 turbines via an existing access easement within TMK (2) 3-6-001:014) crosses the Lāhainā-Pali Trail approximately 0.5 mile makai of the southernmost Project wind turbine and limits of the KWP 1 lease area. The Project's 200-acre lease area associated with the existing turbines and associated equipment does not intersect with the Lāhainā-Pali Trail. An analysis of potential impacts to the Lāhainā-Pali Trail as a result of the Proposed Action is included in Section 3.10.2.	3.10.1 3.10.2
5	2	State of Hawaii DLNR SHPD	SIHP #50-50-09-05232 Multi-component stone-walled heiau structure built with small, weathered basalt boulders and cobbles, probably procured locally. The site consists of two walled enclosures (referred to here as the east and west enclosures), and terraced areas with stone alignments on the south (downslope) and southeast sides of the enclosures. The	SIHP Site #50-50-09-05232 was previously recorded by Athens (2002)[2] and in 2005, International Archaeological Research Institute, Inc. (IARII) prepared a preservation plan for the site (Tomonari-Tuggle and Rasmussen 2005[3]). The Preservation Plan was accepted by SHPD in 2005 (SHPD Correspondence Log No: 2005.1378, Doc No:0507MK02).	3.10.1 3.10.2 Appendix C

[1] Tomonari-Tuggle, M. J., and H. D. Tuggle. 1991. Archaeological Survey of Two Demonstration Trails of the Hawai'i Statewide Trail and Access System, Lahaina Pali Trail, Island of Maui/Kaiolohia Kahue Trail, Island of Lana'i, International Archaeological Research Institute, Inc., Honolulu.
[2] Athens, J. S. 2002. An Upland Heiau Site, Ukumehame Ahupua'a, Maui. International Archaeological Research Institute, Inc. Prepared for GE Wind Energy, LLC, Tehachapi, CA.
[3] Tomonari-Tuggle, M. J., and C. Rasmussen. 2005. Preservation Plan for Site 50-50-09-5232, An Upland Heiau in Ukumehame Ahupua'a, Island of Maui. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC, Honolulu.

Letter ID Number	Comment Number	Agency/Organization	Comment	Response	Section
			total dimensions of the site are 14.7 meters by 22.0 meters, encompassing an area of 323.4 square meters.	This site is located approximately 40 feet west of the western perimeter of the Project's 200-acre lease area/Project Area. Although the heiau is outside the Project Area, it is approximately 320 feet from the closest portion of the Project's limits of disturbance associated with KWP 1's WTG 16. The preservation plan remains in place for the heiau. The heiau was re-visited and briefly assessed during a site visit to the Project Area for Project's Cultural Impact Assessment. Although no significant disturbance was observed, the heiau has vegetation overgrowth and the two posted signs titled "Sacred Cultural Area," were deteriorated only partially legible at the time of the visit. An analysis of potential impacts to this site as a result of the Proposed Action is included in Section 3.10.3. Additionally, a review of the heiau's preservation plan, the recommended preservation measures, and identification of compliance activities are included in the EIS. Although the heiau is located outside the lease boundary and Project Area, the Applicant will complete the following activities in compliance with the long-term preservation measures described in the SHPD correspondence accepting the Preservation Plan: • Support a curation arrangement with a community group such as Maui Cultural Lands, to manage the heiau site. • Support the curator community group with: o Confirming the location of permanent markers identifying the perimeter of a 200-foot buffer from the heiau and if necessary, replace or install markers if not easily visible. o Replacing the current educational signs with new ones identifying the heiau and non-disturbance buffer. Signage text will be determined by the curator group. o Managing vegetation within the heiau. • Provide educational information to onsite employees and contractors (when appropriate) regarding the location of the heiau and its cultural and traditional significance and requirement to avoid impacts to the site and a 200-foot buffer. • Prior to any ground disturbing maintenance activities occurring within 500 feet of the heiau, ensure a cultural/archaeological monitor is onsite to monitor work within 500 feet of the heiau.	
5	3	State of Hawaii DLNR SHPD	SIHP #50-50-09-02827 Site consists of a small enclosure, 1.5m across; overall site area, 1.5 meters x 1.5 meters. SIHP #50-50-09-02825 Site consists of a complex of petroglyphs and walls, up to 1.5m high. Overall site area, 20 x 10m. SIHP #50-50-09-02826 Site consists of a terraced enclosure (3m wide) and adjacent walls (1m high); the overall site area is 24 x 10m.	All three of these sites were previously recorded by Rasmussen 2005a[4] and are located outside the Project Area. Site 02827 is approximately 900 feet and Site 02826 is approximately 700 feet east of the Project's existing four-wheel-drive access roadway. No direct or indirect impacts are anticipated to these two sites due to their distance from the access road and separation from the access road by Malalowaiaole Gulch. Site 02825 is approximately 1,100 feet west of the Project's existing four-wheel-drive access roadway. No direct or indirect impacts are anticipated to this site due to its distance from the access road and separation from the access road by Manawainui Gulch.	3.10.1
5	4	State of Hawaii DLNR	SIHP #50-50-09-01441 Site consists of 3 C-shapes: A, 4 x 3 x 0.5-0.8m; B, 3 x 2 x 0.4-1m; C, 2 x 1.5m; located on the foothills of, northeast of McGregor Point.	SIHP Site #50-50-09-01441 was previously recorded, as part of the 1972-1973 Hawai'i Statewide Inventory of Maui conducted by the Bishop Museum under the support and direction of the State of Hawai'i. This site is located outside the Project Area, over 1,400 feet northeast of the limits of disturbance associated with the Project's existing access	3.10.1

[4] Rasmussen, C. 2005a. Supplemental Archaeological Reconnaissance Survey of the Southern Portion of the New Low Impact Road for the Wind Turbine Project at Kaheawa Pastures, Upland Ukumehame Ahupua'a, Maui (TMK 3-6-01:14). International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC, Honolulu.

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		SHPD		road driveway off Honoapiʻilani Highway. This site is separated from the Project's limits of disturbance by an ephemeral drainage; therefore, indirect impacts such as stormwater run-off from the road would not affect this site	
5	5	State of Hawaii DLNR SHPD	There may be additional sites on or near the project area.	Since 1991, there have been 12 archaeological investigations conducted to comply with statewide historic preservation laws, which have examined areas overlapping with or adjacent to the Project Area. While many of these studies were part of the regulatory requirements for the construction of the KWP 1 and KWP 2 projects, additional surveys were also carried out for the DLNR's Nā Ala Hele Trails Program and the construction of a transmission line by Maui Electric Company. These prior investigations have led to the identification of 25 historic properties (some comprised of multiple features) located within or in proximity to the Project Area. A summary of previous archaeological and historical surveys conducted in the Project Area and vicinity is included in Section 3.10.1 of the EIS. Not all of the previously identified historic properties intersect with the Project Area. An analysis of potential impacts to the sites/features within or adjacent to the Project Area as a result of the Proposed Action is included in Section 3.10.2.	3.10.1 3.10.2
5	6	State of Hawaii DLNR SHPD	Floral Cultural Resources Native shrubland vegetation consists of low stature ʻōhiʻa lehua (Metrosideros polymorpha), ʻaʻaliʻi (Dodonaea viscosa), ʻūlei (Osteomeles anthyllidifolia), and uluhe fern (Dicranopteris linearis).	During the mid- to late 19th century, cattle ranching resulted in drastic transformations to the natural landscape of Ukumehame. As foreign animals grazed on native plants, these species were often replaced with introduced species that eventually overtook the indigenous flora. Native vegetation was further impacted by periodic wildfires throughout the 19th and 20th centuries and through modern development. Although vegetation within the Project Area and vicinity has been previously disturbed and is now dominated by non-native species, biological studies have documented the presence of many indigenous and endemic plants. The natural landscape today supports a mixture of nonnative and native flora. Vegetation surveys were conducted by Tetra Tech in April 2025 to identify the presence of native flora. The results of the survey are included as Appendix D. Eighteen plant species that are native to the Hawaiian Islands were observed in the April 2025 botanical survey (Tetra Tech 2025c[5], Appendix D), including seven species which are endemic to and found only in the Hawaiian Islands. The native plant species observed are considered common species throughout the Hawaiian Islands. Native vegetation appears to become increasingly more dominant mauka of the Project Area toward the summit of Mauna Kahālāwai (Jacobi et al. 2017[6]). Native plant communities include low-stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻūlei (*Osteomeles anthyllidifolia*), and native ferns uluhe (*Dicranopteris linearis f. linearis*), palaʻā (*Odontosoria chinensis*), and kīlau (*Pteridium aquilinum subsp. decompositum*). Other native species present in or along the edges of the mesic shrubland include ʻilima (*Sida fallax*), ʻuhaloa (*Waltheria indica*), and ʻākia (*Wikstroemia oahuensis* var. *oahuensis*), which are common in occurrence, and koʻokoʻolau (*Bidens micrantha* subsp. *micrantha*), kāwelu (*Eragrostis variabilis*), Morelotia gahniiformis, koali ʻawa (*Ipomoea indica*), and *Nephroia orbiculata*, which are rare in occurrence. A list of native plants recorded during the April 2025 Botanical Survey (Appendix D) is included in Table 3 10 in Section 3.8 of the EIS.	Section 3.8 Section 3.10.1 Section 3.10.2 Appendix D Appendix C

[5] Tetra Tech. 2025c. Kaheawa Wind 1 Continued Use Project. Botanical Survey Report. Prepared for Kaheawa Wind Power, LLC. May 2025.

[6] Jacobi, J. D., J.P. Price, L. B. Fortini, S. M. Gon III, & P. Berkowitz. 2017. Hawaiʻi Land Cover and Habitat Status [Data set]. U.S. Geological Survey. Available online at: https://doi.org/10.5066/F7DB80B9. Accessed December 2024.

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				With the implementation of the KWP 1 Vegetation Management Plan (Appendix F), Invasive Species Prevention Plan (Appendix G), and Wildfire Prevention Plan (TerraForm 2025[7]), continued operations of the KWP 1 facility is anticipated to have minor, direct and indirect impacts to native and endemic vegetation within the Project Area and vicinity and a negligible impact at a species population level. Given that the Project Area has already been developed and no additional ground disturbance is planned outside of previous areas of ground disturbance, it is anticipated that any impact of the continued operations of the KWP I facility on native flora, would not be significant. Moreover, there is potential for ecological improvement through renewed efforts to manage invasive species and restore native vegetation.	
5	7	State of Hawaii DLNR SHPD	Faunal Cultural Resources Several native birds protected by the Migratory Bird Treaty Act are known to or have the potential to occur in or fly through the project area; these include (but are not limited to) the Pacific golden plover/kōlea (Pluvialis fulva), wandering tattler/ʻūlili (Tringa incana), white-tailed tropicbird/koaʻekea (Phaethon lepturus), sooty tern/ʻewaʻewa (Onychoprion fuscatus), wedge- tailed shearwater/ʻuaʻukani (Puffinus pacificus), and the endemic Hawaiian short-eared owl/pueo (Asio flammeus sandwichensis). The Hawaiian short-eared owl has the potential to forage in or traverse the project area. Four Federal and State-listed wildlife species have the potential to occur or use habitat in the project area: the Hawaiian hoary bat/ʻōpeʻapeʻa (Aeorestes semotus), Hawaiian goose/nēnē (Branta sandvicensis), Hawaiian petrel/ʻuaʻu (Pterodroma sandwichensis), and Newell's shearwater/ʻaʻo (Puffinus newelli) (KWP 2006). Additionally, based on the project location, two other listed species have the potential to occur in or transit the project area or its vicinity. The band-rumped storm- petrel/ʻakēʻakē (Oceanodroma castro) and Blackburn's sphinx moth (Manduca blackburni). The Incidental Take License from the Department of Land and Natural Resources' Division of Forestry and Wildlife (DOFAW) expires in January 2026. However, the proposed Kaheawa Wind 1 Continued Use Project seeks to extend this license for approximately 20 more years. If DOFAW grants this extension, there is a risk of continued significant negative impacts on species covered by the Incidental Take License that are listed as endangered or threatened under the federal Endangered Species Act and Hawaiʻi Revised Statutes Chapter 195D. These species represent invaluable cultural and biological resources that would suffer further depletion through additional incidental fatalities.	As described in Section 3.10.1.5 of the EIS, various native and endemic animals present in the Project Area have been identified as culturally important. Species include numerous species of seabirds, shorebirds and wading birds, the pueo, the nēnē, and the ōpeʻapeʻa. Impacts to these wildlife species as a result of the Proposed Action are analyzed within Section 3.9.2. Any cultural impacts that could occur as a result of impacts to listed wildlife species are analyzed in Section 3.10.2. The Proposed Action's Proposed HCP identifies minimization and mitigation measures for the Project's Covered Species which include the Hawaiian hoary bat/ʻōpeʻapeʻa, Hawaiian goose/nēnē, Hawaiian petrel/ʻuaʻu, Newell's shearwater/ʻaʻo, Band-rumped storm petrel/'akē'akē, and assimulans yellow-faced bee/nalo meli maoli. The conservation strategy proposed in the HCP includes avoidance, minimization, and mitigation measures to fully offset the impact of take and provide a net benefit to Covered Species. The proposed avoidance and minimization measures would reduce the risk of impacts to culturally important listed species during continued operations and proposed mitigation measures (i.e., habitat regeneration, breeding release programs, and significant financial support for conservation programs and species-specific environmental studies) would offset any animal fatalities that cannot be avoided and result in a net benefit to the Covered Species, as outlined in the Proposed HCP. Regarding the band-rumped storm-petrel/ʻakē ʻakē, it was once historically abundant throughout the main Hawaiian Islands; however, current breeding colonies are known on Kauaʻi and Hawaiʻi Island, with suspected nesting on Maui. Currently, no individuals of this species has been observed within the Project Area nor have any ʻakē ʻakē fatalities been recorded during the 18 years of operation at KWP 1 or during the 12 years of operation at the adjacent KWP 2 facility (KWP 2024a[8]). However, take coverage for the ʻakēʻakē is being sought based on consultation with DOFAW and USFWS (Tetra Tech 2025a[9]). Regarding the Blackburn's sphinx moth, the native, larval host plants (ʻaiea) and the common invasive host plant (non-native tree tobacco), do not occur in the Project Area. Because of the absence of host plants, the potential for Blackburn's sphinx moth to occur within the Project Area is unlikely (KWP 2024a[10])	3.9.2 3.10.1 3.10.2

[7] TerraForm (TerraForm Power). 2025. Wildfire Prevention Plan. Kaheawa Wind I and II.
[8] KWP. 2024a. Kaheawa Wind Power Habitat Conservation Plan Annual Reports, FY 2007 to FY 2024. Prepared in collaboration with Tetra Tech. Annual reports are publicly available at: https://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/.
[9] Tetra Tech. 2025a. Kaheawa Wind Power I Habitat Conservation Plan, Maui, Hawaiʻi. DRAFT. Prepared in collaboration with Kaheawa Wind Power, LLC. May 2025 (Under Development)
[10] KWP. 2024a. Kaheawa Wind Power Habitat Conservation Plan Annual Reports, FY 2007 to FY 2024. Prepared in collaboration with Tetra Tech. Annual reports are publicly available at: https://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/.

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<tr><th>Letter ID Number</th><th>Comment Number</th><th>Agency/Organization</th><th>Comment</th><th>Response</th><th>Section</th></tr>
<tr><td></td><td></td><td></td><td></td><td>As noted in your letter, several migratory and indigenous birds protected by the MBTA are known to or have the potential to occur in or fly through the Project Area. The Proposed Action may result in MBTA and non-protected species occasionally colliding with the operating wind turbines, hitting other structures, or being struck by vehicles operating on the site. However, such levels of take are not anticipated to adversely affect local or regional populations of these species. Impacts to native birds that have cultural value and may be impacted by the Proposed Action are further discussed in Sections 3.9 and 3.10 of the EIS.</td><td></td></tr>
<tr><td>5</td><td>8</td><td>State of Hawaii
DLNR
SHPD</td><td>Visual Cultural Resources
The Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Use Project addresses potential adverse impacts on scenic vistas and view planes on Maui. However, the project has not evaluated potential negative impacts on scenic vistas and view planes as seen from Kahoʻolawe, nor the effects on Hawaiian religious practitioners who conduct ceremonies there. Therefore, the Environmental Impact Statement (EIS) should include an assessment of potential impacts on scenic vistas and view planes from Kahoʻolawe, which is an integral part of Maui Nui.</td><td>Since publication of the EISPN, ASM Affiliates has initiated communication with Protect Kahoʻolawe ʻOhana, an organization that holds annual Makahiki ceremonies on Kahoʻolawe. A summary of communications is included in the Cultural Impact Assessment (CIA) in Appendix C.
As noted in the CIA, while an initial response was received from the Protect Kahoʻolawe ʻOhana, it did not ultimately prove possible to schedule an interview. Without additional information from individuals or organizations engaging in religious observances on Kahoʻolawe, it is difficult to assess the nature or scope of any potential impacts. Given that the KWP I project has been in operation for almost two decades, there will be no new visual impacts associated with the Proposed Action.</td><td>3.10.1
3.10.2
Appendix C</td></tr>
<tr><td>5</td><td>9</td><td>State of Hawaii
DLNR
SHPD</td><td>Despite the potential impact to sites in the vicinity, as detailed above, no Archaeological Inventory Survey (AIS) has been conducted in the project area to date. While no new ground-disturbing activities are currently proposed, an AIS may still reveal additional archaeological resources in or near the area. While an Archaeological Reconnaissance Survey was conducted by the International Archaeological Research Institute, Inc. in 1998, this does not adequately meet current Hawaiʻi archaeological standards in accordance with Hawaiʻi Administrative Rules §13-276. Given the archaeological and cultural significance of this location, a modern AIS should be conducted to ensure compliance with current historic preservation regulations.</td><td>The entire ground surface of the proposed limits of disturbance, including the access road leading from the Honoapiʻilani Highway to the KWP 1 200-acre lease area, has been surveyed for historical resources. Since 1991, there have been 12 archaeological investigations conducted that examine areas overlapping with the limits of disturbance. These studies are listed in Table 1 below, and their study areas are shown in Figure 3-13 in the EIS.
Table 1. Previous archaeological studies conducted within the Project vicinity.
<table>
<tr><th>Year</th><th>Author</th><th>Type of Study</th></tr>
<tr><td>1991</td><td>Tomonari-Tuggle and Tuggle</td><td>Archaeological Inventory Survey</td></tr>
<tr><td>1994</td><td>Robins et al.</td><td>Archaeological Inventory Survey</td></tr>
<tr><td>1996</td><td>Hammatt et al.</td><td>Archaeological Inventory Survey</td></tr>
<tr><td>1998</td><td>Tomonari-Tuggle</td><td>Archaeological Reconnaissance Survey</td></tr>
<tr><td>2002</td><td>Athens</td><td>Archaeological Inventory Survey of Heiau</td></tr>
<tr><td>2003</td><td>Magnuson</td><td>Archaeological Inventory Survey</td></tr>
<tr><td>2004</td><td>Athens</td><td>Archaeological Inventory Survey</td></tr>
<tr><td>2005a</td><td>Rasmussen</td><td>Archaeological Reconnaissance Survey</td></tr>
<tr><td>2005b, c</td><td>Rasmussen</td><td>Archaeological Reconnaissance Survey</td></tr>
<tr><td>2005</td><td>Clark and Rechtman</td><td>Archaeological Inventory Survey</td></tr>
</table></td><td>3.10.2
3.10.3</td></tr>
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<tr><th>Letter ID Number</th><th>Comment Number</th><th>Agency/Organization</th><th>Comment</th><th>Response</th><th>Section</th></tr>
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<table>
<tr><td>2008</td><td>Clark and Rechtman</td><td>Archaeological Inventory Survey</td></tr>
<tr><td>2009</td><td>Rechtman et al.</td><td>Archaeological Inventory Survey</td></tr>
</table>

While many of these studies were part of the regulatory requirements for the KWP 1 and KWP 2 projects, additional surveys and studies were also carried out for the DLNR Nā Ala Hele Trails Program, construction of a transmission line by Maui Electric Company, and development of the upland heiau SIHP site #50-50-09-05232 Preservation Plan.

On April 25, 2025, the Applicant and its cultural consultant, Aina Archaeology, met with the SHPD the Archaeological Branch Chief and Maui Cultural Historian to discuss this topic, along with other items outlined in SHPD’s comment letter. During the meeting, SHPD advised that the Draft EIS should include a comprehensive description of all previous studies conducted within the Project’s limits of disturbance. A comprehensive discussion of all previous surveys conducted to date in the Project area and vicinity is included in Section 3.10.1 of the EIS and provides sufficient background to assess existing archaeological and historic resources in the Project Area and immediate vicinity.</td><td></td></tr>
<tr><td>5</td><td>10</td><td>State of Hawaii
DLNR
SHPD</td><td>In addition, the applicant is also conducting a Cultural Impact Assessment, which will be included in the Draft Environmental Impact Statement (DEIS). This assessment aims to identify additional cultural resources in or near the project area. The DEIS for the Kaheawa Wind 1 Continued Use Project should provide further details on these resources and analyze potential impacts. Additional resources may also be identified during the scoping process.

A Ka Pa‘akai Analysis should also be considered when evaluating this project proposal because of its potential to impact the exercise of Native Hawaiian traditional and customary rights.</td><td>The Project’s Draft CIA is included as Appendix C. A Ka Pa‘akai Analysis was included in the CIA and incorporated into the EIS. The findings from the CIA are analyzed in Section 3.10 of the EIS.</td><td>3.10
Appendix C</td></tr>
<tr><td>5</td><td>11</td><td>State of Hawaii
DLNR
SHPD</td><td>Lastly, the DEIS plans to include a “No Action Alternative,” where the proposed action would not proceed. Under this alternative, the existing Kaheawa Wind 1 Continued Use Project facility would cease operations and undergo decommissioning. The project proponent must clarify the process for decommissioning and removal if their lease extension is denied. Additionally, details are needed regarding the disposal of Kaheawa Wind 1 Continued Use Project materials. Other reasonable alternatives that meet the project’s purpose and objectives may also be developed in response to feedback from scoping and consultations.</td><td>A “No Action Alternative” is described in Section 2.2 and is analyzed throughout Section 3. Details on decommissioning activities are included in Sections 2.2.4 and 2.2.1. Disposal of Project materials is outlined in Sections 3.15.2.2 and 3.15.2.3.</td><td>2.2
3.15</td></tr>
<tr><td>5</td><td>12</td><td>State of Hawaii
DLNR
SHPD</td><td>The Applicant intends to consult with elected officials, agency representatives, community leaders, and community members during the scoping period. To ensure a comprehensive and inclusive consultation process, the project proponents may also want to submit their scoping and consultation list to SHPD for review and to potentially recommend additional individuals or organizations with an interest or expertise in the area.

SHPD also requests the Department of Land and Natural Resources Land Division to please ensure that the project and associated documents are submitted to the Hawai‘i Cultural Resource Information System (HICRIS) during the permitting application process for SHPD review.</td><td>The list of scoping and consultation participants is provided in Section 6.2. We would appreciate the SHPD’s review and input on the list. Kaheawa Wind, LLC would work with the DLNR Land Division and SHPD to coordinate on submittals to HICRIS as appropriate during the permitting process.</td><td>6.2</td></tr>
</table>

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6	1	Jordan Lerma, Nēnē Research and Conservation	While we support the development of renewable energy and its role in achieving Hawai'i's Renewable Portfolio Standard goals, we are concerned about the project's potential impacts on state and federally listed species, including the Nēnē, 'Ōpe'ape'a, 'Ua'u, and 'A'o. We acknowledge and appreciate the current mitigation and monitoring techniques being implemented at the Kaheawa Wind facility, including systematic downed wildlife monitoring, incidental fatality detections, and over 18 years of post-construction monitoring data collection, which has documented mortalities including approximately 55 Nēnē, 32 Hawaiian hoary bats, and 23 Hawaiian petrels. However, implementing new technologies could improve the estimation of total take and enhance mitigation efforts. To further mitigate risks to listed species, we recommend implementing the following measures informed by best practices from global wind energy facilities and recent research advancements: 1. **Advanced Monitoring Systems**: Deploy GPS or Cellular Tracking Technology (CTT) tags to better understand the movement patterns and habitat use of listed species, particularly Nēnē, which tend to have higher site fidelity and transit through problematic areas more often. Monitoring habitat usage through tagging can provide critical insights into how Nēnē interact with the project area across different seasons. This data can identify high-risk zones, inform site-specific mitigation measures such as habitat modifications or relocation strategies, and help evaluate the effectiveness of ongoing conservation efforts. It can also enhance understanding of seasonal movements, breeding site fidelity, and population dynamics, enabling more targeted and efficient management practices. Install electronic monitoring systems near turbines and other high-risk areas to capture real-time data on species movements and interactions with turbines, especially for species that may be injured but not immediately detected. Recent research, such as studies utilizing the ThermalTracker-3D system, has shown the value of identifying flight characteristics, behaviors, and activity patterns in detecting and mitigating risks for seabirds. These systems can also track nocturnal activity and identify birds and bats in low-visibility conditions, enabling more accurate assessments of species presence and risk factors. 2. **Improved Take Assessment**: Utilize the data from advanced monitoring technologies to refine take estimates for all listed species, including those that may sustain injuries and leave the area before succumbing to impacts. Enhanced detection methods will improve accuracy in assessing the cumulative impact of the project on vulnerable populations. 3. **Habitat and Nesting Management**: For species such as Nēnē, increase monitoring to help identify the subpopulation most closely associated with the project site. This can include banding and tracking resights to better understand the seasonal use of project areas by the subpopulation. Such data can inform potential mitigation measures, such as relocating nests to a different subpopulation to reduce likelihood of conflict while supporting the overall Maui population. 4. **Proactive Operational Adjustments**:	The EIS and the associated Draft HCP address the potential impacts to state and federally listed species. The HCP was drafted using the best available science and in close coordination with USFWS and DOFAW. New technologies are addressed in the "Changed Circumstances" section of the HCP, and some are also included as potential adaptive management responses, along with operational curtailment. Proposed measures specific to nēnē include engaging with DOFAW Maui to band nēnē within the Project Area to track individual nēnē, better understand their movements, nesting location fidelity, and provide insight to nēnē mortality at KWP 1. Compensatory mitigation measures are also included in the HCP to provide a net benefit to all Covered Species.	3.9

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			Implement turbine curtailment strategies during peak transit times for ʻUaʻu and ʻAʻo, particularly during sunrise and sunset when activity is heightened. These strategies can be informed by real-time data from monitoring systems, such as stereo cameras and thermal imaging. Facilities such as Block Island Wind Farm have successfully used operational adjustments, including turbine spin-downs, to reduce avian collisions during peak transit times. As an organization dedicated to the conservation of native Hawaiian species, we are particularly concerned about ensuring that the continued operation of the Kaheawa Wind 1 project does not exacerbate the decline of already vulnerable populations. Data from our research indicates that Nēnē populations on Maui remain in decline, emphasizing the urgent need to minimize overall take and support ongoing efforts to revitalize this species. By leveraging advanced monitoring technologies and implementing proactive habitat management, we can collaboratively achieve a balance between renewable energy development and the preservation of Hawaiʻi's unique biodiversity.		
7	1	State of Hawaii Office of Planning and Sustainable Development (OPSD)	If the proposed action was restricted to the renewal of the land lease with no change in use or expansion of the facilities, the existing EA would appear to be sufficient. However, given the existing impacts on protected species and the need to obtain an ITP from USFWS, an ITL from DOFAW and approval of the associated HCP modifications, DLNR's decision to prepare an EIS is prudent. KWP 1 provides clean energy to the people of Maui at less cost than fossil-fuel-generated electricity and is an important asset in achieving State goal of 100% clean energy by 2045. OPSD notes that wind-generated energy requires significantly less land than other renewable energy sources such as photovoltaic facilities. Increasing the use of wind-generated energy in the State's renewable energy portfolio would reduce the competition between renewable energy facilities and agricultural uses for lands in the State Agricultural District. OPSD looks forward to reviewing the draft EIS and has no further comments at this time.	Thank you for your comment.	N/A
8	1	State of Hawaii DLNR	At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division-Planning on the subject matter.	N/A	N/A
9	1	State of Hawaii DLNR Engineering Division	The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). Be advised that 44CFR, Chapter 1, Subchapter B, Part 60 reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards. The owner of the project property and/or their representative is responsible for researching the Flood Hazard Zone designation for the project. Flood zones subject to NFIP requirements are identified on FEMA's Flood Insurance Rate Maps (FIRM). The official FIRMs can be accessed through FEMA's Map Service Center (msc.fema.gov). Our Flood Hazard Assessment Tool (FHAT) (fhat.hawaii.gov) could also be used to research flood hazard information.	As discussed in Section 3.6.1 of the EIS, the entire Project Area is located within Flood Hazard Zone X, which is defined by FEMA as an area of minimal flood hazard. Zone X includes areas determined to be outside the 0.2 percent annual chance (or 500-year) floodplain. No base flood elevations or depths are shown within this zone. Onsite drainage at the existing KWP 1 site was designed to control erosion, minimize sedimentation, and prevent damage to downstream properties to the maximum extent practicable. Flooding has not been an issue at the KWP 1 facility over its nearly 20 years of operation (KWP LLC, personal communication, April 17, 2025). The continued operation of the KWP I facility for the next 20 years (i.e. the Proposed Action) is not anticipated to have increased exposure to flood risks.	3.6.1
10	1	State of Hawaii	The EISPN notes that located within the leased lands for Kaheawa Wind Power 1 (KWP 1) are the substation for Kaheawa Wind Power 2 (KWP 2) and the associated battery	The Project Area contains some of the supporting infrastructure for the KWP 2 wind energy facility (i.e. the KWP 2 substation, battery energy storage facility, and electrical	1.1.1.1

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		DLNR Land Division-Planning	storage facility. Please clarify what type of land disposition the Applicant has from the State which allows for these facilities to be located within the KWP 1 leased area. In addition, please clarify if KWP 1 and KWP 2 operate independently of each other or are intertwined in some way, i.e. could KWP2 continue to operate (without the substation and battery storage) if a new lease was not granted to the KWP 1 premises?	collection system) and KWP 2 shares the use of the KWP 1 O&M building and warehouse storage facility and associated access roads (see Figure 1-2 in the EIS). KWP 2 is a separate wind facility from KWP 1 owned by Kaheawa Wind Power II, LLC and has a separate state land lease (General Lease No. S-6003). As part of that lease, KWP 2 has easements for 1) the KWP 2 facilities located within the KWP 1 lease area (i.e. the KWP 2 substation and switchyard and battery energy storage facility), 2) the use and access the buildings shared with KWP 1, 3) the portions of the KWP 1 access roads which contains the KWP 2 collector lines that are buried below these roads and require operations and maintenance, and 4) the utility pole located at the southernmost portion of the KWP 1 lease area which is the western terminus of the KWP 2 overhead collector line. Although KWP 1 and KWP 2 share some facilities, the two wind projects are separately permitted and have separate land entitlements. If KWP 1 were to be decommissioned prior to KWP 2, the shared facilities and access roads associated with KWP 2's access and utility easements would remain and continue to be operated and maintained as part of the KWP 2 facility.	2.1.1
10	2	State of Hawaii DLNR Land Division-Planning	The forthcoming Environmental Impact Statement (EIS) should provide a more thorough/detailed history regarding the previously obtained permits and approvals for the project including but not limited to the 1999 EIS, the subsequent 2004 EA, and the modifications/amendments to the Conservation District Use Permit (CDUP), Incidental Take License (ITL), and Habitat Conservation Plan (HCP). The discussion should include the reasons for the modifications and amendments so that the public can understand how the project has evolved over time to what it is now.	A detailed history of previously obtained permits and discussion on reasons for modifications and amendments is provided in Section 1.2.1 of the Draft EIS.	1.2.1
10	3	State of Hawaii DLNR Land Division-Planning	Regarding impacts to listed species, current impacts and projected continued impacts to species should be discussed. Further, compliance with the current ITL and HCP should be discussed. This discussion should include a section regarding the remaining nene credits that need to be fulfilled prior to the expiration of the current ITL and HCP as well as the proposed mitigation measures that would be used to fulfill those credit requirements. Moreso, mitigation measures in general should discuss proposed mitigation that will most likely be a part of the "new" ITL and HCP that will be applied for based on the current average rate of take for all listed species.	Section 3.9.1.4 includes a comprehensive analysis of KWP 1's current impacts to listed species and status of mitigation under the current KWP 1 HCP. Section 3.9.2.2 describes anticipated impacts to listed and other species. Compliance with the existing Incidental Take License (ITL) and HCP is described in Sections 3.9.1.4 and 3.9.1.5, including a discussion of the remaining nene credits that need to be fulfilled and planned mitigation measures for these credits. Section 3.9.2.2 discusses the mitigation actions proposed for the new ITL and HCP based on the current average rate of take for all listed species.	3.9.1.4 3.9.1.5 3.9.2.2
10	4	State of Hawaii DLNR Land Division-Planning	The "No Action Alternative" should discuss positive and negative impacts especially as they relate to Maui's electrical network and communities that rely on KWP1 as their main power source as well as listed species and resources impacted by the proposed project.	The No Action Alternative includes connected activities to decommissioning, including changes to Maui's electrical network in Section 2.2.2. Impacts to electric service as the result of the No Action Alternative are described in Section 3.15.1 and 3.15.2.	2.2.2 3.15.1 3.15.2
11	1	State of Hawaii DLNR Office of Conservation and Coastal Lands (OCCL)	The Office of Conservation and Coastal Lands (OCCL) has reviewed the subject matter and notes the indicated area lies within the Protective and General subzone of the Conservation District. Based upon the information provided, when referring to Kaheawa Wind I or KWP I, the OCCL is assuming you are referring to the improvements authorized by the Board of Land and Natural Resources on January 24, 2003, for Conservation District Use Permit (CDUP) MA-3102 for the Construction and Operation of a 20 MW Windfarm and Associated Facilities and Subdivision of State Land by Hawai'i Wind Energy, LLC, subject to 46 terms and conditions upon a portion of TMK: (2) 4-8-001 :001. It is unclear how this authorization may have extended to parcels (2) 4-8-01:010, (2) 3-6-001 :014 & 052. Please clarify.	The KWP 1 facility received approval of CDUP MA-3103 by the BLNR on January 24, 2003. On June 24, 2005, a modification to CDUP MA-3103 was approved by the BLNR to include conditions related the draft HCP, which was also approved by the BLNR in the same meeting for publication for public review. The modified CDUP MA-3103 (approved June 24, 2005 and issued to Kaheawa Wind Power, LLC) includes 44 conditions. A detailed description of the Applicant's compliance with the conditions in the modified CDUP are provided in Appendix B. The Project Area includes a 200-acre lease area on TMK (2) 4-8-001:001 which contains the existing KWP 1 wind turbine generators and ancillary facilities. The Project Area also includes the existing Kaheawa Pastures access road (primary access road to the KWP 1 lease area) which crosses portions of TMKs (2) 3-6-001:014 and (2) 4-8-001:001. The	1.1.1.1 2.1.1

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				existing Kaheawa Pastures access road is a four-wheel-drive gravel road that begins at Honoapi‘ilani Highway and extends north to the conservation lands mauka of the KWP 1 facility. The road is owned by the State of Hawai‘i and access is controlled by DLNR. Note that in the EIS Preparation Notice (EISPN) published on October 23, 2024 (https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-10-23-MA-EISPN-Kaheawa-Wind-1-Continued-Use-Project.pdf), portions of TMKs (2) 4-8-001:010 and (2) 3-6-001:052 were identified as being included in the Project Area. However, upon further investigation of legal descriptions of the boundaries of these two TMKs (see State of Hawai‘i Survey Division map C.S.F. No. 19186) and the legal description of the boundary of the KWP 1 lease area, the Applicant confirmed the 200-acre lease area associated with the Proposed Action only includes acreage on TMK (2) 4-8-001:001 and the Kaheawa Pastures access road easement on TMKs (2) 4-8-001:001 and (2) 3-6-001:014. Therefore, the two TMKs involved with the Project Area are TMKs (2) 4-8-001:001 (200-acre lease area) and 3-6-001:014 (Kaheawa Pastures access road).	
11	2	State of Hawaii DLNR OCCL	The OCCL requests the EIS discuss compliance of each condition of the attached CDUP MA-3102. Specific attention such as an update and progress account should be given for conditions # 6, 22, 23, 25, 26, 27, 28, 29, 35, & 39.	As noted above, CDUP MA-3103 was modified on June 24, 2005, and includes 44 conditions. Condition #26 from the original CDUP (approved in January 2003) which states “The applicant shall contribute $3,500 annually to DLNR’s Nene Propagation and Recovery Program” was dropped from the approved 2005 modification. The reason for this is the nene mitigation commitments changed from 2003 (the time of the original CDUP approval) to 2005 (the time of the approved amendment to the CDUP) to incorporate the draft HCP mitigation commitments. In the current, modified CDUP, condition #41 of the modified CDUP includes a requirement for the Applicant to implement the conditions of the draft HCP approved June 24, 2005. All other conditions referenced in OCCL’s comment are included in the modified CDUP and a detailed description of the Applicant’s compliance with the conditions in the modified CDUP are provided in Appendix B.	Appendix B
12	1	Hawaii State Energy Office (HSEO)	HSEO concurs with the proposed preparation of an EIS, without first preparing an Environmental Assessment for the subject project, and notes, not only, the importance of the project to the production of wind energy on Maui, but also the importance of the project for Maui’s overall energy stability and resilience. HSEO strongly supports KWP’s request for a one-year holdover lease pursuant to H.R.S. §171-40. HSEO finds the extension of the lease for the next year, under its existing PPA, critically important for meeting Hawai‘i’s energy demand and maintaining energy stability, especially as other Stage 3 projects are withdrawn. TerraForm has consistently demonstrated its role as a responsible and committed partner in advancing renewable energy in Hawai‘i. The company has made significant efforts towards addressing the requirements of the Habitat Conservation Plan, showcasing its commitment to prioritizing environmental impact mitigation and its ability to follow through on projects, thus underlining their ability to perform on the next steps as the project moves forward.	Thank you for your comment.	N/A
13	1	State of Hawaii	Several wildlife species have the potential to occur or use habitat in the project area: the Hawaiian hoary bat/‘ōpe‘ape‘a (*Lasiurus cinereus semotus*), Hawaiian goose/nēnē	The potential for Hawaiian hoary bat, nēnē, Hawaiian petrel, Newell’s shearwater, band-rumped storm-petrel, and Blackburn’s sphinx moth to occur or use habitat within the	3.9.1.4

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		DLNR Division of Forestry and Wildlife (DOFAW)	(*Branta sandvicensis*), Hawaiian petrel/ʻuaʻu (*Pterodroma sandwichensis*) and Newell's shearwater/ʻaʻo (*Puffinus newelli*) (KWP 2006). Additionally, based on the project location, two other listed species have the potential to occur in or transit the project area or its vicinity—the band-rumped storm-petrel/ʻakēʻakē (*Oceanodroma castro*), and Blackburn's sphinx moth (*Manduca blackburni*). The potential for fatalities due to the operation of the wind farm can have serious consequences for Hawaiian endangered and threatened species.	Project Area is discussed in Section 3.9.1.4. The potential for fatalities of these species as a result of operation of the wind farm are discussed in Section 3.9.2.	3.9.2
13	2	State of Hawaii DLNR DOFAW	Critical habitat has been designated by the USFWS within the project area for two endangered forest bird species—the crested honeycreeper/ʻakohekohe (*Palmeria dolei*) and Maui parrotbill/kiwikiu (*Pseudonestor xanthophrys*) (USFWS 2016). Montane Mesic Unit 5 encompasses approximately 11 acres of the northernmost portion of the project area, but DOFAW agrees the project's footprint is most likely unoccupied critical habitat for the crested honeycreeper and Maui parrotbill.	Designated critical habitat for two endangered forest bird species, such as the crested honeycreeper and Maui parrotbill is discussed in Section 3.9.1.3. Impacts to critical habitat are provided in Section 3.9.2.2. Neither of these forest bird species are known to occur within or near the Project Area and neither have been documented as fatalities.	3.9.1.3 3.9.2.2
13	3	State of Hawaii DLNR DOFAW	For the continued use of the KWP I Wind Project through the proposed extension of the power purchase agreement, DOFAW recommends that KWP I continue to minimize and mitigate, to the maximum extent practicable, the effects of take caused by interaction of ESA-listed wildlife with the wind energy generation facility. Furthermore, DOFAW concurs that KWP I use the 18 years of post-construction monitoring data from implementation of the HCP for the existing wind farm to assess risk to listed species and current take limits for an extended term for a new HCP.	Section 3.9.1.5 describes KWP 1's existing commitment to minimizing and mitigating the effects of take on ESA-listed wildlife. Section 3.9.2.4 provides avoidance, minimization, and mitigation activities that would occur as a result of the Proposed Action. KWP 1 has used 19 years of post-construction monitoring data from the existing HCP to assess risks and current take limits for the new HCP.	3.9.1.5 3.9.2.4
13	4	State of Hawaii DLNR DOFAW	Additionally, DOFAW recommends KWP I continue to increase the knowledge and understanding of listed species' occurrence and behavior in the project vicinity through monitoring tools like downed wildlife monitoring, acoustic monitoring, and thermal monitoring.	KWP 1 would continue to implement existing monitoring activities occurring at KWP 1 under the Proposed Action. These include post-construction fatality monitoring and post-construction acoustic monitoring for bat activity. Thermal monitoring is not occurring, but KWP 1 continues to discuss this monitoring method with DOFAW and it is included as a potential monitoring method in the HCP.	3.9.1
13	5	State of Hawaii DLNR DOFAW	DOFAW also recommends that KWP I continue to adhere to the draft USFWS Draft Revised Nēnē recovery plan and DOFAW's Nēnē Restoration Project, adhere to goals of the existing recovery plans for the other three species, considering the most recent updated information and goals; and provide a net conservation benefit to each of the impacted listed species.	KWP 1 is committed to fully complying with all relevant recovery and restoration plans for listed species while actively working to achieve a net conservation benefit for each of these species. As the 2004 USFWS Draft Revised Nēnē recovery plan is outdated, KWP 1 has been directly working with USFWS and DOFAW biologists regarding mitigation planning and design and to ensure the proposed mitigation adheres to the goals of the current recovery for nēnē.	3.9.1 3.9.2
13	6	State of Hawaii DLNR DOFAW	The State listed ʻōpeʻapeʻa or Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) is known to occur at or in the vicinity of the project and may roost in nearby trees. A total of 13 Hawaiian hoary bats have been found as fatalities at the project since 2006. Cumulative take through June 2024 is estimated at less than or equal to 32 Hawaiian hoary bats. DOFAW agrees that low wind speed curtailment should be maintained and smart curtailment as in re distributing the curtailment throughout the night based on site-specific acoustic data (time of night, date, weather conditions, spatial aspects, etc) should be incorporated. DOFAW concurs that ultrasonic bat deterrents should be explored as a viable minimization option. Furthermore, any required site clearing should be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. DOFAW concurs that KWP I avoid using any barbed wire for fencing on site and instead fit any fences that are erected as part of the project with barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat.	Implementation of low wind speed curtailment will continue under the Proposed Action e discussed in Section 3.9.1.5 and 3.9.2.2. KWP 1 would continue to practice avoidance and minimization measures for Hawaiian hoary bat as described in Section 3.9.1.5 and 3.9.2.2, including implementing seasonal restrictions and minimizing barbed wire. Smart curtailment and deterrents are both included in the adaptive management plan for the project.	3.9.1.5 3.9.2.2 3.9.2.4

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13	7	State of Hawaii DLNR DOFAW	Suitable nesting habitat for listed seabird species exists in nearby areas at upper elevations. Results from previous radar and night-visual surveys during the fledging period observed both the Hawaiian Petrel and Newell's shearwater regularly flying over the project area to and from their nesting sites in the uplands of the West Maui mountains (Cooper and Day 2004). A total of eight Hawaiian petrel fatalities have also been detected during monitoring at the existing wind farm with an estimated cumulative take of 23 petrels. No Newell's Shearwater fatalities have been documented, but there is still the risk of take of this species. Furthermore, given a collision-associated death of an ʻakēʻakē at another Maui wind farm as well as the proximity of Maui to the island of Lāna'i, where ʻakēʻakē are known to breed in two gulches on the north side of the island, there is a probability of ʻakēʻakē transiting in proximity to the coast of Maui where the KWP I wind farm is located. Furthermore, there are active seabird conservation efforts occurring in proximity to the KWP I wind farm. This includes social attraction efforts to encourage prospecting and nesting for ʻakēʻakē at the Makamakaʻole seabird colony in the West Maui Forest Reserve and West Maui Natural Area Reserve (Kahakuloa Section). An ʻakēʻakē carcass was previously recovered at the Makamakaʻole seabird colony. With this evidence of ʻakēʻakē transiting the island of Maui, DOFAW recommends that KWP consider including ʻakēʻakē on the incidental take license. Therefore, DOFAW recommends that KWP I include all listed Hawaiian seabird species on their incidental take license.	ʻAkēʻakē, ʻuaʻu, and ʻaʻo have all been included as Covered Species in the HCP.	3.9.2.2
13	8	State of Hawaii DLNR DOFAW	Furthermore, artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in their collision with manmade structures or the grounding of birds. For nighttime work that might be required, DOFAW recommends that all lights used be fully shielded to minimize the attraction of seabirds. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season, from September 15 through December 15, when young seabirds make their maiden voyage to sea. If nighttime construction is required during the seabird fledgling season, we recommend that a qualified biologist be present at the project site to monitor and assess the risk of seabirds being attracted or grounded due to the lighting. If seabirds are seen circling around the area, lights should then be turned off. If a downed seabird is detected, please follow DOFAW's recommended response protocol by visiting https://dlnr.hawaii.gov/wildlife/seabirdfallout-season/. Permanent lighting at the facility also poses a risk of seabird attraction, and as such should be minimized or eliminated to protect seabird flyways and preserve the night sky. For illustrations and guidance related to seabird-friendly light styles that also protect seabirds and the dark starry skies of Hawaiʻi please visit https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.	KWP 1 would continue to practice avoidance and minimization measures for seabirds as described in Sections 3.9.1.5 and 3.9.2.4, including implementation of nighttime lighting protocols and downed wildlife protocols.	3.9.1.5 3.9.2.4
13	9	State of Hawaii DLNR DOFAW	The endemic pueo or Hawaiian Short-Eared Owl (*Asio flammeus sandwichensis*) could potentially nest in the project area. Pueo nest on the ground and active nests have been found year-round. Before any potentially disturbing activity like clearing vegetation, especially ground-based disturbance, DOFAW recommends a qualified biologist conduct surveys during crepuscular hours. Observation surveys should be done at those times from vantage points where they can see the whole project area for 2-3 nights before construction is to start. If any breeding displays are observed, it is likely there could be a nest. If pueo nests are detected in the area, a buffer zone should be established in which no activity occurs within a minimum buffer distance of 100 meters until the nesting cycle is complete and the chicks are capable of flight. DOFAW staff should be notified of any nests or adult displayed breeding behavior.	KWP has incorporated this survey recommendation into the HCP.	3.9.1.5 3.9.2.4

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13	10	State of Hawaii DLNR DOFAW	The State listed nēnē or Hawaiian Goose (*Branta sandvicensis*) are known to inhabit the site. Nēnē have been observed to seek cover and nest under on-site vegetation, and to fly through or within the vicinity of the project are. Thirty-seven nēnē fatalities have been detected during regular downed wildlife monitoring that occurs at the wind farm as part of HCP compliance or incidentally (KWP 2006, KWP 2024). Cumulative take through June 2024 is estimated at less than or equal to 55 nēnē. DOFAW concurs that the project should continue to reduce areas with standing water and continue removing and managing woody vegetation to minimize attracting the Hawaiian goose to the project site and reduce the likelihood of nesting. If a nest is discovered at any point, please contact the Maui Island Branch DOFAW Office at (808) 984-8100 and establish a buffer zone around the nest.	KWP 1 would continue to practice avoidance and minimization measures for nēnē as described in Section 3.9.1.5 and 3.9.2.4, including avoiding creating areas with standing water and managing woody vegetation to minimize attracting nēnē and routinely inspecting the Project Area for nests during the breeding season (September through April). If a nest is discovered at any point, the Maui Island Branch would be contacted as discussed in Section 3.9.1.5.	3.9.1.5 3.9.2.4
13	11	State of Hawaii DLNR DOFAW	The project area is within the range of the State listed Blackburn's Sphinx Moth (*Manduca blackburni*) or BSM. Larvae of BSM feed on many nonnative hostplants, which includes tree tobacco (*Nicotiana glauca*), that grow in disturbed soil. KWP indicates that native, larval host plants for Blackburn's sphinx moth do not occur in the project area, but we recommend contacting the Maui Island Branch DOFAW office at (808) 984-8100 for further information about where BSM may be present and whether a vegetation survey should be conducted to determine the presence of plants preferred by BSM. DOFAW recommends removing plants less than one meter in height or during the dry season to avoid harm to BSM. If you intend to either remove tree tobacco over one meter in height or to disturb the ground around or within several meters of these plants, they must be thoroughly inspected by a qualified entomologist for the presence of BSM eggs and larvae.	The larval host plants for Blackburn's sphinx moth (i.e., 'aiea and tree tobacco) have not been documented in the Project Area. The Project biologist (who is trained in tree tobacco survey methods) has been onsite weekly over the course of the Project's operational life to monitor for tree tobacco and, if detected, would remove any tree tobacco plants under 3 feet in height. Because of the absence of host plants, the potential for Blackburn's sphinx moth to occur within the Project Area is unlikely (KWP 2024a). BMPs related to this species and to tree tobacco are included in the HCP and the Vegetation Management Plan to avoid any impacts to Blackburn's sphinx moth.	3.9.1.4 3.9.1.5
13	12	State of Hawaii DLNR DOFAW	DOFAW recommends minimizing the movement of plant or soil material between worksites. Soil and plant material may contain detrimental fungal pathogens (e.g., Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coqui Frogs, etc.), or invasive plant parts (e.g., African Tulip, Octopus Tree, Trumpet Tree, etc.) that could harm our native species and ecosystems. We recommend consulting the Big Island Invasive Species Committee (BIISC) at (808) 933-3340 to help plan, design, and construct the project, learn of any high-risk invasive species in the area, and ways to mitigate their spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. DOFAW recommends using native plant species for landscaping that are appropriate for the area; i.e., plants for which climate conditions are suitable for them to thrive, plants that historically occurred there, etc. Please do not plant invasive species. DOFAW also recommends referring to www.plantpono.org for guidance on the selection and evaluation of landscaping plants and to determine the potential invasiveness of plants proposed for use in the project. The invasive Coconut Rhinoceros Beetle (CRB) or *Oryctes rhinoceros* is found on the islands of O'ahu, Hawai'i Island, Maui and Kaua'i. On July 1, 2022, the Hawai'i Department of Agriculture (HDOA) approved Plant Quarantine Interim Rule 22-1. This rule restricts the movement of CRB-host material within or to and from the island of O'ahu, which is defined as the Quarantine Area. Regulated material (host material or host plants) is considered a risk for potential CRB infestation. Host material for the beetle specifically includes a) entire dead trees, b) mulch, compost, trimmings, fruit and vegetative scraps, and c) decaying stumps. CRB host plants include the live palm plants in the following genera: *Washingtonia*, *Livistona*, and *Pritchardia* (all commonly known as fan palms), *Cocos* (coconut palms), *Phoenix* (date palms), and *Roystonea* (royal palms). When such material or these specific plants are moved there is a risk of	KWP 1 would continue to implement invasive species minimization efforts, as described in Sections 3.8.1.4 and 3.8.4.2 and in the Invasive Species Management Plan (Appendix F).	3.8.1.4 3.8.4.2

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			spreading CRB because they may contain CRB in any life stage. For more information regarding CRB, please visit https://dlnr.hawaii.gov/hisc/info/invasive-speciesprofiles/coconut-rhinoceros-beetle/.		
13	13	State of Hawaii DLNR DOFAW	We recommend that Best Management Practices are employed at all times during operation in efforts to contain any soils and sediment with the purpose of preventing damage to near-shore waters and marine ecosystems. DOFAW is concerned about impacts to vulnerable birds from nonnative predators such as cats, rodents, and mongooses. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles. DOFAW concurs with the additional measures proposed to include contractor training and education at the wind farm facility, and to stop work requirements if a listed species is observed on site during construction or operations.	Best management practices for soils and sediment control are described in Section 3.4.1.5 and 3.4.2.4. Existing predator control measures are described throughout Section 3.9.1 and 3.9.2. Contractor training and education on the sensitive resources in the Project Area would be implemented, as discussed in Section 3.9.1.5.	3.4.1.5 3.4.2.4 3.9.1 3.9.2
13	14	State of Hawaii DLNR DOFAW	We appreciate your efforts to work with our office for the conservation of our native species. These comments are general guidelines and should not be considered comprehensive for this site or project. It is the responsibility of the applicant to do their own due diligence to avoid any negative environmental impacts. Should the scope of the project change significantly, or should it become apparent additional threats to listed species exist, please contact our staff as soon as possible. If you have any questions, please contact Kinsley McEachern, Protected Species Habitat Conservation Planning Associate, at Laurinda.k.mceachern.researcher@hawaii.gov.	Comment noted.	N/A

Scoping Comment Response Matrix – CDUP Compliance Matrix

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Table B-2. Conservation District Use Permit MA-3102 (Amended June 24, 2005) - Compliance Matrix

Condition Number	Condition	Applicant Response
1	The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State, and County governments, and applicable parts of Section 13-5-42, Hawaii Administrative Rules;	KWP 1 or Applicant is in compliance with all applicable statutes, ordinances, rules and regulations of the Federal, State, and County governments, and applicable parts of Section 13-5-42, Hawaii Administrative Rules. A detailed list of applicable Federal, State, and County statutes, ordinances, rules and regulations and a discussion of compliance with these applicable statutes, ordinances, rules and regulations is included in Section 4.0 of the KWP 1 Continued Use Project EIS.
2	The applicant shall comply with applicable Department of Health administrative rules;	The Applicant is in compliance with all applicable Hawaii Department of Health (HDOH) administrative rules. A discussion of applicable HDOH administrative rules is included in Section 3.2 Air Quality, Section 3.5 Water Resources, and Section 3.11 Noise of the Environmental Impact Statement (EIS).
3	All mitigative measures proposed in the final Environmental Impact Statement for the project shall be implemented;	The final EIS referenced in CDUP Condition #3 is the Kaheawa Pastures 20 MW Windfarm, Maui, Hawaii Final EIS published in 1999[1] and provides a summary of mitigation measures in Section 1.2.3 organized into three phases: Project Design and Preliminary Review Phase (which was completed prior to the publication of the Final EIS), Final Review and Approval Phase (which was to be completed prior to construction, and the Construction and Operation Phase. Table A-2 below lists all the mitigation measures for the Final Review and Approval Phase and the Construction and Operation Phase with a discussion of how the KWP 1 Project has complied with each.
4	The applicant shall install the wind turbines to minimize visual impacts to the view planes along the Old Lahaina Pali Trail. The applicant shall contribute $1,500 annually to the Na Ala Hele program for interpretive and educational information;	The KWP 1 wind turbines were installed approximately 0.5 miles mauka of the Lahaina Pali Trail and thus has minimized visual impacts to the trail. The Applicant has contributed the $1500 annual payment to the Na Ale Hele program in compliance with this condition.
5	The applicant shall conduct a follow-up archaeological survey if the course of the upper spur road is altered;	The "upper spur road" was never constructed, therefore no follow-up archaeological studies of the "upper spur road" alignment were conducted. The original KWP 1 Final EIS describes the "upper spur road" as an existing jeep road that "… extends from near Puu Anu to the upper area of the project site. This spur crosses the upper portion of the Manawanui Gulch" (Zond Pacific 1999[2]). The Final EIS proposed to improve this existing "upper spur road" noting that "the spur road is not currently in use and requires more extensive improvements. Sections of the existing road that are highly eroded may need to be relocated" (Zond Pacific 1999). Per the 1999 EIS, International Archaeological Research Institute, Inc. (IARII) conducted a survey of the west side of the gulch the upper spur road would cross (Tuggle 1998[3]) and found no historical sites (Zond Pacific 1999). Per Figure 1 of the Tuggle (1998) survey report, the spur road survey corridor is shown extending west from Puu Anu and is approximately one-quarter mile north of the existing Kaheawa Pastures access road. The "upper spur road" was never constructed as evidenced by the location of the proposed "upper spur road" compared the final location of the constructed Kaheawa Pastures access road.
6	Heiau 5232 at Ukumehame will need to be preserved. A preservation plan (scope of work) will need to be submitted to the State Historic Preservation Division for review and acceptance. This plan will need to identify buffers around the site, interim protection measures, and long-term preservation measures. The Division will also need to verify that the plan has been successfully carried out, prior to land alteration, or alternatively construction activities may commence following written verification from our Division that the interim preservation measures are in place. Also, as a protective measure, orange construction fencing shall be placed along both sides of the existing access road where it intersects with the Lahaina Pali Trail (State Site 50-50-09-2946 and 50-50-09-2950). The State Historic Preservation Division (Dr. Melissa Kirkendall,	A preservation plan for Heiau 5232 was prepared by IARII (Tomonari-Tuggle and Rasmussen 2005[4]) and accepted by the State Historic Preservation Division (SHPD Correspondence Log No: 2005.1378, Doc No: 0507MK02 dated July 13, 2005). This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities. Although the Heiau 5232 is located outside the Applicant's lease boundary, in compliance with the long-term preservation measures described in the SHPD correspondence accepting preservation plan, the Applicant will complete the following activities prior to start of the Proposed Action: • Support a curation arrangement with a community group such as Maui Cultural Lands, to manage the heiau site. • Support the curator community group with: o Confirming the location of permanent makers identifying the perimeter of a 200-foot buffer from the heiau and if necessary, replace install markers if not easily visible.

[1] Final EIS for the Kaheawa Pastures 20 MW Windfarm, Maui Hawaii was published October 8, 1999 and available to review on the Environmental Review Program's website here: 1999-10-08-MA-FEIS-Kaheawa-Pastures-20mw-Windfarm.pdf
[2] Zond Pacific. 1999. Final Kaheawa Pastures 20 MW Wind-Farm Environmental Impact Statement. Wailuku, Hawaii. Prepared by WSB-Hawaii. August 1999. Available here: 1999-10-08-MA-FEIS-Kaheawa-Pastures-20mw-Windfarm.pdf.
[3] Tuggle, Myrna Jean F. 1998. Addendum to An Archaeological Reconnaissance Survey for 27 Wind Turbines in the Ukumehame Uplands, Island of Maui (Tomonari-Tuggle 1998). International Archaeological Research Institute, Inc. Prepared for WSB, Kaneohe, HI. December 2, 1998.
[4] Tomonari-Tuggle, M. J., and C. Rasmussen. 2005. Preservation Plan for Site 50-50-09-5232, An Upland Heiau in Ukumehame Ahupua'a, Island of Maui. International Archaeological Research Institute, Inc. Prepared for Kaheawa Wind Power LLC, Honolulu.

	243-5169) will need to verify that the protective construction fencing is in place, prior to any land alterations;	○ Replacing the current educational signs with new ones identifying the heiau and non-disturbance buffer. Signage text will be determined by the curator group. ○ Managing vegetation within the heiau. • Provide educational information to onsite employees and contractors (when appropriate) regarding the location of the heiau and its cultural and traditional significance and requirement to avoid impacts to the site and a 200-foot buffer. • Prior to any ground disturbing maintenance activities occurring within 500 feet of the heiau, ensure a cultural/archaeological monitor is onsite to monitor work within 500 feet of the heiau. Signage exists at the Lahaina Pali Trail where it crosses the existing access road which informs trail users of the operational power plant, the dangers, and informs hikers to not enter and return to the hiking trail. This signage (or adequate replacements) will remain in place for the life of the Proposed Action. The access road has a posted speed limit of 5 to 10 mph.
7	If evidence of historic sites or subsurface features, including burials, are discovered during construction, all activity in the vicinity of the find shall cease and the applicant shall contact the State Historic Preservation Division at 692-8015;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities.
8	All activities connected with the project shall be contained within the project area as identified in the application for a CDUP and the final EIS;	All activities connected with the project occur within the project area identified in the current KWP 1 Habitat Conservation Plan (HCP) that was approved as part of the most recent modification to CDUP MA-3103. In 2004, an EA was conducted due to a revised turbine layout that was different from what was evaluated in the 1999 EIS. The KWP 1 turbine layout was constructed in compliance with the representations made in the Final EA (KWP 2004[5]).
9	The applicant shall take appropriate measures to mitigate the impacts of erosion and siltation, and prevent oil, fuel, or cement products from falling, blowing, or flowing on Conservation lands and ocean waters. All ground work will be scheduled during periods of low rainfall. The applicant shall submit the National Pollution Discharge Elimination System (NPDES) permit to the OCCL to satisfy this condition;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities .As noted in Section 3.4 *Geology, Topography, and Soils* of this EIS, if necessary, the Applicant would obtain a NPDES permit and develop and implement an Erosion and Sediment Control Plan (ESCP) and Stormwater Pollution Prevention Plan (SWPPP) setting forth ground disturbance limits and best management practices prior to the initial maintenance activities.
10	Prior to construction, the Applicant shall submit a Wild Land Fire Contingency Plan approved by the Division of Forestry and Wildlife for all phases of the project. The plan shall be completed in accordance with the suggestions on page 9 of this staff report. All personnel of Hawaii Wind Energy, LLC and the contractor involved with this project shall comply with the provisions of the Fire Contingency Plan. A copy of the plan shall be filed with the Land Division. The applicant will be liable for all fires determined by DLNR to have been caused or started from management activities related to the project. Also, DOFAW may inspect the site at any time upon request;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities. KWP developed a Fire Contingency Plan in 2005 prior to the construction of the facility (DLNR 2005[6]) and maintains a Wildfire Prevention Plan (Terraform 2025[7]). As noted in Section 3.6.1.7 *Natural Hazards* of this EIS, these plans continue to be implemented during current operations and as noted in Section 3.6.2.4 *Natural Hazards*, these plans will continue to be implemented under the Proposed Action.
11	All construction materials shall be removed from the project site and disposed of at a government authorized landfill site. Additionally, the applicant shall remove any trash or debris from the site upon completion of the project;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities.
12	The applicant shall obtain the appropriate authorization through the Maui District Land Office, Department of Land and Natural Resources, for the use of State lands;	A 20-year land lease (with an option to extend for an additional 20 years subject to approval and conditions) dated January 19, 2005 was approved by the BLNR (S-5731) and issued to Kaheawa Wind Power, LLC. A one-year holdover of General Lease No. S-5731 was approved by the BLNR on December 13, 2024. The Applicant is currently seeking a new 20-year lease from State of Hawai'i BLNR as the current DLNR land lease (General Lease No. S-5731 plus 1-year hold over) is anticipated to expire January 31, 2026.
13	The preliminary construction plans, including improvements to the access road network and locations of the site operations and maintenance building and site substation shall be coordinated with the Office of Conservation and Coastal Lands, Maui District Land Agent, the Historic Preservation Division, and the Division of Forestry and Wildlife;	This CDUP condition was applicable during the original construction in 2005/2006, and no additional compliance is needed for ongoing or future activities.

[5] KWP. 2004. Kaheawa Pastures Wind Energy Generation Facility: Final Environmental Assessment. Available at: https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2004-11-23-MA-FEA-Kaheawa-Pastures-Wind-Energy.pdf.
[6] DLNR. 2005. Fire Contingency Plan for CDUA MA-3103. Approved June 17, 2005.
[7] TerraForm. 2025. Wildfire Prevention Plan. Kaheawa Wind I and II.

14	The applicant shall provide four (4) sets of the final construction plans and specifications to the Chairperson or his authorized agent for approval with the permit declarations set forth in the permit application and the final EIS. Three (3) sets of plans will be returned to the applicant. Plan approval by the Chairperson does not infer approval required by other agencies;	This CDUP condition was applicable during the original construction in 2005/2006, and no additional compliance is needed for ongoing or future activities.
15	Any work to be done on the land shall be initiated within two (2) years of the approval of the use by the Board, and all work and construction must be completed within four (4) years of the approval by the Board;	On June 24, 2005, a modification to CDUP MA-3103 was approved by the BLNR. The KWP 1 facility was constructed in 2005 and 2006 and officially began operations on June 22, 2006, less than one year after finalization of the modified CDUP. As such, KWP 1 has complied with this condition. No additional compliance under this condition is relevant for ongoing or future activities.
16	The applicant shall notify the Department in writing when construction is initiated and when construction is completed;	This CDUP condition was applicable during the original construction in 2005/2006, and no additional compliance under this condition is needed for ongoing or future activities.
17	If any information or data provided by the Applicant prove to be false, incomplete or inaccurate, this permit may be modified, suspended, or revoked. The Department may, in addition, institute appropriate legal proceedings;	To the Applicant's knowledge, no information or data provided by the Applicant has proven to be false, incomplete or inaccurate.
18	Where any polluted run-off, interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take measures to minimize or eliminate the polluted run-off, interference, nuisance, harm, or hazard;	The Applicant has imposed best management practices, as described in the Final EIS (Zond Pacific 1999[8]) and Final EA (KWP 2004[9]) during construction and operation to avoid polluted run-off, interference, nuisance, or harm caused by the construction and operation of the KWP 1 facility. Compliance will continue to the extent it's relevant for ongoing or future activities. Also, see response to Condition #9.
19	The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;	The indemnification described in this condition was agreed to through acceptance of the CDUP permit (MA-3102).
20	All cleared areas shall be revegetated in a manner consistent with other permit conditions, with specific consideration given to the fire contingency plan and the Habitat Conservation Plan. Any necessary revegetation shall be completed within thirty days of the completion of specific project components that resulted in ground clearing, using native species found in the area.	As stated in the KWP 2 Final EIS (Planning Solutions 2010[10]), establishing vegetation within 30 days by seeding with native species was deemed infeasible due to the insufficient commercial quantities of native seed and limitations with native hydroseeding. In the *Response to October 27, 2005 Letter Regarding the Establishment of Stabilizing Vegetation Cover for Erosion and Sediment Control Related to Wind Farm Access Road Construction*, DLNR authorized KWP's request to apply commercially available annual ryegrass (*Lolium multiflorum*) in order to comply with permit conditions of the CDUP and the NPDES permit, given the following conditions: 1. "The permittee shall acquire commercial quantities of native pili grass bundles or other native species as soon as possible to substitute the annual rye; and 2. The permittee is responsible for controlling the annual rye if it starts invading adjacent State lands." KWP subsequently established a conservation partnership with the USDA/NRCS to obtain native pili grass (*Heteropogon contortus*) from the U.S. Department of Agriculture,NRCS Plant Materials Center on Moloka'i. This partnership resulted in field trials to test the ability to establish pili grass at KWP using seed and bales. Following several treatments, it was determined that while it is possible to establish pili grass in limited quantities, and over several months, it probably cannot be expected to meet rapid, site-wide ground cover reestablishment requirements. Following the trials with pili grass, KWP petitioned DLNR and the Office of Conservation of Coastal Lands (OCCL) to consider allowing manual application and hydro-seeding with a grass seed mixture to accomplish site revegetation goals. DOFAW provided comments on this proposal, citing that annual ryegrass is expected to die off and provide a more suitable environment for recruitment by adjacent species. DOFAW expressed interest in limiting the amount of emergent grass in the immediate vicinity of turbines, a recommendation intended to minimize the attraction of Nene, which are common in the area and browse on a wide range of emergent vegetation types. KWP biologists have documented that Nene are prevalent in the area and currently

[8]Zond Pacific. 1999. Final Kaheawa Pastures 20 MW Wind-Farm Environmental Impact Statement. Wailuku, Hawaii. Prepared by WSB-Hawaii. August 1999. Available here: 1999-10-08-MA-FEIS-Kaheawa-Pastures-20mw-Windfarm.pdf.
[9] KWP. 2004. Kaheawa Pastures Wind Energy Generation Facility: Final Environmental Assessment. Available at: https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2004-11-23-MA-FEA-Kaheawa-Pastures-Wind-Energy.pdf.
[10] Planning Solutions. 2010. Kaheawa Wind Power II, LLC. Final Environmental Impact Statement: Kaheawa Wind Power II Wind Energy Generation Facility, Ukumehame, Maui, Hawai'i. Available at: https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2010-06-08-MA-FEIS-Acceptance-Kaheawa-Wind-Power-II.pdf

		use the areas in proximity to the existing turbines on a regular (i.e., almost daily) basis. Thus, revegetating bare areas with grasses is not expected to pose an additional risk of bird collisions. At the same time, KWP biologists have had considerable success at re-introducing native plants grown in the nursery at various locations throughout the site, including along cut and fill slopes and other open earth portions of the roadsides and turbine pads. Although these plantings do not provide a uniform stabilizing cover per se, it does appear that they will, over several seasons, come to dominate the areas treated. Between July 2007 and June 2008, approximately 7,500 young a'ali'i (*Dodonaea viscosa*) were propagated from seed collected at Kaheawa and planted along cut and fill slopes and other open earth portions of the roadsides and turbine pads. An intensive outplanting effort comprising nearly 16,000 individual plants of several key native species occurred during the winter and spring of 2009 at KWP. As evidenced above, this CDUP modified condition was complied with during the original construction in 2005/2006. The Applicant plans to continue to comply with this condition to the extent it's relevant for ongoing or future activities. Please see the Vegetation Management Plan (Attachment F of the EIS).
21	During construction and the initial operational period of the windfarm, the applicant, in consultation with DLNR, Division of Forestry and Wildlife staff, shall monitor wildlife to ensure that the wind turbines and their towers are not sources of mortality to endangered birds, such as the Nene, the Dark-rumped Petrels, or to the endangered Hawaiian hoary bat. The type and frequency of monitoring periods shall be coordinated with the Division of Forestry and Wildlife, Department of Land and Natural Resources. The applicant shall make arrangements with the DLNR, Division of Forestry and Wildlife to pay for the cost incurred by all monitoring;	KWP 1 has been implementing the current HCP since approval in January 2006 (KWP 2006[11]), including the required wildlife monitoring protocols agreed to with consultation with DLNR/DOFAW. A Proposed HCP (Tetra Tech 2025[12]) to cover ongoing and future activities is being developed and will be implemented throughout the Proposed Action.
22	The applicant shall implement their Downed Bird Protocol and shall be required to immediately notify the USFWS and DOFAW if any injured or dead birds or bats are found, and the location of possible strikes. The applicant shall pay for the cost incurred by this effort;	KWP 1 has been implementing the current HCP since approval in January 2006, including the downed bird protocol attached to the HCP (KWP 2006[11]). Compliance with this condition will continue throughout ongoing and future activities.
23	The applicant shall continue opportunistic surveys of bird. Specific sightings shall be documented via a standard bird observation form;	KWP 1 has been implementing the current HCP since approval in January 2006, including the downed bird protocol attached to the HCP (KWP 2006[11]). Compliance with this condition will continue throughout ongoing and future activities.
24	The applicant shall inspect, in coordination with the DLNR, Division of Forestry and Wildlife, turbine sites to insure that no bird nests are present in the immediate area of the proposed tower foundation and access road;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities.
25	The applicant shall work closely with DLNR, Division of Forestry and Wildlife staff to manage the wildlife habitat. This will include periodic removal of rubbish. If necessary, this will include trapping to control the number of unwanted mammals, e.g., rats, mongoose, feral cats and dogs. The applicant shall implement additional mitigation measures to protect native habitat as suggested on page 11 of this staff report	KWP 1 has been implementing the current HCP since approval in January 2006, including a scavenger trapping program (KWP 2006[11]). Compliance with this condition will continue throughout ongoing and future activities.
26	The applicant shall develop an education and observation program, including a bird identification primer and format for documenting specific observation	KWP 1 has been implementing the current HCP since approval in January 2006, including the downed bird protocol attached to the HCP (KWP 2006[11]) and wildlife education and observation program. Compliance with this condition will continue throughout ongoing and future activities.
27	If for any reason, the project is terminated or GE Wind Energy enters bankruptcy proceedings, the responsibility for the removal of all facilities and equipment associated with the project shall remain with GE Wind Energy and the area is to be restored to the satisfaction of the Department of Land and Natural Resources	In June 2004, Kaheawa Wind Power, LLC (Applicant) acquired the project from GE Wind Energy and continues to own the project. If for any reason, the project is terminated or the Applicant enters bankruptcy proceedings, the responsibility for the removal of all facilities and equipment associated with the project would remain with the Applicant, and the area would be restored to the satisfaction of the Department of Land and Natural Resources as further obligated by the project land lease.
28	The Applicant shall allow State and/or Federal biologists access to the site to perform periodic checks for bird and mammal mortalities;	The Applicant would allow State and/or Federal biologists access to the site to perform periodic checks for bird and mammal mortalities, and will continue to allow for such periodic checks.

[11] KWP. 2006. Kaheawa Pastures Wind Energy Generation Facility Habitat Conservation Plan, Ukumehame, Maui, Hawai'i. January 2006. Available at: https://dlnr.hawaii.gov/wildlife/files/2013/10/Final-KWP-I-HCP.pdf. Accessed December 2024.
[12] Tetra Tech. 2025. Kaheawa Wind Power I Habitat Conservation Plan, Maui, Hawai'i. DRAFT. Prepared in collaboration with Kaheawa Wind Power, LLC. May 2025 (Under Development)

29	Prior to construction, all access road and site construction plans shall be reviewed and approved by the County of Maui Department of Public Works and the Department of Transportation, Highways Division, if applicable;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities.
30	The applicant shall minimize ground disturbance to reduce the potential for soil erosion in and around the gulches;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities. Also see the response to Condition #9.
31	The applicant shall add, and replace as necessary culverts to handle anticipated water flows in the gulches;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities. The Applicant installed culverts at the Kaheawa Pastures access road's two gulch crossings and continues to monitor these culverts to ensure they can handle anticipated water flows in the gulches.
32	The applicant shall add channels or troughs along sections of the access road network to divert water flows and prevent soil erosion;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities. The Applicant installed channels or troughs along sections of the access road network to divert water flows and prevent soil erosion.
33	The applicant shall use gravel or other porous materials to maintain the integrity of the roadbed;	The Applicant has used gravel or other porous materials to maintain the integrity of the access road beds, and will continue to do so for ongoing or future activities.
34	The applicant shall do additional botanical surveys as represented in the accepted EIS for the project;	Two botanical surveys were conducted by Robert W. Hobdy, Environmental Consultant. "Botanical Resources Survey for the Kaheawa Pastures Wind Energy Project Access Road – Primary Route" and "Botanical Resources Survey for the Kaheawa Pastures Wind Energy Project Access Road – Alternate Route Section" were prepared in September 2004 to examine the roadway corridor and a potential alternate spur roadway. These surveys are attached as Appendix 5 and Appendix 6 to the current KWP 1 HCP approved in January 2006 (KWP 2006[13]).
35	The applicant shall hire a plant expert to supervise the actual construction work in areas in or near where there are native plants;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities. As described in Section 3.8 *Vegetation*, a Vegetation Plant Management Plan (Appendix F) will be implemented to ensure the Proposed Action minimizes impacts to native plants.
36	The applicant shall establish an inspection station at the staging area near the main highway to reduce the possibility of introducing alien plant species to the site, prior to the initiation of project work. Each vehicle will be inspected prior to traveling the jeep road up to the site;	This CDUP condition was applicable during the original construction in 2005/2006, and compliance will continue to the extent it's relevant for ongoing or future activities.
37	The applicant shall ensure that operations and maintenance staff do not damage native plants. If construction or operation required the removal of native plants, the plants will be removed, relocated and replanted. The applicant shall pay for the cost of this effort;	As described in Section 3.8 *Vegetation*, a Vegetation Plant Management Plan (Appendix F) will be implemented to ensure the Proposed Action minimizes impacts to native plants.
38	The applicant shall work with plant experts to introduce appropriate native plant species back into the Kaheawa Pastures;	As stated in the KWP 2 Final EIS (Planning Solutions 2010[14]), KWP biologists have had considerable success at re-introducing native plants grown in the nursery at various locations throughout the site, including along cut and fill slopes and other open earth portions of the roadsides and turbine pads. Between July 2007 and June 2008, approximately 7,500 young a'ali'i (*Dodonaea viscosa*) were propagated from seed collected at Kaheawa and planted along cut and fill slopes and other open earth portions of the roadsides and turbine pads. An intensive outplanting effort comprising nearly 16,000 individual plants of several key native species occurred during the winter and spring of 2009 at KWP. Furthermore, based on an April 2025 botanical survey completed within the KWP 1 limits of disturbance (LOD) (Tetra Tech 2025[15]), 18 plant species that are native to the Hawaiian Islands were observed in the LOD, including 7 species which are endemic to and found only in the Hawaiian Islands (see Section 3.8 of EIS). None of these native Hawaiian plant species are listed as threatened or endangered under the ESA or HRS 195, and the species are considered common throughout the Hawaiian Islands. Native plant species increase in dominance toward the uppermost turbine toward the summit of Mauna Kahālāwai. As described in Section 3.8 *Vegetation*, a Vegetation Plant Management Plan (Appendix F) will be implemented to ensure the impacts to native plants are avoided or mitigated.

[13] KWP. 2006. Kaheawa Pastures Wind Energy Generation Facility Habitat Conservation Plan, Ukumehame, Maui, Hawai'i. January 2006. Available at: https://dlnr.hawaii.gov/wildlife/files/2013/10/Final-KWP-I-HCP.pdf. Accessed December 2024.
[14] Planning Solutions. 2010. Kaheawa Wind Power II, LLC. Final Environmental Impact Statement: Kaheawa Wind Power II Wind Energy Generation Facility, Ukumehame, Maui, Hawai'i. Available at: https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2010-06-08-MA-FEIS-Acceptance-Kaheawa-Wind-Power-II.pdf
[15] Tetra Tech. 2025. Kaheawa Wind 1 Continued Use Project. Botanical Survey Report. Prepared for Kaheawa Wind Power, LLC. May 2025.

39	The applicant shall work with the County of Maui Planning Department to ensure that the appropriate colors tones are used on the towers and blades;	This CDUP condition was applicable during the original construction in 2005/2006, and no additional compliance under this condition is needed for ongoing or future activities As discussed in the Final EA (KWP 2004[16]), neutral off-white colors are typically used for wind turbine towers and blades and as discussed in Section 3.12 *Visual Resources*, the KWP 1 turbines were painted with white, non-reflective paint, which minimizes the need for daytime aviation lighting and eliminate glare, but contrasts with the natural colors of the landscape.
40	That this approval provides for the subdivision of Conservation District lands, if necessary, to accommodate the windfarm and access road;	To the Applicant's knowledge, no subdivision of Conservation District lands was required to accommodate the wind facility and access road.
41	The applicant will implement the conditions of the draft Habitat Conservation Plan (HCP) approved on June 24, 2005, by the Board of Land and Natural Resources. At the time the applicant obtains an HCP and receives an Incidental Take Permit from the U.S. Fish and Wildlife Service and a temporary license to allow take under Hawaii Revised Statutes § 195D-4, this condition shall be satisfied, which will supersede the draft HCP;	This condition was satisfied with the issuance of the ITP and ITL on January 30, 2006.
42	The applicant shall submit a pre-final construction plan for the wind turbines as well as hire a color consultant to develop the most appropriate color scheme for the project to blend in with the surroundings. The color scheme shall be reviewed by the County of Maui for consistency with its programs and policies;	This CDUP condition was applicable during the original construction in 2005/2006, and no additional compliance under this condition is needed for ongoing or future activities
43	That failure to comply with any of these conditions shall render this Conservation District Use Permit null and void; and	Compliance with all CDUP conditions will continue to the extent each is relevant for ongoing or future activities.
44	All other terms and conditions as prescribed by the Chairperson.	The Applicant will continue to comply with any terms and conditions prescribed by the Chairperson

Table B-3. Conservation District Use Permit MA-3102 (Amended June 24, 2005) – Condition #3 FEIS Mitigation Measures Compliance Matrix

Phase	Mitigation Measure	Discussion of Compliance
Final Review and Approval Phase	Conduct additional botanical surveys to finalize the sites for the 27 turbines, electrical substation and O&M building, and the intra-site road network;	Prior to construction of the KWP 1 facility, two botanical surveys were conducted by Robert W. Hobdy, Environmental Consultant. "Botanical Resources Survey for the Kaheawa Pastures Wind Energy Project Access Road – Primary Route" and "Botanical Resources Survey for the Kaheawa Pastures Wind Energy Project Access Road – Alternate Route Section" were prepared in September 2004 to examine the roadway corridor and a potential alternate spur roadway. These surveys are attached as Appendix 5 and Appendix 6 to the current KWP 1 HCP approved in January 2006 (KWP 2006[17]).
	Conduct additional botanical surveys to finalize the improvements to the access road network. This includes confirmation of the modifications to the existing spur route from near Puu Anu to the upper end of the windfarm site. Use of this spur for site access would preclude traverse of 3.2km (2.0mi) of upper, more sensitive areas of the Kaheawa Pastures;	See response above that outlines the botanical surveys conducted prior to initial construction. The "upper spur road" that would have extended from near Puu Anu to the upper end of the windfarm site was never constructed.
	Work with DLNR/DOFAW and local plant experts to plan a native plant propagation and restoration program;	See Response to CDUP Condition #38. As described in Section 3.8 *Vegetation*, a Vegetation Plant Management Plan (Appendix F) will be implemented to ensure the impacts to native plants are avoided or mitigated.
	Review the draft Downed Bird Protocol (see Section 8.7 of FEIS) and draft Bird Observation and Education Program (See Section 8.8 of FEIS) with DLNR/DOFAW (See Section 3.8 of FEIS for details);	This mitigation measure was complied with as evidenced by the current KWP 1 HCP approved in January 2006 (KWP 2006[17]). On page 57 of the HCP, it notes the following: "A protocol for the recovery, handling, and reporting of downed wildlife has been developed for the project, in cooperation with DLNR and USFWS. All on-site personnel will be trained in the protocol. All observed mortality or injury of wildlife, including MBTA-protected birds not otherwise covered by this HCP, will be documented whether project-related or not (*e.g.*, caused by predators). For ESA listed species, intact or partial remains will be collected and promptly chilled or frozen, and DLNR and USFWS will be notified as soon as possible. Non-ESA-listed species may be collected as well if requested by USFWS or DLNR. As instructed by DLNR and USFWS, collected specimens will be provided to DLNR or USFWS as soon as possible for necropsy by an

[16] KWP. 2004. Kaheawa Pastures Wind Energy Generation Facility: Final Environmental Assessment. Available at: https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2004-11-23-MA-FEA-Kaheawa-Pastures-Wind-Energy.pdf.
[17] KWP. 2006. Kaheawa Pastures Wind Energy Generation Facility Habitat Conservation Plan, Ukumehame, Maui, Hawai'i. January 2006. Available at: https://dlnr.hawaii.gov/wildlife/files/2013/10/Final-KWP-I-HCP.pdf. Accessed December 2024.

		agency veterinarian. Special Condition #9 of the DLNR ITL stipulates that the DLNR will be notified within three days of any mortalities, injuries, or disease observed on the property. Injured individuals or carcasses will be handled according to guidelines in Appendix 9 of the HCP."
	Continue monitoring for downed birds near the meteorological towers. Report and take care of any downed birds per the Downed Bird Protocol	Systematic monitoring for downed birds at the project meteorological towers occurred through FY 2015 (9 years total), during which a single bird fatality was found (see KWP 1 annual reports here: https://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/). In FY 2016, two of the remaining three met towers were decommissioned, and a final search for downed birds was completed prior to decommissioning. The remaining met tower is not systematically searched, but any downed birds would be reported per the project's downed wildlife observation protocol.
	Review construction plans with the County of Maui and the SOH Department of Transportation;	This FEIS mitigation measure was applicable during the original construction in 2005/2006, and no additional compliance under this condition is needed for ongoing or future activities In February 2005, Maui County issued a SMA minor permit (SM2 2005/0029) for construction of driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapi'ilani Highway.
	Continue overall coordination with DLNR/DOFAW	KWP 1 coordinated with DLNR/DOFAW after the publication of the FEIS (Zond Pacific 1999b) to negotiate and prepare the HCP that was approved in January 2006, prior to erection of the wind turbines. Coordination with DLNR/DOFAW continues on a regular basis for HCP compliance, and will continue into the future.
	Continued solicitation and review of public comments.	The project received public comments as part of its original environmental review process. An EIS was finalized in 1999[18] and accepted by DLNR. After project ownership and facility design changes, a new EA was conducted in 2004 to assess visual impacts. Public input on the Draft EA was incorporated into the Final EA, which resulted in a Finding of No Significant Impact (FONSI) issued by DLNR in November 2004. Public comments were received on the Draft EA and incorporated into the Final EA that culminated in a Finding of No Significant Impact (FONSI) issued by DLNR in November 2004 (KWP 2004[19]).
Construction and Operation Phase	Continue coordination with DLNR/DOFAW;	KWP 1 has been in coordination with DLNR/DOFAW throughout the construction and operation period. KWP 1 has been implementing the HCP since approval in January 2006 and has been providing annual reports to DLNR/DOFAW. Quarterly reports are also submitted, and annual and semi-annual meetings occur.
	Coordinate with the County of Maui and the SOH Department of Transportation;	This FEIS mitigation measure was applicable during the original construction in 2005/2006, and KWP would coordinate if needed for any ongoing or future activities. In February 2005, Maui County issued a SMA minor permit (SM2 2005/0029) for construction of driveway improvements at the existing Kaheawa Pastures access road driveway at Honoapi'ilani Highway.
	Minimize disruption of soil during the improvements to the site access road network and construction of the windfarm;	This FEIS mitigation measure was applicable during the original construction in 2005/2006, and no additional compliance under this condition is needed for ongoing or future activities.
	Implement the native plant propagation and recovery program with assistance from local experts;	See Response to CDUP Condition #38. As described in Section 3.8 *Vegetation*, a Vegetation Plant Management Plan (Appendix F) will be implemented to ensure the impacts to native plants are avoided or mitigated.
	Continue monitoring for downed birds on the project site per the downed bird protocol. Report and take care of any downed birds per the Protocol;	KWP 1 has been implementing the HCP since approval in January 2006, including the downed bird protocol attached to the HCP (KWP 2006[20]). See Section 3.9 *Wildlife* in this EIS for a summary of avian fatalities found during standardized monitoring through FY 2024.
	Implement the Bird Observation and Education Program in cooperation with DLNR/DOFAW for all persons that work on the site; and	KWP 1 has been implementing the HCP since approval in January 2006, including the Bird Observation and Education Program attached to the HCP (KWP 2006[20]).
	Contribute $3,500 to DLNR's Nene Propagation and Recovery Program. The amount of $3,500 is the estimated cost for the raising one Nene to release age.	Similar language was included in the original CDUP approved in January 2003 (Condition #26 in the original CDUP); however, this condition was dropped from the approved 2005 CDUP modification because the nene mitigation commitments changed from 2003 (the time of the original CDUP approval) to 2005 (the time of the approved amendment to the CDUP) to incorporate the draft HCP mitigation commitments. In the current, modified CDUP, condition #41 of the modified CDUP includes a requirement for the Applicant to implement the conditions of the draft HCP approved June 24, 2005. KWP 1 has been implementing the current HCP since approval in January 2006, including continuing nene mitigation efforts.

[18] Zond Pacific. 1999. Final Kaheawa Pastures 20 MW Wind-Farm Environmental Impact Statement. Wailuku, Hawaii. Prepared by WSB-Hawaii. August 1999. Available here: 1999-10-08-MA-FEIS-Kaheawa-Pastures-20mw-Windfarm.pdf.
[19] KWP. 2004. Kaheawa Pastures Wind Energy Generation Facility: Final Environmental Assessment. Available at: https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2004-11-23-MA-FEA-Kaheawa-Pastures-Wind-Energy.pdf.
[20] KWP. 2006. Kaheawa Pastures Wind Energy Generation Facility Habitat Conservation Plan, Ukumehame, Maui, Hawai'i. January 2006. Available at: https://dlnr.hawaii.gov/wildlife/files/2013/10/Final-KWP-I-HCP.pdf. Accessed December 2024.

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Scoping Comment Letters

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Public Comment Letter 1

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA

KEITH A. REGAN
COMPTROLLER
KA LUNA HO'OMALU HANA LAULĀ

MEOH-LENG SILLIMAN
DEPUTY COMPTROLLER
KA HOPE LUNA HO'OMALU HANA LAULĀ

STATE OF HAWAI'I | KA MOKU'ĀINA O HAWAI'I
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES | KA 'OIHANA LOIHELU A LAWELAWE LAULĀ
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)24.219

OCT 2 5 2024

Leslie McClain
Tetra Tech, Inc.
737 Bishop Street, Suite 2000
Honolulu Hawaii 96813

Dear Leslie McClain:

Subject: Environmental Impact Statement Preparation Notice for
Kaheawa Wind 1 Continued Use Project
Lahaina, Maui, State of Hawaii
TMK: (2) 4-8-001, (2) 4-8-001:010, (2) 3-6-001:052, and
(2) 3-6-001:014

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

If you have any questions, your staff may call Dora Choy-Johnson of the Planning Branch at (808) 586-0488.

Sincerely,

GORDON S. WOOD
Public Works Administrator

DC:mo
c: Jeff Pearson, DAGS, MDO

Public Comment Letter 2

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

BRADFORD K. VENTURA
Fire Chief

GAVIN L.M. FUJIOKA
Deputy Fire Chief

DEPARTMENT OF FIRE & PUBLIC SAFETY
COUNTY OF MAUI
313 Manea Place
Wailuku, Maui, Hawai‘i 96732
www.mauicounty.gov

October 30, 2024

VIA EMAIL: leslie.mcclain@tetratech.com

Ms. Leslie McClain
Tetra Tech Inc
77 Bishop Street, Suite 2000
Honolulu, Hawaii 96813

SUBJECT: Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Use Project: Kaheawa Pastures, West Maui (TMK) (2)4-8-001:001, 4-8-001:010, 3-6-001:052 and 3-6-001:014

Dear Ms. Leslie McClain:

Thank you for the opportunity to review your project. At this time, the Fire Prevention Bureau has no comments. Please feel free respond back should you want to identify or inquire about any specific fire-related public safety concerns for this or any additional future projects.

Sincerely,

Fire Plans Review
Fire Prevention Bureau
Maui Fire Department

JO:ka

Public Comment Letter 3

JOSH GREEN, M.D.
GOVERNOR

KEITH T. HAYASHI
SUPERINTENDENT

STATE OF HAWAIʻI
DEPARTMENT OF EDUCATION
KA ʻOIHANA HOʻONAʻAUAO
P.O. BOX 2360
HONOLULU, HAWAIʻI 96804

OFFICE OF FACILITIES AND OPERATIONS

November 7, 2024

Ms. Leslie McClain
Tetra Tech, Inc.
737 Bishop Street, Suite 2000
Honolulu, HI 96813

Re: Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Use Project; Kaheawa Pastures, West Maui,
Tax Map Key Nos.: 4-8-001:001, 4-8-001:010, 3-6-001:052, and 3-6-001:014

Dear Ms. McClain:

Thank you for your letter dated October 22, 2024. Based on the information provided, we have determined that the proposed project will not have an impact on the operations of Hawaii State Department of Education facilities.

Should you have any questions, please contact Cori China, Professional Worker of the Facilities Development Branch, Planning Section, at (808) 781-5080 or via email at cori.china@k12.hi.us.

We appreciate the opportunity to comment.

Sincerely,

Roy Ikeda
Interim Public Works Manager
Planning Section

RI:ctc
c: Facilities Development Branch

Public Comment Letter 4

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA

EDWIN H. SNIFFEN
DIRECTOR
KA LUNA HO'OKELE

Deputy Directors
Nā Hope Luna Ho'okele
DREANALEE K. KALILI
TAMMY L. LEE
CURT T. OTAGURO
ROBIN K. SHISHIDO

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF TRANSPORTATION | KA 'OIHANA ALAKAU
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO

STP 00622.24
STP 8.3853

November 15, 2024

VIA EMAIL: lauren.e.yasaka@hawaii.gov

TO: DAWN N.S. CHANG, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

FROM: EDWIN H. SNIFFEN
DIRECTOR OF TRANSPORTATION

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KAHEAWA WIND 1 (KWP 1) CONTINUED USE PROJECT
TAX MAP KEY: (2) 4-8-001: 001, 010, 3-6-001: 014, 052

Thank you for your letter, dated October 15, 2024, requesting the Hawaii Department of Transportation's (HDOT) review and comments on the subject project. HDOT understands Kaheawa Wind Power, LLC is proposing to continue operation of the existing KWP 1 wind generation facility for an additional 20-year period.

Considering the project description and location, HDOT does not anticipate any significant adverse impacts therefore, we have no comments to provide.

Please submit any subsequent land use entitlement-related requests for review or correspondence to the HDOT Land Use Intake email address at DOT.LandUse@hawaii.gov.

If there are any questions, please contact Mr. Blayne Nikaido, Planner, Land Use Section of the HDOT Statewide Transportation Planning Office at (808) 831-7979 or via email at blayne.h.nikaido@hawaii.gov.

Public Comment Letter 5

JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIAʻĀINA

STATE OF HAWAII | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

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

DAWN N.S CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKAʻOLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
DEPUTY DIRECTOR - WATER

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

November 15, 2024

IN REPLY REFER TO:
Project No: 2024PR01343
Doc No: 2411CN01
History & Culture

Leslie McClain
Tetra Tech, Inc.
737 Bishop Street, Suite 2000
Honolulu, HI 96813
leslie.mcclain@tetratech.com

Aloha e Leslie,

SUBJECT: Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Use Project; Kaheawa Pastures, West Maui, Ukumehame Ahupuaʻa, Lāhainā District, Island of Maui, TMK(s): (2) 4-8-001:001, 4-8-001:010, 3-6-001:052, and 3-6-001:014.

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice (EISPN) for the subject property located at the above referenced TMKs on the island of Maui. The State Historic Preservation Division (SHPD) has reviewed the above cited EISPN and has the following comments:

The Kaheawa Wind 1 Continued Use Project proposes the continued operation of the existing Kaheawa Wind 1 wind generation facility for an additional 20-year period to provide windmill generated electricity energy to the island of Maui. While no construction or physical improvements (beyond maintenance activities) are required as part of this proposed project, the Kaheawa Wind 1 windmill project has already caused significant damage to the project area's natural, biological, and cultural resources on public State of Hawaiʻi land.

The location of the proposed Kaheawa Wind 1 Continued Use Project presents specific challenges for historical and cultural resource protection, largely due to its proximity to significant cultural landmarks such as the Lāhainā Pali Trail. This trail is historically important as a connector between Lāhainā and Wailuku, and it is still used for recreational purposes today. Another major concern is the continued negative impact that the Kaheawa Wind 1 Continued Use Project will have on culturally important natural, biological, cultural, and archaeological resources in the project area.

Archaeological and Cultural Resources

- **SIHP #50-50-09-02946**
  Lāhainā-Pali Trail—5.5-mile historic trail that runs from the Māʻalaea Harbor across to the Lāhainā and Ukumehame area and reaches an elevation of 1600 feet. Trail was built over 200 years ago, is related to the larger ala loa island-wide trail, and is significant for its association with legends.

missionary stories, and other historic accounts. It fell out of use in 1900 when the main road was built by prison labor.

- **SIHP #50-50-09-05232**
  Multi-component stone-walled heiau structure built with small, weathered basalt boulders and cobbles, probably procured locally. The site consists of two walled enclosures (referred to here as the east and west enclosures), and terraced areas with stone alignments on the south (downslope) and southeast sides of the enclosures. The total dimensions of the site are 14.7 meters by 22.0 meters, encompassing an area of 323.4 square meters.

- **SIHP #50-50-09-02827**
  Site consists of a small enclosure, 1.5m across; overall site area, 1.5 meters x 1.5 meters.

- **SIHP #50-50-09-02825**
  Site consists of a complex of petroglyphs and walls, up to 1.5m high. Overall site area, 20 x 10m.

- **SIHP #50-50-09-02826**
  Site consists of a terraced enclosure (3m wide) and adjacent walls (1m high); the overall site area is 24 x 10m.

- **SIHP #50-50-09-01441**
  Site consists of 3 C-shapes: A, 4 x 3 x 0.5-0.8m; B, 3 x 2 x 0.4-1m; C, 2 x 1.5m; located on the foothills of Mauna o ʻEʻeka, northeast of McGregor Point.

  There may be additional sites on or near the project area.

Floral Cultural Resources

- Native shrubland vegetation consists of low stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻūlei (*Osteomeles anthyllidifolia*), and uluhe fern (*Dicranopteris linearis*).

Faunal Cultural Resources

- Several native birds protected by the Migratory Bird Treaty Act are known to or have the potential to occur in or fly through the project area; these include (but are not limited to) the Pacific golden plover/kōlea (*Pluvialis fulva*), wandering tattler/ʻūlili (*Tringa incana*), white-tailed tropicbird/koaʻekea (*Phaethon lepturus*), sooty tern/ʻewaʻewa (*Onychoprion fuscatus*), wedge-tailed shearwater/ʻuaʻukani (*Puffinus pacificus*), and the endemic Hawaiian short-eared owl/pueo (*Asio flammeus sandwichensis*). The Hawaiian short-eared owl has the potential to forage in or traverse the project area.

- Four Federal and State-listed wildlife species have the potential to occur or use habitat in the project area: the Hawaiian hoary bat/ʻōpeʻapeʻa (*Aeorestes semotus*), Hawaiian goose/nēnē (*Branta sandvicensis*), Hawaiian petrel/ʻuaʻu (*Pterodroma sandwichensis*), and Newell's shearwater/ʻaʻo (*Puffinus newelli*) (KWP 2006). Additionally, based on the project location, two other listed species have the potential to occur in or transit the project area or its vicinity. The band-rumped storm-petrel/ʻakēʻakē (*Oceanodroma castro*) and Blackburn's sphinx moth (*Manduca blackburni*).

- The Incidental Take License from the Department of Land and Natural Resources' Division of Forestry and Wildlife (DOFAW) expires in January 2026. However, the proposed Kaheawa Wind 1 Continued Use Project seeks to extend this license for approximately 20 more years. If DOFAW grants this extension, there is a risk of continued significant negative impacts on species covered by the Incidental Take License that are listed as endangered or threatened under the federal Endangered Species Act and Hawai'i Revised Statutes Chapter 195D. These species represent invaluable cultural and biological resources that would suffer further depletion through additional incidental fatalities.

Visual Cultural Resources

- The Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Use Project addresses potential adverse impacts on scenic vistas and view planes on Maui. However, the project has not evaluated potential negative impacts on scenic vistas and view planes as seen from Kaho'olawe, nor the effects on Hawaiian religious practitioners who conduct ceremonies there. Therefore, the Environmental Impact Statement (EIS) should include an assessment of potential impacts on scenic vistas and view planes from Kaho'olawe, which is an integral part of Maui Nui.

Despite the potential impact to sites in the vicinity, as detailed above, no Archaeological Inventory Survey (AIS) has been conducted in the project area to date. While no new ground-disturbing activities are currently proposed, an AIS may still reveal additional archaeological resources in or near the area. While an Archaeological Reconnaissance Survey was conducted by the International Archaeological Research Institute, Inc. in 1998, this does not adequately meet current Hawai'i archaeological standards in accordance with Hawai'i Administrative Rules §13-276. Given the archaeological and cultural significance of this location, a modern AIS should be conducted to ensure compliance with current historic preservation regulations.

In addition, the applicant is also conducting a Cultural Impact Assessment, which will be included in the Draft Environmental Impact Statement (DEIS). This assessment aims to identify additional cultural resources in or near the project area. The DEIS for the Kaheawa Wind 1 Continued Use Project should provide further details on these resources and analyze potential impacts. Additional resources may also be identified during the scoping process.

A Ka Pa'akai Analysis should also be considered when evaluating this project proposal because of its potential to impact the exercise of Native Hawaiian traditional and customary rights.

Lastly, the DEIS plans to include a "No Action Alternative," where the proposed action would not proceed. Under this alternative, the existing Kaheawa Wind 1 Continued Use Project facility would cease operations and undergo decommissioning. The project proponent must clarify the process for decommissioning and removal if their lease extension is denied. Additionally, details are needed regarding the disposal of Kaheawa Wind 1 Continued Use Project materials. Other reasonable alternatives that meet the project's purpose and objectives may also be developed in response to feedback from scoping and consultations.

The Applicant intends to consult with elected officials, agency representatives, community leaders, and community members during the scoping period. To ensure a comprehensive and inclusive consultation process, the project proponents may also want to submit their scoping and consultation list to SHPD for review and to potentially recommend additional individuals or organizations with an interest or expertise in the area.

SHPD also requests the Department of Land and Natural Resources Land Division to please ensure that the project and associated documents are submitted to the Hawai‘i Cultural Resource Information System (HICRIS) during the permitting application process for SHPD review.

The State of Hawaii Department of Land and Natural Resources Land Division is the office of record for this review. Please maintain a copy of this letter with your review record. If you have any questions about the contents of this letter or SHPD's review, please contact Christopher "Ikaika" Nakahashi, SHPD Cultural Historian, at (808) 243-4600 or via email at chris.nakahashi@hawaii.gov.

Mahalo,

Jessica L. Puff
State Historic Preservation Administrator
Deputy State Historic Preservation Officer

cc: Lauren Yasaka, *Planner, DLNR Land Division*, lauren.e.yasaka@hawaii.gov

Public Comment Letter 6

Jordan Lerma
Executive Director
Nēnē Research and Conservation
P.O Box 1899
Keaau, HI 9674

November 19, 2024

Leslie McClain
Tetra Tech, Inc.
737 Bishop Street, Suite 2000
Honolulu, HI 96813

Subject: Comments on the Environmental Impact Statement Preparation Notice (EISPN) for Kaheawa Wind 1 Continued Use Project

Dear Ms. McClain,

On behalf of Nēnē Research and Conservation, a 501(c)(3) nonprofit organization dedicated to enhancing Nēnē conservation in Hawai‘i, I am submitting the following comments regarding the Environmental Impact Statement Preparation Notice (EISPN) for the Kaheawa Wind 1 Continued Use Project.

While we support the development of renewable energy and its role in achieving Hawai‘i’s Renewable Portfolio Standard goals, we are concerned about the project’s potential impacts on state and federally listed species, including the Nēnē, ‘Ōpe‘ape‘a, ‘Ua‘u, and ‘A‘o.

We acknowledge and appreciate the current mitigation and monitoring techniques being implemented at the Kaheawa Wind facility, including systematic downed wildlife monitoring, incidental fatality detections, and over 18 years of post-construction monitoring data collection, which has documented mortalities including approximately 55 Nēnē, 32 Hawaiian hoary bats, and 23 Hawaiian petrels. However, implementing new technologies could improve the estimation of total take and enhance mitigation efforts.

To further mitigate risks to listed species, we recommend implementing the following measures informed by best practices from global wind energy facilities and recent research advancements:

1. **Advanced Monitoring Systems**:
    - Deploy GPS or Cellular Tracking Technology (CTT) tags to better understand the movement patterns and habitat use of listed species, particularly Nēnē, which tend to have higher site fidelity and transit through problematic areas more often. Monitoring habitat usage through tagging can provide critical insights into how Nēnē interact with the project area across different seasons. This data can identify high-risk zones, inform site-specific mitigation measures such as habitat modifications or relocation strategies, and help evaluate the effectiveness of ongoing conservation efforts. It can also enhance understanding of seasonal movements, breeding site fidelity, and population dynamics, enabling more targeted and efficient management practices.
    - Install electronic monitoring systems near turbines and other high-risk areas to capture real-time data on species movements and interactions with turbines, especially for species that may be injured but not immediately detected. Recent research, such as studies utilizing the ThermalTracker-3D system, has shown the value of identifying flight characteristics, behaviors, and activity patterns in detecting and mitigating risks for seabirds. These systems can also track nocturnal activity and identify birds and bats in low-visibility conditions, enabling more accurate assessments of species presence and risk factors.
2. **Improved Take Assessment**:
    - Utilize the data from advanced monitoring technologies to refine take estimates for all listed species, including those that may sustain injuries and leave the area before succumbing to impacts. Enhanced detection methods will improve accuracy in assessing the cumulative impact of the project on vulnerable populations.
3. **Habitat and Nesting Management**:
    - For species such as Nēnē, increase monitoring to help identify the subpopulation most closely associated with the project site. This can include banding and tracking resights to better understand the seasonal use of project areas by the subpopulation. Such data can inform potential mitigation measures, such as relocating nests to a different subpopulation to reduce likelihood of conflict while supporting the overall Maui population.
4. **Proactive Operational Adjustments**:
    - Implement turbine curtailment strategies during peak transit times for ʻUaʻu and ʻAʻo, particularly during sunrise and sunset when activity is heightened. These strategies can be informed by real-time data from monitoring systems, such as

stereo cameras and thermal imaging. Facilities such as Block Island Wind Farm have successfully used operational adjustments, including turbine spin-downs, to reduce avian collisions during peak transit times.

As an organization dedicated to the conservation of native Hawaiian species, we are particularly concerned about ensuring that the continued operation of the Kaheawa Wind 1 project does not exacerbate the decline of already vulnerable populations. Data from our research indicates that Nēnē populations on Maui remain in decline, emphasizing the urgent need to minimize overall take and support ongoing efforts to revitalize this species. By leveraging advanced monitoring technologies and implementing proactive habitat management, we can collaboratively achieve a balance between renewable energy development and the preservation of Hawai'i's unique biodiversity.

Thank you for considering these recommendations. We welcome the opportunity to discuss these suggestions further and collaborate on initiatives that enhance conservation outcomes. Please do not hesitate to contact me if additional input or partnership opportunities would be beneficial.

Sincerely,
Jordan Lerma
Executive Director
Nēnē Research and Conservation



Jordan Lerma

Public Comment Letter 7

STATE OF HAWAIʻI
OFFICE OF PLANNING
& SUSTAINABLE DEVELOPMENT

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARY ALICE EVANS
DIRECTOR

235 South Beretania Street, 6th Floor, Honolulu, Hawaiʻi 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaiʻi 96804

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

Coastal Zone Management Program

Environmental Review Program

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented Development

Statewide Geographic Information System

Statewide Sustainability Branch

DTS202410231425NA

November 20, 2024

Tetra Tech, Inc.
Attn: Ms. Leslie McClain
737 Bishop Street, Suite 2000
Honolulu, Hawaii 96813

Dear Ms. McClain:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
for the Proposed Kaheawa Wind 1 Continued Use Project
Tax Map Keys: (2) 4-8-001:001 & 010; (2) 3-6-001:052 & 014
Lahaina, Maui

Thank you for the opportunity to comment on the subject EISPN.

Kaheawa Wind Power, LLC (Applicant) is seeking a new 20-year lease agreement for land owned by the Department of Land and Natural Resources (DLNR) to continue operating the existing Kaheawa Wind 1 (KWP 1) energy generation facility in West Maui. KWP 1 has been in operation since 2006. A Hawaii Revised Statutes (HRS) Chapter 343 environmental review is required because State land is involved, and the use is within the State Land Use Conservation District. The DLNR has determined that an Environmental Impact Statement (EIS) is likely required instead of an Environmental Assessment (EA) because of KWP1's potential to result in significant impacts on protected species under the federal Endangered Species Act (ESA) and HRS Chapter 195D.

BACKGROUND

DLNR Land Lease and Permits

Prior to the construction of the facility, an EIS was prepared and accepted by the Board of Land and Natural Resources (BLNR) on October 8, 1999. The BLNR subsequently approved a Conservation District Use Permit (CDUP, MA-3103) for KWP 1 on January 24, 2003; the CDUP has no expiration date. Then an EA was prepared to assess the impact of proposed changes to the facility, including a reduction in the number of turbines from 27 to 20 and an increase in the height of each turbine; the Final EA was accepted by the BLNR on November 8, 2004. Two months later in January 2025, KWP 1's 20-year lease agreement (General Lease No. S-5731) was approved by the BLNR and a modification to the CDUP was approved on June 24, 2005. KWP 1's current lease agreement expires in

January 2025; a 1-year holdover lease has been requested to extend the lease through January 2026 pursuant to HRS Section 171-40.

USFWS, DOFAW Approvals

In addition, because of KWP 1's impact on protected species under the ESA and HRS Chapter 195D, the Applicant has an Incidental Take Permit (ITP) from the U. S. Fish and Wildlife Service (USFWS), an Incidental Take License (ITL) from the DLNR-Division of Forestry and Wildlife (DOFAW), and a Habitat Conservation Plan (HCP). The ITP and ITL expire in January 2026, and the Applicant will seek approval of an amended ITP and ITL and for the associated HCP conservation programs that would be expanded to continue to provide net benefit for the covered species for a proposed 20-year extended operation.

PUC Approval

KWP 1 has been operating under a 20-year Power Purchase Agreement (PPA) with Hawaiian Electric, approved by the State Public Utilities Commission (PUC), with an expiration date of June 21, 2026. KWP 1 was recently awarded a new 20-year PPA in Hawaiian Electric's Stage 3 Request for Proposal, and the new PPA requires approval from the PUC.

PROJECT AREA AND EXISTING FACILITY

Project Area

The Project Area is in the Kaheawa Pastures area of West Maui within the State Land Use Conservation District under the jurisdiction of DLNR. The main facility is situated on approximately 200 acres (Parcels 001, 010, and 052). It is accessed by an existing four-wheel-drive roadway that leads from Honoapiilani Highway through the adjacent Parcel 014 where the existing and separate KWP 2 wind facility is located. KWP 1 has internal access roads and a parking/staging area granted through easements 20-feet wide centered on the existing roadway that constitutes an 8.5-acre portion of Parcel 014. Together, the main facility and access/parking easement constitute the Project Area.

A portion of the Project access road is within the Special Management Area (SMA) and an existing SMA minor permit (SMA 2005/0029) was issued by the county in 2005 for construction of a driveway apron off Honoapiilani Highway for the KWP 1 access road. Since no changes to the access road and driveway are proposed, the Applicant does not anticipate an SMA permit modification or a new SMA will be required.

Existing Facility

The existing KWP 1 facility consists of 20 GE 1.5-megawatt (MW) wind-generating turbines in a single articulated row at elevations ranging from 3,000 feet to 3,200 feet. Each turbine has a total structural height (maximum rotor blade tip height) of 90 meters (296 feet) and sits on a 163-square-meter (1,752 square feet) foundation.

The Project also includes an operation and maintenance facility, a storage facility, an electrical substation and wind monitoring equipment, all in proximity to the turbines. Located within the leased land is also the electrical substation for the adjacent KWP 2 wind farm and the associated battery storage facility. The intra-turbine power collection system and connection to the substation are all located underground. Power generated by KWP 1 interconnects with the Hawaiian Electric island-wide grid at the existing Hawaiian Electric switchyard and the KWP 1 substation. No construction or physical improvements beyond maintenance activities are proposed.

KWP 1 provides power to approximately 17,000 Maui Island households annually. It contributes 30 MW of renewable energy per year toward the State's goal of 100% clean energy by 2045.

IMPACT ON PROTECTED SPECIES

The Applicant's ITP, ITL and HCP will address four species: Hawaiian hoary bat, Hawaiian goose (nene), Newell's shearwater, and Hawaiian petrel. Based on the analysis conducted for the draft HCP, the EIS will consider impacts on these species along with other potential impacts.

Record of Species and Takings

Acoustic monitoring for the presence of the Hawaiian hoary bat using detectors has been ongoing since 2008 and intensive fatality monitoring has occurred since operations began in 2006. The results of acoustic monitoring show a significant increasing trend in detection rates from 2015 to 2024. A total of 13 bats have been found as fatalities at the Project, and low-wind speed curtailment was implemented as a minimization measure in 2014 and is in place annually from February 15 through December 15. The cumulative take through June 2024 is estimated at less than or equal to 32 bats (1.78 bats per year). KWP 1 has mitigated for the take of up to 50 bats.

Nene have been regularly observed and documented in the Project Area and active breeding has been recorded on site. 37 nene have been detected as fatalities during regular downed wildlife monitoring at KWP 1 as part of HCP compliance. The cumulative take through June 2024 is estimated at less than or equal to 55 nene (3.06 nene per year). KWP 1 has mitigated for 45.4 nene and is currently expanding its mitigation activities.

Protected seabirds have been observed within or transiting the Project Area or have the potential to occur. Results from radar and night-visual surveys during the fledging period observed low numbers of both Hawaiian petrel and Newell's shearwater regularly flying over the Project Area to and from their nesting sites in the uplands of the West Maui mountains. A total of 8 petrel fatalities have been detected during monitoring at KWP 1. The cumulative take is estimated at 23 petrels (1.28 petrels per year) and KWP 1 has mitigated for more than 38 petrels. No shearwaters have been observed as fatalities.

OPSD COMMENTS

The Office of Planning and Sustainable Development (OPSD) has the following comments:

1. If the proposed action was restricted to the renewal of the land lease with no change in use or expansion of the facilities, the existing EA would appear to be sufficient. However, given the existing impacts on protected species and the need to obtain an ITP from USFWS, an ITL from DOFAW and approval of the associated HCP modifications, DLNR's decision to prepare an EIS is prudent.

2. KWP 1 provides clean energy to the people of Maui at less cost than fossil-fuel-generated electricity and is an important asset in achieving State's goal of 100% clean energy by 2045. OPSD notes that wind-generated energy requires significantly less land than other renewable energy sources such as photovoltaic facilities. Increasing the use of wind-generated energy in the State's renewable energy portfolio would reduce the competition between renewable energy facilities and agricultural uses for lands in the State Agricultural District.

3. OPSD looks forward to reviewing the draft EIS and has no further comments at this time.

Thank you for the opportunity to provide these comments. In your response, please include DTS 202410231425NA in the subject line. If you have any questions, please contact Aaron Setogawa at (808) 587-2883 or at aaron.h.setogawa@hawaii.gov.

Mahalo,

Mary Alice Evans

Mary Alice Evans
Director

Public Comment Letter 8

JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIAʻĀINA





DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA
LAND DIVISION

P.O. BOX 621
HONOLULU, HAWAII 96809

November 21, 2024

Tetra Tech, Inc.
Attn: Ms. Leslie McClain
737 Bishop Street, Suite 2000
Honolulu, HI 96813

via email: leslie.mcclain@tetratech.com

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Proposed **Kaheawa Wind 1 Continued Use Project** located at Lahaina, Island of Maui; TMKs: (2) 4-8-001:001, (2) 4-8-001:010, (2) 3-6-001:052, and (2) 3-6-001:014 on behalf of Kaheawa Wind Power, LLC

Dear Ms. McClain:

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

At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division-Planning on the subject matter. Should you have any questions, please feel free to contact Darlene Nakamura at (808) 587-0417 or email: darlene.k.nakamura@hawaii.gov. Thank you.

Sincerely,

Russell Tsuji

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

Public Comment Letter 9

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
LAND DIVISION

P.O. BOX 621
HONOLULU, HAWAII 96809

October 24, 2024

MEMORANDUM

FROM: ~~TO:~~ **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division (DLNR.ENGR@hawaii.gov)
_X_ Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks
_X_ Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands
_X_ Land Division – Maui District (dlnr.land.maui@hawaii.gov)
_X_ Land Division – Lauren Yasaka, Planner (lauren.e.yasaka@hawaii.gov)
___Aha Moku Advisory Committee

TO: ~~FROM:~~ Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Proposed **Kaheawa Wind 1 Continued Use Project**
LOCATION: Lahaina, Island of Maui; TMKs: (2) 4-8-001:001, (2) 4-8-001:010, (2) 3-6-001:052, and (2) 3-6-001:014
APPLICANT: Tetra Tech, Inc. on behalf of Kaheawa Wind Power, LLC

Transmitted for your review and comment is information on the above-referenced subject matter. The EISPN was published on October 24, 2024, by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

https://files.hawaii.gov/dbedt/erp/The_Environmental_Notice/2024-10-23-TEN.pdf

Please submit any comments by **November 21, 2024**. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

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

Signed: *[signature]*
Print Name: Carty S. Chang, Chief Engineer
Division: Engineering Division
Date: Nov 20, 2024

Attachments

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Kaheawa Wind 1 Continued Use Project
Location: Lahaina, Island of Maui
TMK(s): (2) 4-8-001:001, (2) 4-8-001:010, (2) 3-6-001:052, and (2) 3-6-001:014
Applicant: Tetra Tech, Inc. on behalf of Kaheawa Wind Power, LLC

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). Be advised that 44CFR, Chapter 1, Subchapter B, Part 60 reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible for researching the Flood Hazard Zone designation for the project. Flood zones subject to NFIP requirements are identified on FEMA's Flood Insurance Rate Maps (FIRM). The official FIRMs can be accessed through FEMA's Map Service Center (msc.fema.gov). Our Flood Hazard Assessment Tool (FHAT) (fhat.hawaii.gov) could also be used to research flood hazard information.

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7139.
- Kauai: County of Kauai, Department of Public Works (808) 241-4849.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: Nov 20, 2024

Public Comment Letter 10

JOSH GREEN, M.D.
GOVERNOR | KE KIA ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA ĀINA

DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
LAND DIVISION

P.O. BOX 621
HONOLULU, HAWAII 96809

October 24, 2024

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division (DLNR.ENGR@hawaii.gov)
_X_ Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks
_X_ Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands
_X_ Land Division – Maui District (dlnr.land.maui@hawaii.gov)
_X_ Land Division – Lauren Yasaka, Planner (lauren.e.yasaka@hawaii.gov)
___Aha Moku Advisory Committee

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Proposed **Kaheawa Wind 1 Continued Use Project**
LOCATION: Lahaina, Island of Maui; TMKs: (2) 4-8-001:001, (2) 4-8-001:010, (2) 3-6-001:052, and (2) 3-6-001:014
APPLICANT: Tetra Tech, Inc. on behalf of Kaheawa Wind Power, LLC

Transmitted for your review and comment is information on the above-referenced subject matter. The EISPN was published on October 24, 2024, by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

https://files.hawaii.gov/dbedt/erp/The_Environmental_Notice/2024-10-23-TEN.pdf

Please submit any comments by **November 21, 2024**. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

( ) We have no objections.
( ) We have no comments.
( ) We have no additional comments.
(X) Comments are included/attached.

Signed: *[signature]*
Print Name: Lauren Yasaka
Division: Land
Date: 11/20/2024

Attachments

Public Comment Letter 10

JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIAʻĀINA

DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA
LAND DIVISION

P.O. BOX 621
HONOLULU, HAWAII 96809

November 20, 2024

Leslie McClain
Attention: KWP1 Continued Use EISPN
Tetra Tech, Inc.
737 Bishop Street, Suite 2000
Honolulu, HI 96813

Sent Via Email: Leslie.McClain@tetratech.com

Dear Ms. McClain:

SUBJECT: Comments on the Environmental Impact Statement Preparation Notice for the Kaheawa Wind 1 Continued Project Located in Lahaina, Maui, Hawaiʻi
Tax Map Key(s): (2) 4-8-001:001, 4-8-01:010, 3-6-001:052, 3-6-001:014

Thank you for the opportunity to review and comment on the subject Environmental Impact Statement Preparation Notice (EISPN). The Land Division offers the following comments:

1. The EISPN notes that located within the leased lands for Kaheawa Wind Power 1 (KWP 1) are the substation for Kaheawa Wind Power 2 (KWP 2) and the associated battery storage facility. Please clarify what type of land disposition the Applicant has from the State which allows for these facilities to be located within the KWP 1 leased area. In addition, please clarify if KWP 1 and KWP 2 operate independently of each other or are intertwined in some way, i.e. could KWP2 continue to operate (without the substation and battery storage) if a new lease was not granted to the KWP 1 premises?

2. The forthcoming Environmental Impact Statement (EIS) should provide a more thorough/detailed history regarding the previously obtained permits and approvals for the project including but not limited to the 1999 EIS, the subsequent 2004 EA, and the modifications/amendments to the Conservation District Use Permit (CDUP), Incidental Take License (ITL), and Habitat Conservation Plan (HCP). The discussion should include the reasons for the modifications and amendments so that the public can understand how the project has evolved over time to what it is now.

3. Regarding impacts to listed species, current impacts and projected continued impacts to species should be discussed. Further, compliance with the current ITL and HCP should be discussed. This discussion should include a section regarding the remaining Nēnē credits that need to be fulfilled prior to the expiration of the current ITL and HCP as well as the

proposed mitigation measures that would be used to fulfil those credit requirements. Moreso, mitigation measures in general should discuss proposed mitigation that will most likely be a part of the "new" ITL and HCP that will be applied for based on the current average rate of take for all listed species.

4. The "No Action Alternative" should discuss both positive and negative impacts especially as they relate to Maui's electrical network and the communities that rely on KWP1 as their main power source as well as the listed species and resources impacted by the proposed project.

Should you have any questions regarding this correspondence, please contact Ms. Lauren Yasaka of our office at 808-587-0431 or at lauren.e.yasaka@hawaii.gov.

Sincerely,

Russell Tsuji

Russell Y. Tsuji,
Land Division Administrator

Public Comment Letter 11

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA





STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
OFFICE OF CONSERVATON AND COASTAL LANDS
P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
DEPUTY DIRECTOR - WATER

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

REF:OCCL:TM

Correspondence: MA 25-82

Leslie McClain
Tetra Tech, Inc.
Via Email: Leslie.McClain@tetratech.com

November 22, 2024

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Kaheawa Wind 1 Continued Project Located in Lahaina, Maui, Hawai'i, Tax Map Key(s): (2) 4-8-001:001

Dear Ms. McClain:

The Office of Conservation and Coastal Lands (OCCL) has reviewed the subject matter and notes the indicated area lies within the Protective and General subzone of the Conservation District. Based upon the information provided, when referring to Kaheawa Wind I or KWP I, the OCCL is assuming you are referring to the improvements authorized by the Board of Land and Natural Resources on January 24, 2003, for Conservation District Use Permit (CDUP) MA-3102 for the Construction and Operation of a 20 MW Windfarm and Associated Facilities and Subdivision of State Land by Hawai'i Wind Energy, LLC, subject to 46 terms and conditions upon a portion of TMK: (2) 4-8-001:001.

It is unclear how this authorization may have extended to parcels (2) 4-8-01:010, (2) 3-6-001:014 & 052. Please clarify.

The OCCL requests the EIS discuss compliance of each condition of the attached CDUP MA-3102. Specific attention such as an update and progress account should be given for conditions # 6, 22, 23, 25, 26, 27, 28, 29, 35, & 39.

Should there be any questions regarding this correspondence, contact Tiger Mills of the OCCL at (808) 587-0382 or at kimberly.mills@hawaii.gov.

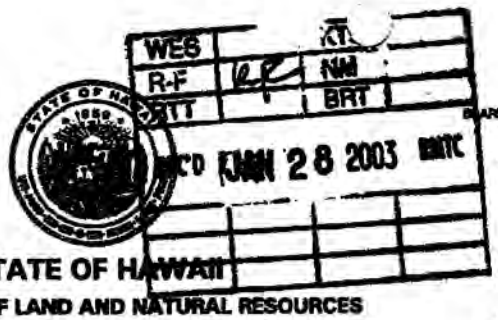
Sincerely,

K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands

C: LAND

Public Comment Letter 11

LINDA LINGLE
GOVERNOR



PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEAN A. NAKANO
ACTING DEPUTY DIRECTOR FOR
THE COMMISSION ON WATER
RESOURCE MANAGEMENT

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. Box 621
HONOLULU, HAWAII 96809

Date: 1/27/03

Ref.:PB:SL

File No.: MA-3102

Mr. Russell Figueiroa, President
R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Figueiroa:

This is to inform you that on January 24 2003, the Board of Land and Natural Resources approved your client's application to construct and operate a 20 megawatt wind farm (excluding the extra row of five turbines) and associated improvements at Kaheawa Pastures in Ukumehame, Maui, (TMK: 4-8-01: 01), subject to the following conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State, and County governments, and applicable parts of Section 13-5-42, Hawaii Administrative Rules;

2. The applicant shall comply with applicable Department of Health administrative rules;

3. All mitigative measures proposed in the final Environmental Impact Statement for the project shall be implemented;

4. The applicant shall install the wind turbines to minimize visual impacts to the view planes along the Old Lahaina Pali Trail. The applicant shall work with the Na Ala Hele program to implement the mitigation measures they suggest on page 10 of the staff report;

5. The applicant shall conduct a follow-up archaeological survey if the course of the upper spur road is altered;

6. Heiau 5232 at Ukumehame will need to be preserved. A preservation plan (scope of work) will need to be submitted to the State Historic Preservation Division for review and acceptance. This plan will need to identify buffers around the site, interim protection measures, and long-term preservation measures. The Division will also need to verify that the plan has been successfully carried out, prior to land alteration, or alternatively construction activities may commence following written verification from our Division that the interim preservation measures are in place. Also, as a protective measure, orange construction fencing shall be placed along both sides of the existing access road where it intersects with the Lahaina Pali Trail (State Site 50-50-09-2946 and 50-50-09-2950). The State Historic Preservation Division (Dr. Melissa Kirkendall, 243-5169) will need to verify that the protective construction fencing is in place, prior to any land alterations;

7. If evidence of historic sites or subsurface features, including burials, are discovered during construction, all activity in the vicinity of the find shall cease and the applicant shall contact the State Historic Preservation Division at 692-8015;

8. All activities connected with the project shall be contained within the project area as identified in the application for a CDUP and the final EIS;

9. The applicant shall take appropriate measures to mitigate the impacts of erosion and siltation, and prevent oil, fuel, or cement products from falling, blowing, or flowing on Conservation lands and ocean waters. All work will be scheduled during periods of low rainfall;

10. Prior to construction, the Applicant shall submit a Wild land Fire Contingency Plan approved by the Division of Forestry and Wildlife for all phases of the project. The plan shall be completed in accordance with the suggestions on page 9 of this staff report. All personnel of Hawaii Wind Energy, LLC and the contractor involved with this project shall comply with the provisions of the Fire Contingency Plan. A copy of the plan shall be filed with the Land Division. The applicant will be liable for all fires determined by DLNR to have been caused or started from management activities related to the project. Also, DOFAW may inspect the site at any time upon request;

11. All construction materials shall be removed from the project site and disposed of at a landfill site approved by the County of Maui. Additionally, the applicant shall remove any trash or debris from the site upon completion of the project;

12. The applicant shall obtain the appropriate authorization through the Maui District Land Office, Department of Land and Natural Resources, for the use of State lands;

13. The final construction plans, including improvements to the access road network and locations of the site operations and maintenance building and site substation shall be coordinated with the Maui District Land Agent, the Historic Preservation Division, and the Division of Forestry and Wildlife;

14. The applicant shall provide four (4) sets of the final construction plans and specifications to the Chairperson or his authorized agent for approval with the permit declarations set forth in the permit application and the final EIS. Three (3) sets of plans will be returned to the applicant. Plan approval by the Chairperson does not infer approval required by other agencies;

15. Any work to be done on the land shall be initiated within two (2) years of the approval of the use by the Board, and all work and construction must be completed within four (4) years of the approval by the Board;

16. The applicant shall notify the Department in writing when construction is initiated and when construction is completed;

17. If any information or data provided by the Applicant prove to be false, incomplete or inaccurate, this permit may be modified, suspended, or revoked. The Department may, in addition, institute appropriate legal proceedings;

18. Where any polluted run-off, interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take measures to minimize or eliminate the polluted run-off, interference, nuisance, harm, or hazard;

19. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;

20. All cleared areas shall be revegetated within thirty days, using native species found in the area;

21. During construction and the initial operational period of the windfarm, the applicant, in consultation with DLNR, Division of Forestry and Wildlife staff, shall monitor wildlife to ensure that the wind turbines and their towers are not sources of mortality to endangered birds, such as the Nene, the Dark-rumped Petrels, or to the endangered Hawaiian hoary bat. The type and frequency of monitoring periods shall be coordinated with the Division of Forestry and Wildlife, Department of Land and Natural Resources. The applicant shall make arrangements with the DLNR, Division of Forestry and Wildlife to pay for the cost incurred by all monitoring;

22. The applicant shall implement their Downed Bird Protocol and shall be required to immediately notify the USFWS and DOFAW if any injured or dead birds or bats are found, and the location of possible strikes. The applicant shall pay for the cost incurred by this effort;

23. The applicant shall continue opportunistic surveys of bird. Specific sightings shall be documented via a standard bird observation form;

24. The applicant shall inspect, in coordination with the DLNR, Division of Forestry and Wildlife, turbine sites to insure that no bird nests are present in the immediate area of the proposed tower foundation and access road;

25. The applicant shall work closely with DLNR, Division of Forestry and Wildlife staff to manage the wildlife habitat. This will include periodic removal of rubbish. If necessary, this will include trapping to control the number of unwanted mammals, e.g., rats, mongoose, feral cats and dogs. The applicant shall implement additional mitigation measures to protect native habitat as suggested on page 11 of this staff report;

26. The applicant shall contribute $3,500 annually to DLNR's Nene Propagation and Recovery Program;

27. The applicant shall develop an education and observation program, including a bird identification primer and format for documenting specific observation;

28. If for any reason, the project is terminated or Hawaii Wind Energy, LLC enters bankruptcy proceedings, the responsibility for the removal of all facilities and equipment associated with the project shall remain with Hawaii Wind Energy, LLC and the area is to be restored to the satisfaction of the Department of Land and Natural Resources;

29. The Applicant shall allow State and/or Federal biologists access to the site to perform periodic checks for bird and mammal mortalities;

30. Prior to construction, all access road and site construction plans shall be reviewed and approved by the County of Maui Department of Public Works and the Department of Transportation, Highways Division;

31. The applicant shall minimize ground disturbance to reduce the potential for soil erosion in and around the gulches;

32. The applicant shall add, and replace as necessary culverts to handle anticipated water flows in the gulches;

33. The applicant shall add channels or troughs along sections of the access road network to divert water flows and prevent soil erosion;

34. The applicant shall use gravel or other porous materials to maintain the integrity of the roadbed;

35. The applicant shall do additional botanical surveys as represented in the accepted EIS for the project;

36. The applicant shall hire a plant expert to supervise the actual construction work in areas in or near where there are native plants;

37. The applicant shall establish an inspection station at the staging area near the main highway to reduce the possibility of introducing alien plant species to the site, prior to the initiation of project work. Each vehicle will be inspected prior to traveling the jeep road up to the site;

38. The applicant shall ensure that operations and maintenance staff do not damage native plants. If construction or operation required the removal of native plants, the plants will be removed, relocated and replanted. The applicant shall pay for the cost of this effort;

39. The applicant shall work with plant experts to introduce appropriate native plant species back into the Kaheawa Pastures;

40. The applicant shall work with the County of Maui Planning Department to ensure that the appropriate colors tones are used on the towers and blades;

41. That this approval provides for the subdivision of Conservation District lands, if necessary, to accommodate the windfarm and access road;

42. The applicant shall comply with the Incidental Taking Permit requirements of the U.S. Fish and Wildlife Service, including the preparation of the Habitat Conservation Plan;

43. The applicant shall submit a pre-final construction plan for the wind turbines as well as hire a color consultant to develop the most appropriate color scheme for the project to blend in with the surroundings. The color scheme shall be reviewed by the County of Maui for consistency with its programs and policies;

44. The applicant shall utilize the access road that was identified in the approved EIS;

45. That failure to comply with any of these conditions shall render this Conservation District Use Permit null and void; and

46. All other terms and conditions as prescribed by the Chairperson.

Please have the applicant acknowledge receipt of this permit, with the above noted conditions, in the space provided below. Please sign two copies, retain one, and return the other within thirty (30) days of the date of this letter.

Should you have any questions on any of these matters, please feel free to contact Sam Lemmo of our Planning Branch staff, at 587-0381.

Aloha,

Dierdre S. Mamiya, Administrator

Receipt acknowledged

Brian M. Hayashida
Signature Hawaii Wind Energy LLC

5 February 2003
Date

cc: Chairman's Office
Maui Board Member
Maui Land Agent
County of Maui Planning Department
DOFAW
DOCARE
HPD
Brian Hayashida
USFWS

Public Comment Letter 12

HAWAII STATE ENERGY OFFICE
STATE OF HAWAII

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARK B. GLICK
CHIEF ENERGY OFFICER

235 South Beretania Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-3807
Web: energy.hawaii.gov

November 22, 2024

Via email, Approving Agency: lauren.e.yasaka@hawaii.gov
State of Hawai‘i Board of Land and Natural Resources

Via email, Applicant: molly.stephenson@brookfieldrenewable.com
Kaheawa Wind Power, LLC

Via email, Consultant: leslie.mcclain@tetratech.com
Tetra Tech, Inc.

Subject: KWP 1 Continued Use Project EIS Preparation Notice

Dear Ms. Yasaka, Ms. Stephenson, and Ms. McClain,

The Hawai‘i State Energy Office (HSEO) offers the following comments on the Environmental Impact Statement (EIS) Preparation Notice for the Kaheawa Wind Project (KWP) 1 Continued Use Project proposed by Kaheawa Wind Power, LLC as well as KWP’s request for a one-year lease holdover. HSEO’s comments are guided by HSEO’s statutory purpose under H.R.S. §196-71 to promote energy efficiency, renewable energy, and clean transportation to help achieve a resilient clean economy. As an island community, currently dependent on imported fossil fuels for two-thirds of its electrical power, Hawai‘i is particularly vulnerable to fuel and energy disruptions, unpredictable cost fluctuations, unintended fuel releases into marine environments, and the many impacts of climate change.

HSEO concurs with the proposed preparation of an EIS, without first preparing an Environmental Assessment for the subject project, and notes, not only, the importance of the project to the production of wind energy on Maui, but also the importance of the project for Maui’s overall energy stability and resilience.

Wind energy provided 16% of Maui's electricity in 2023[1]. Wind energy resources contribute to the renewable energy goals for both the island and the state. The KWP 1 project, which involves the continued operation of an existing 30 MW facility, sustains existing renewable energy capacity. Maintaining resource adequacy remains a pressing challenge due to the island’s current reliance on aging infrastructure. The reliability and cost-effectiveness of wind energy, coupled with its ability to complement increasing energy demand and support the clean energy transition, underscores the need for immediate action to sustain continued production of this renewable

[1] Hawaiian Electric 2023 Renewable Portfolio Standard Status Report

energy resource. In addition, KWP 1 helps advance the state's Renewable Portfolio Standard goals while minimizing environmental disruption.

The Public Utilities Commission's Adequacy of Supply report indicates that Maui's reserve margins for 2024 had some shortfalls, highlighting the importance of extending the lease. From 2025 to 2028 the margins should be sufficient *if* the anticipated additions come online and if some of the current generation, such as KWP 1 remains. Kahului will be retiring at the end of 2027. There will be some new generation but continued generation, such as KWP 1, is essential to fill in for this lost power. Maalaea units are expected to function until 2029, although they may come offline sooner if maintenance is unavailable[2]. All of these factors indicate the need for the expected generation, both new and existing, to meet the island's energy demand.

Given this information, HSEO strongly supports KWP's request for a one-year holdover lease pursuant to H.R.S. §171-40. HSEO finds the extension of the lease for the next year, under its existing PPA, critically important for meeting Hawai'i's energy demand and maintaining energy stability, especially as other Stage 3 projects are withdrawn.

TerraForm has consistently demonstrated its role as a responsible and committed partner in advancing renewable energy in Hawai'i. The company has made significant efforts towards addressing the requirements of the Habitat Conservation Plan, showcasing its commitment to prioritizing environmental impact mitigation and its ability to follow through on projects, thus underlining their ability to perform on the next steps as the project moves forward.

The proposed environmental impact statement will provide a thorough assessment that can facilitate the project's approval and ensure that environmental considerations are addressed comprehensively. In addition, a one-year holdover lease will allow KWP 1 to continue to provide an essential energy resource while continuing to develop for the Stage 3 process.

Thank you for the opportunity to comment. Please let us know if you have any questions.

Sincerely,



Mark B. Glick
Chief Energy Officer

[2] Public Utilities Commission Adequacy of Supply report (MECO 2024)

Public Comment Letter 13

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
DEPUTY DIRECTOR - WATER

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

November 26, 2024

TerraForm Power
c/o Tetra Tech, Inc.
Attn: Leslie McClain
737 Bishop Street, Suite 2000
Honolulu, Hawai'i 96813

SUBJECT: Environmental Impact Statement Preparation Notice for the Kaheawa Wind I Continued Use Project; Kaheawa Pastures, West Maui

Dear TerraForm Power,

The Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) has received the Environmental Impact Statement Preparation Notice for the Kaheawa Wind I Continued Use Project at Kaheawa Pastures on the island of Maui; TMK: (2) 4-8-001:001, 4-8-001:010, 3-6-001:052, and 3-6-001:014. The KWP I facility has been operating since 2006. The construction and operation of the KWP I facility were initially analyzed and described in an Environmental Impact Statement (EIS) which was approved by the Board of Land and Natural Resources (BLNR) on October 8, 1999 (WSB-Hawaii 1999). A subsequent Environmental Assessment (EA) was prepared to analyze proposed changes to the wind farm layout, including a decrease in wind turbines from 27 to 20 and an increase in turbine height. The Final EA was approved by the BLNR on November 8, 2004 (KWP 2004) and the KWP I facility was constructed in accordance with the description in the Final EA and began operations in 2006. The proposed project action for the current environmental review process is the continued use of the existing KWP I wind generation facility for an additional 20-year period. The proposed actions would require no construction or physical improvements beyond maintenance activities. If the project were to proceed, it would require approval of a new 20-year lease from BLNR as the current DLNR land lease will expire in January 2026. Additionally, KWP I's current Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS) and Incidental Take License (ITL) from DLNR/Department of Forestry and Wildlife (DOFAW) are set to expire in January 2026; therefore, an amended ITP from USFWS and an amended ITL from DLNR/DOFAW covering the extended period of operations and approval of an associated Habitat Conservation Plan (HCP) are required. The purpose of the project is

to utilize the existing wind energy infrastructure on land owned by DLNR to continue to provide 30-MW of clean, renewable energy to the island of Maui, thus contributing to the State of Hawai‘i’s Renewable Portfolio Standard (RPS) energy goals of generating 100 percent of the state’s energy from renewable sources by 2045.

Several wildlife species have the potential to occur or use habitat in the project area: the Hawaiian hoary bat/‘ōpe‘ape‘a (*Lasiurus cinereus semotus*), Hawaiian goose/nēnē (*Branta sandvicensis*), Hawaiian petrel/‘ua‘u (*Pterodroma sandwichensis*), and Newell’s shearwater/‘a‘o (*Puffinus newelli*) (KWP 2006). Additionally, based on the project location, two other listed species have the potential to occur in or transit the Project area or its vicinity—the band-rumped storm-petrel/‘akē‘akē (*Oceanodroma castro*), and Blackburn’s sphinx moth (*Manduca blackburni*). The potential for fatalities due to the operation of the wind farm can have serious consequences for Hawaiian endangered and threatened species. Critical habitat has been designated by the USFWS within the project area for two endangered forest bird species—the crested honeycreeper/‘akohekohe (*Palmeria dolei*) and Maui parrotbill/kiwikiu (*Pseudonestor xanthophrys*) (USFWS 2016). Montane Mesic Unit 5 encompasses approximately 11 acres of the northernmost portion of the project area, but DOFAW agrees the project’s footprint is most likely unoccupied critical habitat for the crested honeycreeper and Maui parrotbill.

For the continued use of the KWP I Wind Project through the proposed extension of the power purchase agreement, DOFAW recommends that KWP I continue to minimize and mitigate, to the maximum extent practicable, the effects of take caused by interaction of ESA-listed wildlife with the wind energy generation facility. Furthermore, DOFAW concurs that KWP I use the 18 years of post-construction monitoring data from implementation of the HCP for the existing wind farm to assess risk to listed species and current take limits for an extended term for a new HCP. Additionally, DOFAW recommends KWP I continue to increase the knowledge and understanding of listed species’ occurrence and behavior in the project vicinity through monitoring tools like downed wildlife monitoring, acoustic monitoring, and thermal monitoring. DOFAW also recommends that KWP I continue to adhere to the draft USFWS Draft Revised Nēnē recovery plan and DOFAW’s Nēnē Restoration Project, adhere to goals of the existing recovery plans for the other three species, considering the most recent updated information and goals; and provide a net conservation benefit to each of the impacted listed species.

The State listed ‘ōpe‘ape‘a or Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) is known to occur at or in the vicinity of the project and may roost in nearby trees. A total of 13 Hawaiian hoary bats have been found as fatalities at the project since 2006. Cumulative take through June 2024 is estimated at less than or equal to 32 Hawaiian hoary bats. DOFAW agrees that low wind speed curtailment should be maintained and smart curtailment as in re distributing the curtailment throughout the night based on site-specific acoustic data (time of night, date, weather conditions, spatial aspects, etc) should be incorporated. DOFAW concurs that ultrasonic bat deterrents should be explored as a viable minimization option. Furthermore, any required site clearing should

be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. DOFAW concurs that KWP I avoid using any barbed wire for fencing on site and instead fit any fences that are erected as part of the project with barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat.

Suitable nesting habitat for listed seabird species exists in nearby areas at upper elevations. Results from previous radar and night-visual surveys during the fledging period observed both the Hawaiian Petrel and Newell's shearwater regularly flying over the project area to and from their nesting sites in the uplands of the West Maui mountains (Cooper and Day 2004). A total of eight Hawaiian petrel fatalities have also been detected during monitoring at the existing wind farm with an estimated cumulative take of 23 petrels. No Newell's Shearwater fatalities have been documented, but there is still the risk of take of this species. Furthermore, given a collision-associated death of an ʻakēʻakē at another Maui wind farm as well as the proximity of Maui to the island of Lāna'i, where ʻakēʻakē are known to breed in two gulches on the north side of the island, there is a probability of ʻakēʻakē transiting in proximity to the coast of Maui where the KWP I wind farm is located. Furthermore, there are active seabird conservation efforts occurring in proximity to the KWP I wind farm. This includes social attraction efforts to encourage prospecting and nesting for ʻakēʻakē at the Makamaka'ole seabird colony in the West Maui Forest Reserve and West Maui Natural Area Reserve (Kahakuloa Section). An ʻakēʻakē carcass was previously recovered at the Makamaka'ole seabird colony. With this evidence of ʻakēʻakē transiting the island of Maui, DOFAW recommends that KWP consider including ʻakēʻakē on the incidental take license. Therefore, DOFAW recommends that KWP I include all listed Hawaiian seabird species on their incidental take license.

Furthermore, artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in their collision with manmade structures or the grounding of birds. For nighttime work that might be required, DOFAW recommends that all lights used be fully shielded to minimize the attraction of seabirds. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season, from September 15 through December 15, when young seabirds make their maiden voyage to sea. If nighttime construction is required during the seabird fledgling season, we recommend that a qualified biologist be present at the project site to monitor and assess the risk of seabirds being attracted or grounded due to the lighting. If seabirds are seen circling around the area, lights should then be turned off. If a downed seabird is detected, please follow DOFAW's recommended response protocol by visiting https://dlnr.hawaii.gov/wildlife/seabird-fallout-season/ . Permanent lighting at the facility also poses a risk of seabird attraction, and as such should be minimized or eliminated to protect seabird flyways and preserve the night sky. For illustrations and guidance related to seabird-friendly light styles that also protect seabirds and the dark starry skies of Hawaiʻi please visit https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.

The endemic pueo or Hawaiian Short-Eared Owl (*Asio flammeus sandwichensis*) could potentially nest in the project area. Pueo nest on the ground and active nests have been found year-round. Before any potentially disturbing activity like clearing vegetation, especially ground-based disturbance, DOFAW recommends a qualified biologist conduct surveys during crepuscular hours. Observation surveys should be done at those times from vantage points where they can see the whole project area for 2-3 nights before construction is to start. If any breeding displays are observed, it is likely there could be a nest. If pueo nests are detected in the area, a buffer zone should be established in which no activity occurs within a minimum buffer distance of 100 meters until the nesting cycle is complete and the chicks are capable of flight. DOFAW staff should be notified of any nests or adult displayed breeding behavior.

The State listed nēnē or Hawaiian Goose (*Branta sandvicensis)* are known to inhabit the site. Nēnē have been observed to seek cover and nest under on-site vegetation, and to fly through or within the vicinity of the project are. Thirty-seven nēnē fatalities have been detected during regular downed wildlife monitoring that occurs at the wind farm as part of HCP compliance or incidentally (KWP 2006, KWP 2024). Cumulative take through June 2024 is estimated at less than or equal to 55 nēnē. DOFAW concurs that the project should continue to reduce areas with standing water and continue removing and managing woody vegetation to minimize attracting the Hawaiian goose to the project site and reduce the likelihood of nesting. If a nest is discovered at any point, please contact the Maui Island Branch DOFAW Office at (808) 984-8100 and establish a buffer zone around the nest.

The project area is within the range of the State listed Blackburn's Sphinx Moth (*Manduca blackburni*) or BSM. Larvae of BSM feed on many nonnative hostplants, which includes tree tobacco (Nicotiana glauca), that grow in disturbed soil. KWP indicates that native, larval host plants for Blackburn's sphinx moth do not occur in the project area, but we recommend contacting the Maui Island Branch DOFAW office at (808) 984-8100 for further information about where BSM may be present and whether a vegetation survey should be conducted to determine the presence of plants preferred by BSM. DOFAW recommends removing plants less than one meter in height or during the dry season to avoid harm to BSM. If you intend to either remove tree tobacco over one meter in height or to disturb the ground around or within several meters of these plants, they must be thoroughly inspected by a qualified entomologist for the presence of BSM eggs and larvae.

DOFAW recommends minimizing the movement of plant or soil material between worksites. Soil and plant material may contain detrimental fungal pathogens (e.g., Rapid ʻŌhiʻa Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coqui Frogs, etc.), or invasive plant parts (e.g., African Tulip, Octopus Tree, Trumpet Tree, etc.) that could harm our native species and ecosystems. We recommend consulting the Big Island Invasive Species Committee (BIISC) at (808) 933-3340 to help plan, design, and construct the project, learn of any high-risk invasive species in the area, and ways to mitigate their spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

DOFAW recommends using native plant species for landscaping that are appropriate for the area; i.e., plants for which climate conditions are suitable for them to thrive, plants that historically occurred there, etc. Please do not plant invasive species. DOFAW also recommends referring to www.plantpono.org for guidance on the selection and evaluation of landscaping plants and to determine the potential invasiveness of plants proposed for use in the project.

The invasive Coconut Rhinoceros Beetle (CRB) or *Oryctes rhinoceros* is found on the islands of O'ahu, Hawai'i Island, Maui and Kaua'i. On July 1, 2022, the Hawai'i Department of Agriculture (HDOA) approved Plant Quarantine Interim Rule 22-1. This rule restricts the movement of CRB-host material within or to and from the island of O'ahu, which is defined as the Quarantine Area. Regulated material (host material or host plants) is considered a risk for potential CRB infestation. Host material for the beetle specifically includes a) entire dead trees, b) mulch, compost, trimmings, fruit and vegetative scraps, and c) decaying stumps. CRB host plants include the live palm plants in the following genera: *Washingtonia*, *Livistona*, and *Pritchardia* (all commonly known as fan palms), *Cocos* (coconut palms), *Phoenix* (date palms), and *Roystonea* (royal palms). When such material or these specific plants are moved there is a risk of spreading CRB because they may contain CRB in any life stage. For more information regarding CRB, please visit https://dlnr.hawaii.gov/hisc/info/invasive-species-profiles/coconut-rhinoceros-beetle/.

We recommend that Best Management Practices are employed at all times during operation in efforts to contain any soils and sediment with the purpose of preventing damage to near-shore waters and marine ecosystems. DOFAW is concerned about impacts to vulnerable birds from nonnative predators such as cats, rodents, and mongooses. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles. DOFAW concurs with the additional measures proposed to include contractor training and education at the wind farm facility, and to stop work requirements if a listed species is observed on site during construction or operations.

We appreciate your efforts to work with our office for the conservation of our native species. These comments are general guidelines and should not be considered comprehensive for this site or project. It is the responsibility of the applicant to do their own due diligence to avoid any negative environmental impacts. Should the scope of the project change significantly, or should it become apparent additional threats to listed species exist, please contact our staff as soon as possible. If you have any questions, please contact Kinsley McEachern, Protected Species Habitat Conservation Planning Associate, at Laurinda.k.mceachern.researcher@hawaii.gov.

Sincerely,

JASON D. OMICK
Wildlife Program Manager

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Appendix C. Cultural Impact Assessment for the Continued Operation of the Kaheawa Wind Power I Facility. Ukumehame Ahupua‘a, Lahaina Districts, Island of Maui

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Cultural Impact Assessment for the Continued Operation of the Kaheawa Wind Power I Facility

TMKs: (2) 3-6-001:014 and (2) 4-8-001:001

Ukumehame Ahupua'a
Lāhainā District
Island of Maui



Prepared By:

Summer Moore, Ph.D.,
Candace Gonzalez, B.A.,
and Carol Oordt, M.A.

Prepared For:

Kaheawa Wind Power, LLC

July 2025

ASM AFFILIATES

Hilo: 507A E. Lanikaula St., Hilo, Hawai'i 96720 • (808) 969-6066
Honolulu: 820 Mililani St., Suite 700, Honolulu, Hawai'i 96813 • (808) 439-8089
Kahului: 149 Ma'a St., Suite 100, Kahului, Hawai'i 96732 • (808) 736-6665

ASM Project Number 46790.00

Cultural Impact Assessment for the Continued Operation of the Kaheawa Wind Power I Facility

TMKs: (2) 3-6-001:014 and (2) 4-8-001:001

Ukumehame Ahupuaʻa
Lāhainā District
Island of Maui

ASM AFFILIATES

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1. INTRODUCTION

At the request of Kaheawa Wind Power LLC (Applicant), ASM Affiliates (ASM) prepared this Cultural Impact Assessment (CIA) to inform an Environmental Impact Statement (EIS) being prepared for the continued operation of the 200-acre Kaheawa Wind Power I (KWP I) facility on TMK: (2) 4-8-001:001 and an accompanying easement for the use of Kaheawa Pastures Road on TMK: (2) 3-6-001:014, Ukumehame Ahupuaʻa, Lāhainā District, Island of Maui (Figures 1 to 3). The Applicant, which leases the project area lands from the State of Hawaiʻi, proposes to extend the operation of the existing wind generation facility for an additional 20-year period. No construction or physical improvements (beyond standard maintenance activities) are required as part of the proposed project, and standard maintenance of project equipment would be conducted in a manner consistent with current maintenance protocols. As part of the approvals process for the proposed 20-year service extension, environmental review pursuant to Hawaiʻi Revised Statutes (HRS) 343, known as the Hawaiʻi Environmental Policy Act (HEPA), is required.

The proposed KWP I continuation of service project area, which includes the KWP I lease area and Kaheawa Pastures Road, an access road that serves both the KWP I and KWP II facilities (see Figures 1 to 3), has been studied by several archaeological projects, including an Archaeological Inventory Survey (AIS) of the entire KWP I project area conducted by Clark and Rechtman (2005) of ASM. A 1999 EIS (WSB Hawaiʻi 1999:3-42) compiled prior to the construction of the KWP I facility relied on community input to assess impacts and related that there had "not been any expressions of concern regarding other potential cultural impacts." ASM (Ah Sam and Rechtman 2009) subsequently conducted a CIA in support of an EIS for the KWP II expansion project (which resulted in the addition of 14 additional turbines below the original KWP I facility) based on interviews with individuals with knowledge of Ukumehame Ahupuaʻa and the KWP I and II project areas more specifically. The following CIA draws on the data collected during those previous studies, along with new cultural-historical background research and additional ethnographic interviews, to assess cultural impacts related to the proposed 20-year continuation of service for the KWP I facility.

The report that follows is divided into five chapters. Chapter 1, the introduction, describes the goals of the study and provides an overview of the proposed project and a physical description of the project area. To provide a cultural context of the project area, Chapter 2 includes cultural-historical background information specific to the project area and the broader geographical region of Ukumehame Ahupuaʻa, and, at times, the greater Lāhainā District. This chapter also includes a summary of prior archaeological and cultural studies conducted within or near the project area. The methods used during the consultation process and the results of the consultation are then presented in Chapter 3. Chapter 4 identifies valued cultural resources and potential impacts associated with the proposed project, as well as actions and strategies that may help to mitigate any identified impacts. Lastly, Chapter 5 summarizes the findings of the CIA. Chapter 5 presents the results of the preceding analysis in a format intended to specifically address the three questions to be considered as part of a Ka Paʻakai o Ka ʻĀina (Ka Paʻakai) Analysis (KPA). Finally, Chapter 6 summarizes the findings and recommendations of the CIA.



Figure 1. Project area location.

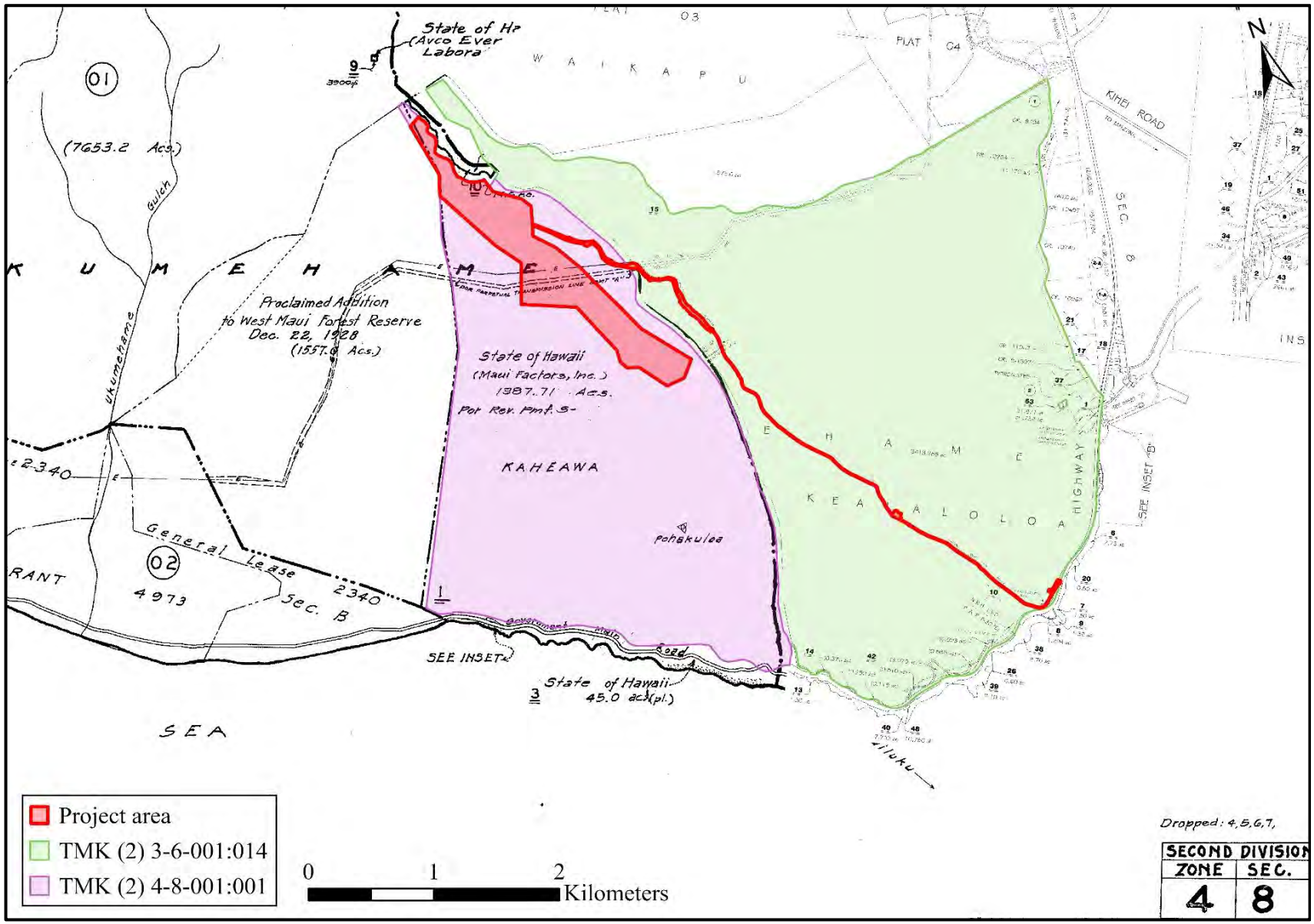


Figure 2. Tax Map Key plat map (2) 4-8-001 showing project area partially located within Parcel 001 and Kaheawa Pastures Road on Parcel 014.

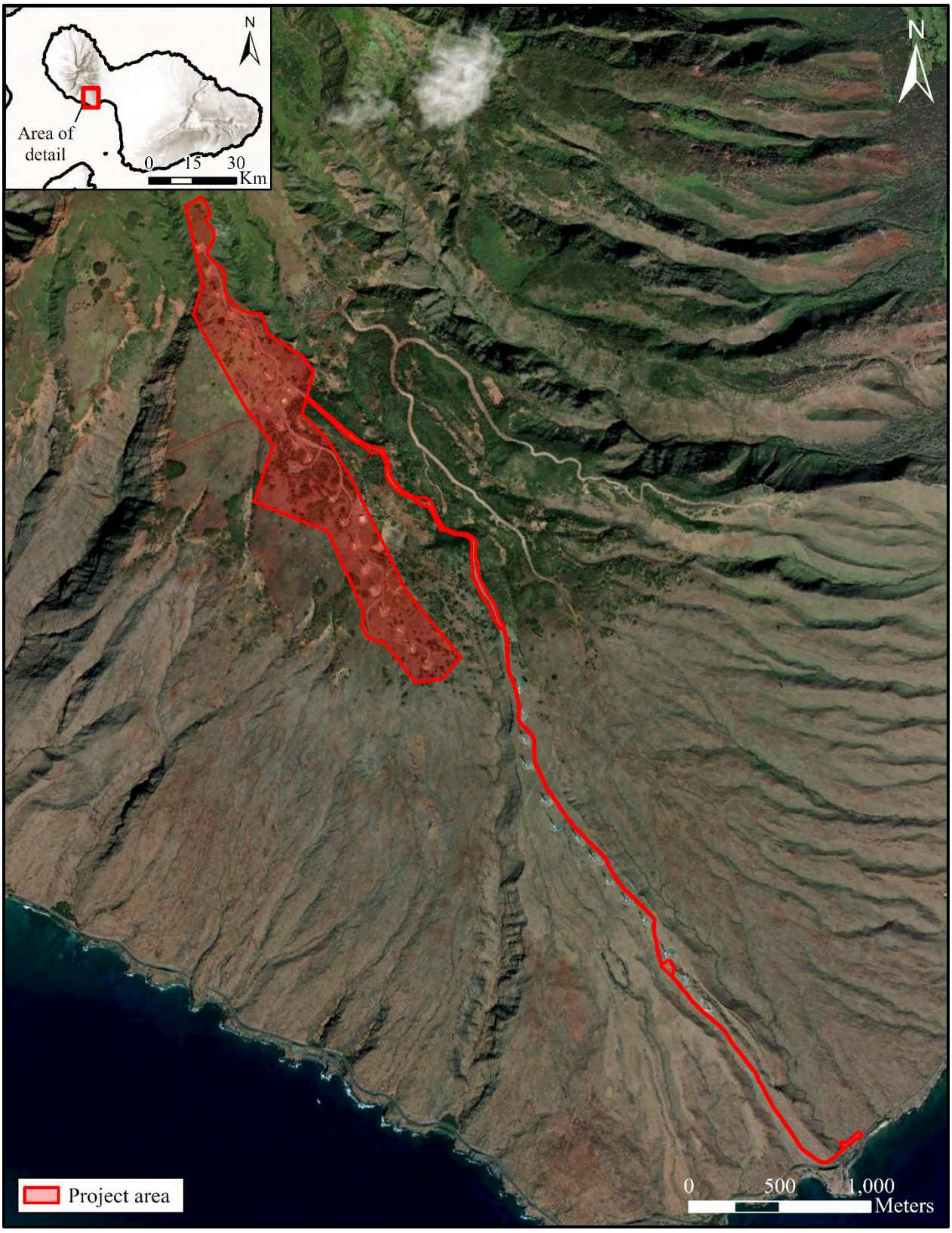


Figure 3. Satellite image showing project area location.

REGULATORY FRAMEWORK

This CIA, which is intended to inform an EIS conducted in compliance with HRS Chapter 343, is being prepared pursuant to Act 50 and in accordance with the Environmental Review Program (formerly the Office of Environmental Quality Control [OEQC]) *Guidelines for Assessing Cultural Impacts*, adopted by the Environmental Council, State of Hawai‘i, on November 19, 1997 (OEQC 1997). Act 50, which was proposed and passed as Hawai‘i State House of Representatives Bill No. 2895 and signed into law by the Governor on April 26, 2000, explicitly acknowledges the State’s responsibility to protect native Hawaiian cultural practices. Act 50 further states that environmental studies “should identify and address effects on Hawaii’s culture, and traditional and customary rights” and that “native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the ‘aloha spirit’ in Hawai‘i. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on governmental agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.” In addition to an explanation of the methods used to conduct background research and interviews, Act 50 dictates that the CIA portion of an EIS should address the following topics:

> …6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.
>
> 7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project…
>
> …10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place…

In *Ka Pa‘akai O Ka ‘Āina v. Land Use Commission*, the Hawai‘i Supreme Court asserted that the State has an obligation to protect Hawaiian traditional and customary practices to the extent feasible and that the proponent of an action must show sufficient evidence that these types of practices are protected if they exist in the location in question. This “Ka Pa‘akai framework” was created by the Court “to help ensure the enforcement of traditional and customary native Hawaiian rights while reasonably accommodating competing private development interests.” Under the Ka Pa‘akai ruling, State agencies are obligated to conduct a “Ka Pa‘akai Analysis” of a proposed action requiring agency approvals independent of the entity proposing the action. When conducted by a project proponent or contractor, the written Ka Pa‘akai Analysis (KPA) is intended solely to provide information to support the State’s assessment of the impacts of the proposed action on valued cultural, historical, or natural resources and traditional and customary practices. The Court requested an assessment of the following as part of the Ka Pa‘akai Analysis:

> (a) “the identity and scope of ‘valued cultural, historical, or natural resources’ in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
>
> (b) “the extent to which those resources -- including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action;” and
>
> (c) “the feasible action, if any, to be taken … to reasonably protect native Hawaiian rights if they are found to exist.”

The CIA and the KPA are thus similar in intent, although the CIA is typically a longer, more in-depth document that accompanies an EIS; moreover, the KPA focuses exclusively on the cultural concerns of native Hawaiians. This document is intended as a CIA fulfilling the requirements of HRS Chapter 343 with respect to the proposed KWP I continuation of service project. At the request of the Applicant, an effort has been made to use the three questions posed by the KPA as a tangible way to assess potential impacts from the project more broadly and thus make it potentially useful for the State in assessing the impacts of the proposed project on native Hawaiian rights beyond the requirements of HRS Chapter 343.

DESCRIPTION OF PROPOSED PROJECT

The KWP I wind power facility, comprising 20 wind-generating turbines, an Operations & Maintenance (O&M) complex, and a substation, was built in 2006 on 200 acres of land leased from the State of Hawai‘i (Figures 4 to 8). The 20 wind turbines of KWP I are situated in a single row running perpendicular to the slope and spaced between approximately140 and 230 meters apart; the turbine locations extend from approximately 2,000 to 3,200 feet above

mean sea level (amsl) in elevation (Tetra Tech 2023:2). Each wind turbine is approximately 90 meters (295 feet) tall and set on a 163 square-meter (1,752 square-foot) foundation (see Figure 7). KWP I has the capacity to produce 30 megawatts (MW) of renewable electricity per year, serving roughly 17,000 homes on Maui.

In 2012, the Kaheawa Wind Power II (KWP II) expansion was completed, resulting in the addition of 14 more wind turbines located downslope from the KWP I project area (Figures 9 and 10). These additional turbines are not within the boundaries of the current project area. KWP II has the capacity to produce 21 MW of power. The total capacity of the 34 wind turbines within the combined KWP I and II facility is 51 MW, an output that powers approximately 25,000 Maui households annually.

An access road (now known as Kaheawa Pastures Road) was built for the construction of the KWP I facility, more or less following an existing Jeep road and an existing spur track to the upper end of the lease area. Today, the Jeep road serves both KWP I and KWP II facilities, as some of the facilities used by the KWP II project (i.e., the substation and battery energy storage facility) are within the KWP I 200-acre lease area.

The Applicant is proposing to extend the operation of the existing KWP I wind generation facility for an additional 20-year period in order to contribute to the State of Hawaii's Renewable Portfolio Standard energy goals of generating 100 percent of the State's energy from renewable sources by 2045. The proposed project includes only the continuation of service of the existing facility. There will be no changes to the turbines or the physical layout of the facility, and no construction activities are required as part of the proposed project. Standard maintenance of project equipment will continue to be conducted as necessary in a manner consistent with current maintenance protocols and to ensure safe and reliable operations. As part of standard maintenance, some project components may require refurbishment, repair, or replacement. Maintenance activities associated with the component replacement would be conducted within the extent of the previous ground disturbance areas from original construction activities. Contractors would utilize the existing turbine pad beneath each turbine to perform the major component exchange and maintenance activities for each turbine. No significant ground disturbance is anticipated to occur during the continued use operational period. However, minor grading or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities, to maintain the primary and secondary access roads for service vehicles, and to maintain vegetation-free buffers as firebreaks and assist with Habitat Conservation Plan compliance monitoring. Ground disturbance is not anticipated to extend beyond the limits of the original KWP I construction footprint.

Following the completion of the project, the KWP I facility will continue to generate wind energy with the existing 20 GE 1.5 MW wind-generating turbines and ancillary facilities.

OVERVIEW OF THE PROJECT AREA

The current project area is located within TMKs: (2) 3-6-001:014 and (2) 4-8-001:001 in the uplands of Ukumehame Ahupua'a, Lāhainā District, Island of Maui, in an area now referred to as Kaheawa Pastures. The project area is currently occupied by KWP I, a 20-turbine wind farm operated by the Applicant on State-owned land in an area commonly referred to as Kaheawa Pastures. The project area includes Kaheawa Pastures Road, which extends from Honoapi'ilani Highway inland of McGregor Point and encompasses the uppermost or mauka 200-acre KWP I facility. The KWP I facility includes 20 wind turbines within a lease area roughly 2.5 kilometers long and 75 meters wide. Elevation within the project area ranges from approximately 50 feet amsl at the start of Kaheawa Pastures Road on the north side of Honoapi'ilani Highway to a maximum elevation of approximately 3,200 feet amsl.

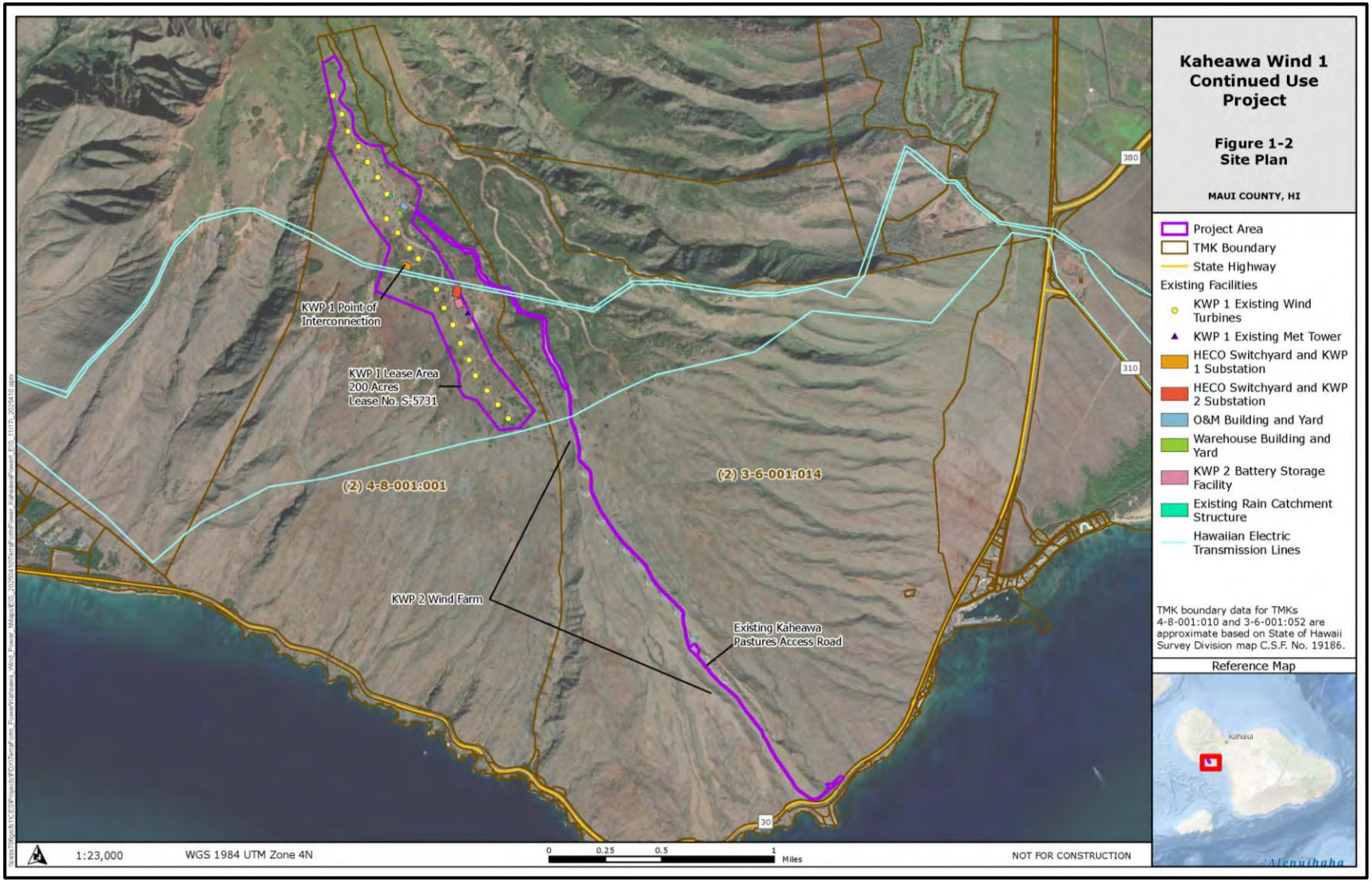


Figure 4. Layout of KWP I facility.



Figure 5. KWP I, view to the northeast.



Figure 6. Portion of Kaheawa Pastures Road, which provides access to KWP I (showing turbines of KWP II), view to southeast.



Figure 7. Pad for KWP I wind turbine, view to southwest.



Figure 8. KWP I substation and MECO switchyard, view to west.

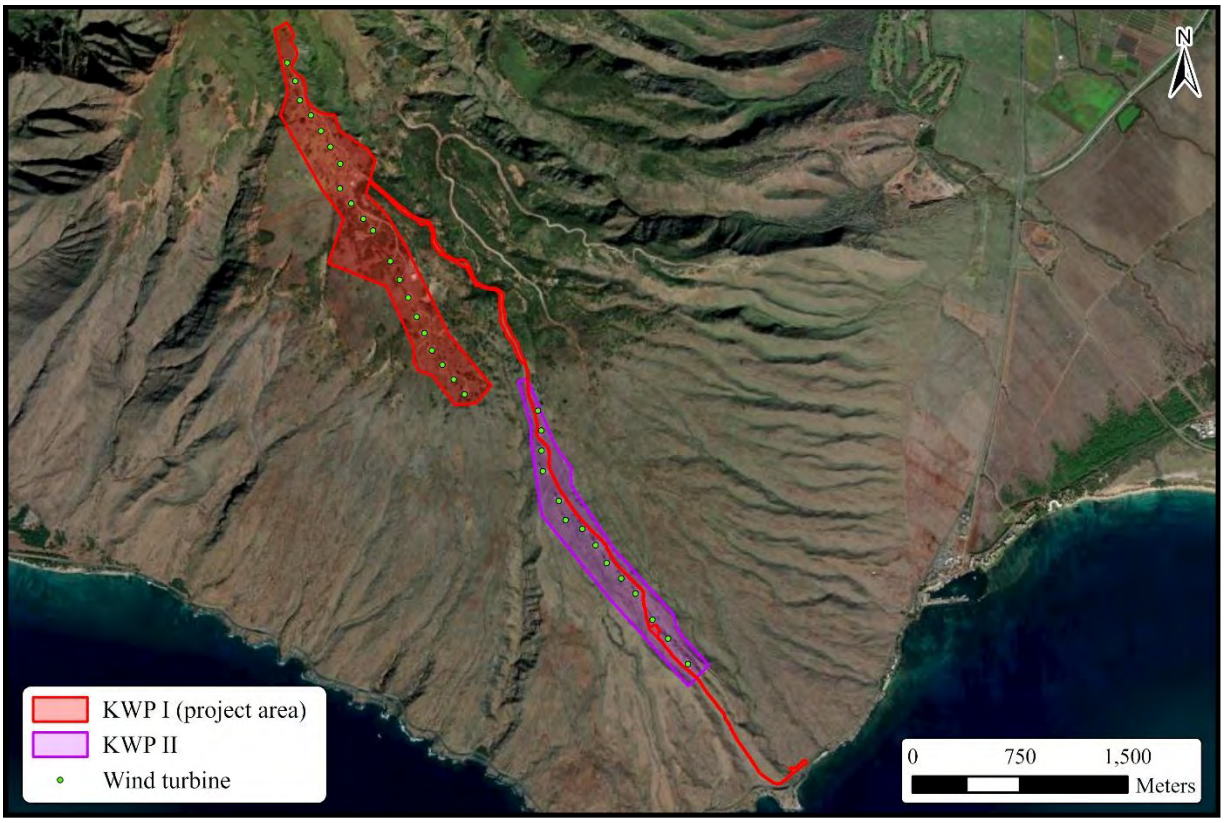


Figure 9. Layout of combined KWP I and KWP II facility.



Figure 10. KWP I and II, view to the northeast.

The project area occurs on the south-facing slopes of the West Maui volcano (Mauna Kahālāwai) and is roughly aligned with the volcano's South Rift Zone (Macdonald and Abbott 1970:322). The terrain within the project area consists of what is commonly referred to as tableland. Typical of the south rift of the West Maui volcano, this land consists of high, inter-valley ridges separated by steep-sided, dry gulches that descend the steep, southwest-facing slope to the ocean (Tomonari-Tuggle 1998). Manawainui Gulch is the most prominent gulch in the region and forms the boundary between the Lāhainā and Wailuku Districts. Kaheawa Pastures Road ascends the slope just to the west of Malalowaiaole Gulch before crossing Manawainui Gulch to reach the turbines; the KWP I portion of the facility lies between the upper portions of Manawainui Gulch (to the east; Figure 11) and Pāpalaua Gulch (to the west; Figure 12). Several small puʻu, including Puʻu Ahu and Puʻu Moe (Figure 13), occur along the South Rift to the east of the project area. To the east, the project area offers a striking view of Haleakalā in East Maui; to the south across the ʻAlalākeiki Channel is Kahoʻolawe (Figure 14), an island that, along with Lānaʻi and Molokaʻi, was once joined with Maui as part of the connected landmass of Maui Nui (Macdonald and Abbott 1970:319).

The geological context of the project area consists primarily of Wailuku Basalt (QTwlc in Figure 15; Sherrod et al. 2007) dating to between 1.3 and 2.0 million years ago, although portions occur within lava flows from the Honolua Volcanic Series dating to between 1.1 and 1.3 million years ago (Qul in Figure 15). Puʻu Ahu and Puʻu Moe are small volcanic domes (both of which lie to the east of the project area) associated with the Honolua Volcanic Series (Qud in Figure 15). Two areas of Honolua Series vent deposits (Qtwv in Figure 15) occur on the slope to the south of the project area.

There are five soil classifications within the project area (USDA Soil Survey Staff 2024; Figure 16). The makai portion of the project area along Kaheawa Pastures Road is designated as rock land (rRK in Figure 16), a soil type characterized by very shallow soils and rock outcrops (Foote et al. 1972). The mauka portion of Kaheawa Pastures Road runs through soils characterized as rough broken and stony land (rRS), which is comprised of very steep, stony gulches, and Naiwa silty clay loam, 13-45% slopes (NAC). The turbines of KWP I occur within three types of soil: Oli silt loam on 3-10% (OMB) and 15-50% slopes (OFC) (on the makai and mauka ends of the turbine array, respectively), and Naiwa silty clay loam, 13-45% slopes (NAC) (in the central portion of the turbine array). Oli Series soils are described as "well-drained, moderately deep to deep soils on uplands" that developed in "volcanic ash deposited over basic igneous rock" (Foote et al. 1972:102). Naiwa Series soils are similarly described as "well-drained soils on uplands" and are said to have been "developed in volcanic ash and material weathered from basic igneous rock" (Foote et al. 1972:97).

As noted, Ukumehame Ahupuaʻa contains a network of gulches with both perennial and seasonal water flow, yielding a combined average flow rate of 12.7 cubic feet per second per year (Wilcox and Edmunds 1990:39). Annual rainfall for the area ranges from 750 millimeters at lower elevations to 1,500 millimeters at upper elevations (Giambelluca et al. 1986:112). Consequently, a diverse range of plant species characterize different elevations within the project area. During the Precontact Period, the lower elevations (such as the makai portion of Kaheawa Pastures Road) would have predominantly comprised dry grassland and shrubland, while the upper elevations, where the WKP I turbines are situated, contained mesic to wet, windblown forests (Planning Solutions 2007:3-10). Numerous native plant species were traditionally found in the general project area including ʻaʻaliʻi (*Dodonaea viscosa*), ʻākia (*Wikstroemia thymelaeaceae*), naio (*Myoporum sandwicence*), ʻiliahi (*Satalum ellipticum*), ʻilima (*Sida fallax*), koʻokoʻolau (*Bidens menziesii*), ʻōhiʻa lehua (*Metrosideros polymorpha*), pili (*Heteropogon contortus*), pūkiawe (*Syphelia* sp.), and ʻūlei (*Osteomeles anthyllidifolia*).

During the mid- to late 19th century, the proliferation of cattle ranching in the region resulted in drastic transformations to the natural landscape of Ukumehame. As foreign animals grazed on native plants, these species were often replaced with introduced species that eventually overtook the indigenous flora. Native vegetation was further decimated by periodic wildfires throughout the 19th and 20th centuries (Hobdy 2006). The natural landscape today supports a mixture of invasive and native flora. Although invasive flora such as buffelgrass (*Pennisetum ciliare*), kiawe (*Prosopis pallida*), koa haole (*Leucaena leucocephala*), ironwood (*Casuarina equisitfolia*; Figure 17), lantana (*Lantana camara*), and molasses grass (*Melinis minutiflora*), are predominant, several native species, including ʻaʻaliʻi (*Dodonaea viscosa*), ʻilima (*Sida fallax*), ʻōhiʻa lehua (*Metrosideros polymorpha*), pūkiawe (*Syphelia* sp.), and uluhe fern (*Dicranopteris linearis*) occur within the project area, most commonly at the extreme mauka end of the turbine array (Figures 18 to 22).



Figure 11. Manawainui Gulch located to the east of the project area, view to the northwest.



Figure 12. Pāpalaua Gulch located west of the project area, view to the south.



Figure 13. Puʻu Moe to the east of the project area, view to the east.



Figure 14. View of Kahoʻolawe from the project area, view to the southwest.

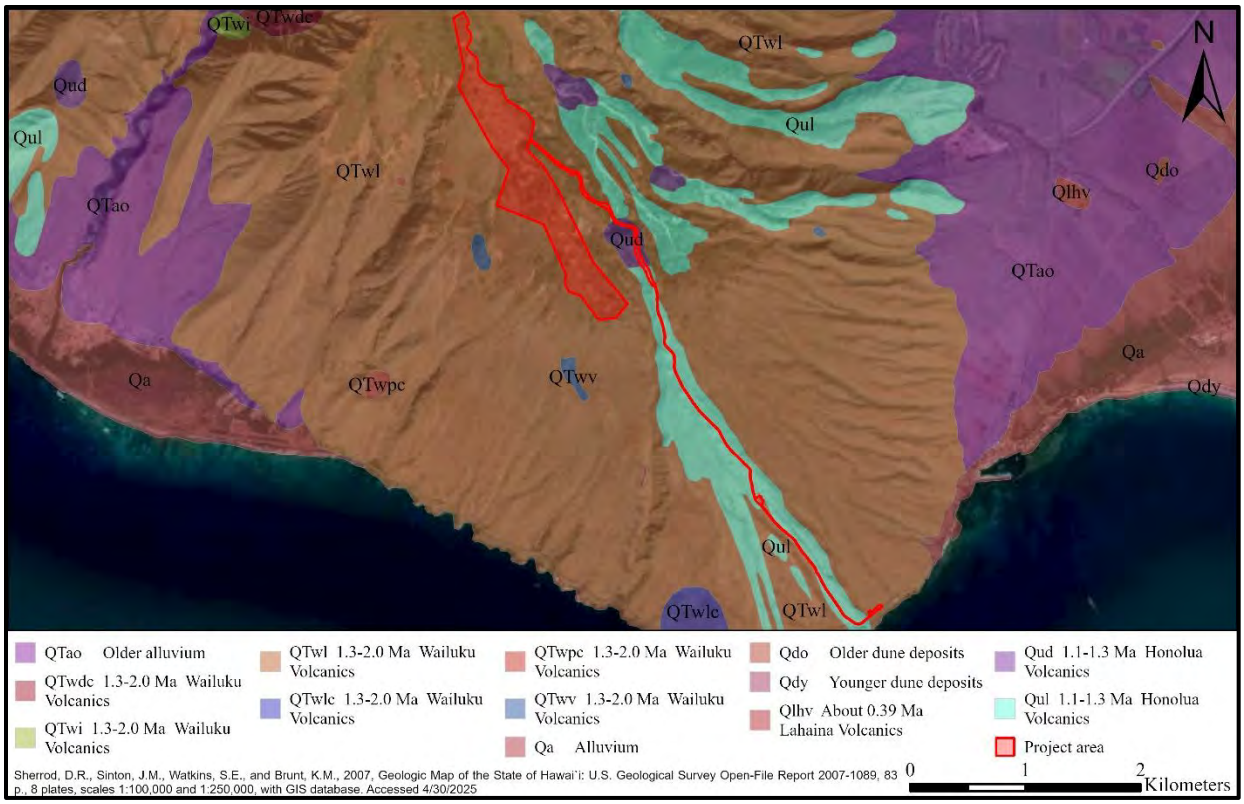


Figure 15. Geology in the vicinity of the project area.

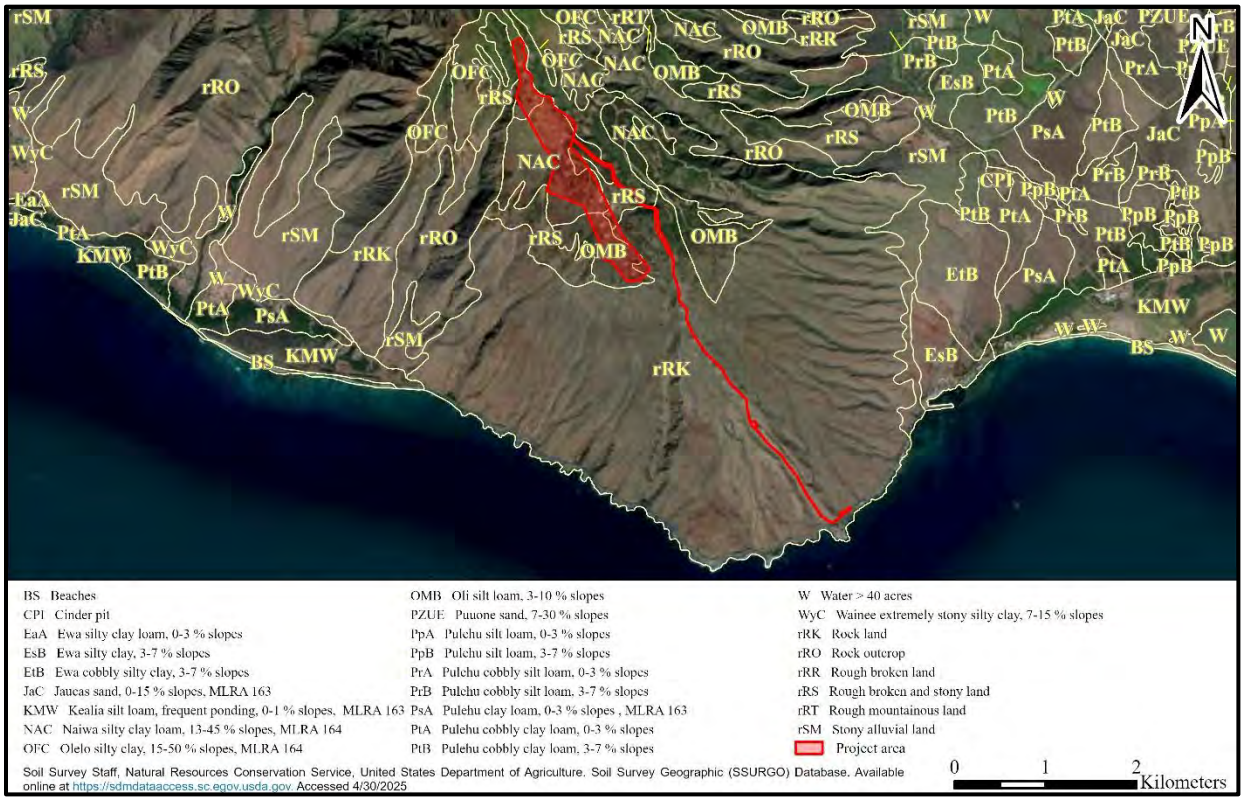


Figure 16. Soils in the vicinity of the project area.



Figure 17. Grove of ironwood trees within KWP I project area.



Figure 18. ʻŌhiʻa lehua tree within KWP I project area.



Figure 19. ʻAʻaliʻi within KWP I project area.



Figure 20. ʻŌhiʻa lehua and pūkiawe within KWP I project area.



Figure 21. General vegetation within KWP I project area.



Figure 22. Uluhe fern within KWP I project area.

Both native and introduced animals currently occur within Ukumehame Ahupuaʻa, and fauna of the KWP I project area has been well-studied during years of post-construction monitoring. Non-native species include avian species such as the Eurasian skylark (*Alauda arvensis*), ring-necked pheasant (*Phasianus colchicus*), black francolin (*Francolinus francolinus*), gray francolin (*Ortygornis pondicerianus*), African silverbill (*Euodice cantans*), and house finch (*Carpodacus mexicanus*), and mammals such as mice (*Mus musculus*), rats (*Rattus* spp.), mongoose (*Herpestes javanicus*), feral cats (*Felis catus*), dogs (*Canus familiaris*), and axis deer (*Axis axis*) (Tetra Tech 2024:14).

Several indigenous birds protected by the Migratory Bird Treaty Act (MBTA) are known to or have the potential to occur in or fly through the project area; these include the kōlea (Pacific golden plover, *Pluvialis fulva*), ʻūlili (wandering tattler, *Heteroscelus incanus*), koaʻe kea (white-tailed tropicbird, *Phaethon lepturus*), ʻewaʻewa (sooty tern, *Sterna fuscata*), ʻuaʻu kani (wedge-tailed shearwater, *Puffinus pacificus*), and the pueo (Hawaiian short-eared owl, *Asio flammeus sandwichensis*). Additional MBTA-protected species introduced to the Hawaiian islands and known to occur in the project area include the barn owl (*Tyto alba*) and northern mockingbird (*Mimus polyglottos*). Five federally and state-listed wildlife species have the potential to occur or use habitat in the project area: the ʻōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus cinereus semotus*), nēnē (Hawaiian goose, *Branta sandvicensis*), ʻuaʻu (Hawaiian petrel, *Pterodroma sandwichensis*), ʻaʻo (Newell's shearwater, *Puffinus newelli*), and ʻakēʻakē (band-rumped storm petrel, *Oceanodroma castro*) (Tetra Tech 2024, 2025b).

2. BACKGROUND

This section of the report includes a discussion of the culture-historical background for the current project area and a synthesis of relevant prior archaeological and cultural studies for Ukumehame Ahupuaʻa and the Lāhainā Moku. The background information in this section is intended to provide a comprehensive understanding of the cultural significance of the project area and general vicinity and to establish an analytical basis from which to assess any potential cultural impacts. The assessment of the cultural significance of the project area is contingent upon developing (at a minimum) a comprehensive understanding of the ahupuaʻa (traditional land division spanning from the mountains to the sea) in which the project area is located. As demonstrated in the following section, consideration of the broader region and island landscape is also required at times.

The culture-historical context and summary of previously conducted archaeological and cultural studies presented below are based on research conducted by ASM Affiliates at various physical and digital repositories. Primary resources were obtained at multiple state agencies, such as the State Historic Preservation Division (SHPD), Hawaiʻi State Archives, the Department of Accounting and General Services Land Survey Division, and the Maui Historical Society. Digital collections provided through the Office of Hawaiian Affairs' online Papakilo and Kīpuka databases, Waihona ʻĀina, the Ulukau Hawaiian Electronic Library, and Newspapers.com provided further historical context and information. Lastly, secondary resources stored at ASM Affiliates' Hilo and Kahului offices offer general information regarding the history of land use, politics, and culture change in Hawaiʻi, enhancing the broad sampling of primary source materials cited throughout this study.

CULTURE-HISTORICAL CONTEXT

The following subsections provide a general overview of Hawaiian origins, settlement, and expansion, emphasizing socio-political and cultural transformations over time. The discussion continues with a summary of traditional philosophies associated with the land and the intensification and development of Hawaiian land stewardship practices.

A Generalized Model of Hawaiian Origins and Settlement

Scholars have used various sources of information (i.e., archaeological, genealogical, mythological, oral-historical, and radiometric) to establish when Polynesians first settled Hawaiʻi. The most recent paleoenvironmental and archaeological studies indicate the first Polynesian settlers arrived in Hawaiʻi sometime between AD 940 and 1130, with the most likely date for initial settlement falling between AD 1000 and 1100 (Athens et al. 2014; see also Kirch 2011). Other accounts of the peopling of the islands, including various native Hawaiian traditions, place the event earlier in time—as early as the creation of the world (e.g., Beckwith 1951; Liliʻuokalani 1978; Malo 1951). Many Hawaiians refer to the homeland from which they arrived in Hawaiʻi as "Kahiki" (Case 2015). It was long held, based on similarities between Marquesan artifacts and artifacts from the earliest known Hawaiian cultural layers, that the Hawaiian settler population originated from the southern Marquesas Islands (e.g., Emory and Sinoto 1965); the evidence for Marquesan settlement of Hawaiʻi is now considered more ambiguous (Kirch and McCoy 2023). The most recent views based on Hawaiian oral histories and linguistic similarities suggest that, although the exact source island or archipelago of the initial Polynesian settlers is uncertain, the first settlers likely came from somewhere in Central East Polynesia (Marck 1999). According to Fornander (1969), the Hawaiians brought from their homeland certain Polynesian customs and beliefs: the major gods Kāne, Kū, Lono, and Kanaloa; the kapu system of law and order; and the concepts of puʻuhonua (places of refuge), ʻaumakua (ancestral deities), and mana (divine power).

While stories of episodic migration were widely published in the Hawaiian language by knowledgeable and skilled kūʻauhau (individuals trained in the discipline of remembering genealogies and associated ancestral stories), the cultural belief that living organisms were hānau ʻia (born) out of a time of eternal darkness (pō) and chaos (kahuli) was also brought and adapted by ancestral Hawaiian populations to reflect their intimate connection to their environment. For example, the Kumulipo, Hawaiʻi's most famed koʻihonua (a cosmogonic genealogical chant), establishes a birth-rank order for all living beings (Beckwith 1951; Liliʻuokalani 1978). One such genealogical relationship that remains widely accepted in Hawaiʻi is the belief that kalo (taro) plants (in addition to all other plants, land animals, and sea creatures) are elder siblings to humans (Beckwith 1951). This hierarchical creation concept enforces the belief that all life forms are connected, a belief that initial settlement populations developed further over generations through intensive interaction with their local environment to form a uniquely Hawaiian culture.

During and immediately following the initial settlement period, communities primarily engaged in subsistence-level agriculture and fishing clustered in the koʻolau (windward) shores of the Hawaiian Islands due to the abundance and easy access to freshwater sources. Sheltered bays allowed for nearshore fisheries (enriched by numerous estuaries) and deep-sea fisheries to be easily accessed (McEldowney 1979). Widespread environmental modification on land

also occurred as early Hawaiian mahiʻai (farmers) developed new subsistence strategies, adapting their familiar patterns and traditional tools to work efficiently in their new home (Pogue 1978; Kirch 2023). Areas with the richest natural resources became heavily populated, resulting in the expansion of the population to the kona (leeward) side of the islands and more remote areas (Cordy 2000).

As the Hawaiian population grew, significant changes in settlement patterns and social networks occurred. Rosendahl (1972) proposes that settlement during this period was seasonal, with coastal sites occupied in the summer to exploit marine resources and upland agricultural plots maintained during the winter months. Hommon (1976) adds that increasing reliance on agricultural products may have caused a shift in social networks, as kinship links between coastal settlements disintegrated with the expansion of mauka-makai settlements that allowed for the exchange of agricultural products for marine resources. This shift is believed to have resulted in the establishment of the ahupuaʻa, a subdivision of the moku (district) that, by the late Precontact Period, exhibited a high degree of economic self-sufficiency and endogamy. The implications of this model included a shift in residential patterns from seasonal, temporary habitation to the permanent dispersed habitation of both coastal and upland areas.

Overview of Traditional Hawaiian Land Management Strategies

Adding to an already complex society was the development of traditional land stewardship systems, including the ahupuaʻa. The ahupuaʻa was the principal land division that functioned for taxation purposes and furnished its residents with nearly all subsistence and household necessities. Ahupuaʻa are land divisions that typically include multiple ecozones from mauka (upland mountainous regions) to makai (shore and nearshore regions), assuring a diverse subsistence resource base (Hommon 1986). Although the ahupuaʻa land division typically incorporated all of the eco-zones, their size and shape varied greatly (Cannelora 1974). Noted Hawaiian historian and scholar Samuel Kamakau, in his serialized history of Hawaiʻi titled *Ka Moolelo o Hawaii* (*The History of Hawaii*), listed the various terms given to the ecozones found from the mountaintops to the ocean. These ecozones are also found in ahupuaʻa. Published in the newspaper *Ke Au ʻOkoʻa* in 1869, a translation of Kamakau's (1869:1) original Hawaiian text is provided below:

> Here are some of the terms that were given to the mountainous regions and mountaintops. Mauna is the general term for the frequently-used term kuahiwi, however, there are numerous terms that are associated with the mountains. Here are some of the terms associated with the mountains. The central region located in front and behind the mountain was termed kuamauna. Below the kuamauna is the kuahea, and below the kuahea is the kuahiwi, which is where shrubs and small trees grow. It (the kuahea and kuahiwi) is a place also called the wao nahele. Further down, the trees grow taller. This is the wao lipo. Below the wao lipo is the wao ʻeiwa. Below the waoʻeiwa is the wao maʻukele. Below the wao maʻukele is the wao akua. Below the wao akua, is the wao kanaka, which is where people farm. Below the wao kanaka is the ʻamaʻu. Below the ʻamaʻu is the ʻāpaʻa. Below the ʻāpaʻa is the paheʻe and ʻilima. And below that is the kula and the ʻāpoho all the way to the villages. Below the villages is the kahakai, the kahaone, the kālawa, and then the ʻaekai, and that is how the people of old named their environment.

The makaʻāinana (commoners, literally the "people that attend the land") who lived on the land had rights to gather resources for subsistence and tribute within their ahupuaʻa (Jokiel et al. 2011). As part of these rights, residents were required to supply resources and labor to aliʻi (chiefs) of local, regional, and island chiefdoms. The ahupuaʻa became the equivalent of a local community with its own social, economic, and political practices and served as the taxable land division during the annual Makahiki procession (Kelly 1956). During the Makahiki, the paramount aliʻi sent select members of his or her retinue to collect hoʻokupu (tribute and offerings) in the form of goods from each ahupuaʻa. The makaʻāinana brought their share of hoʻokupu to an ahu (altar) marked with the image of a puaʻa (pig), serving as a physical visual marker of ahupuaʻa boundaries. Ahupuaʻa boundaries often followed mountain ridges, hills, rivers or ravines (Alexander 1890). However, Chinen (1958:1) reports that "oftentimes only a line of growth of a certain type of tree or grass marked a boundary; and sometimes only a stone determined the corner of a division." These ephemeral markers, as well as their more permanent counterparts, were frequently assigned names, as evidenced by the thousands of names for boundary markers listed by Soehren (2010).

Ahupuaʻa were ruled by aliʻi ʻai ahupuaʻa or chiefs who controlled the ahupuaʻa resources. Generally speaking, aliʻi ʻai ahupuaʻa had complete autonomy over the ahupuaʻa they oversaw (Malo 1951). Ahupuaʻa residents were not bound to the land, nor were they considered the property of the aliʻi. If the living conditions under a particular ahupuaʻa chief were deemed unsuitable, the residents could move freely in pursuit of more favorable conditions (Lam 1985). This structure safeguarded the well-being of the people and the overall productivity of the land, lest the chief lose the principal support and loyalty of his or her supporters. In turn, ahupuaʻa lands were managed by an appointed konohiki,

often a chief of lower rank, who oversaw and coordinated stewardship of an area's natural resources (Lam 1985). In some places, the poʻo lawaiʻa (head fisherman) held the same responsibilities as the konohiki (Jokiel et al. 2011). When necessary, the konohiki implemented kapu (restrictions and prohibitions) to protect the mana of an area's resources from environmental and spiritual depletion.

Many ahupuaʻa were divided into smaller land units termed ʻili and ʻili kūpono (often shortened to ʻili kū). ʻIli were created for the convenience of the ahupuaʻa chief and served as the basic land unit, which hoaʻāina (caretakers of particular lands) often retained for multiple generations (Jokiel et al. 2011; MacKenzie 2015). As ʻili were typically passed down in families, so too were the kuleana (responsibilities, privileges) that were associated with it. The right to use and cultivate ʻili was maintained within the ʻohana, regardless of the succession of aliʻi ʻai ahupuaʻa (Handy et al. 1991). Malo (1951) recorded several types of ʻili, including the ʻili paʻa (a single intact parcel) and ʻili lele (a discontinuous parcel dispersed across an area). Whether dispersed or wholly intact, ʻili required a cross-section of available resources, and for the hoaʻāina, this generally included access to agriculturally fertile lands and coastal fisheries. ʻIli kūpono differed from other ʻili lands because they did not fall under the jurisdiction of the ahupuaʻa chief. Rather, they were specific areas containing resources highly valued by the ruling paramount chiefs, such as fishponds (Handy et al. 1991).

Aliʻi ʻai ahupuaʻa, in turn, answered to an aliʻi ʻai moku (chief who claimed the abundance of the entire moku or district) (Malo 1951). Prior to the consolidation of moku in 1859, Maui Island comprised 12 moku (districts) including Hāmākua Poko, Hāmākua Loa, Koʻolau, Hāna, Kīpahulu, Kaupō, Kahikinui, Honuaʻula, Kula, Wailuku[1], Lāhainā, and Kāʻanapali. Although a moku comprises multiple ahupuaʻa, moku were considered geographical subdivisions with no explicit reference to rights in the land (Cannelora 1974). Although the ahupuaʻa was the most common and fundamental land division unit within the traditional Hawaiian land management structure, variances occurred, such as the existence of the kalana. By definition, a kalana is a division of land smaller than a moku. Kalana was sometimes used interchangeably with the term ʻokana (Lucas 1995; Pukui and Elbert 1986), but Kamakau (Kamakau 1976) equates a kalana to a moku and states that ʻokana is merely a subdistrict. Despite these contending and sometimes conflicting definitions, what is clear is that kalana consisted of several ahupuaʻa and ʻili ʻāina. According to King (1935:215), Ukumehame and its neighboring ahupuaʻa, Olowalu, were sometimes described as kalana rather than ahupuaʻa.

This form of district subdividing was integral to Hawaiian life and the product of advanced natural resource management systems. As populations maintained residence in an area over centuries, extensive observations of an area's natural cycles and resources were retained and passed down orally and experientially over the generations. This knowledge informed management decisions that aimed to sustainably adapt subsistence practices to meet the needs of growing populations. The ahupuaʻa system and the highly complex land management system that developed in the islands are but one example of the unique Hawaiian culture that developed in these islands.

Intensification and Development of Hawaiian Land Stewardship Practices

Hawaiian philosophies of life in relation to the environment helped to maintain both natural, spiritual, and social order. In describing the intimate relationship that exists between Hawaiians and ʻāina (land), Kepā Maly (2001:1) writes:

> In the Hawaiian context, these values—the "sense of place"—have developed over hundreds of generations of evolving "cultural attachment" to the natural, physical, and spiritual environments. In any culturally sensitive discussion on land use in Hawaiʻi, one must understand that Hawaiian culture evolved in close partnership with its' natural environment. Thus, Hawaiian culture does not have a clear dividing line of where culture and nature begins.
>
> In a traditional Hawaiian context, nature and culture are one in the same, there is no division between the two. The wealth and limitations of the land and ocean resources gave birth to, and shaped the Hawaiian world view. The *ʻāina* (land), *wai* (water), *kai* (ocean), and *lewa* (sky) were the foundation of life and the source of the spiritual relationship between people and their environs ...

The ʻōlelo noʻeau (proverbial saying) "hānau ka ʻāina, hānau ke aliʻi, hānau ke kanaka" ("born was the land, born were the chiefs, born were the commoners"), conveys the belief that all things of the land, including kanaka (humans), are connected through kinship links that extend beyond the immediate family (Pukui 1983:57). ʻĀina or land, was perhaps most revered, as noted in the ʻōlelo noʻeau "he aliʻi ka ʻāina; he kauwā ke kanaka," which Pukui (1983:62) translated as "[t]he land is a chief; man is its servant." The lifeways of early Hawaiians, which depended entirely on

[1] Wailuku is sometimes described as an ʻokana that, together with the lands of Waiheʻe, Waikapū, and Waiehu, were politically independent of any moku. The four lands were referred to collectively as Nā Wai ʻEhā (The Four Waters) (e.g., Handy et al. 1991).

the finite natural resources of these islands, necessitated the development of sustainable resource management practices. Over time, an environmentally responsive management system developed that integrated the care of watersheds, natural freshwater systems, and nearshore fisheries (Jokiel et al. 2011).

Disciplined and astute observation of the natural world became one of the most fundamental stewardship tools used by Hawaiians of the ancient past. The vast knowledge acquired through direct observation enabled them to detect and record subtle changes, distinctions, and correlations in the natural world. Examples of their keen observations are evident in the development of a Hawaiian nomenclature to describe various rains, clouds, winds, stones, environments, flora, and fauna. Many of these names are geographically unique or island-specific and have been recorded in oli (chants), mele (songs), pule (prayers), inoa ʻāina (place names), and ʻōlelo noʻeau (proverbial sayings). Other Hawaiian arts and practices such as hula (traditional dance), lapaʻau (traditional healing), lawaiʻa (fishing), mahiʻai (farming) further aided in the practice of knowing the rhythms and cycles of the natural world.

Comprehensive systems of observing and stewarding the land were coupled with the strict adherence to practices that maintained and enhanced the kapu and mana of living and non-living persons, objects, and materials. In Hawaiian belief, all things—places, people, animals, plants, rocks, etc.—possessed mana or "divine power" (Pukui and Elbert 1986:235; Pukui et al. 1972). Mana is derived from the plethora of Hawaiian gods (kini akua) embodied in elemental forces, land, natural resources, and specific material objects and persons (Crabbe et al. 2017). Buck (1993) expanded on this concept, noting that mana was associated with "the well-being of a community, in human knowledge and skills (canoe building, harvesting) and in nature (crop fertility, weather, etc.)" (cf., Else 2004).

To safeguard the mana of a person, place, or resource, kapu restrictions were implemented and strictly enforced with to limit overexploitation and defilement. Elbert and Pukui (1986:132) defined kapu as "taboo, prohibitions; special privilege or exemption." Kepelino noted that kapu associated with akua (deities) applied to all social classes, while kapu associated with aliʻi were applied to the people (in Beckwith 1971). As kapu dictated social relationships, they also provided "environmental rules and controls that were essential for a subsistence economy" (Else 2004:246). The companion to kapu was noa, translated as "freed of taboo, released from restrictions, profane, freedom" (Pukui and Elbert 1986:268). Some kapu, particularly those associated with maintaining social hierarchy and gender differentiation, were unremitting, while those kapu placed on natural resources were applied and enforced according to seasonal changes. The application of kapu to natural resources ensured that such resources remained available for future use. When the aliʻi or the lesser chiefs (including konohiki and poʻo lawaiʻa) determined that a particular resource would be made available to the people, a decree was proclaimed indicating that kapu had been lifted, thereby making it noa. Although transitioning a resource from a state of kapu to noa allowed for its use, people were expected to practice sustainable harvesting methods and pay tribute to the paramount chief and the akua associated with that resource. Kapu were strictly enforced, and violators faced severe consequences, including death (Jokiel et al. 2011). Violators who escaped execution sought refuge at a puʻuhonua, a designated place of refuge, or an individual who could pardon the accused (Kamakau 1992).

In summary, the layering and interweaving of beliefs, land stewardship practices, and the socio-political system form the basis of the relationship between Hawaiians and the land. We can develop a more nuanced understanding of land use and relationships to land from a Hawaiian worldview through the analysis and recognition of these dynamic elements.

UKUMEHAME AHUPUAʻA AND THE GREATER LĀHAINĀ DISTRICT

The project area is located in Ukumehame Ahupuaʻa, which is within the moku (district) of Lāhainā (Figure 23). Lāhainā is described by Soehren (2019) as one of "twelve ancient districts on Maui which included the ahupuaʻa from Hanakaoʻo to Ukumehame." Some have described Lāhainā as a kalana or land subdivision smaller than a moku or district, which itself was comprised of multiple ahupuaʻa (Maly and Maly 2007:8). During the 1859 redistricting of Maui, the moku of Lāhainā and Kāʻanapali were combined into a single larger district known as Lāhainā (sometimes spelled Lahaina). The Lāhainā District was established during the 16th century under the rule of the two chiefly brothers Kakae and Kakaalaneo and their priest, Kalaikaohia; the district served as their royal center (Fornander 1880; Kirch 2010). Lāhainā continued to maintain an association with the Maui chiefs, being repeatedly targeted during chiefly conflicts and eventually becoming established as the capital of the Hawaiian Kingdom in 1802. The name Lāhainā has been translated by Pukui et al. (1974:127) as "cruel sun" and is said to refer to a time of brutal droughts. In this vein, Sterling (1998:16) relates that:

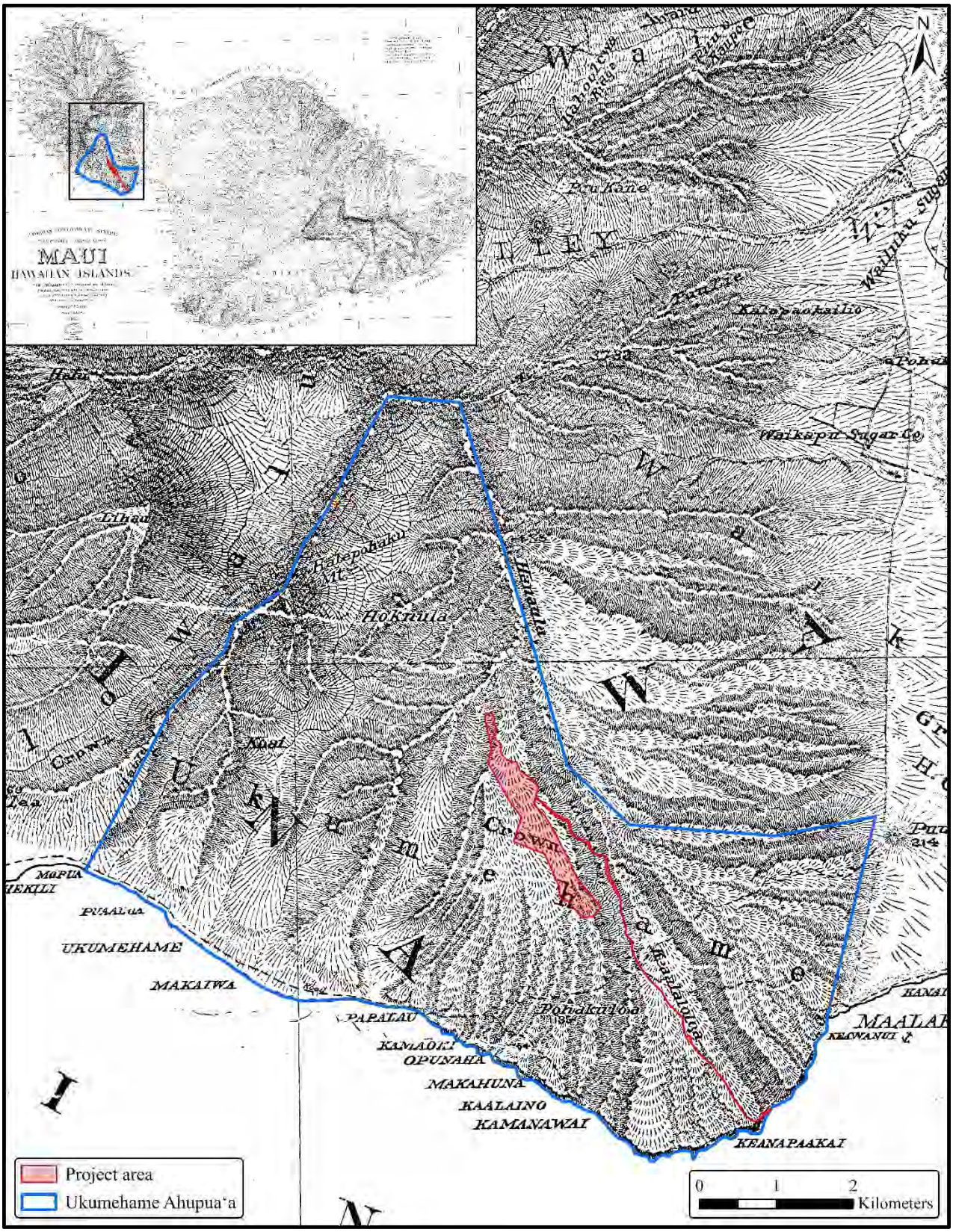


Figure 23. Location of Ukumehame Ahupua‘a and the project area on Hawai‘i Registered Map No. 1408.

> According to M. K. Pukui, both Ilalaole and Mookini say it refers to a time of terrible drought when the sun was so cruel to the people that it caused everything to wither and dry. Sterling contends that this account refers to the time of the Chief Hua of Lahaina, whose killing of his priest brought on the terrible drought.

Fornander (1880:41-42) elaborates on the story of the chief Hua and provides the following summary:

> One time, while residing on East Maui, *Hua* got into a dispute with his priest and prophet, *Luahoomoe*, conscious of the fate that awaited him, gave directions to his two sons, *Kaakakai* and Kaanahua, how to escape the vengeance of the king. In due time, according to ancient custom, the house of *Luahoomoe* was burnt by order of the king, and the refractory priest was killed. His sons and some of his household escaped to one of the mountain-peaks called Hanaula. But the vengeance of *Luahoomoe* and the king's punishment for slaying a priest were swift in coming and terrible in their consequences. No sooner was Luahoomoe consumed by the fire of his burning house than [sic] the streams of water ceased running, the springs dried up; no rain fell for three years and a half, and famine and desolation spread over the islands. *Hua* and his people perished miserably, and the saying survives to this day, *Nakeke na iwi a Hua i ka la*—"rattling are the bones of Hua in the sun"—a warning to wicked people, implying that no one survived the famine to bury *Hua* or hid his bones; —"the greatest of disgrace of ancient times.

Sterling (1998:16-17) presents three other interpretations of the name Lāhainā offered by J. N. K. Keola, Lorrin Andrews, and Thomas G. Thum, respectively:

> Some historians give the origin of the name La-hai-na from the following words: "La," the sun, and "Haina," merciless. Quoting from a modern writer, J. N. K. Keola, a thin-haired chief who lived at Kauaula Valley, while going to and fro without a hat, felt annoyed at the effects of the scorching rays of the sun. He looked up and gazed into the heavens and cursed at the sun thus: "He ku hoi keia o kala haina!" (What an unmerciful sun!) The sun, however, did not stay its progress over the chief's head. But his words were not lost upon the people.
>
> Andrews' dictionary, in the portion devoted to names of places, gives the translation as "Day of Cruelty."
>
> This is Thrum's version. There are others who say that the original name was "Lele." "Lele" is usually the flying piece of a kuleana [a piece of property claimed by individuals following the 1848 Māhele], that which is near the shore. As Lahaina is along the shore it is not difficult to sense the application of "lele" in this instance.

The origin of the old name Lele is unclear. However, one account concerning the source of the name was published in a July 13, 1920, edition of the *Honolulu Star-Bulletin* and is also presented in the 1922 edition of *Thrums Hawaiian Annual*. According to Thrum (1921:86), the name Lele emerged during the reign of the two chiefly brothers Kakae and Kakaalaneo around 1630. As previously mentioned, these two brothers were responsible for the formalization of the various land divisions on Maui Island, including a unique type of land unit also known as a *lele*, which translates literally as "to fly, jump" (Pukui and Elbert 1986:201). While most land units were comprised of a single continuous expanse of land that included access to a range of coastal and upland resources, the islands of Maui and O'ahu were known for their 'ili lele (lit. flying 'ili). Beamer (2014:44) writes, "...'ili lele jump or fly across other boundaries to makeup their entire composition." He adds, "[t]hey would be composed of several distinct sections of lands and fisheries grouped together to form one unit" (Beamer 2014:44).

A third name also appears in historical literature for the Lāhainā area, Nā-hono-a-Pi'ilani (lit. the-bays-of Pi'ilani). This name seems to have been given to the area after Kihaapi'ilani consolidated the islands of Moloka'i, Lāna'i, and Kaho'olawe under his rule during the early 17th century (Kirch 2011; Sterling 1998). An article published by G. H. Hanakauluna in the October 26, 1871, issue of the Hawaiian language newspaper *Ke Au 'Oko'a* describes the three names associated with this district. A passage from the article is presented (as translated by Lokelani Brandt in Brandt et al. 2019:27) below:

> *... a i hoopuniia mai hoi e na mokupuni eha, o Molokai, ka moku o Hina, ma ke komohana akau, o Lanai ma ke komohana hema, o Kahoolawe a me Molokini ma ka hema, ua waiho kapalua wale iho no o Lahaina i ka lai, ma kona hoopuni ia ana e na mokupuni no laila mai kekahi inoa ona, oia hoi na Honoapiilani, a me hea mea la, ekolu inoa o keia kulanakauhale...o Lele kona inoa kahiko, o Lahaina he inoa hou ia, a o Honoapiilani, he inoa maa no ia.*

> … and it is also surrounded by four islands, by Molokaʻi, the island of Hina on the northwest, Lānaʻi on the southwest, Kahoʻolawe and Molokini on the south. Lahaina stands calm, sheltered on both sides. Because it is surrounded by other islands, it was given the name Nā-hono-a-Piʻilani (The-lands-of-Piʻilani), and it seems that this town has three names… Lele was the old name; Lahaina, a more recent one; and Nā-hono-a-Piilani was a frequently used name.

Ukumehame Ahupuaʻa is the easternmost of the ahupuaʻa of Lāhainā and lies between Olowalu Ahupuaʻa to the west and Wailuku to the east (Figure 23). The name Ukumehame translates to "paid mehame wood" (Pukui et al. 1974:214). Keonaona Kapuni-Reynolds (n.d.) provides the story of the naming of the ahupuaʻa, entitled "No Ka Mēhamehame":

> I Ukumehame, i Lāhaina, i Maui kahi i hoʻomaka ai kēia moʻolelo, akā ʻaʻole ʻo Ukumehame a inoa o ia ʻāina. Wahi a ka moʻolelo, ua kaulana kēiaʻāina ʻo Ukumehame i ke kālepa ʻana i ka lāʻau ikaika ʻo ia hoʻi ka mēhamehame. Ma kēia moʻolelo naʻe ʻo Kaileʻa ka mea nāna i ʻike i ka ikaika o kēia lāʻau.
>
> Ua makemake ʻo Kaileʻa e hoʻomākaukau i kona ʻāina no ka mahiʻai ʻana akā ʻaʻole ʻo ia i makemake e hoʻopohō i ka nui o ka mēhamehame ma kona ʻāina. No laila ua hoʻomākaukau ʻo ia i kēia lāʻau no ke kālai ʻana. ʻAʻole i liʻuliʻu, ua hoʻi ʻo Kaileʻa i kahi o ka lāʻau a hoʻomaka ʻo ia i ke kālai ʻana i ka papa heʻe nalu. Iho ʻo ia i kahakai e heʻe nalu ai akā ma muli o ke kaumaha o ka lāʻau, ua pīholo ka papa heʻe nalu. Hoʻi aku ʻo ia i ka hale a ʻai, a ma laila i komo ai kekahi manaʻo i loko ona. Hoʻi koke ʻo ia i kahi o ka lāʻau a hana a pō ke ao.
>
> I kekahi lā aʻe piʻi akula ʻo Kaileʻa i kuahiwi i kahi o nā mahiʻai e kālepa ai. Hōʻike aku ʻo ia i kēia mau ʻōʻō mēhamehame i nā mahiʻai o ia wahi a nui ʻino ka makemake ʻia. Ua ʻike ʻia ka ikaika o ka lāʻau a ma muli paha o kēia kālepa ʻana i kapa ʻia ai kēia ʻāina nei ʻo Ukumehame.
>
> This story starts in Ukumehame, which is located in Lāhaina on the island of Maui, but Ukumehame was not the name of the land. According to a story, this land, Ukumehame was famous for bartering of a hardwood, the mēhamehame wood. However in this story, Kaileʻa is the one who sees the strength of this wood.
>
> Kaileʻa wanted to prepare his land for farming but he didn't want to waste the many trees of mēhamehame that grew on his land. So he prepared the trees for carving. Not long after, Kaileʻa returned to where the trees were and started to carve a surfboard He went to the beach to surf but because the wood was very heavy, the surfboard sunk. He went back to his house and ate and then another thought came to him. He quickly went back to where the wood was and worked all night.
>
> The next day, Kaileʻa went uplands where the farmers barter. He showed these digging sticks made from the mēhamehame wood. The strength of the wood was made known and perhaps because of this bartering, this land was called Ukumehame.

Samel Mookoko (in Sterling 1998:20), a former teacher at Lāhainālуna School, further corroborates this translation, explaining that "Uku" translates as "to pay" and "mehame" is a type of Hawaiian hardwood (*Antidesma* sp.) that was formerly prized for making cabinets and anvils to prepare olonā fiber.

The1999 EIS provides additional information about the place name based on information obtained from a cultural informant (Lindsey in WSB Hawaiʻi 1999:3-40):

> The name *Ukumehame* translates literally to "pay" (*uku* - pay, fare, toll, tariff) for the "mehame" (a native tree, also *hame*). It is known that the hard wood of the *mehame* was used to craft tools which were used to harvest the fiber from the bark of the olona tree. This fiber in turn was used for crafting fishing nets, nets for carrying, and ti-leaf raincoats and feather capes. The fruit of the *mehame* is a purple berry that grows in grapelike clusters. This berry was used to dye tapas red. It is believed that the Ukumehame area was once a primary source of the *mehame* tree which had significance in Hawaiian culture. It is believed the alii exacted a tariff on those which harvested the trees.

During the Precontact and early Historic Periods, the focus of settlement and traditional agriculture in Ukumehame Ahupuaʻa was in the kula land at the mouth of Ukumehame Gulch southwest of the current project area (DTL 2023:6). During Winslow Walker's (1931:78) survey of Maui, the remnants of at least 45 houses or shelters were observed between Māʻalaea Village and McGregor Point. Several freshwater streams also run through the area, a vital resource for populations within the area; their importance is illustrated during the conflicts between Maui and Hawaiʻi Island chief. Kamakau (1866:1) describes that during the famous battle between Alapaʻi and Kauhiʻaimokuakama in the year 1738, the battle was so fierce ("he hulihonua ke ʻano o ke kaua") that the rivers of Lāhainā ran dry. However, Alapaʻi and his soldiers were able to gain control of the main water sources for that portion of West Maui—Olowalu, Ukumehame, Wailuku, and Honokowai—and thereby secure a valuable resource that provided needed sustenance to the troops of Hawaiʻi Island during their campaign on Maui.

Agricultural Practices within Ukumehame Ahupuaʻa

In contrast to the uplands, which were associated with the akua and typically used for specialized resource collection, the focus of settlement and cultivation in Ukumehame has typically been the arable coastal and valley regions. It is unknown when Ukumehame Ahupuaʻa was first settled, but it is said that during the time of Kapakaʻiliʻula and Kaʻikipaʻananea, Ukumehame and Olowalu were the favored residences of royalty (*Nūpepa Kūʻokoʻa* 16 March 1865:1). The ahupuaʻa of Ukumehame was considered fertile and supported a large population. Kalo was grown in the long narrow stretches of loʻi that lined the deep valleys and ravines of Ukumehame. The distribution of Land Commission Awards made during the Māhele reflects this settlement pattern, as all the kuleana claims made for land in Ukumehame Ahupuaʻa (see discussion below) were within the agriculturally productive gulches to the west of the current project area. During his islandwide survey of Maui in the late 1920s, Walker (1931:71) reported the presence of irrigated kalo terraces (loʻi kalo) along the gulches of Ukumehame, Olowalu, and Lāhainā ahupuaʻa. Handy et al. (1991:492) similarly observed the heavy production of kalo in these areas until the 1930s, stating that:

> Southeastward along the coast from the aliʻi settlement [of Lāhainā] were a number of areas where dispersed populations grew taro, sweet potato, breadfruit and coconut on slopes below and in the sides of valleys which had streams with constant flow…Ukumehame had extensive terraces below its canyon, some of which were still planted with taro in 1934; these terrace systems used to extend well down below the canyon. Olowalu, the largest and deepest valley on southwest Maui, had even more extensive *loʻi* lands both in the valley and below. Just at the mouth of the valley we found in 1934 a little settlement of five *kauhale* (family homes) surrounded by their flourishing *loʻi*…

The results of oral interviews with Maui residents in 2009 (Ah Sam and Rechtman 2009) and in 2024 for this study indicate that people still cultivate kalo in the area through the 21st century. Thus, traditional kalo cultivation is a tradition that continues within Ukumehame and the greater Lāhainā District.

Fishing on the Ukumehame Coast

In addition to agriculture, fishing and the collection of marine resources was a major means of subsistence within Ukumehame and the surrounding areas. Kahaʻulelio describes the various fishing koʻa between Ukumehame, Lāhainā, Lānaʻi, and Kahoʻolawe (Maly and Maly 2003:122). He suggests that these koʻa, which occur at intervals of approximately 1 to 2 miles apart, are interrelated, such that the maunu (chum) placed at one koʻa could influence activity at the others. After the Māhele of 1848, Ukumehame was known as a Konohiki Fishery (Maly and Maly 2003:263).

So important were the fisheries and the ocean surrounding the area that Ukumehame became a prominent canoe landing, as documented in a newspaper article depicting the voyage of A. Lahaba from Kona, Hawaiʻi Island, to Oʻahu in late June and early July 1861. Lahaba's (1861, in Ah Sam and Rechtman 2009:21) party left Kawaihae crossed the channel one evening and arrived in Keawanui. From there, they continued to sail to Honuaʻula where they furled the sails due to strong winds and paddled the distance to Ukumehame where they landed for the night before continuing up the coast. There is another mention of the Ukumehame landing in an earlier article in the Hawaiian language newspaper *Lama Hawaiʻi*, in which Kealiʻiʻumiʻumi (1834:4) wrote about the death of a fisherman along the Ukumehame coastline.

Nā Inoa ʻĀina (Place Names) of Ukumehame

Toponymy, or the study of inoa ʻāina (place names), provides important information about a place or area and its history and highlights the long-term relationships between people and their environment. Inoa ʻāina are recorded and recounted in a variety of Hawaiian oral arts, including oli (chants), mele (songs), moʻolelo (stories), nane (riddles), and ʻōlelo noʻeau (proverbs and poetical expressions). Since the introduction of the written Hawaiian language, the

place names of Hawai‘i have been recorded in ethnographic surveys, historical maps, and historical documents such as Māhele ‘Āina records, Boundary Commission testimonies, and maps available from the Hawai‘i Department of Accounting and General Services and the U.S. Geological Survey (USGS). Kikiloi (2010) asserts that the recovery of traditional place names "help[s] to transform once-empty geographic spaces into cultural places enriched with meaning and significance." According to Olivera (2009), place names serve as vehicles of ancestral memory. When we remember the old name of a place, we remember the words of the kūpuna (ancestors), and we recall the wisdom of their teachings. Renee Pualani Louis (2008:1-2), a Native Hawaiian place name research scholar, contends that:

> [Place names] are powerful cognitive mechanisms that unfold the richness of the Hawaiian landscape incorporating a plethora of cultural values and are a convergence of the Hawaiian cultural, social, political, and economic order. They are often understood with the mo‘olelo (historical account) that accompanies them and usually only by those with its genealogical proximity. As such, they provide a key to the lives and imaginations of Hawaiians. They indicate a holistic and harmonious relationship with the environment and are constant reminders of past events, cautionary tales, and epic tragedies. Knowledge of their meaning provides insight on the importance these place names had in shaping Hawaiian cultural identities Sharing the names and meanings of places was a conscious act of cultural regeneration. Hawaiians incorporated their culture into the islandscape and used place names as storied symbols in their cartographic tradition.

The following section is a presentation and brief discussion of inoa ‘āina compiled during this study and is by no means intended to be comprehensive. Instead, it is hoped that the place names presented below will spark ongoing discussions regarding the meanings and interpretations of the names and stories of the places to which they refer. The spelling of each place name is provided as represented in the original source, followed by a lexicology column to provide a suggested spelling that includes any ‘okina and kahakō. The *Hawaiian Dictionary* by Pukui and Elbert (1986) was the primary source for general translations, while *Place Names of Hawaii* (Pukui et al. 1974) was utilized for interpretive translations when available and supplemented by reference to other sources when necessary.

Thirty-one (31) inoa ‘āina were identified within the ahupua‘a of Ukumehame (Table 1; Figure 24). One of these place names is the name of the ahupua‘a as discussed above; in addition, the name Ukumehame refers to a canyon, gulch, stream, reservoir, and well in the western portion of the ahupua‘a. The remaining place names include gulches, hills, and landmarks identified on historical maps in Ukumehame Ahupua‘a. Of significance for the current study is the place name "Kaheawa," which refers to the pastureland between Manawainui and Pāpalaua gulches and includes the location of the KWP I wind turbines. Soehren (2010) identifies Kaheawa as an ‘ili ‘āina, which appears to share boundaries with TMK: (2) 4-8-001:001 as depicted on a TMK plat map (2) 4-8, a map initially created in 1932 and revised numerous times since (see Figure 2). A map of Ukumehame by Walter Wall in 1908 (Government Registered Map [GRM] No. 1194; Figure 25) identifies the same land area between Manawainui and Pāpalaua gulches by the similar name "Kaheawai," which may be an alternate form of the name "Kaheawa."

The 1999 EIS offers an explanation of the origin of the name "Kaheawa" based on information provided by a cultural informant (Lindsey in WSB Hawai‘i 1999:3-40) and also clarifies the source of the contemporary name "Kaheawa Pastures":

> *Kaheawa* translates literally to mean "irrigate the awa." The *awa* is a native Hawaiian plant which was used for restorative or medicinal purposes. After a hard day's work, native Hawaiians would prepare a tea from the leaves of the *awa* plant. The tea is believed to have facilitated a more restful sleep and rejuvenation of tired muscles. It is believed that the area now referred to as Kaheawa provided a major watershed and the fresh water for areas used to cultivate the *awa* plants. Since the 1850's, much of the land in this area has been used for grazing. Consequently, WSB-Hawaii will refer to the area as the *Kaheawa Pastures.*

Another significant place name related to the current project area is Hana‘ula. Pukui et al. (1974:41) defines Hana‘ula as a mountain and a gulch in Ukumehame; however, historical maps depict Hana‘ula as occupying different locations. GRM Nos. 1194 and 1408, for example, depict Hana‘ula as the ridge which encompasses the current project area's wind turbine corridor. In contrast, USGS topographic maps from 1954 and 1983 depict Hana‘ula as a smaller gulch leading to the ocean southwest of the project area. It is assumed that Hana‘ula thus spanned from the ocean to the mountains inland in the ahupua‘a and includes a portion of the current project area.

Table 1. Nā inoa ʻāina of Ukumehame Ahupuaʻa.

Place Name	*Possible Spelling*	*Type*	*Reference Map*	*Interpretation*
Hanaula	Hanaʻula	Ridge and gulch	GRM No. 1194 and 1408, USGS 1954 and 1983	lit. red bay (Pukui et al. 1974:41)
Hanaulaiki	Hanaʻula Iki	Hill	USGS 1954 and 1983	lit. small Hanaʻula (Pukui et al. 1974:41)
Hokuula	Hōkūʻula	Hill	GRM No. 1194	lit. red star (Pukui et al. 1974:47)
Kaalaina	Kaʻalaina	Gulch	GRM Nos. 1194 and 1268, USGS 1954 and 1983	No translation found
Kaheawai	-	Land section	GRM No. 1194	lit. to flow like water (Pukui and Elbert 1986:111)
Kaheawa	-	Land section	-	lit. irrigate the awa (Lindsey in WSB Hawaiʻi 1999:3-40)
Kamanawai	Kamanawainui	Gulch	GRM Nos. 773 and 1268, USGS 1954 and 1983	lit. the stream branch (Pukui et al. 1974:80)
Kamaohi	-	Gulch	GRM Nos. 773, 1194, and 1268, USGS 1954 and 1983	lit. young child (Pukui et al. 1974:81)
Kaniakalaau	-	Ridge	GRM No. 1194	No translation found
Kapali	Possibly "ka pali"	Spring	GRM Nos. 773 and 1194; USGS 1954	Pali: lit. the cliff (Pukui and Elbert 1986:312)
Kauowahie	-	Peak	GRM No. 1194	No translation found
Kealaloloa	-	Ridge	GRM Nos. 773; 1194 USGS 1954 and 1983	lit. the long pathway (Pukui et al. 1974:102)
Keanapaakai	Keanapaʻakai	Coastal area	GRM Nos. 773, 1194, and 1268, USGS 1954 and 1983	lit. the salt cave (Pukui et al. 1974: 103)
Maalaea	Māʻalaea	Bay, village, and small boat harbor	GRM Nos. 1194 and 1268, USGS 1954 and 1983	Contraction of Makaʻalaea, lit. ocherous earth beginnings (Pukui et al 1974:137)
Makahuna	-	Gulch	GRM Nos. 1194 and 1268, USGS 1954 and 1983	lit. hidden point or hidden eyes (Pukui et al. 1974: 140)
Makiwa	-	Gulch	GRM No. 1268, USGS 1954 and 1983	No translation provided
Manawainui	-	Gulch	GRM No. 1194, USGS 1954 and 1983	lit. large water branch (Pukui et al. 1974:145)
Manawaipueo	-	Gulch	GRM Nos. 773 and 1194, USGS 1954 and 1983	lit. owl water branch (Pukui et al. 1974:145)
Manuohule	Manuʻōhule	Coastal area	USGS 1954 and 1983	lit. bird [of the] meeting point of receding and incoming waves (Pukui et al. 1974: 146)
McGregor Point	-	Point and landing	GRM No. 1194, USGS 1954 and 1983	Named for Daniel McGregor, a sanitary inspector for the Territorial Board of Health (Pukui et al. 1974:150)
Mokumana	-	Gulch	USGS 1983	lit. divided island or divided district (Pukui et al. 1974: 155)
Opunaha	Ōpūnahā	Gulch	GRM Nos. 773, 1194 , and 1268, USGS 1954 and 1983	lit. broken cluster (Pukui et al. 1974: 172)
Papalaua	Pāpalaua; Papalau	Coastal area and Gulch	GRM No. 1268, USGS 1954 and 1983	lit. rain fog (Pukui et al. 1974:180)

Place Name	*Possible Spelling*	*Type*	*Reference Map*	*Interpretation*
Papawai	-	Point and hill	GRM Nos. 773 and 1194, USGS 1954 and 1983	lit. water stratum (Pukui et al. 1974: 180)
Pohakuloa	Pōhakuloa	Land section	GRM No. 1194; USGS 1954 and 1983	lit. long stone (Pukui et al. 1974: 186)
Polanui	Pola nui	Elevated land section	GRM No. 1194, USGS 1954 and 1983	lit. large Pola (Pukui et al. 1974: 186)
Puaaloa	Puaʻaloa	Land section	GRM No. 773 and 1268, USGS 1954	lit. long pig (Andrew and Parker 1922)
Puu Ahu	Puʻu Ahu	Hill/peak	USGS 1954 and 1983	Puʻu: lit. hill or peak (Pukui and Elbert 1986:358); ahu: lit. heap or altar (Pukui and Elbert 1986:8)
Puu Kauoha	Puʻu Kauoha	Hill/peak	GRM No. 1194; USGS 1954 and 1983	Puʻu: lit. hill or peak (Pukui and Elbert 1986:358); Kauoha: lit. order or command (Pukui and Elbert 1986:8)
Puu Luau	Puʻu Lūʻau	Hill	USGS 1954 and 1983	lit. taro tops hill (Pukui et al. 1974: 201)
Puu Moe	Puʻu Moe	Hill	USGS 1954 and 1983	lit. sleeping hill or prostrate hill (Pukui et al. 1974: 202)
Ukumehame	-	Land division, canyon, gulch, stream, reservoir, and well	GRM Nos. 773, 1194; and 1268, USGS 1954 and 1983	lit. paid mehame wood (Pukui et al. 1974: 214)

Legendary and Traditional Accounts of Ukumehame Ahupuaʻa

The history of Hawaiʻi was transmitted orally for generations; only after the development of a written Hawaiian language in the early 19th century was this history recorded on paper in the form of oral traditions. These writings provide invaluable insight into Hawaiʻi's past, as they describe elements of Hawaiian culture related to specific places, historical figures, beliefs, traditions, wahi pana (legendary places), inoa ʻāina (place names), moʻolelo (legendary accounts, stories, and myths), mele (songs), ʻōlelo noʻeau (wise sayings), and ʻōlelo kaulana (famous sayings). This section recounts some of the legendary and traditional accounts associated with Ukumehame.

The Winds of Ukumehame

Of particular relevance to this project, many traditional accounts mention the strong winds within Ukumehame that come from the uplands and blow to the sea. The wind of Ukumehame is traditionally called ʻOlaukoa (Nakuʻina 2005; J. H. Kanepuu in Sterling 1998:7); however, Ashdown (n.d.) also indicates that there is a wind called Mumuku in Ukumehame. It is said that the winds originate from a place called Lihau, a peak located in the West Maui Mountains (*Ke Kumu Hawaiʻi* 1837: 5). One kamaʻāina of Olowalu, Kalei (1894a; translated by Kanoelehua Wilson Ah Sam), wrote this of the winds of Ukumehame and the surrounding wahi pana:

Hoomanuʻa i ke one o Awalua,	Pile the sands of Awalua, the sun
koinophilia ka lā iā Olowalu, i ka lāʻi	ismeasured in Olowalu, during the day the
ka makani kahi ʻaoʻao, Na	wind is on one side, but to Ukumehame the
Ukumehame ka nau o ka makani.	wind escapes.

According to Ah Sam (in Ah Sam and Rechtman 2009:19), the last line could also be translated as: "Ukumehame is the land where the wind bites." The winds of Ukumehame are described as extremely strong and, at times, even destructive. In a kanikau (chant of lamentation) written by Mrs. Apia Miner (1861:3, translated by Kanoelehua Wilson Ah Sam) for her father, Mr. Edwin Miner, Mrs. Miner traces the landscape of Maui from Kahului to Ukumehame, referencing the power of the wind and other landscape features in Ukumehame Ahupuaʻa:

Hele aku la oe i ke ala ula a	You have followed the red path of Kanaloa
Kanaloa Mai ka ihona loa o	From the steep descents of
Manawainui	Manawainui

He nui hoi au he hiwahiwa na ka	Now I am older, still cherished by the parents
makua Kuu minamina pau ole ia oe e	My loving regard for you will never end
Aloha ino, aloha e	My great love,
Kuu makuakane mai ka makani kulai	My dear father from the winds that blow over
hale o Ukumehame.	houses of Ukumehame.

According to Miner's (1961) mele, the wind of Ukumehame is strong enough to "blow over" or destroy houses. This passage demonstrates the connectedness of the cultural and natural landscape, as the winds travel from the upper portions of the ahupuaʻa to the coastal region where the majority of people lived.

Other mele similarly illustrate the important relationship of the upper regions of Ukumehame and the sea that lies off its coastline; this sea, which spans from Māʻalaea to Lāhainā, is traditionally referred to as Kai-o-Haui (T. Kelsey in Sterling 1998:17). For example, Kalei (1984b, translated by Kanoelehua Wilson Ah Sam) refers to the connections between the winds of Ukumehame and the ocean in another mele that was taught at the *Kula o Kamaomao*:

Olowalu ka leo a ka makani ia	The voice of the wind roars at
Ukumehame, Pohapoha ka ihu o ka	Ukumehame, The noses of the canoes burst
waʻa i na ale a ke Kaumuku	through the swells of Kaumuku,
Huleilua i na nalu o	Turned this way and that in the surf of
Launiupoko	Launiupoko,
Keikei Lahaina i ka ua Paupili.	Lahaina stands proud in the Paupili rain.

In an article by S. E. K. Papaʻai (1868, translated by Kanoelehua Wilson Ah Sam) documenting his tour of Maui, he comments on Ukumehame's winds and the way they stir up the ocean:

> Ke holo nei ka moku a kūpono i Ukumehame, nānā aku i ka makani wili koʻokai i ka moana, kahea mai ʻia ke Kāpena i nā sela a pūʻā i nā peʻa, e hao mai ana ka makani pau nā peʻa i ka nahaehae.
>
> The ship sailed on until reaching just outside of Ukumehame, watching the strong whirling winds whipping the seas, the captain called out to the sailors to furl the sails, the wind was gusting and the sails were torn.

Thus, this mele describes the strength of these winds and the unmistakable relationship between the winds that come off the gorges at Ukumehame and the condition of the sea, indicating that these winds are so strong they whip the ocean swells into whitecaps and shred the sails of vessels.

The Battle of the Owls

Manawaipueo (lit. "owl stream branch" as translated by Pukui et al. 1974:145), a gulch and stream in Ukumehame is mentioned as a place name in the legend of the "Battle of the Owls." The moʻolelo, the full title of which is "Ka Moʻolelo Kaʻao O Ka Hoʻouka Kaua O Nā Pueo, A Lukuʻia Nā Kānaka A Me Nā Aliʻi o Maui*"* ("The Legend Concerning the Battle of the Owls and the Massacre of the People and Chiefs of Maui"), was initially published in 1871 in the Hawaiian language newspaper *Ke Au ʻOkoʻa* (Uaua 1871). It relates that after man named Kapoʻi and his unnamed wife stole and destroyed the eggs of two pueo (owls) named Aapueo and Pueokaia, the owls sought revenge. They traveled to each island and enlisted the pueo living there to help enact revenge on the couple. The pueo from the other islands were led to Manawaipueo in Ukumehame, where they joined the pueo from East and West Maui. The large group of pueo then flew to Wailuku, where they attacked and slaughtered the chiefs of the area along with Kapoʻi and his wife.

ʻAʻalaloloa

The cliffs along the coastline of Ukumehame, traditionally called ʻAʻalaloloa, are referred to in several different moʻolelo. Along these cliffs, Eleio, a runner for the king of Maui, first encountered the spirit, Kanikaniaula, and began chasing her to Kahikinui in East Maui. Kanikaniaula possessed the first feather cape and gifted it to Eleio. He, in turn, delivered the cape and Kanikaniaula to the king of Maui, Kakaalaneo. Kakaalaneo was the first chief of Maui and the pae ʻāina to wear this feather adornment (*Saturday Press* 11 August 1883:4). This gift thus began the traditional association of feathered capes with the Hawaiian chiefs (Sterling 1998:20).

In another story about ʻAʻalaloloa, Kaiaupe is mentioned as an infamous robber who lived along the pali road through Ukumehame. According to legend, she "would entice men to lay with her on the edge of the pali then kick them over the precipice with her foot" (Sterling 1998:20). This act gave origin to the phrase "Ka-ai-a-Kaiaupe," which translates to "the stroke of Kaiaupe" and is commonly used to speak of notable acts of treachery.

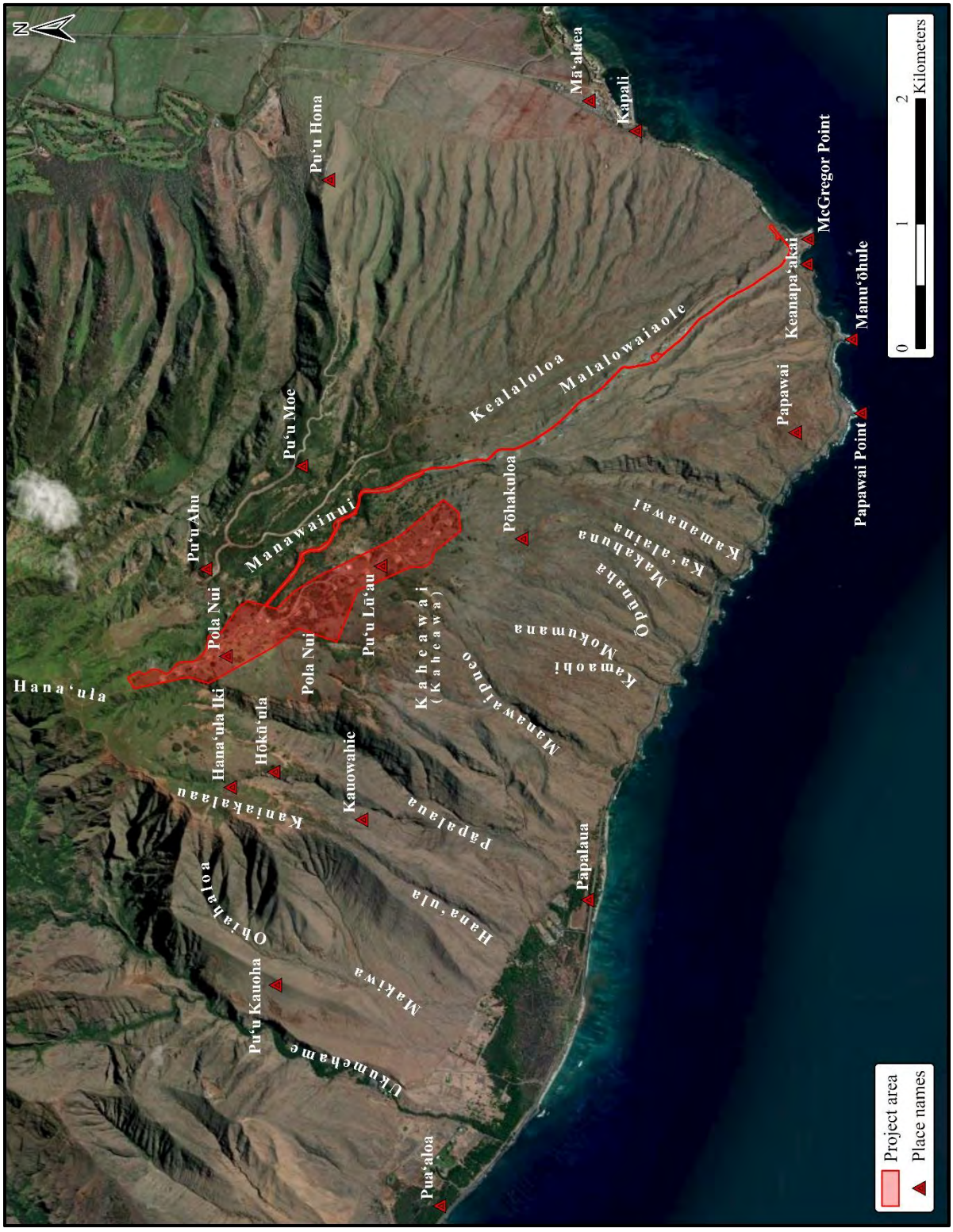


Figure 24. Nā inoa ʻāina of Ukumehame.

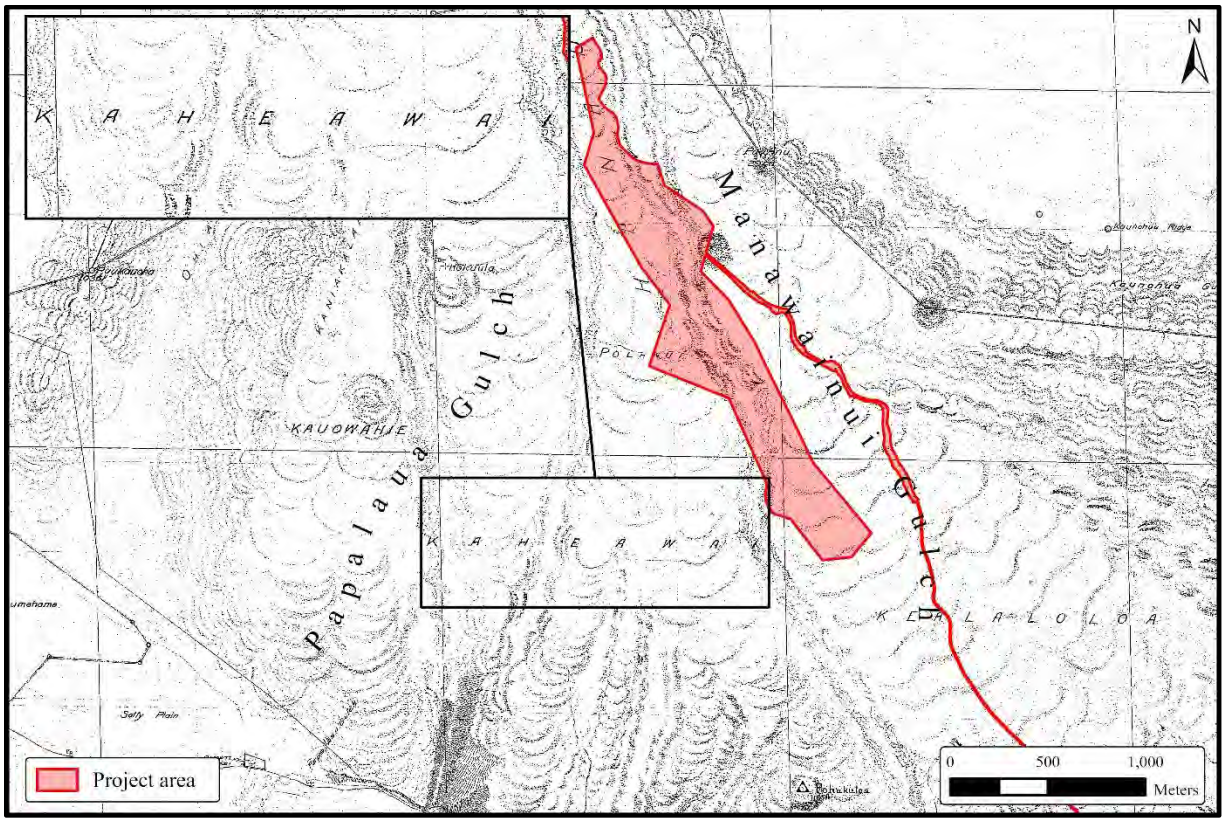


Figure 25. GRM No. 1194 labeling the land area between Pāpalaua and Manawainui gulches as Kaheawai.

Nā Aliʻi O Maui, Maui's Ruling Chiefs

History concerning the early chiefly rule on Maui describes a period when the entire island was ruled by an independent chief and times when the island was separated and ruled by two independent chiefdoms—East Maui (comprising the districts of Koʻolau, Hāna, Kīpahulu, and Kaupō) and West Maui (comprising the remaining districts) (Cachola-Abad 2000; Fornander 1880; Kamakau 1992). Fornander (1880) traces the Maui chiefly lineage to Paumakua, a descendant of the Hema branch of the Ulu line whose genealogy spread throughout Maui and Hawaiʻi Island. Fornander (1880:26-27) writes:

> …there is little to tell of the Maui *Paumakua* of the *Hema* line, the son of *Huanuikalalailai*... Through his son *Haho* and grandson *Palena* he became the great-grandfather and progenitor of the noted *Hanalaa*, whom both the Maui and Hawaii chiefs contended for as their ancestor under the varying names of *Hanalaa-nui* and *Hanalaa-iki*, asserting that *Palena* was the father of twins who bore those names.

Cachola-Abad (2000:175) observes that "each of these aliʻi nui seemed to have served as the nominal sovereign over the entire island of Maui." However, the political distinction between the East and West Maui chiefs appears to have emerged during the reign of Palena or Hanalaʻa (Cachola-Abad 2000). This political division lasted until the time of the 16th-century high chief Kiha-a-Piʻilani, who managed to consolidate East and West Maui under his rule (Kirch 2010). Prior to Kiha-a-Piʻilani's consolidation, the chiefs ruling the greater part of Maui also ruled over the island of Lānaʻi and, at times, Molokaʻi (Fornander 1880; Kirch 2010).

Paumakua's son, Haho, is remembered in Hawaiian history as the founder of the ʻaha aliʻi, the distinguished council of chiefs and priests that conferred the rank of a chief by tracing the chief's descent and ensuring their genealogy remained undisputed. Degrees of rank and kapu were recognized by the ʻaha aliʻi, and it was established that although a chief's rank could degrade, it could not rise higher than the source from which it originated on either the mother or father's side. Although the rank of a single chief could not be raised during his or her lifetime, the ʻaha aliʻi established that their descendants could increase their rank in several ways, such as "marriage with a chiefess of higher rank than his own, marrying with a sister, or by their adoption into a family of higher rank than that of the father" (Fornander 1880:28-29). To protect the purity of these royal lineages, aliʻi families were also afforded extra

protection during warfare as they were sometimes ceremonially sacrificed. Chiefs of the ʻaha aliʻi were also entitled to wear the insignia associated with his or her rank, such as the lei hulu (feathered lei), ʻahu ʻula (feathered cloak or cape), lei niho palaoa (ivory pendant), and traveled with painted red sails on their canoes (Fornander 1880). It has been speculated that the creation of the ʻaha aliʻi arose during what is often referred to as the "migratory period," an era marked by the intensification of social institutions and political and religious organization (Cordy 2000; Fornander 1880). Fornander (1880:30) further clarifies that the ʻaha aliʻi "arose, probably, as a necessity of the existing conditions of things during this migratory period, as a protection of the native aristocracy against foreign pretenders, and as a broader line of demarcation between the nobility and the commonality."

During these politically formative years, the names of several other West Maui chiefs have also been recorded, including Mauiloa, whose name appears in the Mele A Pakui, as well as Kuhimana, Kamaluohua, Loʻe, and Kahakuohua, but little is known of their life or legacy (Fornander 1880; Kirch 2010). Kuhimana's son, Kamaluohua, whose reign was marked by warfare, is said to have ruled over the larger part of Maui, while the chief Wakalana ruled over East Maui (Cachola-Abad 2000; Fornander 1880). With respect to the proliferation of the greater Lāhainā region, credit is given to two chiefly brothers who co-ruled over West Maui and Lānaʻi, Kakae and Kakaalaneo (Maly and Maly 2007). Their father was Kaulahea I, who is said to have had a more peaceful reign than Kamaluohua. Known for his thrift and energy, Kakaalaneo is well-remembered in Lāhainā's Precontact Period political history. He had two children with Kanikaniaula: the eldest, a female named Wao, and a mischievous son, Kaululaau, both of whom figure prominently in Lāhainā's history and legendary accounts. Kakaalaneo established Lāhainā as his political center and is credited with planting the famed ʻulu (breadfruit) groves of Lele (the ancient name of Lāhainā), as well as constructed the irrigation ditch system, which he named after his daughter Wao (Maly and Maly 2007).

The Reign of Piʻilani and His Sons Lonoapiʻilani and Kihaapiʻilani

The chiefly succession of West Maui also includes Kakaalaneo's brother Kakae, who begat a son, Kahekili I, with the chiefess Kapohauola. Kahekili I's son, Kawaokaohele married the chiefess, Kepalaoa, who bore the distinguished Piʻilani, a 16th-century high chief whose rule was marked by peace and industry among the people (Fornander 1880). Piʻilani was a contemporary of Līloa, a powerful Hawaiʻi Island chief (Cordy 2000). Piʻilani married his first cousin, Lāʻielohelohe, who was born at Helumoa and raised at Kaluaokau in Waikīkī on the island of Oʻahu. To them were born four children, all of whom are well celebrated in Maui's chiefly lineage (Kamakau 1991). In his book *Tales and Traditions of the People of Old*, Kamakau (1991:49) describes the arrival of Lāʻielohelohe in Lāhainā, writing:

> On Lāʻielohelohe's voyage to Maui to marry Piʻilani, her canoes were adorned with red things, a red sail, and retainers dressed in red. As they approached Lahaina, the Paʻūpili rain retreated to the uplands of Kanahā and the red mist of Kaʻānapali appeared for the enhancement of Lāʻielohelohe-i-ka-wai.

Building upon the legacy of his two chiefly ancestors, Kakae and Kakaalaneo, Piʻilani continued to solidify Lāhainā as a chiefly center by establishing the islet of Mokuʻula and Mokuhinia Pond in Lāhainā as his home. Details concerning the life and rule of Piʻilani are scarce; nonetheless, he was known for his sacred genealogy, peaceful rule, and initiation of large-scale public work projects. In his book *Mokuʻula Maui's Sacred Island*, Klieger (1998:9, 15) further explains:

> Piʻilani, Maui's greatest king, is credited with creating a road that encircles the entire island of Maui. Upon this trail the great *mōʻī* made frequent tours throughout the land, collecting taxes during the time of the Makahiki and seeing to general order. He ruled from Lahaina and is known to have died there.
>
> The Maui royal family descended from Piʻilani was notable in the archipelago for carefully maintaining and replicating *mana* through the *kapu* system and through brother-sister (*piʻo*) or other closely related matings, in imitation of the creative passions of Papa and Wākea. This marriage pattern was especially frequent in the eighteenth century, resulting in great prestige for the Maui line. The power generated by several generations of *piʻo* mating by the sacred members of the Piʻilani family and the restrictions associated with their *kapu* made the family's dignity, ascribed authority, and status practically unrivaled among the *aliʻi nui* of the Hawaiian Islands. The *piʻo* system served to concentrate the *mana* of the gods within the ruling class. Especially important was the power of the guardian Kihawahine among the Maui royal family, a symbol of the family's *mana*.

According to Kamakau (1991), his union with Lāʻielohelohe resulted in the birth of four children: Lonoapiʻilani, their eldest son, then two daughters, Piʻikeaapiʻilani and Kalāʻaiheana, and finally, the youngest son Kihaapiʻilani, who would become his brother's greatest rival. Kihaapiʻilani—unlike his siblings—was born and raised on Oʻahu and

later returned to Maui at the time of his father's death. Each of the four children also left legacies that have been captured in many oral traditions and written accounts. The eldest daughter, Pi'ikea, married the Hawai'i Island chief, 'Umi, son of Līloa. According to Hawaiian historian and cultural expert Mary Kawena Pukui, the youngest daughter Kalā'aiheana (also known as Kihawahine) is said to have been born as an "'e'epa—a human born with some sort of supernatural difference" (Klieger 1998:9). Pukui also maintains that, upon her death, Kalā'aiheana was deified and made a mo'o goddess, the only mo'o with the ability to move from "pond to pond, island to island" (Klieger 1998:9). She took up residence at Mokuhinia, the pond surrounding the sacred island of Moku'ula. Klieger (1998:9) writes:

> His [Pi'ilani's] Lahaina residence [Moku'ula] became associated with the *mo'o* who lived in the adjacent fishpond of Mokuhinia and guarded his royal family. It is this king and his daughter, who becomes a goddess and lives in the fishpond, that established Moku'ula as a sacred place for future rulers of Maui and the Hawaiian Islands.

Kamakau (1991) describes Pi'ilani's death and the transfer of rule within his kingdom. In describing Kihaapi'ilani's return to Maui, Kamakau (1991) (Kamakau 1991:50) writes, "when he was twenty years of age, Kiha was ordered to go to Maui to become the heir apparent, the ho'oilina mō'ī; but when he reached Ka-lae-o-ka-lā'au on Moloka'i, his father Pi'ilani died at Lāhainā, and the first-born, Lono-a-Pi'ilani became the mō'ī of Maui." In his book *Ruling Chiefs of Hawai'i*, Kamakau (1992:22) describes the succession of Pi'ilani's kingdom to his eldest son:

> Pi'i-lani died at Lahaina, Maui, and the kingdom of Maui became Lono-a-Pi'ilani's. He was Pi'ilani's oldest son by La'ie-lohelohe-i-ka-wai. Next to him came Pi'ikea, then Ka-la-'ai-heana and Kiha-a-Pi'ilani. It was said that there were two heirs to the kingdom, Lono-a-Pi'ilani and Kiha-a-Pi'ilani, but the latter was not present at their father's death because Oahu was his birthplace, and there he was reared. Therefore the government went to Lono-a-Pi'ilani, Pi'ilani had commanded that the kingdom be his, and that Kiha-a-Pi'ilani dwell under him in peace. In the first years of Lono-a-Pi'ilani's reign all was well, and the people were content

Both Kamakau (1992) and Fornander (1916-1917) provide detailed accounts of the brothers' subsequent feud as they vied for power following their father's death. Although the brothers lived together in the royal court at Ka'uiki, Hāna, Lonoapi'ilani displayed great hatred and displeasure for his younger brother. Fornander (1916-1917:236) details the incident that resulted in Kiha leaving the royal court:

> One day while Piilani [Lonoapi'ilani] was eating with his companions, all strangers, enjoying the good things placed before them, Kihaapiilani, although present at the table, was not served with any of the good things; but, in front of him was placed a small calabash containing some small fish. This dish belong to Piilani. Seeing that this was all there was to be had within reach, he reached into the dish and took out two small fish and ate them. While doing this he was seen by Piilani. Piilani then reached for the dish and held it up in his hand, then asked of Kihaapiilani: "Who ate the fish in this dish?" Kihaapiilani replied: "I did, because there was nothing else for me to eat." Piilani then threw the dish with the fish in it, brine and all, at the forehead of his brother, breaking the dish into pieces and spattering the fish and brine into the eyes of Kihaapiilani which blinded him for a while.

No longer willing to endure his brother's ill-treatment, Kihaapi'ilani secretly escaped to Makawao, where he met Koleamoku, a chiefess who descended from the ruling chiefs of East Maui. While living there he became a farmer and was able to conceal temporarily his identity as a chief. Kihaapi'ilani stayed in the country for some time until he was able to garner the support needed to dethrone his elder brother, Lonoapi'ilani, and his father-in-law and ruling chief of East Maui, Ho'olaemakua (Fornander 1916-1917). As Kihaapi'ilani plotted to overthrow his brother, he developed political alliances with 'Umi, a powerful Hawai'i Island chief who was the husband of his sister, Pi'ikeaapi'ilani (Cordy 2000; Fornander 1916-1917; Kirch 2010). 'Umi summoned his war counselors to prepare for an invasion on Maui. 'Umi then ordered his district chiefs to ready canoes and gather warriors. Kihaapi'ilani's forces first attacked Ho'olaemakua and gained control over East Maui. After Ho'olaemakua's death, Kihaapi'ilani turned his attention to slaying his brother. The historians differ slightly regarding who was ruling West Maui at the time of this invasion. Fornander (1916-1917) writes that Lonoapi'ilani had already died and that his son Kalaninuikupuapāikalaninui was ruling West Maui. However, Kamakau (1992:31) contends that Lonoapi'ilani was still ruling at the time of the invasion and that upon hearing about the death of Ho'olaemakua, he "trembled with fear of death, and died." It was through this formidable invasion that Kihaapi'ilani gained full control over the entire island of Maui, just as his father had.

Pi'ilani and his sons are well known for their execution of many large scale projects around the island, including heiau and loko i'a (fishponds), as well as continuing the construction of the Alaloa, a trail that encircled the entire island (Ashdown 1971; Kirch 2010; Maly and Maly 2007). The Alaloa is said to have been originally paved to a width

of four to six feet as it followed the coastline and before dividing into branches leading to Haleakalā and Puʻu Kukui in Mauna Kahālāwai, the highest peak of the West Maui mountain range (Ashdown 1971). Ashdown (1971:5) relates that most of the Alaloa has been destroyed, with the exception of "two places on West Maui," and that this West Maui section of the trail was completed by his son Kihaapiʻilani.

Aliʻi Rule Following the Consolidation of East and West Maui by Kihaapiʻilani

The consolidation of Maui under a single ruler lasted well through the time of Kahekilinui (son of Kakae), who managed to extend his control to the islands of Molokaʻi and Oʻahu (Cachola-Abad 2000). Throughout the mid-18th century, intra-island and inter-island warfare intensified as the Maui chiefs sought to expand their kingdoms to other islands. As the royal center for West Maui, Lāhainā was hard hit by this warfare, especially during the conflict between Mauiʻs royal brothers Kamehamehanui and Kaʻuhiʻaimokuakama (Klieger 1998). During this time, Kamehamehanui allied with the Hawaiʻi Island chief Alapaʻi and prepared to wage war against Kaʻuhiʻaimokuakama, who was supported by the Oʻahu chief Peleioholani. Kamakau (1992) describes Alapaʻiʻs strategy of damming the waters throughout West Maui to cut off the food supply for the chiefs and the makaʻāinana, writing:

> A whole year Alapaʻi spent in preparation for the war with Maui. It was in 1738 that he set out for the war in which he swept the country. What was this war like? It employed the unusual method in warfare of drying up the streams of Kauaʻula, Kanaha, and Mahoma [Kahoma] (which is the stream near Lahainaluna). The wet taro patches and the brooks were dried up so that there was no food for the forces of Ka-uhi or for the country people. Alapaʻiʻs men kept close watch over the brooks of Olowalu, Ukumehame, Wailuku, and Honokowai. When Pele-io-holani heard that Alapaʻi was at Lahaina he gathered all his forces at Honokahua and at Honolua. At Honokowai an engagement took place between the two armies, and the forces of Alapaʻi were slaughtered and fled to Keawawa. (Kamakau 1992:74)

Klieger (1998:19) further describes the destruction of the agriculture and aquaculture system throughout the district during this war:

> Alapaʻinui of Hawaiʻi interrupted the streams of Kauaʻula, Kahana [*sic*], and Kahoma in the high country above the village, toppled terraces and *ʻauwai*, and thus destroyed the productive capabilities of the *loʻi* and fishponds below. The carefully regulated irrigation system of *loʻi*, *ʻauwai*, ponds (*loko*), sluice gates, and embankments dating to at least the days of Piʻilani were soundly destroyed. Being in the center of things did not always bode well for Lahaina.
>
> Lahaina agriculture and aquaculture did not rebound between the numerous battles for interisland supremacy. Years after Alapaʻiʻs destructive path, Lahaina productivity still seemed marginal, according to the accounts of early Western explorers. Nathaniel Portlock reported in 1786 that West Maui had been devastated by the wars of unification. Lahaina in those days appears to have had little in the way of provisions to offer the passing explorers, perhaps less to feed itself.

Kamakau (1992) continues by describing the power of Alapaʻiʻs forces, which numbered in the thousands and included other powerful Hawaiʻi Island chiefs like Kalaniʻōpuʻu and Keōua of Kaʻū. Kamakau contrasts this against Peleioholaniʻs army of a mere 640 men. Kamakau (1992:74) adds that "Peleioholani intended to unite his forces with those of Kaʻuhi, but Alapaʻiʻs men held Lāhainā from Ukumehame to Mala on the north, and in attempting to aid Ka-uhi, Pele-io-holani became involved in difficulty." The Oʻahu-Maui and Hawaiʻi Island forces eventually met at Puʻunēnē, where Alapaʻiʻs soldiers surrounded Peleioholaniʻs forces. Here, the ruling chiefs met again and ended this brutal war.

Interisland warfare continued well into the mid-18th century, particularly during the reign of Kamehamehanui. The records regarding Kamehamehanuiʻs reign over Maui describe a time of peace that lasted until Kalaniʻōpuʻu of Hawaiʻi Island initiated an abrupt invasion in ca. 1759. As a result of this invasion, Kalaniʻōpuʻu secured the fort at Kaʻuwiki (also spelled Kaʻuiki) as well as Hāna and Kīpahulu. Kamehamenui mounted an armed resistance to the Kalaniʻōpuʻuʻs forces yet failed to take back east Maui from the Hawaiʻi Island chiefs. After Kamehamehanui died in ca. 1765, the kingdom passed to his brother, Kahekili, in the absence of a direct heir (Fornander 1880). Kalaniʻōpuʻu continued to hold the fort at Kaʻuiki, along with all Hāna and Kīpahulu, until about 1775 when war broke out again between Hawaiʻi and Maui.

The Hawaiʻi Island forces stationed at Kaʻuiki subsequently led a devastating raid on the residents of Kaupō on the south coast of East Maui. Referring to the aftermath of this invasion, Fornander (1880:150) explains:

> Taken by surprise and unprepared, the Kaupo people suffered great destruction of property, cruelty, and loss of life at the hands of the Hawaii soldiers; and the expedition is called in the legends the

> war of "Kalaehohoa," from the fact that the captives were unmercifully beaten on their heads by the war-clubs of the Hawaii troops.

The battle continued to Kalaeokaʻīlio, a point in coastal Kaupō, and here, Kalaniʻōpuʻu's forces were defeated. According to a description of the event by Desha and Frazier (2000:31), "the bodies of the Hawaiʻi warriors were heaped like kukui branches before Maui's exceptional warriors." Kalaniʻōpuʻu then returned to Hawaiʻi Island and, for a whole year, readied his forces for another invasion.

Kalaniʻōpuʻu carried out another attack on Maui the following year, striking Mokolua in Kaupō and launching successive attacks on the island of Kahoʻolawe, Lāhainā, and finally, Lānaʻi. Following his ransacking of Lānaʻi, Kalaniʻōpuʻu again invaded Maui, this time at Hāmākua Loa and then Koʻolau.

It was during the conflicts between Kalaniʻōpuʻu and Kahekili that Kamehameha I, then a rising warrior, fought in Kalaniʻōpuʻu's army. During the Hawaiʻi Island chief's second invasion of Maui, Kamehameha reportedly sailed a canoe to the landing at Māʻalaea, where he intended to land so he could climb the mountains above Wailuku and spy on Kahekili. However, as they approached the landing, Maui people recognized the war canoe and followed it (Desha and Frazier 2000:38). As the canoe approached Māʻalaea, Kamehameha realized that they were easily visible and commanded his crew to head for the next cove, Papawai Point in Ukumehame Ahupuaʻa (Desha and Frazier 2000:38). At the point, the chief directed the canoe to remain floating in place. The crew of the canoe soon realized that the land ahead of them was covered in Kahekili's men, who were visible as they were standing on a sandy area (Poepoe in Sterling 1998:21). Desha and Frazier (2000:39) elaborate on the strategy of Kamehameha's command:

> It is possible for us, O reader, to realize that this idea of the young Kamehameha to land his canoe at that sandy cove close to Papawai Point was because of his knowledge of warfare. Both Kamehameha and Kekūhaupiʻo realized that men ashore would be visible on the white sand and that was the idea of landing at that place.
>
> We can understand, O reader, that this was a wise act by Kamehameha. Yet the one who gave him this advice was the one whose story this is, as Kekūhaupiʻo was an expert in warfare. That heedfulness of Kamehameha was the reason for their victory in the battle that night. The canoe with Kamehameha's group floated offshore a while, until dawn came. The reason for not hastening ashore was his desire that those on shore not run off in the darkness and perhaps disclose their presence to the people who were inland and arouse them in advance with knowledge that Kalaniʻōpuʻu's armies were moving toward Wailuku at dawn.

When daytime arrived, Kamehameha commanded the canoe to shore. The Maui forces prepared for their landing:

> When the canoe reached striking distance the leader of the Maui warriors ordered his men to hurl their spears at this Hawaiʻi canoe which was landing wrongfully and to direct their spears straight at the men standing on the bows of the double canoe.
>
> At this same time, Kamehameha's men stood ready on the platform of the canoe with their pololü spears. At the onset of battle Kamehameha and his companion Kekūhaupiʻo caught the Maui people's spears and they piled up alongside Kamehameha's canoe hulls. At this same time Kamehameha called out to his few warriors on board his canoe to prepare to move ashore immediately. Kekūhaupiʻo and Kamehameha seized the spears lying alongside their canoe and commenced to hurl them at the Maui people. When the Maui people saw the genuinely fearless and remarkable actions of these warriors an inward chill occurred, weakening their warlike thoughts, and their spears were hurled uselessly. At this moment Kekūhaupiʻo and his chiefly foster son [Kamehameha] arrived in the midst of those Maui people and began to slay them with such terrible effect that they fled, leaving their dead behind (Desha and Frazier 2000:39).

One of the most famous battles of this period was the 1776 conflict known as the Battle of Kakanilua, which was fought after Kalaniʻōpuʻu landed his Hawaiʻi Island army at Kīheipūkoʻa, along the southern edge of the Maui isthmus, and sent a detachment known as ʻĀlapa northward toward the Wailuku River. Kahekili's army met the ʻĀlapa regiment at Kakanilua, which Westervelt (1923:139) references as "the name of the sand hills below Wai-luku." Fornander (1880:153) portrays Kahekili's response like this:

> Kahekili distributed his forces in various directions on the Wailuku side of the Common, and fell upon the Hawaii *corps d'armée* as it was entering the sand-hills southeast of Kalua, near Wailuku. After one of the most sanguinary battles recorded in Hawaiian legends ... [the detachment was] literally annihilated."

Describing the aftermath of the fighting, Kamakau (1992:85) states: " ...They slew the Alapa on the sandhills at the southeast of Kalua. There the dead lay in heaps strewn like kukui branches; the corpses lay heaped in death; they were slain like fish enclosed in a net..."

Kalaniʻōpuʻu's remaining forces launched another attack a few days later and were defeated again on the sand hills of Kamaʻomaʻo (the Central Maui isthmus). This time, Kalaniʻōpuʻu's son Kīwalaʻo, a relative of Kahekili's through his mother's side, successfully negotiated a peaceful surrender. By the time Kalaniʻōpuʻu's army departed to return to Hawaiʻi Island, it was said that "the sands were covered with the canoes of the Hawaii warriors from Kahului to Paia" (ʻĪʻī 1959:11).

By 1781, the aging Kalaniʻōpuʻu was nearing the end of his life. Hearing of the chief's ill health, Kahekili prepared his forces to recover the East Maui districts, which had been under the rule of the Hawaiʻi Island chiefs since Kalaniʻōpuʻu captured Hāna, Kīpahulu, and the fort at Kaʻuiki in 1759. Mahihelelima was then serving as the Governor of Hāna at that time, with several Hawaiʻi Island chiefs under him. Kahekili divided his forces and marched to Hāna by way of Koʻolau and Kaupō to the fort at Kaʻuiki. The well-equipped Hawaiʻi Island forces stationed at Kaʻuiki managed to stave off Kahekili's men for some time until Kahekili was advised to "cut off the water supply of the fort by damming and diverting the springs in the neighbourhood [*sic*]" (Fornander 1880:216). Kahekili's efforts were met with great success, and he managed to recapture the fort at Kaʻuiki, as well as the districts of Hāna and Kīpahulu, in the battle known as Kaumupikaʻo. Although Kaʻuiki had been recaptured, the area had been severely plundered, and Kahekili moved to a large plain of Makaliʻihānau above Mūʻolea, Hāna, where he and his soldiers took up planting food (Fornander 1880). Following his successful recapture of East Maui, Kahekili began to work toward expanding his kingdom further, and, by the latter half of the 18th century, he and his son, Kalanikūpule, managed to gain control over all the islands except for Kauaʻi and Hawaiʻi Island (Kamakau 1992).

Kamehameha's Conquest

As the Maui chiefs expanded their control across the islands, the Hawaiʻi Island chief, Kamehameha, secured more power and control on his home island and eventually decided to invade Maui in 1790. During this time, Kahekili was living on Oʻahu and had left his son, Kalanikūpule, to govern the island of Maui. Kamehameha and his forces landed in East Maui, first near Hāna at Puʻukoaʻe and later at Halehaku in Hāmākua Loa. After receiving encouragement from his war god Kūkāʻilimoku, Kamehameha's Hawaiʻi Island army subsequently defeated the army of Kapakahili, one of Kalanikūpule's warriors, at a place near Halehaku called Kapuaʻi-o-Kamehameha ("footprint of Kamehameha"). The last remnants of the Maui army were defeated near Kokomo (in upland Maui, near Makawao town).

From Hāmākua Loa, Kamehameha's forces traveled to Kahului and then Wailuku, where they encountered Kalanikūpule and drove the Maui army back into ʻĪao Valley using cannon, canoe-mounted swivel guns, and artillery fired from the American sailing vessel *Fair American* under the command of Kamehameha's British-born retainers John Young and Isaac Davis (Fornander 1880). This conflict, which resulted in the fleeing of Kalanikūpule over the mountains to Lāhainā and ultimately to Oʻahu, came to be called the Battle of Kepaniwai.

Following his victory, Kamehameha sent a messenger to Kalola, the kapu chiefess, widow of Kalaniʻōpuʻu and sister to Kahekili, who had fled to Molokaʻi to tell her he would escort her to Hawaiʻi Island. Upon his arrival at Molokaʻi, however, he learned Kalola was ill and would soon die. Kamehameha remained on Molokaʻi until after Kalola's death to participate in mourning rituals and to take in Kalola's orphaned daughter and granddaughter. Eventually, Kamehameha and his forces returned to Hawaiʻi Island to counter his cousin, Keoua, who had marched north to attack Kamehameha's territories in Hāmākua and Kohala.

On Maui, Kahekili took the opportunity of Kamehameha's absence to combine forces with Kaeokulani, his brother and ruler of Kauaʻi, and together they reconquered Molokaʻi and Maui. Following their victory, they sailed with a fleet of canoes to the north coast of Hawaiʻi Island. Kaeokulani and his fleet sailed to Waipiʻo Valley, where Fornander (1880:243) reports that they committed a series of violent acts:

> The acts of spoliation and barbarity committed on this occasion were the common occurrence of war in those days, and would not of themselves have stained the memory of Kaeokulani in the native estimation; but his disregard and desecration of the ancient tabu places, the tearing up and overturning the sacred pavement of Liloa, the burning of the sacred pepper-tree supports of the ancient palace of the Hawaiian kings, said to have been built by Kahoiihapu, and his general demolition and destruction of all the sacred and valued mementoes of ancient times, in which that valley was so rich, — these and similar acts were regarded as unpardonable acts of vandalism, for which the insulted gods and "Aumakuas" would in due time exact a condign and fearful punishment.

Meanwhile, Kahekili and his forces sailed to Halawa in Kohala, where they engaged in sporadic fighting until they eventually sailed to Waipiʻo to join forces with Kaeokulani.

Kamehameha responded to the attacks with a large fleet armed with cannon and the *Fair American*. The battle, which occurred in April or May of 1791, is remembered as Kepuwahaukauka (translated as the "the red-mouthed gun"; Kuykendall 1938: 37). Fornander (1880:244) states that the battle was the first naval battle in Hawaiian waters "in which modern gunnery formed a conspicuous element of strength on both sides." Consequently, while details of the battle are scarce, the conflict is remembered as extremely bloody, with heavy losses on both sides (Fornander 1880). Although Kamakau (1992) reports that the outcome of the battle was indecisive, Fornander (1880) and Kuykendall (1938) indicate that Kamehameha emerged victorious. Regardless, after the battle, Kahekili and Kaeokulani returned to Maui to prepare for the anticipated counterattack, and Kamehameha returned to the Kohala Coast to continue the building of Puʻukoholā Heiau, which a soothsayer prophesied he must build if he wanted to conquer all of Hawaiʻi Island.

A period of peace occurred from the summer of 1791 through the summer of 1794. During this time, Kahekili was recognized as the ruler of Maui, Molokaʻi, and Oahu. Due to his age and poor health, however, his son, Kalanikūpule, governed Oʻahu and Molokaʻi. Kaeokulani remained on Maui with Kahekili to help rule while the island of Kauaʻi was entrusted to the high chief Nakaikuaana (Fornander 1880:245).

In July of 1794, Kahekili died, leaving Kalanikūpule as the mōʻī of Maui, Lānaʻi, Molokaʻi and Oʻahu. However, due to previous agreements between Kahekili and Kaeokulani, the Maui chief retained power on Maui and Molokaʻi for a while after Kahekili's death (Fornander 1880). Kamakau (1992) even reports that Kaeokulani became the ruling chief of Maui and Molokaʻi, while Kalanikūpule only retained Oʻahu. Near the end of 1794, however, Kaeokulani decided to return to Kauaʻi. He and his chiefs left Maui, stopping in Waimānalo on Oʻahu, where they were met by the forces of Kalanikūpule, who, uncertain if Kaeokulani was planning an invasion of Oʻahu, had prepared for war. Brief skirmishes broke out, but peace was restored when Kalanikūpule arrived in Waimānalo and met with Kaeokulani. Kaeokulani and his forces then proceeded to Waialua in Waiʻanae, where they intended to depart to Kauaʻi. However, Kaeokulani learned of a conspiracy among his chiefs to mutiny during the voyage. To circumvent the plot, he announced they would march to Waikīkī to attack Kalanikūpule and conquer Oʻahu. The campaign lasted several weeks, and Kalanikūpule eventually defeated Kaeo during a battle that took place between Kalauao and ʻAiea.

After his victory, Kalanikūpule grew ambitious and developed a plan to conquer Kamehameha. Thinking that the foreign ships would ensure his success, Kalanikūpule captured the English trading ships, *Jackall* and *Prince Lee Boo*, whose crews had previously assisted him in the defeat of Kaeokulani. However, the surviving English crew members quickly retook the ship. They escaped to Hawaiʻi Island, where they sent a letter to Kamehameha's advisors John Young and Issac Davis, telling them of Kalanikūpule's plans. Reportedly, the ships' crews also supplied to Kamehameha the munitions that Kalanikūpule had accumulated for his devised war with the king of Hawaiʻi Island (Fornander 1880; Kamakau 1992). Upon hearing the news, Kamehameha decided to continue to his conquest of the archipelago.

In February of 1794, Kamehameha sailed to Maui and attacked Lāhainā. Kamakau (1992:171) states, "Kamehameha's fleet of war canoes landed at Lahaina, covering the sands along the coast from Launiupoko to Mala. All that part of Lahaina given over to food patches and cane fields was at that time overrun by the men from Hawaii" (Kamakau 1992:171). Kamehameha then sailed to Molokaʻi, where "the whole coast from Kawela to Kalamaʻula was covered by canoes" (Kamakau 1992:171). Kamehameha and Kalanikūpule's forces met for the last time in 1795 at the Battle of Nuʻuanu on the Island of Oʻahu, in which Kalanikūpule's warriors were forced off the pali (cliff) located at the back of Nuʻuanu Valley. Although Kalanikūpule escaped into the Koʻolau Mountains, he was eventually caught and offered as a sacrifice to Kamehameha's war god, Kūkāʻilimoku (Kamakau 1992; Kirch 2010). Through these events, Kamehameha became king over all the islands except for Kauaʻi, which he eventually gained control over through peaceful negotiations.

By 1810, Kamehameha had united the Hawaiian Islands under his rule and established the Kingdom of Hawaiʻi, which his descendants governed well into the 19th century. After Kamehameha died in 1819, the capital of the kingdom moved from Kailua on Hawaiʻi Island to Lāhainā, Maui, where it remained until 1845 (Pukui et al. 1974:126).

The Arrival of Westerners and Early Historical Accounts of Ukumehame and Vicinity

The first European explorers arrived in the Hawaiian Islands in 1778 during a period of ongoing interisland warfare between the chiefdoms (Kamakau 1992). The arrival of foreigners in the islands added a new dimension to the pervasive social and political changes already underway in Hawaiʻi in the late 18th century and played a role in several important transformations that would forever alter the islands' people, land, and economy. Simultaneously, foreigners

who visited the islands wrote prolifically about who they met and what they saw as they visited the different districts and islands. The earliest known historical description of the north shore of Maui comes from the journal of British sea captain James Cook, who described his first sighting of the island on November 26, 1778, in the *Resolution*'s logbook (Cook and King 1784:530):

> In the evening, we joined; and at midnight brought to. At daybreak, next morning, land was seen extending from South South East to West. We made sail, and stood for it. At eight, it extended from South East half South, to West; the nearest part two leagues distant. It was supposed that we saw the extent of the land to the East, but not to the West. We were now satisfied, that the group of the Sandwich Islands had been only imperfectly discovered; as those of them which we had visited in our progress Northward, all lie to the leeward of our present station.
>
> In the country was an elevated saddle hill, whose summit appeared above the clouds. From this hill, the land against which the sea broke in a dreadful surf. Finding that we could not weather the island, I bore up, and ranged along the coast to the Westward. It was not long before we saw people on several parts of the shore, and some houses and plantations. The country seemed to be both well wooded and watered; and running streams were seen falling to the sea in various places.

The next day, November 27, Cook (Cook and King 1784:531) began to trade with the people of Maui, who boarded the *Resolution* from their canoes, and also sighted Molokaʻi:

> Seeing some canoes coming off to us, I brought to. As soon as they got along-side, many of the people, who conducted them, came into the ship, without the least hesitation. We found them to be of the same nation as the inhabitants of the islands of the islands more to leeward, which we had already visited; and, if we did not mistake them, they knew of our having been there. Indeed, it rather appeared too evident; for these people had got amongst them the venereal distemper; and, as yet, I knew of no other way of its reaching them, but by an intercourse with their neighbors since our leaving them.
>
> We got from our visitors a quantity of cuttle-fish, for nails and pieces of iron. They brought very little fruit and roots; but told us that they had plenty of them on their island, as also hogs and fowls. In the evening, the horizon being clear to the Westward, we judged the Westernmost land in sight to be an island [Molokaʻi], separated from that off which we now were. Having no doubt that the people would return to the ships next day, with the produce of their country, I kept plying off all night, and in the morning stood close to shore. At first, only a few of the natives visited us; but toward noon, we had the company of a good many, who brought with them bread-fruit, potatoes, tarro, or eddy roots, a few plantains, and small pigs; all of which they exchanged for nails and iron tools.

The ruling chief of Maui, Kahekili, died in 1793, and by 1795, the Hawaiʻi Island chief Kamehameha had executed his successful invasion of Maui, Lānaʻi, and Molokaʻi (as well as Oʻahu) (Kamakau 1992). By this time, Kamehameha I was deeply engaged in China's sandalwood trade, effectively maintaining a monopoly over the industry in the islands until he died in 1819. This commodity brought numerous sailing vessels and foreign goods into Maui's Lāhainā District, which was then the seat of government and a commercial center for trading sandalwood. The Pacific whaling fleet having first stopped in Hawaiʻi in 1819, Lāhainā's excellent anchorage and abundant opportunities for onshore recreation quickly made the port a popular provisioning stop for whalers.

The first missionary company, led by lay missionaries Hiram Bingham, Asa Thurston, Samuel Whitney, and Samuel Ruggles of the American Board of Commissioners for Foreign Missions (ABCFM), left Boston in October 1819 aboard the ship *Thaddeus* and arrived on Oʻahu in March 1820 (Bingham 1969). Contemporary accounts show that members of the Hawaiian royal family quickly accepted the missionaries, offering land for mission stations and providing royal patronage for their attempts at missionization. The missionary William Richards arrived on Maui in 1823 and founded a mission station at Lāhainā. The missionaries established numerous schools, often taught by missionary-trained Hawaiian teachers, who provided instruction in reading and writing in the Hawaiian language. On Maui, the Lāhaināluna Seminary was established in 1834 and is heralded as the oldest school west of the Rockies. Many young men were admitted into Lāhaināluna and trained to read, write, and record the histories of their people. The accomplished Native Hawaiian scholars Davida Malo and Samuel Mānaiakalani Kamakau both attended this school. Missionary school records indicate that, by 1835, there were more than 86 students attending school in Ukumehame. During that year, a hōʻike kula, an academic competition, was held at the Ukumehame School pitting the students of Ukumehame against those of Olowalu. One hundred seventy-three students arrived from Olowalu to take part in the hō'ike *(Ke Kumu Hawai'i* 11 November 1885:4-5).

The Māhele ʻĀina of 1848

By the mid-19th century, the Hawaiian Kingdom was an established center of commerce and trade in the Pacific, recognized internationally by the United States and other nations in the Pacific and Europe (Sai 2011). As the Hawaiian political elite sought ways to modernize the burgeoning Kingdom, and as more Westerners settled in the Hawaiian Islands, major socioeconomic and political changes were instituted. These changes included the formal adoption of a Hawaiian constitution by 1840 and resulting change in governance from an absolute monarchy to a constitutional monarchy, as well as a shift towards private land ownership. The introduction of private landownership was partially motivated by the opinions of ex-missionaries and foreign businessmen who were generally hesitant to enter business deals on leasehold lands that could be revoked at any time. Mōʻī (Ruler) Kauikeaouli (Kamehameha III), through intense deliberations with his high-ranking chiefs and political advisors, separated and defined the ownership of all lands in the Kingdom (King n.d.). The king and his advisors decided that three classes of people each had one-third vested rights to the lands of Hawaiʻi: the Mōʻī, the aliʻi and konohiki, and the tenants of the land (hoaʻāina). In 1846, King Kauikeaouli formed the Board of Commissioners to Quiet Land Titles (more commonly known as the Land Commission) to adopt guiding principles and procedures for dividing the lands, grant land titles, and act as a court of record to investigate and ultimately award or reject all claims brought before them (Bailey in Commissioner of Public Lands 1929). All land claims, whether by chiefs for an entire ahupuaʻa or ʻili kūpono (nearly independent ʻili land division within an ahupuaʻa, that paid tribute to the ruling chief and not to the chief of the ahupuaʻa), or by hoaʻāina for their house lots and gardens, had to be filed with the Land Commission within two years of the effective date of the Act (February 14, 1846) to be considered. This deadline was extended several times for chiefs and konohiki but not for native tenants (Soehren 2005).

The King and some 245 chiefs (Kuykendall 1938) spent nearly two years trying unsuccessfully to divide Hawaiʻi's lands before the whole matter was referred to the Privy Council on December 18, 1847 (King n.d.). Once the King and his chiefs accepted the principles of the Privy Council, the Māhele ʻĀina (Land Division) was completed in just 40 days (on March 7, 1848), and the names of all of the ahupuaʻa and ʻili kūpono of the Hawaiian Islands and the chiefs who claimed them, were recorded in the Buke Māhele (Māhele Book) (Soehren 2005). As this process unfolded, King Kamehameha III, who received roughly one-third of Hawaiʻi's lands, realized the importance of setting aside public lands that could be sold to raise money for the government and by occupied by his subjects. Accordingly, the day after the division with the last chief was recorded in the Buke Māhele, the King commuted about two-thirds of the lands awarded to him to the government (King n.d.). Unlike the King, the chiefs and konohiki were required to present their claims to the Land Commission to receive their awards (LCAw.). The chiefs who participated in the Māhele were also required to provide the government commutations of a portion of their lands in return for a Royal Patent giving them title to the remainder. The lands surrendered to the government by the King and chiefs became known as "Government Land," while the lands retained by Kamehameha III became known as "Crown Land," and the lands received by the chiefs became known as "Konohiki Land" (Chinen 1958, 1961). All lands awarded during the Māhele were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed.

During the Māhele, native tenants of the lands divided between the Crown, Konohiki, and Government could claim and acquire title to kuleana parcels on which they actively lived or farmed. The Board of Commissioners oversaw the program and administered the kuleana as Land Commission Awards (LCAw.). Claims for kuleana had to be submitted during a two-year period that expired on February 14, 1848, to be considered. The land claimants were each required to provide proof of land use and occupation (as recorded in the volumes of the Native Register and Native Testimony). The claims and awards were numbered, and these LCAw. numbers, in conjunction with the volumes of documentation, are still used today to identify the original owners of the kuleana lands. The work of hearing, adjudicating, and surveying the claims required more than the two-year term initially set aside, and the deadline was extended several times for the Land Commission to finish its work (Maly and Maly 2002). In the meantime, as the new owners of the lands on which the kuleana were located began selling parcels to foreigners, questions arose concerning the rights of the native tenants and their ability to access and collect the resources necessary to sustain life. The "Enabling" or "Kuleana Act," passed by the King and Privy Council on December 21, 1849, clarified the native tenants' rights to the land and resources and the process by which they could apply for fee-simple interest in their kuleana.

The work of the Land Commission was completed on March 31, 1855. A total of 13,514 kuleana were claimed by native tenants throughout the islands, of which 9,337 were awarded (Maly and Maly 2002). The history of the kuleana claim and award process is summarized in an 1856 report by the Minister of Interior:

> …During the ten months that elapsed between the constitution of the Board and the end of the year 1846, only 371 claims were received at the office; during the year 1847 only 2,460, while 8,478 came in after the first day of January 1848. To these are to be added 2,100 claims, bearing supplementary numbers, chiefly consisting of claims which had been forwarded to the Board, but lost or destroyed on the way. In the year 1851, 105 new claims were admitted, for Kuleanas in the Fort Lands of Honolulu, by order of the Legislature. The total number of claims therefore, amounts to 13,514, of which 209 belonged to foreigners and their descendants. The original papers, as they were received at the office, were numbered and copied into the Registers of the Commission, which highly necessary part of the work entailed no small amount of labor…
>
> …The whole number of Awards perfected by the Board up to its dissolution is 9,337, leaving an apparent balance of claims not awarded of say 4,200. Of these, at least 1,500 may be ranked as duplicates, and of the remaining 2,700 perhaps 1,500 have been rejected as bad, while of the balance some have not been prosecuted by the parties interested; many have been relinquished and given up to the Konohikis, even after surveys were procured by the Board, and hundreds of claimants have died, leaving no legal representatives. It is probable also that on account of the dilatoriness of some claimants in prosecuting their rights before the Commission, there are even now, after the great length of time which has been afforded, some perfectly good claims on the Registers of the Board, the owners of which have never taken the trouble to prove them. If there are any such, they deserve no commiseration, for every pains has been taken by the Commissioners and their agents, by means of repeated public notices and renewed visits to the different districts of the Islands, to afford all and every of the claimants an opportunity of securing their rights… (in Maly and Maly 2002:7).

As a result of the Māhele, the ahupua‘a of Ukumehame was awarded to Kamehameha III in 1848 as Crown Land (Buke Māhele 1848:200). Forty claims for kuleana were registered with the Land Commission between 1850 and 1855, of which only 19 were awarded (Table 2). These claims included lo‘i lands, wauke patches, house plots, and kula lands. The majority of the kuleana claims are for lands to the west of Manawaipueo Gulch in the alluvial lands of Ukumehame Valley. Several claims were also made for lands near Mā‘alaea landing.

Table 2. LCAw. claims* made in Ukumehame Ahupua‘a.

LCAw. No	*Claimant*	*‘Ili*	*Awarded*
31	Pikanele, K.	Uwai, Kaulu, Kaluaokiha	yes
285	Kamakini, J.	Uwai	yes
309	Malo, Davida	-	yes
328	Kamakini	-	no
505	Moehauna	-	no
522	Ladana	-	no
659	Pimaiwaa	Punahoa 1, Ohia, Makanewa, Kahananui	no
720	Kamakini, I.	Kalihi	no
2715*M	Hinau	-	no
2959	Hika	Nohoana, Olohe	yes
3702*M	Malo, Davida	Ohiaiki, Moomuku, Alamihi, Palailaiha	yes
5124	Kalaikini	Puaaloa	no
5380	Hulu	Kaulu, Ohianui, Uwai	yes
5387	Hinau	Ohiaiki	yes
5410	Malo, David	-	yes
5462	Manuwai	Aweoweoluna	no
5462B	Kamanuwai	-	no
5829B	Kamaua, wahine	Ohiaiki	no
5829BB	Kaauwae	Makanewa 3 & 4, Punahoa, Pinanai, Ohianui, Ohiaiki, Auweoweolalo	no
5829M	Kaleleiki	Makanewa 3 & 4	no
6187	Opunui	Kamani 1 & 3, Makanewa	no

LCAw. No	*Claimant*	*ʻIli*	*Awarded*
6188	Kamakakahiki	Kaluaaha, Makanewa	no
6189	Punia		no
6408	Kalaikini, Ioba	Makanewa	yes
6423	Konanui	Kaulu, Kahananui, Aweoweoluna	no
6480	Keawe	Uwai	yes
6483	Kamaka	Pinanai, Pakala	no
6709	Popolo, wahine	Haai	yes
6727B	Pahaula	Puaaloa	yes
6751	Alai	Puaaloa	yes
7779*M	Kaleleiki	Makanewa	yes
8191	Hilo	Kekeenui, Uwai, Ohianui, Ohia, Punanai	yes
8559*M	Kanaina, C.	Puaaloa	yes
8623	Kamakakehauu	Puaaloa, Kaulunui, Aweoweoluna	yes
8625	Kalama	Kahananui, Kauluiki, Puaaloa, Punahoa	no
8795	Kulou	Puaaloa	yes
8867	Kapaakea, T.	Makenewa, Kaulu	no
9035A	Kalua	Puaaloa	no
9035B	Kalaipaka	Kukui	no
10206	Makuaole	Uwai	yes

* Source: Waihona ʻĀina.

Trails Through Ukumehame

Handy et al. (1991) mention a series of overland trails that cross Puʻu Kukui, the tallest peak of West Maui, connecting the windward and leeward sides of the island. The main mauka-makai trail in the vicinity of the project area followed Kealaloloa Ridge, whose name translates to "the long pathway" (Pukui et al. 1974:102), east of the KWP I project area. Devereux et al. (1999:12) relate that this mauka-makai trail follows Kealaloloa Ridge before reaching the summit of Hanaʻula near the headwaters of Pohakea and Ukumehame streams (north of the project area). From here, the trail continues along the summit ridge to intersect with the Olowalu-Puʻu Kukui-Waiehu Trail. Devereux et al. (1999:12) relate that the more accessible areas of the mauka-makai trail near the KWP I project area were probably destroyed by a mid-20th-century jeep trail (which was subsequently destroyed during development of the KWP I and II facility).

The uplands of Ukumehame likely served as access routes to the higher elevations of the West Maui Mountains and their associated land districts (Robins et al. 1994:22). Mr. Paolo Kamakehau Fujihiro spoke of these upland trails during an oral interview conducted for the KWP II project CIA (Ah Sam and Rechtman 2009). One of the trails mentioned by Mr. Fujihiro traverses the ridge of Makenewa (an unidentified ridge) and is said to have been used as an escape route during the battle between Kauhiaimokuakama and Kamehamehanui.

Lāhainā Pali (ʻAʻalaloloa) Trail

Although coastal trails such as the Alaloa once ringed much of Maui, Handy et al. (1991) indicate that, likely due to the roughness of the terrain, "from Olowalu [along the coast to the west of the current project area] travelers were ferried by canoe to Māʻalaea [along the coast to the east of the current project area], thence to Makena where the Alaloa followed the long, sandy beach." In 1841, the Lāhainā Pali (also known as the ʻAʻalaloloa) Trail was constructed to accommodate horse traffic between Central Maui, near Puʻu Hele, and Lāhainā; another branch of the trail led to and from Māʻalaea (Tomonari-Tuggle and Tuggle 1991). The 1841 trail was likely built over an older trail, as was common practice in Hawaiʻi during the 19th century (Maly and Maly 2001:399). Furthermore, several traditions relate events on the trail that may have occurred prior to 1841. Dr. D. D. Baldwin (in Tomonari-Tuggle and Tuggle 1991:12) describes an incident that occurred on a "mountain coast route" near Māʻalaea in 1836:

> About 1836, when I was a young lad at Lahaina, a native employed to bring letters from Wailuku to my father, reported that he was attacked by a robber on the mountain coast route not [far] from

> Ma‘alaea Bay. In the struggle, he bit off one of the robber’s big toes. The robber at once relaxed his hold and fled. In proof of his story, the messenger exhibited the bloody toe…

Robbers were well-known danger encountered on the Lāhainā Pali Trail, especially on the remote section of trail in the vicinity of the current project area. According to T. Kelsey (in Tomonari-Tuggle and Tuggle 1991:12):

> Kaiaupe was a noted female robber who lived by the pali road of Aala-loloa [Kealaloloa], Maui. She would entice men to lay with her at the edge of the pali and then kick them over the precipice with her foot. This act was known as Ka-ai-a-Kaiaupe.

In the 19th century, the trail was still considered a long and treacherous route. In 1841, Laura Fish Judd (in Tomonari-Tuggle and Tuggle 1991:12), a missionary making the trip between Lāhainā and Wailuku, called the trail “the crookedest, the rockiest ever traveled by mortals.” In 1847, Chester Lyman (in Tomonari-Tuggle and Tuggle 1991:12), a visitor to Maui, reiterated this point, writing that the trail “is one of the roughest and most difficult imaginable. It is all the way zigzag and winding, up steep, rocky and barren precipices, being in places dangerous on horseback.”

Following its formal construction in 1841, the Lāhainā Pali Trail was in use for roughly 50 years as the shortest route between Central Maui and Lāhainā. However, the route fell out of use around the turn of the century when a carriage road was constructed along the coast (Tomonari-Tuggle and Tuggle 1991:13)

Ranching in Ukumehame

Ukumehame has been known for its rich pasturelands since the mid-19th century. By the late 1850s, portions of Ukumehame Ahupua‘a were being leased for various enterprises. An 1865 letter from William Enos and Joseph Sylva clarified a lease for the “pali of Ukumehame,” which they defined as extending “from the foot of the mountain on the west, or Lahaina, side to its boundaries on this, or east side.” The lease was made “for 10 years at $60 per year. $30 payable every six months in advance” (Enos and Sylva 1865 in Tomonari-Tuggle 1998:8). It appears that they had held this lease from at least the latter part of the 1850s, as an earlier letter, sent in 1858 from E. Duvauchelle to the king’s land agent on Maui, William Webster, requested the Wailuku side of Ukumehame mountain, citing that Joe Sylva had related to him that he did not wish to renew his lease on this area. Although nothing seems to have come of the Duvauchelle letter, records indicate that Sylva held the lease on the land until at least 1871. Furthermore, it is apparent from the letter that the lease was for cattle ranching. Duvauchelle writes, “as for the other side of the big gulch on the mountain [presumably Manawainui Gulch] and the Ukumehame side I do not want the lease as it is too far from the run of cattle on this side” (Duvauchelle 1858 in Tomonari-Tuggle 1998:8).

In 1862, P. Nahaolelua, the Governor of Maui, published a warning to all who allowed their animals to graze on these “‘Āina o ka Mō‘ī” (Crown Lands). The segment of land ran from the cliffs of Manawainui to Waikapu. This same warning was published under the generic title “*‘Ōlelo Ho‘olaha*” from April 1862 until January 1863 in the Hawaiian language newspaper *Nūpepa Kū‘oko‘a*.

Difficulties with livestock grazing and property boundaries persisted into the next decade, as shown by a number of articles published to warn the public to keep their animals out of pasturelands of Ukumehame. Such was the case with Kapika Ka‘upe and Kapika Kahonaninani of Ukumehame; on May 4, 1879, they proclaimed a fee of $1.00 per head for any grazing animal found on a 16-acre parcel of land that they managed, and $0.50 was collected for every turkey and chicken as well (*Nūpepa Kū‘oko‘a* 1879). ‘Ōpūlua, serving as a representative of the ali‘i Charles Kana‘ina, continued to publish warnings to those who chose to let their livestock roam freely upon the lands of Pua‘aloa in Ukumehame into the 1870s (*Nūpepa Kū‘oko‘a* 1876).

In 1886, the western half of Ukumehame Ahupua‘a is listed as having been leased to Olowalu Plantation Company for sugarcane cultivation and sugar production, while the eastern half (including the KWP I project area) is listed as leased to John Richardson and Kahahawai for cattle ranching (Tomonari-Tuggle 1998:8). The 1884 *McKenney’s Hawaiian Directory* (in Tomonari-Tuggle 1998:8) reveals that John Richardson was the proprietor of the Maalaea Bay Stock Ranch, with approximately 15,000 acres of pasture and mountain land, 200 head of cattle, and 100 head of horses.

New Transportation Routes

By 1889, a new carriage road was under construction from Mā‘alaea to Lāhainā along the coast of Ukumehame Ahupua‘a. With the opening of this new road, use of the mountainous Lāhainā Pali Trail dwindled, and it eventually fell into disuse. The new road was gradually widened and straightened to accommodate automobiles and was eventually oiled and paved in 1918 (Fleming 1933:22 in Tomonari-Tuggle and Tuggle 1991:13). The carriage road was eventually abandoned in favor of the current alignment of Honoapi‘ilani Highway.

Recent Land Use

Cattle ranching continued in the vicinity of the KWP I project area until the mid-1990s under a lease to Perreira Ranch for grazing, while portions of the wetter, western half of Ukumehame Ahupua‘a were used for sugarcane cultivation (Tomonari-Tuggle 1998). At some point in the mid-1940s, a jeep road was bulldozed from McGregor Point to the vicinity of the KWP I project area, perhaps obliterating an older road or trail. This road was maintained by ranchers, the Maui Electric Company (MECO), and the State (through the Department of Land and Natural Resources (DLNR) until the construction of the KWP I and II access road (Kaheawa Pastures Road) in the 2000s. After the lease to Perreira Ranch was terminated in the mid-1990s, a lease was granted to First Wind (formerly known as UPC Wind Partners LLC) and Makani Nui Associates, LLC for the development of the KWP I project.

PREVIOUS ARCHAEOLOGICAL STUDIES

A review of the reports library maintained by the Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD) and its online HICRIS database revealed that there have been at least eight archaeological studies undertaken within the footprint of the KWP I project area, in addition to several islandwide reconnaissance surveys documenting heiau and other culturally significant sites on Maui. The section that follows addresses the documentation of several heiau in Ukumehame Ahupua’a as the result of early 20th-century archaeological reconnaissance surveys before moving on to consider the results of more recent archaeological investigations that coincide with the footprint of the KWP I project area.

Previously Known Heiau of Ukumehame

Archaeological studies began on Maui in the early 20th century with the reconnaissance surveys of Thomas G. Thrum (1908a, 1908b, 1916), John F. G. Stokes (1916), and Winslow Walker (1931). These islandwide studies focused on describing and, in some cases, mapping known heiau and other culturally significant sites whose locations were known by the community and shared primarily through word of mouth (Kolb 1992:10). Although the details provided in the early surveys are sparse, and the coverage is at times uneven, they nevertheless provide valuable insight into the island’s changing cultural landscape and the characteristics of Maui’s features prior to the widespread impacts of the commercial sugar and pineapple industries and other forms of development.

Honolulu publisher Thomas G. Thrum made an effort to compile an inventory of heiau throughout the Hawaiian Islands in the early years of the 20th century, publishing a series of short reports on heiau of various islands in his *Hawaiian Almanac and Annual*. He provides information on Maui heiau in several issues of the almanac (e.g., Thrum 1909a, 1909b, 1916). An initial description of Maui heiau was offered in the 1909 almanac (Thrum 1908a:38-39) and later supplemented with corrections and additional heiau following a field visit to Maui (Thrum 1916:52-61). A reference to Maui heiau also appears in Part III of his “Tales from the Temples” series (Thrum 1908b:44-49), in which Thrum relates some additional information about selected heiau sites. Despite the presence of at least four heiau in Ukumehame, Thrum does not seem to have mentioned or studied any of these heiau.

In 1916, Bishop Museum archaeologist John F. G. Stokes expanded on Thrum’s work on Maui. Stokes arrived in Hawai‘i from Australia in 1899, having been invited to work at the museum by its first director, William T. Brigham. In 1906, he set off on his first formal archaeological survey, documenting the heiau of Hawai‘i Island (Stokes 1991). Stokes interviewed local native Hawaiian elders to find the locations of sacred sites and then plotted their geographic locations using modern survey techniques, prepared detailed plan maps and cross-sections of the sites, and photographed them. His initial survey of Hawai‘i Island was followed by surveys of Moloka‘i, O‘ahu, Kaua‘i, and Kaho‘olawe. While none of his heiau surveys was published during his lifetime, and only the Hawai‘i Island survey was later published (Stokes 1991), his manuscripts and field books are held in the Bishop Museum Archives. Stokes spent several weeks on Maui in November and December 1916, during which he visited heiau across the island. According to Winslow Walker (1931:1), another Bishop Museum archaeologist who surveyed Maui a few years later, Stokes made a “hurried trip to the island in 1916 and added a few more sites to [Thrum’s] list.” In Ukumehame, Stokes visited both Hi‘iki Heiau and Ukumehame Heiau.

Walker undertook his own investigation of Maui sites for the Bishop Museum in 1929 and 1930. Walker (1931:97) notes that, as of the time of his investigation, 230 heiau had been found on the island. Even by the time of his survey, however, Walker (1931:97) writes that many of the sites “have been totally destroyed in the progress of the pineapple and sugarcane industries.” Walker recorded three heiau sites within Ukumehame (Figure 26), including a heiau of unknown name in Mā‘alaea Village (Walker’s Heiau Site 1, later designated Site 50-50-09-00001 by the SHPD), Hi‘iki Heiau (Walker’s Heiau Site 2, Site 50-50-08-00002), and Ukumehame Heiau (Walker’s Heiau Site 3, Site 50-50-08-00003).

Heiau Near Māʻalaea Village (Site 50-50-09-00001)

Walker (1931) documented a heiau some 0.25 miles southwest of Māʻalaea Village at the base of the West Maui mountains. This heiau, which he numbered Heiau Site 1, was subsequently designated on the State Inventory of Historic Places (SIHP) as Site 50-50-09-00001. Walker (1931:104-105) provides the following description of the heiau:

> A large walled heiau in good condition despite its occupation by cattle. It measures 60 x 90 feet. The walls, 6 feet thick and 8 feet high at the corners, are built of huge boulders of red basalt. The most massive are those in the base of the walls, smaller ones being placed above them. A large pavement of stone occupies the southwest corner and two smaller platforms occur in the eastern end. The entrance is on the south side. A natural approach up the slope has been improved by clearing off some of the stones and lining the edges with them. Near the entrance is a group of rocks bearing the petroglyphs… A narrow court runs along the northwest and southwest sides. To the northeast are several low walled enclosures built on the natural terraces which make up the slope. Inside them are a few burial platforms. Coral and shells are found here but no artifacts. On the slope above the heiau to the north are many boulders containing petroglyphs.

Hiʻiki Heiau (Site 50-50-08-00002)

Hiʻiki Heiau, which is on the eastern side of Ukumehame Gulch at an elevation of approximately 200 feet amsl, was visited by Stokes (1916:17), who recorded the that the heiau was small and located on a knoll on the east side of a stream approximately 1 mile from the coast. At the time of Stokes' observations, the northwest and northeast walls of Hikiʻi Heiau had collapsed. Stokes (1916:14) reports that the heiau was "named after chief Hikii Kaaluei of Ukumehame." Walker subsequently (1931) documented the site and designated it as his Heiau Site 2. It was later designated on the SIHP as Site 50-50-08-00002. Walker (1931:106) describes the heiau as follows:

> A good sized heiau built of rough blocks of red basalt. The northeast and southeast sides are walled to a height of 6 feet and range from 9-12 feet in thickness. An open terrace fronts the sea on the other sides. The outline of the edge of the old wall can be seen below the modern wall. The heiau is 130 feet long and 81 feet wide. Some coral and bits of shell were found on its terraces. Graves of recent date fill the interior.

Recent information shared by community members has helped clarify the significance and traditional use of Hikiʻi Heiau. In a 2009 interview (in Ah Sam and Rechtman 2009), Mr. Paolo Kamakehau Fujihiro explained that the heiau and the wind farm facility are located on Hanaʻula Ridge, the only ridge of red dirt along the southern coastline of West Maui. Due to its distinctive color, Hanaʻula Ridge has long served as a koʻa (beacon) for sailors. According to Mr. Fujihiro, Hiʻiki Heiau was constructed as a navigational heiau, guiding ocean travelers along the coast. Ah Sam and Rechtman (2009:28) explain how sailors utilized the heiau and the ridge for navigation:

> The canoes would line up with Honuaʻula taking its mark from Hikiʻi Heiau and sail towards Kahoʻolawe staying to the south of the island. When they returned, they would align themselves with another navigational heiau named Āweoweonui which is located a few ridges over towards Lahaina, always returning from the north side of Kahoʻolawe.

Ukumehame Heiau

Ukumehame Heiau, which is on the western side of Ukumehame Gulch at a similar elevation to Hikiʻi Heiau, was also mentioned by Stokes (1916) in his field notes. Opposite Hikiʻi Heiau, on the western side of the gulch, Stokes (2016:17) recorded a "graveyard said to be a heiau." This graveyard was later recorded by Walker (1931) as a Ukumehame Heiau. Walker (1931) later documented the site and designated it as his Heiau Site 3. It was later designated on the SIHP as Site 50-50-08-00003. Walker (1931:107) describes the site as follows:

> A walled heiau partially destroyed and altered for a cattle pen. It is irregular in shape, having a wall 142 feet long on the west and 165 feet on the north broken by several deep jobs. New walls have been built on the site of the old [sic] a little back from the original edge, so that their appearance is uneven. There is an enclosure 50 feet long in the northwest corner and a small square hole 3 x4 in the corner where the side wall of the enclosure leaves the west wall. There are evidence of terraces and platforms spread with shells and pebbles, but these have been largely obliterated by the modern graves. The heiau faces the sea.

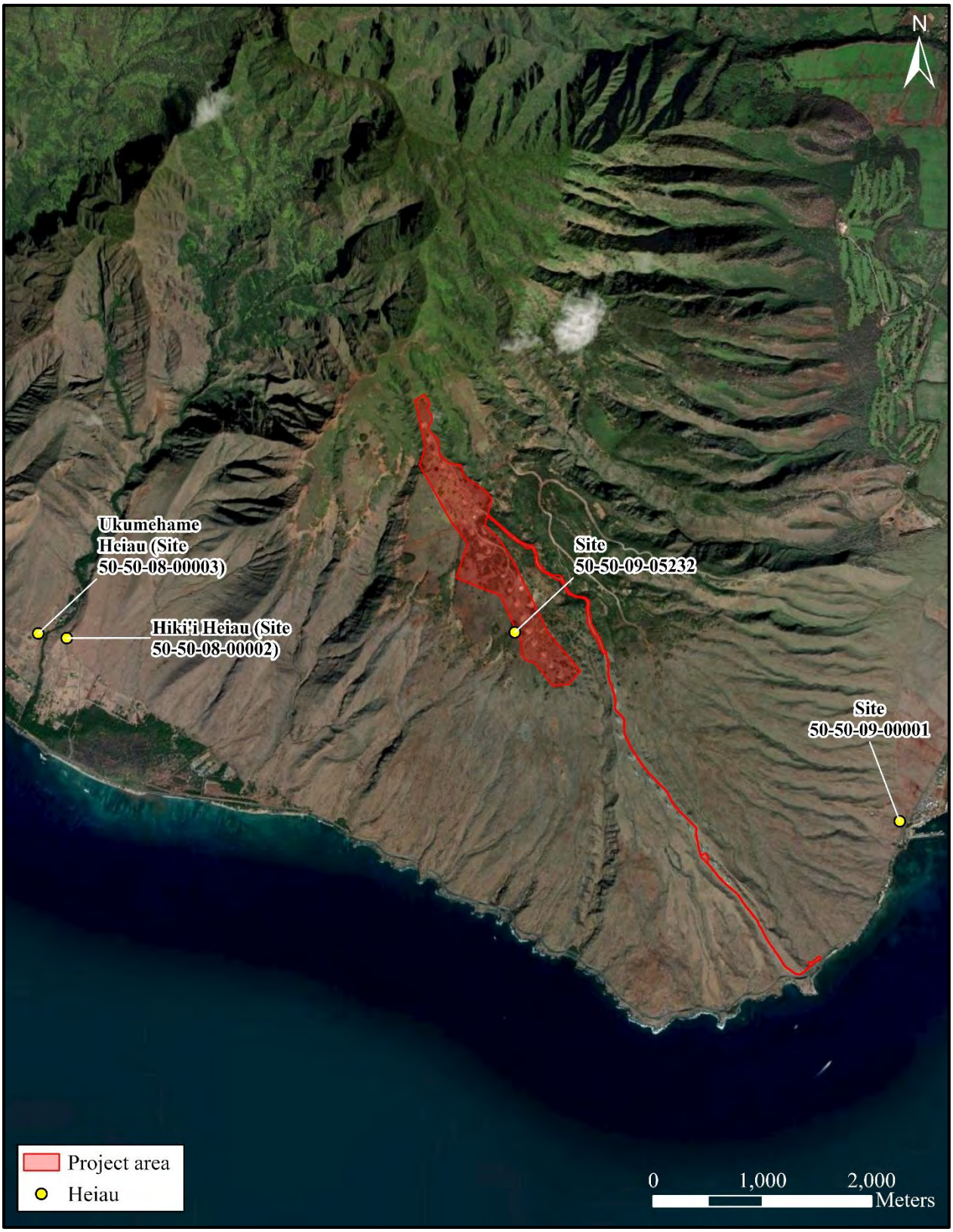


Figure 26. Location of heiau in Ukumehame Ahupua‘a. Site 5232 was discovered in 1999 following a brush fire.

Heiau in Upland Ukumehame

A previously unknown heiau was identified along the western boundary of the KWP I project area by Mr. Edwin Lindsey, Jr., of Maui Cultural Lands following a brush fire in 1999, while Mr. Lindsey was serving as a cultural monitor (see Figure 26). The heiau was subsequently recorded by Athens (2002) and designated as Site 50-50-08-05232 (Figure 27). In 2005, International Archaeological Research Institute, Inc. (IARII) prepared a preservation plan for the site, describing the heiau as follows:

> Site 5232 is a multi-component stone-walled structure built with small, weathered basalt boulders and cobbles, probably procured locally. The site consists of two walled enclosures (referred to here as the east and west enclosures), and terraced areas with stone alignments on the south (downslope) and southeast sides of the enclosures. The north comer of the west enclosure is "notched" (that is, the comer is an inset to form an irregularly-sided rectangle). The total dimensions of the site are 14.7 by 22.0 m, encompassing an area of 323.4 sq. m. The structure is oriented with a view plane to the west and southwest across the ʻAuʻau Channel toward the island of Kahoʻolawe. The west enclosure measures 5.8 by 8.6 m, with the 3.0 by 2.8 m notch at the north comer. The east enclosure measures 5.3 by 5.9 m. The downslope terrace measures roughly 3.5 by 14.2 m; stone alignments define both the east and west sides and a stacked stone terrace wall (two to three courses on the east) and a boulder alignment (west) define the downslope side of the terrace. The southeast terrace is defined by a 4.1 m long alignment extending from the east enclosure wall. The interior of the terrace is flat and just slightly lower than the interior surface of the east enclosure.
>
> The main walls of the enclosures are substantial. The central wall between the east and west enclosures is 1.3 to 1.5 m thick and stands 80 to 100 cm high with four to five courses of stacked stone. Other walls are about 1.0 m in thickness and about 50 to 60 cm high with two to three courses of stacked stone. The upslope wall is a retaining wall with an inside height from 1. 0 to 1.25 m with five to six courses of stacked stone, and an exterior height of only 15 to 20 cm above the ground surface (Tomonari-Tuggle and Rasmussen 2005:3).

An unnamed community member, who was consulted for the heiau's preservation plan (Tomonari-Tuggle and Rasmussen 2005:6), suggested that the heiau may have an association with the pueo due to the site's proximity to Manawaipueo Gulch. The preservation plan was developed for the heiau by Tomonari-Tuggle and Rasmussen (2005), who recommended several short-term (during the construction of the original KWP I facility) and long-term measures for preservation through avoidance and protection.

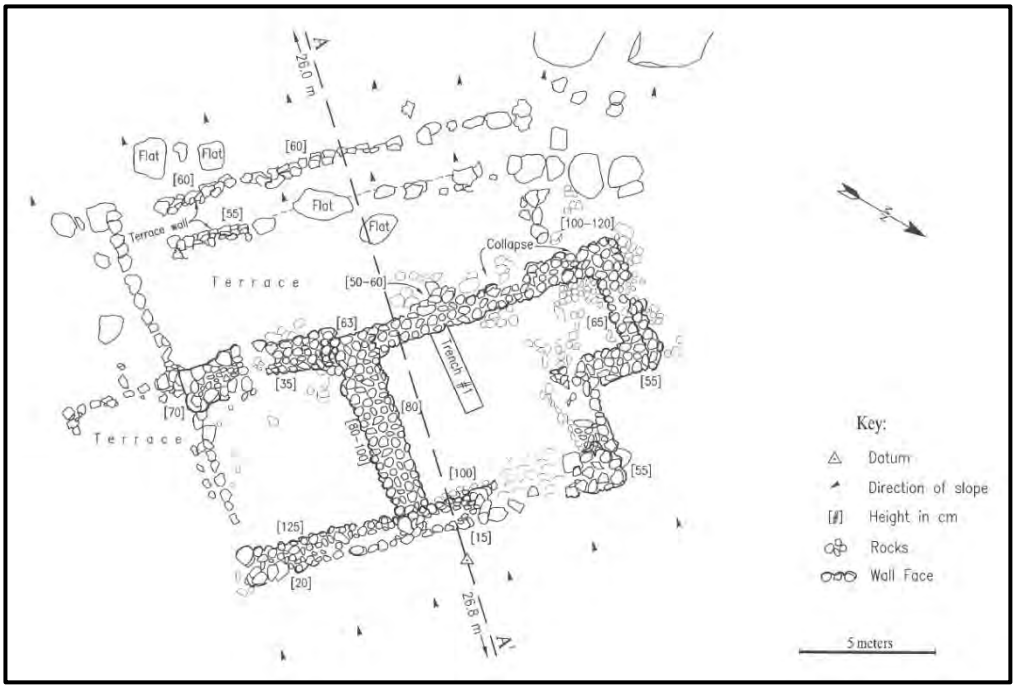


Figure 27. Map of Site 5232, a heiau on the perimeter of the KWP I project area. Reproduced from Tomonari-Tuggle and Rasmussen (2005:Figure 2).

Māʻalaea Complex (Sites 50-50-09-01287 and -01441)

In addition to the three heiau sites mentioned above, Walker (1931) observed a group of habitation sites along the coast from about 2 miles west of Māʻalaea Village to McGregor Point. Walker (1931:78) offers the following description of these sites:

> For about two miles west of Maalaea village to McGregor's Point, house and shelter sites can be found in great numbers above the road. At least forty-five were noted. The shelters are low walled semicircular or oval enclosures built against some large rocks or groups of rocks. Shells and pebbles are found around these sites.
>
> House platforms are little more than cleared spaces on which pebbles have been strewn. No carefully built terraces of stone pavements are to be seen. Several sites may reasonably have been used koas or shrines. One was a large flat rock on which a circle of stones had been placed.

Although Walker (1931) did not assign a site number to this group of habitation sites, it was later designated as Site 50-50-09-01287 following a ca. 1973 visit by Bishop Museum archaeologists as part of the Hawaiʻi Statewide Inventory Survey (Stacy Naipo, email communication 30 June 2025). The DLNR-SHPD site files provide the following information about Site 1287, the western end of which is described as situated in the area of Malalowaiaole Gulch:

> This site was called Maalaea complex by the Bishop Museum field crew. To locate it, drive to Maalaea by way of Highway 30 and park off the road opposite the Maalaea small-boat harbor. Then walk inland 150 to 200 m. The Maalaea complex area extends 200 m inland of Highway 30 and extends from opposite the harbor to McGregor Point, encompassing an area of approximately 32 hectares. Winslow walker visited the area in 1931…and noted at least 45 oval enclosures and C-shaped shelters. However, since 1931, many features have been partially or completely destroyed by extensive bulldozing and cattle grazing in the area. The inventory team surveyed the area twice and noted 1) 17 features, 2) many bulldozed areas where features undoubtedly once stood as evidenced by scattered midden (cowrie and *ʻopihi* shells), and 3) hundreds of cattle trails traversing not only the flat lands, but the hills as well. At least six features were not recorded because of the extreme damage done to them by either cattle or bulldozing.

An approximate site boundary, roughly rectangular in shape, was drawn around to encompass the locations of the features as hand-mapped during the 1973 site visit (Figure 28); this boundary, which represents an approximate boundary for the Māʻalaea Complex. was subsequently digitized and curated by the DLNR-SHPD as part of its sites database.

The DLNR-SHPD site file for Site 1978 further indicates that three of the C-shaped enclosures within the Site 1287 complex were subsequently designated as Site 50-50-09-01441 "because of their [good?] condition and excavation potential." No additional information about Site 1441 was provided in the site file.

More Recent Archaeological Studies

Since 1991, 12 archaeological studies conducted to comply with Statewide historic preservation legislation have investigated areas that overlap the KWP I project area (Table 3; Figure 29). While many of these studies were undertaken in connection with the KWP I or KWP II projects, others were conducted with other endeavors, such as the DLNR's Nā Ala Hele Trails Program and the construction of a MECO transmission line. Two relevant additional reports not listed in the table of archaeological investigations are a cultural resource management plan (Tomonari-Tuggle 1995) for the Lāhainā Pali Trail (Site 50-50-09-02946) and a preservation plan (Tomonari-Tuggle and Rasmussen 2005) for an upland heiau (Site 50-50-08-05232) discovered along the edge of the original proposed KWP I project area. These studies have resulted in the documentation of numerous historic properties, including 14 sites within or immediately adjacent to the KWP I project area; these sites are summarized in Table 4, and their locations are shown in Figure 30. The results of these previous investigations are discussed below.

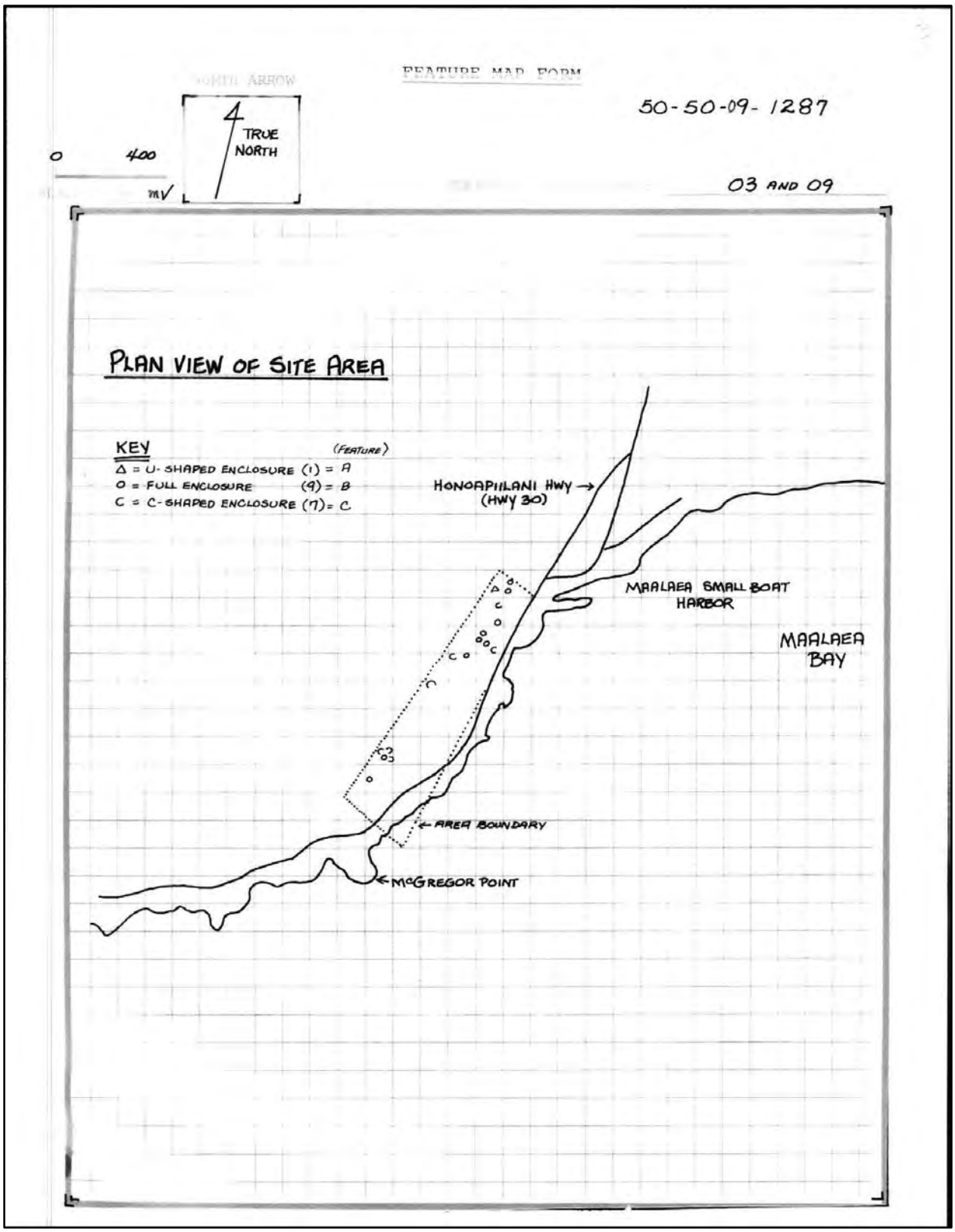


Figure 28. Plan map of Site 1287, the Māʻalaea Complex, produced during the Bishop Museum site visit ca. 1973.

Table 3. Previous archaeological studies conducted in the vicinity of the project area.

Year	*Author*	*Type of Study*	*Results (Site 50-50-08-)*
1991	Tomonari-Tuggle and Tuggle	Inventory survey	Lāhainā Pali Trail (not assigned SIHP number until later study)
1994	Robins et al.	Inventory survey	No historic properties in the vicinity of the KWP I project area
1996	Hammatt et al.	Inventory survey	No historic properties in the vicinity of the KWP I project area
1998	Tomonari-Tuggle	Inventory survey	Concrete water trough (no SIHP number assigned)
2002	Athens	Site study	Recorded upland heiau of unknown name (Site 5232)
2003	Magnuson	Inventory survey	Historic water trough (Site 5402)
2004	Athens	Inventory survey	Two rock cairns (Sites 5625 and 5626)
2005a	Rasmussen	Reconnaissance survey	7 previously recorded sites including historic petroglyphs and trail (Site 2825), terraced enclosure (Site 2826), enclosure (Site 2827), unnamed heiau (Site 5232), cattle trough (Site 5402), and two rock cairns (Sites 5625 and 5626); 3 newly recorded sites including a habitation complex (Site 5648), rock cairn and modified outcrop (Site 5649), and possible ceremonial site (Site 5650)
2005b, 2005c	Rasmussen	Reconnaissance survey	Historic road segment (Site 5652), habitation area (Site 5653), and remnant of concrete steps (Site 5654)
2005	Clark and Rechtman	Inventory survey	12 previously recorded sites (Sites 2946, 4696, 5232, 5402, 5625, 5626, 5648, 5649, 5650, 5652, 5653, and 5654); 2 newly identified sites consisting of a possible privy (Site 5714) and historic hoist location (Site 5715)
2008	Clark and Rechtman	Inventory survey	One previously recorded heiau of unknown name (Site 5232); 5 newly identified sites consisting of windbreak shelter (Site 6218), three cairns (Sites 6219 to 6221), and a historic ranching area (Site 6222)
2009	Rechtman et al.	Inventory survey	3 previously recorded sites (Sites 2946, 5648, and 6665)

Nā Ala Hele Trail and Access Program

Tomonari-Tuggle and Tuggle (1991) conducted an archaeological survey of two demonstration trails developed for the Hawai‘i Statewide Trail and Access System under the DLNR’s Nā Ala Hele Program (now Nā Ala Hele Trail and Access Program). One of the demonstration trails surveyed for this project was the Historic Lāhainā Pali Trail, which was subsequently crossed by Kaheawa Pastures Road (the access road was not present at the time of the survey). Tomonari-Tuggle (1995) later prepared a cultural resource management plan for the trail, which is currently open to the public as part of the Na Ala Hele Statewide Trail and Access System. Tomonari-Tuggle and Tuggle (1991:5) describe the trail thusly:

> The Lahaina Pali trail extends 4.5 miles across the lower southern slopes of West Maui Mountains. At its west end, the trail is anchored inland of the Honoapi‘ilani Highway just east of Ukumehame State Beach Park. Its east end is located just inland of the pineapple fields near Ma‘alaea Harbor. The trail covers an elevation range from about 100 feet to 1,600 feet above sea level.

During the survey of the Lāhainā Pali Trail, Tomonari-Tuggle and Tuggle (1991) recorded 18 archaeological sites adjacent to the trail alignment but did not assign an SIHP number to the trail itself. Other than the trail, none of these sites are within or immediately adjacent to the KWP I project area. Sixteen of the sites documented during the trail AIS, which include alignments, enclosures, walls, petroglyphs, terraces, and C-shaped structures, are related to the construction and use of either the trail or the old coastal road. The two sites not related to the trail or coastal road included a midden scatter (Site 2816) and a rockshelter (Site 2833). Both of these sites were interpreted as likely Precontact Hawaiian in origin. The Lāhainā Pali Trail was later designated as Site 50-50-09-02946.

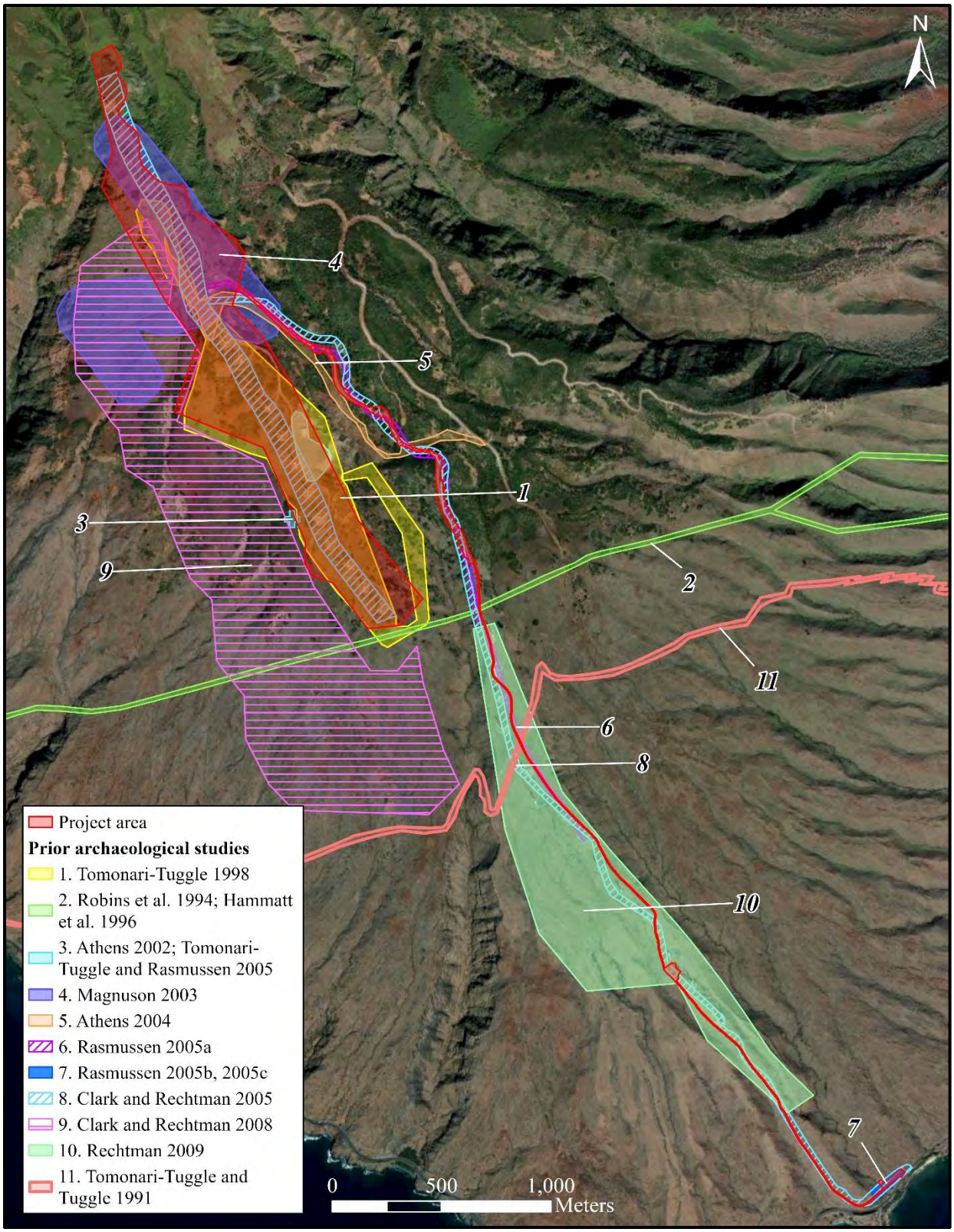


Figure 29. Project areas of previous archaeological studies near the current project area.

Table 4. Historic properties within and adjacent to the project area.

Site (50-50-09-)	*Site Type*	*Function*	*Time Period*	*Reference*
1287*	Complex	Habitation	Precontact	Walker 1931; SHPD
1441	C-shapes	Habitation	Precontact	SHPD
2825	Petroglyph and trail	Rock art and transportation	Historic	Rasmussen 2005a
2826	Complex	Habitation	Pre-Contact	Rasmussen 2005a
2827	Enclosure	Indeterminate	Pre-Contact	Rasmussen 2005a
2946*	Lāhainā Pali Trail	Transportation	Precontact to Historic	Tomonari-Tuggle and Tuggle (1991); Clark and Rechtman 2005; Rechtman et al. 2009
4696*	Historic highway remnant	Transportation	Historic	Clark and Rechtman 2005
5232**	Heiau (unknown name)	Ceremonial	Precontact	Athens 2002; Tomonari-Tuggle and Rasmussen 2005; Rasmussen 2005a; Clark and Rechtman 2005, 2008
5402*	Watering trough	Ranching	Post-1943	Magnuson 2003, Clark and Rechtman 2005; Rasmussen 2005a
5625	Cairn	Marker	Unknown	Athens 2004, Clark and Rechtman 2005; Rasmussen 2005a
5626	Cairn	Marker	Unknown	Athens 2004, Clark and Rechtman 2005; Rasmussen 2005a
5648*	Complex including c-shapes, a modified outcrop and a cupboard	Habitation	Precontact to Historic Period	Rasmussen 2005a, Clark and Rechtman 2005, Rechtman et al. 2009
5649*	Rock cairn and modified outcrop	Unknown	Unknown	Rasmussen 2005a, Clark and Rechtman 2005
5650	Cairns	Possibly ceremonial	Precontact	Rasmussen 2005a, Clark and Rechtman 2005
5652	Historic road segment	Transportation	Historic	Rasmussen 2005b, Clark and Rechtman 2005
5653*	Complex	Habitation	Precontact	Rasmussen 2005b, Clark and Rechtman 2005
5654*	Concrete steps	Habitation	Historic	Rasmussen 2005b, Clark and Rechtman 2005
5714	Privy	Ranching	Historic	Clark and Rechtman 2005
5715	Remnants of a hoist	Ranching	Historic	Clark and Rechtman 2005
6218	Modified outcrop	Wind break Shelter	Indeterminant	Clark and Rechtman 2008
6219	Cairn	Possible trail Marker	Indeterminant	Clark and Rechtman 2008
6220	Cairn	Possible trail Marker	Modern	Clark and Rechtman 2008
6221	Cairn	Possible trail Marker	Indeterminant	Clark and Rechtman 2008
6222	Complex	Ranching	Historic	Clark and Rechtman 2008
6665	Watering trough	Ranching	Historic (1943)	Rechtman et al. 2009

*Sites that intersect with the KWP I project area. Although the boundary of Site 1287 as represented in the DLNR-SHPD's legacy GIS data appears to intersect with the current project area, these boundaries are approximate and cannot be considered to represent the precise locations of any known archaeological features.

**Site 5232 (a heiau of unknown name) is approximately 40 feet west of the KWP I project area; however, a portion of the site's preservation buffer falls within the project area.

MECO Transmission Line

Robins et al. (1994) conducted an AIS of a then-proposed 14.7-mile-long Maui Electric Company (MECO) transmission line corridor from Māʻalaea to Lāhainā. The transmission line, which has since been constructed, currently serves as the grid connection for the KWP I and KWP II projects. The transmission line alignment runs along the makai boundary of the KWP I lease area at an elevation of approximately 1,880 feet amsl. A survey for access roads leading to the transmission lines was later conducted by Hammatt et al. (1996). While these two surveys did locate a number of Historic Period sites, including irrigation ditches, a dam, and cattle walls, as well as sites thought to date to the Precontact Period such as temporary shelters, wind breaks, enclosures, and agricultural features, no archaeological resources were encountered in the vicinity of the KWP I project area were documented.

KWP I Project

Archaeological studies of the KWP I project area began in 1998 with a reconnaissance survey of 27 proposed wind turbine locations at elevations ranging roughly 2,000 to 2,900 feet amsl (Tomonari-Tuggle 1998). The survey area included a 200-foot-wide by roughly 1.5-mile long corridor following a line of five anemometer towers and a portion of Manawainui Gulch extending inland from the MECO transmission line for approximately 3,000 feet. The only historic property observed during the reconnaissance survey was a concrete water trough and associated water pipe, neither of which were assigned an SIHP number. Based on these results, Tomonari-Tuggle (1998:15) concludes the following of the upland slopes of Ukumehame:

> As a result of this one-day survey, it is highly unlikely that any archaeological sites are located within the Maui wind turbine project area. This area was probably not used intensively by Hawaiians and thus, would retain little, if any, evidence of prehistoric or early historic activity. Except for the watering trough and the pipeline, there are no remains of cattle ranching, the only identified use of this area in historic and modern times.

In late 1999, Mr. Ed Lindsey, a cultural monitor for the original KWP I project and founding member of Maui Cultural Lands, discovered an upland heiau (later designated as Site 50-50-09-05232) near the western perimeter of the area then being studied for the KWP I project and the project area for the current KWP I continued use CIA. The heiau had been recently exposed by a brush fire that cleared the slope of dense vegetation (Athens 2002). Mr. Lindsey notified Dr. Melissa Kirkendall, then staff archaeologist at the Maui Branch office of the DLNR-SHPD. After a field visit by SHPD staff, it was recommended that a qualified archaeologist document the heiau in detail. In 2002, IARII conducted archaeological investigations at the heiau that included site mapping, photographic documentation, and subsurface testing (Athens 2002). According to Athens (2002), the heiau consists of two adjacent stone enclosures joined by a massive central wall. One of the enclosures is notched on one side. Limited test excavation inside the notched enclosure revealed a dense deposit of charcoal associated with use of the heiau, and AMS radiocarbon dating of charcoal from a short-lived wood taxon (*Chamaesyce* sp.) collected during the excavations produced a calibrated date range of approximately AD 1670 to 1770 or AD 1800 to 1960. The post-1819 portion of the latter date range was discounted based on the breaking of the ʻai kapu (Tomonari-Tuggle and Rasmussen 2005:4). Several pieces of branch coral were recovered, further confirming the religious nature of the site. No food remains (marine shell or animal bone) or stone tools (basalt or volcanic glass flake debris or abraders) were found either in the excavation or on the surface of the site. Tomonari-Tuggle and Rasmussen (2005) prepared a preservation plan for the heiau, which called for both short-term protection measures (to be undertaken during the construction of the KWP I project) and long-term preservation measures. They reported in the plan that interviews with community members indicated a potential connection between the heiau and Manawaipueo Gulch, which begins a short distance below the site and continues makai to the ocean.

In 2003, IARII conducted a supplemental archaeological survey of revised wind turbine pad locations that included a portion of the current KWP I project area (Magnuson 2003). This supplemental survey included three 200-foot wide corridors for two possible turbine rows and a connecting access road at elevations of 2,400 to 3,100 feet amsl. As a result of the survey, one site, a watering trough previously noted by Tomonari-Tuggle (1998), was re-located, mapped in detail, photographed, and assigned a site number (Site 50-50-09-05402). Based on inscriptions in the concrete, construction of the trough can be placed in 1943 (Magnuson 2003:3).

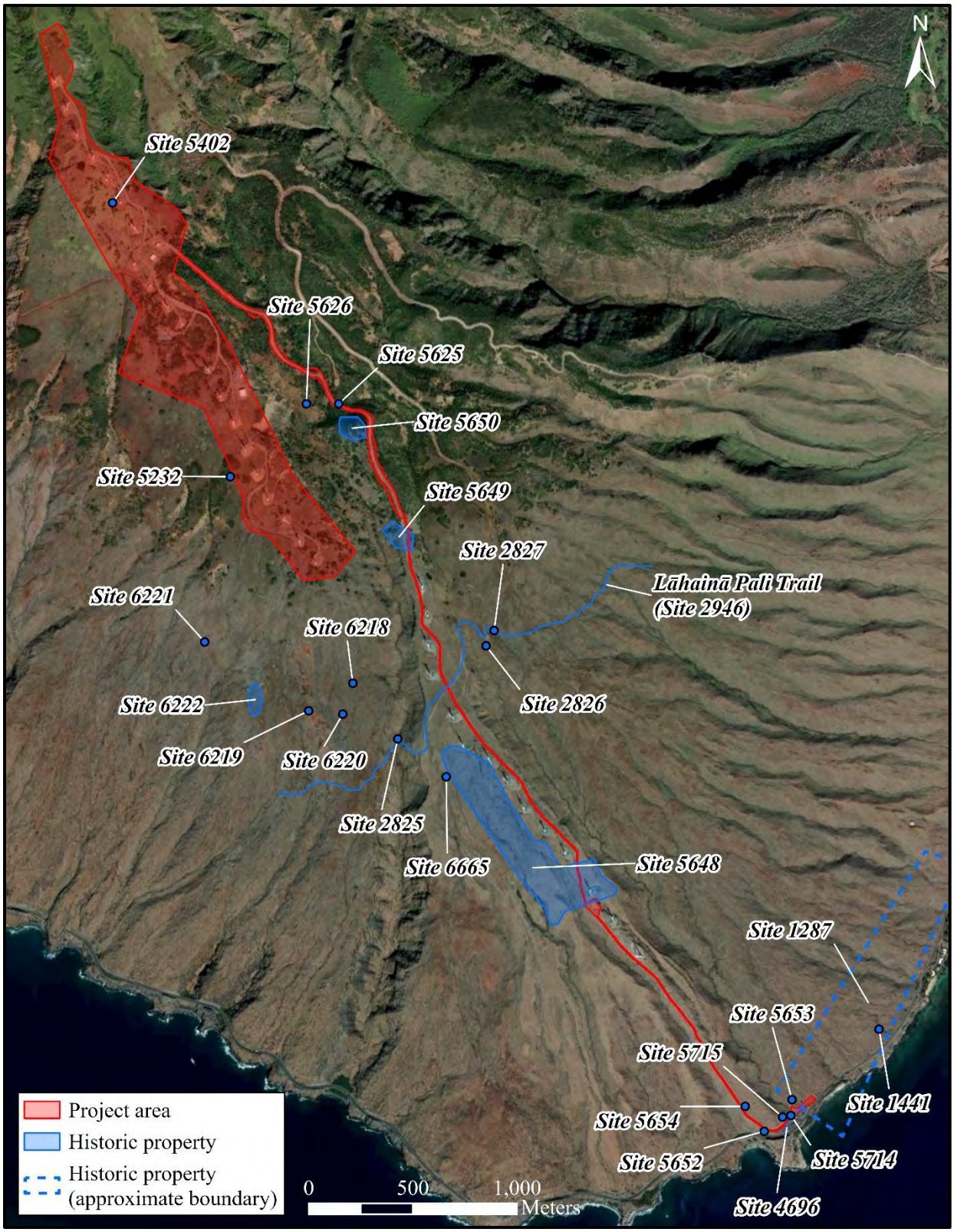


Figure 30. Historic properties previously identified within and near the current project area. Although the boundary of Site 1287 as contained in the DLNR-SHPD's legacy GIS data appears to intersect with the current project area, these boundaries are approximate and cannot be considered to represent the precise locations of any known archaeological features.

In 2004, IARII conducted a supplemental archaeological survey for an access road leading to the original KWP I project (Athens 2004). The survey area consisted of a 75-meter wide corridor stretching 2.5 kilometers northwest from an existing jeep road across Manawainui Gulch to the previously surveyed wind farm area. As a result of the survey, two small rock piles that probably served as cairns (Sites 50-50-09-05625 and -05626) were identified and recorded. Site 5625 was located on a natural bench immediately upslope of a small unnamed cinder cone within a dense growth of ironwood samplings, while Site 5626 was situated on the edge of a small ridge descending into Manawainui Gulch from the west (Athens 2004:2). Athens (2004:3) concluded that the two stacked rock piles, probably cairns, were fully documented and that no further archaeological documentation was needed. In addition to these sites, a single brass 45-70 cartridge casing manufactured by Winchester Repeating Arms Company between 1866 and 1932 was also discovered along the western edge of Manawainui Gulch (Athens 2004:3).

In 2005, IARII conducted a supplemental archaeological reconnaissance survey of a new proposed low impact road leading to the KWP I project area (Rasmussen 2005a). This survey area consisted of a corridor approximately 75 meters wide at elevations of roughly 1,400 to 2,300 feet amsl (Rasmussen 2005a:6). The corridor commenced at an existing access road and followed a narrow ridge to the northwest before crossing Manawainui Gulch to reach the then-proposed wind turbine locations. As a result of the reconnaissance survey, three previously unrecorded archaeological sites interpreted as Precontact Period in origin were discovered. These sites included Sites 50-50-09-05648 (a complex), -05649 (a cairn and modified outcrop), and -05650 (a cluster of four cairns). Two of the recorded sites (Sites 5648 and 5650) fell outside (to the west of) the road survey corridor were still documented. Site 5648, located between ca. 1,280 and 1,420 feet amsl, consisted of six C- shaped rock shelters (Features 1, 2, 5, 6, 7, and 9), a possible C-shaped rock structure (Feature 4), one modified outcrop (Feature 10), and a cupboard (Feature 3). Marine shell was observed near Feature 4. Based on the presence of the shell and the formal attributes of the features, Site 5648 was interpreted as being used for habitation, perhaps related to the Lāhainā Pali Trail, or an earlier trail (Rasmussen 2005a:7). Site 5649, located between ca. 1,880 and 1,980 feet amsl, consisted of a rock cairn (Feature 11) and modified outcrop (Feature 12). Site 5650, located at the top of an unnamed puʻu at an elevation of ca. 2,300 feet amsl, consisted of four rock cairns (Features 13 to 16). Rasmussen (2005a:8) concluded that, "the location (on top of a *puʻu*) and type of features present (cairn with linear stones that may be fallen upright stones) suggest that this site may have a ceremonial function." In addition to the three newly identified sites, Rasmussen (2005a) also relocated seven previously identified sites including Site 50-50-09-02825 (historic petroglyphs and trail), -02826 (terraced enclosure), -02827 (enclosure), -05232 (unnamed heiau), -05402 (cattle trough), and -05625 and -05626 (cairns).

Later in 2005, IARII conducted a supplemental archaeological reconnaissance survey of a roughly 1.75-acre Special Management Area (SMA) along the northern (*mauka*) edge of Honoapiʻilani Highway (Rasmussen 2005b). As a result of that survey, three archaeological sites were recorded. Rasmussen's (2005b) report refers to the sites using temporary site numbers; in a letter dated February 11, 2005, the sites are referred to with SIHP site numbers (Rasmussen 2005c). The three recorded sites included a Historic road remnant (Site 50-50-09-05652), a traditional Hawaiian habitation area comprised of several rough features on a small knoll north of the staging area (Site 50-50-09-05653), and set of concrete steps with the date 1908 inscribed into one of the steps (Site 50-50-09-05654). According to Rasmussen (2005b), only Site 5652 was within the SMA project area. Furthermore, according to Rasmussen (2005c), all three sites were located outside of the project area. Nevertheless, Rasmussen (2005c:2) suggested that measures be taken to protect the sites during any construction activities in the area and recommended that a full archaeological inventory survey be conducted of the access road to the proposed KWP I project area (now known as Kaheawa Pastures Road) prior to any development.

Following the preliminary work conducted by IARII, Rechtman Consulting, LLC conducted an AIS of the entire KWP I project area (Clark and Rechtman 2005). As a result of the inventory survey, seven previously identified archaeological sites were re-located and assessed, and two newly identified sites were recorded. The previously identified sites included the Historic Lāhainā Pali Trail (Site 50-50-09-02946), a section of Historic highway (Site 50-50-08-04696), a concrete watering trough (Site 50-50-09-05402), a cairn (Site 50-50-09-05625), a cairn and adjacent modified outcrop (Site 50-50-09-05649), a terraced section of old road (Site 50-50-09-05652), and the remains of a Historic structure, including a set of concrete steps (Site 50-50-09-05654). The newly identified sites included a possible privy (Site 50-50-09-05714) and a Historic hoist location (Site 50-50-09-05715). Two isolated finds, consisting of marine shell fragments and an adze fragment, respectively, were also discovered. Five additional archaeological sites previously recorded by IARII outside the boundaries of the current project area were also re-located. These sites included an upland heiau (Site 50-50-09-05232) along the western perimeter of the KWP I project area, a cairn (Site 50-50-09-05626), a Precontact Period habitation complex between 1,280 and 1,420 feet amsl (Site

50-50-09-05648), a grouping of four cairns atop an unnamed puʻu (Site 50-50-090-05650), and a Precontact Period habitation complex approximately 70 feet amsl (Site 50-50-09-05653). Clark and Rechtman (2005:40) summarize their findings as follows:

> A review of archival resources and previous archaeological studies, combined with the findings of the current inventory survey, indicates that Precontact use of the project area centered around coastal habitation and the exploitation of marine resources, as indicated by Site 5653. A network of trails may have connected the coastal habitation area with inland resource areas (Devereux et al. 1999). Site 5648 may have been a Precontact habitation area located along one of these trails, or perhaps an early Historic site related to the use of the Lahaina Pali trail (Rasmussen 2005a). If a Precontact *mauka/makai* trail route traversed the current project area, then it likely accessed inland resource areas, and may have connected to trails leading to other areas of West Maui. No evidence of a Precontact trail was observed during the current survey, and it is likely that if one did exist, it was destroyed by the McGregor Point jeep road (Devereux et al. 1999). In late Precontact times trails likely ran to Site 5352 [*sic*], an inland *heiau* located on Puʻu Lūʻau (Athens 2002). Isolated marine shell fragments and an adze fragment observed within the wind turbine survey corridor may have been dropped along such a trail route leading to or from the *heiau*.
>
> Sites related to Historic use of the current project area are far more numerous than Precontact ones. Recorded Historic sites indicate that the area along the old Highway alignment (Site 4696) was the primary focus of Historic use. The date "1908" within the concrete stairs at Site 5654, indicates that a Historic structure was in use on the ridge to the west of Malalowaiole Gulch around that time period. Site 5652, a terraced roadbed may have run from Site 4696 to the structure. A possible privy (Site 5714) and a Hoist location (Site 5715) were also located in the area. All of these sites may relate to the use of the current project area for cattle ranching purposes. The land in the vicinity of the current project area was leased for ranching purposes and used as pasture from the late 1850s to the early 1990s (Tomonari-Tuggle 1998). The only site recorded in the extreme inland portions of the current project area was a concrete watering trough constructed in 1943 (Site 5402).
>
> In addition to these sites the Lahaina Pali trail crosses the current project area. This Historic trail was constructed around 1841 for horse travel between Wailuku and Lahaina. The trail fell into disuse approximately fifty years later with the construction of a carriage road (Site 4696) along the coast in Ukumehame Ahupuaʻa (Tomonari-Tuggle and Tuggle 1991). The trail brought numerous Historic travelers across the lower slopes of the West Maui Mountains, and it continues to bring modern day visitors to the area as part of the *Nā Ala Hele* Statewide Trail and Access System.

KWP II Project

Archaeological studies of the KWP II project began in 2006 with an AIS of a 333-acre area for the mauka of two alternative locations selected for the eventual construction of KWP II (Clark and Rechtman 2008). The mauka alternative investigated as part of this study was not ultimately selected for construction. During the survey, in addition to the previously recorded heiau (Site 50-50-09-05232), five new sites were identified. These sites included a windbreak shelter (Site 50-50-09-06218), three cairns (Sites 50-50-09-06219, -06220, and -06221), and a Historic Period ranching area (Site 50-50-09-06222). The AIS recommended no further work for the newly recorded sites; the heiau was recommended for preservation in accordance with the DLNR-SHPD-approved preservation plan (Tomonari-Tuggle and Rasmussen 2005).

In 2009, Rechtman Consulting, LLC conducted a second AIS for the proposed makai alternative location of KWP II (Rechtman et al. 2009). The makai alternative was the one eventually selected for construction. As a result of that study, the Lāhainā Pali Trail and a possible remnant section of its Māʻalaea branch were identified (Site 50-50-09-02946), as was the previously recorded Site 50-50-09-05648 and a newly recorded concrete water trough (Site 50-50-09-06665) (Figure 10). At Site 5648, which occurs along Kaheawa Pastures Road, 20 new features were documented, bringing the total number of features to 30. The features were interpreted as consistent with temporary habitation and may represent intermittently used shelters associated with trail routes during both the Precontact and Historic periods. The most intensive habitation may have occurred when the Lāhainā Pali Trail and its Māʻalaea branch were still in use, ca. 1841 to 1891. Site 6665 is a concrete water trough, which was built on December 14, 1943, was found to be part of a water system developed by Honolua Ranch in Ukumehame in the 1940s. As documented by Clark and Rechtman (2005, 2008), this system also included other water troughs documented in the vicinity (i.e., Sites 50-50-

09-05402 and -06222), which were interconnected by metal pipes that supplied water. This system provided drinking water for cattle in the once extensive but arid pastures of this upland area.

PREVIOUS CULTURAL STUDIES

Two previous cultural studies have been undertaken in vicinity of the KWP I project area. Each of these studies are summarized below, and the locations of their associated project areas are shown in Figure 31.

KWP II Project

In 2009, ASM conducted a Cultural Impact Assessment (CIA) for the proposed expansion of the KWP I project in Ukumehame Ahupuaʻa (Ah Sam and Rechtman 2009). The CIA considered two alternatives for the expansion of the windfarm: the mauka proposed development area was located southwest of the current project area along the ridgeline called Pōhakuloa which is located between Pāpalaua Gulch (west) and Manawainui Gulch (east), while the makai proposed development area was located south of the current project area but along the same ridgeline. The makai development area is bordered by Manawainui Gulch to the west. During the CIA, ASM conducted a joint interview with Mr. Paolo Kamakehau Fujihiro, a kupaʻāina and lineal descendant of Ukumehame and Dr. Hōkūlani Holt, a kupaʻāina and lineal descendant of Maui, as well as a kumu, and an informal interview with Mr. Walter Kanamu, a Hawaiian poet, songwriter, and cultural practitioner.

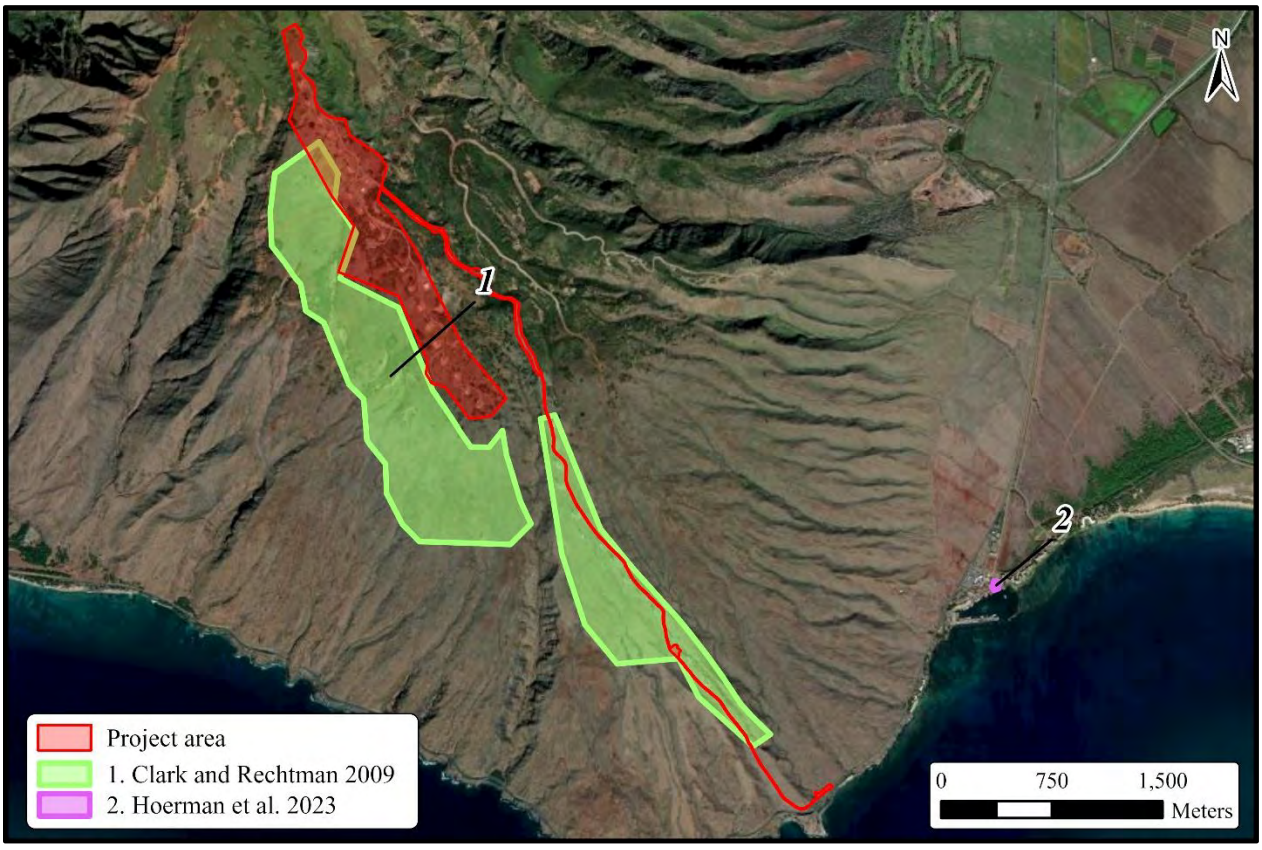


Figure 31. Project areas of previous cultural studies conducted within the vicinity of the current project area.

During the joint interview with ASM, Mr. Fujihiro explained that the ridge on which the current project area occupies, and the proposed makai development area would also be located, called Honuaʻula, is the only ridge of red dirt along the southern coastline of west Maui. Due to its distinct color, Honuaʻula has served as a koʻa (beacon) to sailors. Ah Sam and Rechtman (2009:28) further expand on the significance of Honuaʻula as a koʻa:

> For this reason Hikiʻi Heiau, a navigational heiau, was said to have been built (Hikiʻi is said to be located at about the 200 foot elevation on Honuaʻula ridge, well below the study area). The canoes would line up with Honuaʻula taking its mark from Hikiʻi Heiau and sail towards Kahoʻolawe staying to the south of the island. When they returned, they would align themselves with another

> navigational heiau named Āweoweonui which is located a few ridges over towards Lahaina, always returning from the north side of Kahoʻolawe.

Furthermore during the interview, Mr. Fujihiro explained that Manawaipueonui Gulch was a wahi pana as it was where pueo would congregate before making their yearly migration to Kahoʻolawe for the summer. Pueo too young to make the journey would stay behind at Manawaipueonui.

Lastly, Mr. Fujihiro and Dr. Holt both expressed concern regarding the wao (inland uninhabited regions) within Ukumehame. In particular, Dr. Holt discussed how a wao akua was "a sacred place that should be respected as kapu to the gods and elements of Hawaiʻi, is usually defined by the naturally occurring cloud line at certain elevations" (Ah Sam and Rechtman 2009:28). Dr. Holt pointed out that the wind farm facility was just bordering this wao akua in Ukumehame and consequently, she suggested that any further development upslope would be an insult to the akua and kanaka of Hawaiʻi. Mr. Fujihiro expanded on wao in Ukumehame, stating that his ohana referred to these wao by the ʻiliahi trees that used to grow at different elevations along its slope. He noted that there is a specific variety of ʻiliahi trees that grow at an elevation of approximately 3,000 feet, and that while he has only seen a few of these trees in his lifetime, he has only ever seen one of these trees in Ukumehame. Lastly, Mr. Fujihiro noted that a colony of ʻuaʻu (*Pterodroma phaeopygia sandwichensis*) was located near the wind farm facility.

During the interview with Mr. Kanamu, the cultural practitioner remarked that nēnē (*Branta sandvicensis*; Hawaiian goose) migration may originate in Ukumehame. The nēnē would fly from Ukumehame over the mountains to Wailuku and Waiheʻe area; however, he noted that since the construction of the KWP I wind farm, he has observed fewer and fewer nēnē.

Consequently, of these the archival research and the interviews, Ah Sam and Rechtman (2009) identified two potential traditional cultural practices through their study: the use of Honuaʻula Ridge as a koʻa and the identification of Ukumehame as a kulamanu, a place where birds gather before mass movements. Ah Sam and Rechtman (2009) indicate that despite the visual presence of the windfarm on the ridge, the construction of additional wind turbines will have a negligible effect on the use of Hanaʻula Ridge as a navigational marker. In contrast, Ah Sam and Rechtman (2009) recognize a potential impact of the windmill expansion on the bird as Ukumehame is still recognized as a significant bird habitat and the wind farm was instructed to a habitat conservation plan. Consequently, ASM recommended the wind farm not extend in the mauka direction to avoid the culturally sensitive wao akua.

U.S. Coast Guard Station (Hoerman et al. 2023)

In 2023, Noho Papa Hawaiʻi conducted a CIA for the expansion of the U.S. Coast Guard Station at Māʻalaea Harbor, located southeast of the current project area (Hoerman et al. 2023). During the CIA, Noho Papa Hawaiʻi conducted two community ethnographic interviews with Kāwika Aspili and Dane Kiyoshi Uluwehiokalani Maxwell and received feedback from one community member, Kalei Luʻuwai, via email. During the CIA, a variety of cultural resources and practices were identified, including iwi kupuna (Native Hawaiian burials), winds, rains, a natural spring called Waikoli located in the harbor, the Kāne variety of ʻalaea soil, limu, surfing, a Japanese fishing shrine, specific fish species, fighting, salt production and gathering, and petroglyphs.

3. CONSULTATION

Gathering input from community members with genealogical ties and long-standing residency or relationships to the project area is vital to the process of assessing potential cultural impacts to resources, practices, and beliefs. It is precisely these individuals that ascribe meaning and value to traditional resources and practices. Community members often possess traditional knowledge and in-depth understanding that are unavailable elsewhere in the historical or cultural record of a place. As stated in the OEQC (1997) *Guidelines for Assessing Cultural Impacts*, the goal of the oral interview process is to identify potential cultural resources, practices, and beliefs associated with the affected project area. It is the present authors' further contention that the oral interviews should also be used to augment the process of assessing the significance of any identified traditional cultural properties. Thus, it is the researcher's responsibility to use the gathered information to identify and describe potential cultural impacts and propose appropriate mitigation as necessary. This section of the report begins with a description of the level of effort undertaken to identify persons believed to have knowledge of the project area, followed by the interview methodology. This section of the report concludes with a presentation of the interview summaries, each of which has been reviewed and approved by the consulted parties.

In an effort to identify individuals knowledgeable about traditional cultural practices and/or uses associated with the current project and project area, a public notice containing (a) locational information about the project area, (b) a description of the proposed project, and (c) contact information was submitted to the Office of Hawaiian Affairs (OHA) on September 3, 2024, for publication in their monthly newspaper, *Ka Wai Ola*. This notice was published in the October 2024 edition of *Ka Wai Ola*, and a copy of the public notice is included in Appendix A of this report. No responses were received from the public notice.

In addition to the public notice, ASM Associate Ethnographer Ms. Candace Gonzalez contacted the following 18 individuals and three organizations listed in Table 5 via phone or email. If the initial contact was made via phone, Ms. Gonzalez introduced the ASM staff involved in the project and explained the nature of the proposed project and the scope of the CIA study. After this initial conversation, Ms. Gonzalez emailed a community consultation packet to the community members which included a more comprehensive explanation of the proposed project, contact information including phone numbers, email addresses, and physical address of ASM staff, as well as maps showing the location of the project area. If the initial contact was made via email, the community consultation packet was provided as an attachment. In some instances, the community members responded with the names of other community members they felt would be able to contribute to this study or did not respond altogether. At least two attempts were made to contact each person and organization. ASM attempted to locate contact information for each of the three individuals interviewed for the 2009 CIA conducted by ASM (Ah Sam and Rechtman 2009); of these three individuals, the only person successfully contacted was Dr. Hōkūlani Holt-Padilla (previously Holt).

Four individuals, including Mr. Edwin "'Ekolu" Lindsey III, Mr. Keoki Pfaeltzer, Mr. Foster Ampong, and Dr. Hōkūlani Holt-Padilla, responded to the interview request and agreed to participate in the interview process. One person, Mr. Ikaika Nakahashi, submitted a letter to ASM in response to the proposed project's EISPN on behalf of the DLNR-SHPD and signed by the Administrator Dr. Jessica Puff. Lastly, several other individuals responded to the initial consultation request but either declined to participate in the interview process or were unable to schedule an interview time.

Table 5. Individuals and organizations contacted for consultation.

Individual/Organization	*Association*	*Date of First Attempted Contact*	*Results*
Keeaumoku Kapu	Aha Moku o Maui (CEO); Na ʻAikane o Maui (Cultural Programs Coordinator)	October 28, 2024 (email)	No response.
Lāhainā Hawaiian Civic Club	-	September 23, 2024 (email)	No response.
Maui Arts League	-	October 4, 2024 (mail)	No response.
Liliʻuokalani Trust – Kīpuka Maui	-	October 4, 2024 (mail)	No response.
Edwin "'Ekolu" Lindsey III	Maui Cultural Lands (President)	September 23, 2024 (email)	Agreed to interview; interview completed.

Individual/Organization	*Association*	*Date of First Attempted Contact*	*Results*
REDACTED	-	October 4, 2024 (email)	No response.
REDACTED	-	October 4, 2024 (email)	No response.
Nicole McMullan	Bailey House Museum, Maui Historical Society	October 4, 2024 (email)	No response.
Felimon Sadang	Aha Moku o Maui	September 23, 2024 (email)	No response.
Kyle Nakanelua	Aha Moku o Maui	September 23, 2024 (email)	No response.
Keoki Pfaeltzer	Mālama Kamāʻalaea	August 21, 2024	Agreed to interview; interview completed.
Vernon Kalanikau	Nā Kahawai O Kula Kai (President), Maui Nui Ahupuaʻa Project (Coordinator)	September 23, 2024 (email)	Declined to participate in interview. Deferred to Mr. ʻEkolu Lindsey.
Wilmont Kamaunu Kahaialii, Jr.	-	October 15, 2024 (email)	Agreed to interview; unable to schedule to date.
Hinano Rodrigues	State Historic Preservation Division (Cultural Historian, former)-	September 23, 2024 (email)	No response.
Dane Uluwehiokalani Maxwell	Maui Ocean Center (Cultural Advisor), Pilina Media, LLC (Owner)	September 23, 2024 (email)	Requested additional information following initial contact but did not respond further.
Puanani Lindsey	Maui Cultural Lands	September 23, 2024 (email)	Declined to participate in interview. Deferred to Mr. ʻEkolu Lindsey (her son).
Kealana Phillips	SHPD (Burial Sites Specialist, Maui, Molokaʻi, and Lānaʻi)	October 16, 2024 (email)	Forwarded email to Maui/Lānaʻi Islands Burial Council.
Leinoa Kong	SHPD (Burial Sites Specialist, Maui, Molokaʻi, and Lānaʻi)	October 16, 2024 (email)	No response.
Ikaika Nakahashi	SHPD (Cultural Historian, Maui, Molokaʻi, Lānaʻi, and Kahoʻolawe)	October 16, 2024 (email)	Submitted letter in response to EISPN (under signature of Administrator Dr. Jessica Puff).
Foster Ampong	-	November 7, 2024 (email)	Agreed to interview; interview completed.
Hōkūlani Holt-Padilla	Ka Hikina O Ka La; Hawaiʻi Papa O Ke Ao	December 4, 2024 (email)	Agreed to interview; interview completed.

Prior to the interview, ASM staff provided the potential interviewees with information about the nature and location of the proposed project and the scope of the current CIA study. The potential interviewees were informed that the interviews were voluntary and that they would be given an opportunity to review and edit their interview summary prior to inclusion in this report. With their consent, ASM staff then asked questions about their background and association with the project area, their knowledge of the history of the project area and past land use, and their knowledge of any past or ongoing cultural practices. The interview participants were also invited to share their thoughts on the proposed development and offer mitigative solutions. Below are the interview summaries, which have each been reviewed and approved by the consulted parties.

KEOKI PFAELTZER (MĀLAMA KAMĀʻALAEA)

On August 21, 2024, Mr. Keoki Pfaeltzer contacted ASM's Associate Ethnographer, Ms. Candace Gonzales, via email in response to an email message sent by Ms. Gonzales regarding the proposed project and the nature of the current study. An interview with Mr. Pfaeltzer was conducted by Ms. Gonzales in person on September 4, 2024. Mr. Pfaeltzer explained that he was raised and continues to live in Māʻalaea, which is located along the coast and to the southeast of the current project area within Ukumehame. He is an active community member through his involvement with the Maui Community Planning Action Committee, his employment as a lifeguard, and his leadership in a recently started nonprofit organization, Mālama Kamāʻalaea, through which he hopes to restore the puʻu and native ecosystems along the coast at Kealia. Not only is Mr. Pfaeltzer extremely knowledgeable of the many moʻolelo connected to the area, but he has spent much time walking the land, encountering many archaeological features and artifacts during his explorations. Mr. Pfaeltzer deeply loves the place and its past, always referring to it as a wahi pana.

Mr. Pfaeltzer passionately described the many archaeological sites that he has encountered. While he feels a lot has been lost, he also recognizes that much is still present, and, importantly, that, while these things are old and no longer in use, "their mana remains." Some of the features discussed by Mr. Pfaeltzer, which he identified as representing the "spirit of connection," were a kauhale lawaiʻa at Māʻalaea, the remnants of several heiau, the Kapoli muliwai (that has since been covered over), rock alignments and walls, waterworn cobbles and pieces of branch coral, and places such as Puʻunēnē and Puʻuhele.

In relation to Puʻuhele, a hill or cinder cone in Wailuku near the southern boundary of Ukumehame, Mr. Pfaeltzer recounted the moʻolelo of the goddess, Puuoinaina. Mr. Pfaeltzer stated that, in the moʻolelo, Puuoinaina, the daughter of the moʻo Puuhele, had stolen Pele's husband. Although Puuoinaina had retreated when threatened by Pele, Pele did not cease her attack, and Puuoinaina was slaughtered. Another moʻolelo mentioned by Mr. Pfaeltzer was the "Battle of the Pueo," in which Manawaipueo Gulch is said to be the place where the pueo gathered before the battle. Mr. Pfaeltzer also described the area along the coast at Māʻalaea as being used for fishing ulua (certain species of crevalle, jack, or pompano, as translated by Pukui and Elbert 1986:369) and as a landing spot of Kalaniopuʻu when he brought Kamehameha I to the island.

While Mr. Pfaeltzer is pleased to hear that the proposed continuation of service for KWP I will not include any ground disturbance outside the existing limits of disturbance, he did express concerns over the potential impacts that continued operation of the facility may have on the area's environment and wildlife. He expressed concerns over the potential death of the shearwater birds that may collide with the turbine blades and the ʻōpeʻapeʻa, which have been reported as dying from turbine collisions at rates higher than originally anticipated. Mr. Pfaeltzer is also concerned about the buzzing sound generated by the turbines, which he described as having a "weird frequency," as he wonders how it may be impacting the ʻōpeʻapeʻa's use of bio sonar. He is also concerned about the spread of invasive weed plants such as fireweed (*Senecio madagascariensis*) and the potential to restrict public access to places like the "sky ponds" at Puʻu Moe (mauka of the KWP I project area).

In terms of recommendations, Mr. Pfaeltzer hopes that the proponents of the proposed project will consider the impacts of their actions beyond the KWP I project area, with the understanding that what occurs inland will affect things along the coast. Lastly and most specifically, Mr. Pfaeltzer recommends that the black irrigation piping he has observed running through archaeological sites and on top of archaeological features be moved from the vicinity of the archeological features and placed along the same route as the power lines. Over time, the plastic pipes become brittle and break, leaving black fragments behind. As they are currently, if there should be a brush fire, the pipes will be damaged and melt on top of these features, causing long-term impacts.

EDWIN "'EKOLU" LINDSEY III (MAUI CULTURAL LANDS)

On October 25, 2024, Mr. Edwin "'Ekolu" Lindsey III, contacted ASM's Associate Ethnographer, Ms. Candace Gonzales, via email in response to an email message sent by Ms. Gonzales regarding the proposed project and the nature of the current study. An interview with Mr. Lindsey was conducted by Ms. Gonzales via Zoom Video Conference on October 28, 2024. Mr. Lindsey is a lineal descendant of Lāhainā, having resided in his family home on Front Street until the 2023 fire, and he has a personal familiarity with the KWP I project area through his on-site work with his nonprofit organization, Maui Cultural Lands. Mr. Lindsey explained that he graduated high school from Kamehameha Schools before receiving a business degree from the University of Hawaiʻi at Mānoa, after which he began conducting real estate appraisals. Mr. Lindsey reflected on his childhood, stating that he had been doing conservation and culture all along but did not realize it before, thinking it was just the way of life in Hawaiʻi. Mr. Lindsey remembers growing up and caring for between 12 and 17 heiau as a child. His parents, the late Mr. Edwin

"Ed" Robert Naleilehua Lindsey, Jr., and Mrs. Puanani Lindsey, told him these were navigational heiau due to the corners aligning with the four cardinal directions. He recalled that cleaning up and maintaining the heiau was a "heavy kuleana." Mr. ʻEkolu Lindsey also mentioned that he thinks it would be interesting to document all of the potential heiau and see how they align with those found on Kahoʻolawe.

Mr. Lindsey remembers that the original KWP I project had difficulty getting started and recalls that his father, Mr. Ed Lindsey, took a stand against the project and received much pushback. Eventually, Mr. Ed Lindsey and his wife, Puanani (Mr. ʻEkolu Lindsey's mother), started Maui Cultural Lands, and SunEdison gave them a contract to do conservation work in the areas surrounding Turbines 1, 2, and 3. The work was difficult for several reasons. Most importantly, the nonprofit organization was authorized to do many things but had no funding. When the contract with SunEdison expired, the Maui Cultural Lands organization maintained a presence in the area without any contract.

Members of Maui Cultural Lands tried to replant native plants impacted during the construction of KWP I but found it extremely difficult on steep slopes and in heavily compacted soil. Mr. ʻEkolu Lindsey stated that, although legacy seedbanks occasionally appear, native plants have not regrown at the density they would have liked to see. Invasive species such as lantana (*Lantana camara*) and Christmasberry (*Schinus terebinthifolia*) often out-compete the native species and take over. Invasive species control is one of the main activities taken on by Maui Cultural Lands. In the past, Mr. Lindsay stated, numerous fires in the area have added to the impacts on native vegetation and allowed the spread of more invasive species. At times, Mr. Lindsey has differed with the operators of KWP I concerning appropriate methods of vegetation management. He recalled previously wanting to poison a grove of ironwood (*Casuarina equisetifolia*) between Turbines 2 and 3 but was told that poisoning would not be allowed. Instead, a bulldozer was brought in to clear the trees. Fifteen years later, however, the trees have returned because the proper methods for vegetation control were not carried out initially. Fireweed has been another bothersome weed the organization has worked toward eradicating. They have worked hard to keep the fireweed out of the area and spreading farther into Ukumehame.

He shared that deer is another invasive species that needs to be controlled in the vicinity of the KWP I project area. Before the COVID-19 pandemic, an aerial shoot was conducted that almost eradicated the deer. Following the pandemic, however, they have been present in noticeably high numbers. Mr. Lindsey suggested that deer be controlled by maintaining leading edges along the access roads and removing them from areas with lehua trees to allow the trees to grow.

Mr. Lindsey's greatest concerns about the proposed KWP I continuation of service are the roadways and their impacts on native vegetation. He recalled that the valley near the operations building had the most beautiful ʻaʻaliʻi and lehua along its slope. After the road was put in to clear the ironwoods, however, the area became a "barren lunar landscape." He finds it concerning that losing the ʻaʻaliʻi and lehua was considered an acceptable loss; now the ironwoods are coming back, he stated, with "all kinds of junk popping up." It is also worrisome that now, with the large size of the ironwood trees, the ʻōpeʻapeʻa (Hawaiian hoary bat) has adapted its habitat to occupy the trees, thus creating additional problems controlling them. When managing the vegetation, Maui Cultural Lands must take into consideration not only when the ʻōpeʻapeʻa are flying but also the nēnē's nesting season, which allows them to make noise and do work for only three months of each year.

Mr. Lindsey asked that the proposed continuation of service project be transparent by not only supplying relevant information about things like the incidental take of birds and bats but also making it easy to find and understand. Although he finds it difficult to accept losing even one, he understands such losses are inevitable given the widespread need for energy. Still, he believes it is important to know the actual as well as theoretical numbers: how many were killed? How many individuals are actually present? Even if the wind farm remains within the allowed incidental take, Mr. Lindsey reiterated the importance of "give back," such as habitat creation, to help support the populations affected by the wind farm. Certain methods, such as the banding of birds, make tracking and counting easier. Tracking dogs are utilized to identify birds on the ground to ensure an accurate count. Mr. Lindsey shared that, in the past, Maui Cultural Lands members have identified downed birds not previously identified by the wind farm. When they find downed birds, they are required to report them to the wind facility. However, Mr. Lindsey expressed concerns about whether or not these birds are added to the incidental take count.

Mr. Lindsey also emphasized the need for the wind farm operators to share information about what goes into the cost of energy. The idea of the wind farm was presented with the implication that the use of wind energy would decrease electricity costs for the people of Maui. However, the cost of energy has not declined. As he asked, "We have this renewable energy, how come my bill never go down?"

Another recommendation he shared was that all archaeological features that could be affected by the project should be identified and reported, with impact mitigations put in place. Mr. Lindsey stated that these mitigations

should, however, be undertaken at a scale greater than that of individual archaeological sites, as archaeological features cannot be looked at alone as the significance of the feature comes from its place within the context of the landscape.

Finally, Mr. Lindsey advocates for the strengthening of a reciprocal relationship between the KWP operators and the Hawaiian community with connections to Ukumehamehe and Māʻalaea, stating that integrating community members, including lineal and cultural descendants, will be viewed as a positive outcome. Unfortunately, he has found that many visitors come to Hawaiʻi and Maui to build their resumes and then leave without building strong connections to the community. As a member of an organization working with the wind farm, Mr. Lindsey believes that everyone who works in the facility should undergo the same safety training. Moreover, he feels the wind farm should hire more local community members for a variety of professional roles, including skilled, impactful positions that involve decision-making responsibilities.

FOSTER AMPONG

On November 10, 2024, Mr. Foster Ampong contacted ASM Associate Ethnographer, Mr. Candace Gonzales, via email in response to an email message sent by Ms. Gonzales regarding the proposed project and the nature of the current study. An interview with Mr. Ampong was conducted in person on November 17, 2024. Mr. Ampong's sister, Valerie, was also present during the interview. Mr. Ampong currently resides at Waiehu; however, he was born and raised in Lāhainā and has lineal ties to Ukumehame Ahupuaʻa.

Desiring to experience the old ways of Hawaiian living, Mr. Ampong walked the old trails from Waiehu to Lāhainā prior to the construction of the original KWP I facility. Along the way, he stated, he saw many things that he would not have noticed from his vehicle. Mr. Ampong recalls seeing various cultural resources along his travels. He distinctly remembers there being colonies of pueo in the area, as well as the ʻōpeʻapeʻa and lots of pili grass. While he thinks it is likely that maile lau-liʻi (small-leaf maile, *Alyxia stellata*) would have grown in the area, he is unsure whether they would still be present. He also mentioned the vicinity of the KWP I project area as a potential habitat for the koa lau-liʻi, which he stated is a variety unique to West Maui.

The most prevalent cultural impact of the proposed KWP I continuation of service identified by Mr. Ampong is the potential of renewable wind energy to decrease the cost of living for members of the Hawaiian community that continue to reside in and care for the area. Continued operation of the wind farm can help make the cost of living more affordable through power purchase agreements that promise Maui residents lower power costs. Mr. Ampong says that this is a promise that the operators of KWP I need to make sure they follow through on. Moreover, he stated, it is necessary to make relevant information about energy costs readily available to the general public.

Mr. Ampong expressed two primary concerns about the proposed KWP I continuation of service project. First, after discussing the purpose of the CIA, he asked if an updated archaeological survey would also be conducted prior to project implementation. Mr. Ampong feels that the initial study, conducted approximately 20 years ago, is now outdated. With new technologies available and a better understanding of archaeology in Hawaiʻi since then, he believes that the completion of another archaeological survey is necessary to identify features that may have been previously overlooked and potentially reassess the significance of the features that have been previously identified. Secondly, Mr. Ampong expressed a concern with the list of potential interviewees who have been contacted for consultation about this project since the individuals on the contact list do not necessarily have close connections to Ukumehame Ahupuaʻa. Mr. Ampong stated that there are still Hawaiian families who have been dwelling at Ukumehame for generations and should have the opportunity to voice any concerns over this project. Since his ʻohana is one of the families of Ukumehame, he further stated that he would reach out to them and invite them to speak up if they should choose to do so.

HŌKŪLANI HOLT-PADILLA (KA HIKINA O KA LA AND HAWAIʻI PAPA O KE AO)

On December 4, 2024, Dr. Hōkūlani Holt-Padilla (formerly Dr. Hōkūlani Holt), contacted ASM Associate Ethnographer, Ms. Candace Gonzales, via email in response to an email message sent by Ms. Gonzales regarding the proposed project and the nature of the current study. An interview with Dr. Holt-Padilla was conducted via telephone on December 4, 2024. Dr. Holt-Padilla explained that she is not from the Ukumehame area and does not know the past and contemporary practices associated with the area. However, she is a kumu as well as a lineal descendant of Maui, and she was interviewed by Noe Kalipi in 2009 for the CIA conducted prior to the construction of KWP II (Ah Sam and Rechtman 2009).

When interviewed in 2009, she expressed concerns over the project's potential expansion into the wao akua. During the interview for the current project, she stated that her same concerns remain, expressing a concern for "what will [the turbines] impact in the wao kanaka and the wao akua, and whether they will impact connectivity to the

shoreline and ocean." Dr. Holt-Padilla explained that the location of the wao akua does not correspond to a definitive elevation—such as 3,500 feet amsl, for example—but is instead determined by the height of the cloudline. She shared that the wao akua begins at the cloudline, where moisture is absorbed, and the waters are then disbursed as necessary. Dr. Holt-Padilla recalled a cultural study completed by the Kahoʻolawe Land Commission that mentioned that the cloudline that would sometimes bring the rains from Olowalu and Ukumehame to Kahoʻolawe. Dr. Holt-Padilla further stated the lineal descendants of Ukumehame Ahupuaʻa would know more about the cultural practices associated with the area and shared that there are still taro growers in both Ukumehame and Olowalu.

IKAIKA NAKAHASHI (ON BEHALF OF JESSICA PUFF, SHPD)

On November 8, 2024, Ikaika Nakahashi submitted a letter on behalf of Dr. Jessica Puff, SHPD Administrator and Deputy State Historic Preservation Officer, offering SHPD's comments in response to the KWP I continuation of service project EISPN. In the letter, Mr. Nakahashi writes that while no new construction or physical improvements are proposed as part of the KWP I continuation of service project, the project "presents specific challenges for historical and cultural resource protection" and mentions several areas of concern related to several types of cultural resources with the potential to be impacted by the project: archaeological cultural resources, floral cultural resources, faunal cultural resources, and visual cultural resources.

Mr. Nakahashi's letter lists six archaeological resources with the potential to be affected by the proposed project, including the Lāhainā Pali Trail (Site 50-50-09-02946), a heiau (Site 50-50-09-05232), an enclosure (Site 50-50-09-02827), a petroglyph and wall complex (Site 50-50-09-02825), a terraced enclosure with adjacent walls (Site 50-50-090-02826), and a site consisting of three C-shaped shelters (Site 50-50-09-01441). Of these sites, the Lāhainā Pali Trail (Site 2946), described by Mr. Nakahashi as a "significant cultural landmark," is crossed by the access road for KWP I (Kaheawa Pastures Road). The heiau (Site 5232) is situated along the western boundary of the KWP I lease area. The remaining four sites (Sites 1441, 2825, 2826, and 2827) are in the general vicinity of the wind farm facility but lie outside the lease area boundaries. The letter states that "no Archaeological Inventory Survey (AIS) has been conducted in the project area to date" and contends that "[g]iven the archaeological and cultural significance of this location, a modern AIS should be conducted to ensure compliance with current historic preservation regulations." (Note: An AIS was conducted prior to the construction of each of the two wind farm facilities; these archaeological investigations were completed by Clark and Rechtman [2005] and Rechtman et al. [2009], respectively.)

Concerning floral and faunal resources, Mr. Nakahashi states that native vegetation in the area includes low stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻūlei (*Osteomeles anthyllidifolia*), and uluhe fern (*Dicranopteris linearis*). The letter further references several faunal cultural resources known to reside in or transit the KWP project area; these wildlife species include several native birds protected by the Migratory Bird Treaty Act (MBTA), such as the kōlea (Pacific golden plover, *Pluvialis fulva*), ʻūlili (wandering tattler, *Tringa incana*), koaʻe kea (white-tailed tropicbird, *Phaethon lepturus*), ʻewaʻewa (sooty tern, *Onychoprion fuscatus*), ʻuaʻu kani (wedge-tailed shearwater, *Puffinus pacificus*), and the endemic pueo (Hawaiian short-eared owl, *Asio flammeus sandwichensis*). As noted by the letter, four species listed by the U.S. Fish and Wildlife Service or State of Hawai'i DLNR as endangered or threatened are known to occur in or use habitat within the KWP I project area, including the ʻōpeʻapeʻa (Hawaiian hoary bat, *Aeorestes semotus*), nēnē (Hawaiian goose, *Branta sandvicensis*), the ʻuaʻu (Hawaiian petrel, *Pterodroma sandwicensis*), and ʻaʻo (Newell's shearwater, *Puffinus newelli*). Two other listed species, the ʻakēʻakē (band-rumped storm petrel, *Oceanodroma castro*) and Blackburn's sphinx moth (Manduca blackburni), have the potential to occur in or transit the project area or its vicinity. In terms of impacts, Mr. Nakahashi notes that the extension of the project's Incidental Take License for another 20 years constitutes a "risk of continued significant negative impacts on…invaluable cultural and biological resources that would suffer further depletion through additional incidental fatalities."

With regard to visual cultural resources, Mr. Nakahashi cites the discussion presented in the EISPN concerning "potential adverse impacts on scenic vistas and view planes on Maui" but notes that "the project has not evaluated potential negative impacts on scenic vistas and view planes as seen from Kahoʻolawe, nor the effects on Hawaiian religious practitioners who conduct ceremonies there" and recommends that the EIS contain an assessment of the proposed project's visual impacts as viewed from Kahoʻolawe. To address this comment, several attempts were made to contact representatives of the Protect Kahoʻolawe ʻOhana and the Kahoʻolawe Island Reserve Commission; although an initial response was received from the Protect Kahoʻolawe ʻOhana, no interview was ultimately scheduled.

The letter concludes by making several additional recommendations. First, it suggests that a Ka Paʻakai Analysis be considered as part of the overall evaluation of cultural impacts. Secondly, it requests the planned DEIS provide a "process for decommissioning and removal if their lease extension is denied." Thirdly, it suggests that the project

proponents submit the list of consulted parties to the SHPD for comment and potential recommendations on additional "individuals or organizations with an interest or expertise in the area."

4. IDENTIFICATION AND MITIGATION OF POTENTIAL CULTURAL IMPACTS

The OEQC guidelines identify several possible types of cultural practices and beliefs that are subject to assessment. These include "...subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs" (OEQC 1997:1). The guidelines also identify the types of cultural resources associated with cultural practices and beliefs that are subject to assessment. These cultural resources, as outlined in the OEQC (1997:1) guidelines, include "traditional cultural properties or other types of historic properties, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs." The origin of the concept and the expanded definition of traditional cultural property is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service (Parker and King 1998). An abbreviated definition is provided below:

> "Traditional cultural property" means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both.

"Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional cultural properties are not intangible, they must have some kind of boundary; and are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of traditional cultural properties should be determined by the community that values them.

It is however with the definition of "Property" wherein there lies an inherent contradiction, and corresponding difficulty in the process of identification and evaluation of potential Hawaiian traditional cultural properties, because it is precisely the concept of boundaries that runs counter to the traditional Hawaiian belief system. The sacredness of a particular landscape feature is often cosmologically tied to the rest of the landscape as well as to other features on it. To limit a property to a specifically defined area may actually partition it from what makes it significant in the first place. However offensive the concept of boundaries may be, it is nonetheless the regulatory benchmark for defining and assessing traditional cultural properties.

As the OEQC guidelines do not contain criteria for assessing the significance of traditional cultural properties, this study will adopt the State of Hawai'i's criteria (outlined in Hawai'i Administrative Rules [HAR] § 13-284-6) for evaluating the significance of historic properties, of which traditional cultural properties are a subset. To be significant the potential historic property or traditional cultural property must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

a Be associated with events that have made an important contribution to the broad patterns of our history;

b Be associated with the lives of persons important in our past;

c Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

d Have yielded, or is likely to yield, information important for research on prehistory or history;

e Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

While it is the practice of the DLNR-SHPD to consider most historic properties significant under Criterion d at a minimum, traditional cultural properties would also be significant by definition under Criterion e.

A further analytical framework for addressing the preservation and protection of customary and traditional native practices specific to Hawaiian communities resulted from the Ka Pa'akai O Ka 'Āina v. Land Use Commission court case. The court decision established a three-part process relative to evaluating such potential impacts: first, to identify whether any valued cultural, historical or natural resources are present and/or past or ongoing traditional customary

practices; and identify the extent to which any traditional and customary native Hawaiian rights are exercised; second, to identify the extent to which those resources and rights will be affected or impaired; and third, specify any mitigative actions to be taken to reasonably protect native Hawaiian rights if they are found to exist.

The section that follows begins by summarizing the cultural-historical background information derived from historical research and interviews with individuals familiar with the lands on which the KWP I project is located. Next, valued cultural resources and potential impacts to those resources are identified and described based on the assessment criteria detailed above. Finally, a set of recommendations drawing on the Ka Paʻakai framework and intended to protect these resources is presented, followed by a small number of more general recommendations.

SUMMARY OF CULTURAL-HISTORICAL BACKGROUND INFORMATION

A review of the culture-historical background information reveals that the project area is within Ukumehame Ahupuaʻa, the easternmost ahupuaʻa in the moku of Lāhainā. The name Ukumehame, which translates to "paid project wood," is derived from the land's association with the mēhamehame wood (Pukui et al. 1974:214). The ahupuaʻa of Ukumehame, especially its lower elevations, is considered fertile land and is thought to have once supported a large population centered on the gulches and the kula land at the mouth of Ukumehame Gulch (southwest of the KWP I project area). Nineteenth-century descriptions mention long, narrow stretches of loʻi lining the deep valleys and ravines of Ukumehame. The coast from Ukumehame to Lāhainā is also known for its multiple koʻa, which are said to have assisted individuals in fishing canoes traveling back and forth between Maui and Kahoʻolawe.

In contrast to the coastline and lower elevations, the uplands of Ukumehame were less intensively utilized for economic purposes. The high-elevation slopes near the KWP I project area are thought to have served as a kulamanu or gathering place for birds, from which they might assemble to leave for migrations. The pueo, in particular, has strong cultural associations with the area. Manawaipueo Gulch, which begins just makai of the KWP I project area, is mentioned in the moʻolelo entitled "Ka Moʻolelo Kaʻao O Ka Hoʻouka Kaua O Nā Pueo, A Lukuʻia Nā Kānaka A Me Nā Aliʻi O Maui" ("The Legend Concerning the Battle of the Owls and the Massacre of the People and Chiefs of Maui"), as the place where the pueo gathered before attacking their rivals. The rocky slopes surrounding the KWP I project area were crossed by mauka-makai transportation routes leading from the coast to the higher elevations of the West Maui Mountains, and the ʻAʻalaloloa Trail (also known as the Lāhainā Pali Trail), a treacherous route passing overland from Central Maui to Lāhainā. The Lāhainā Pali Trail, which intersects Kaheawa Pastures Road, was improved in 1841 for horse travel over the West Maui uplands and was actively used until ca. 1891.

During the 1848 Māhele, the ahupuaʻa of Ukumehame was awarded to Kamehameha III as Crown Land (Buke Māhele 1848:200). Forty kuleana claims, containing loʻi, wauke patches, house plots, and kula, were made for Ukumehame lands, although only 19 claims were ultimately awarded. None of these claims is associated with lands near the KWP I project area; the majority of the kuleana claims are to the west of Manawaipueo Gulch in the alluvial flats near the mouth of Ukumehame Valley. By the late 1850s, the Crown lands in Ukumehame had been leased to foreign business owners for various enterprises, primarily cattle ranching.

By the late 19th century, Ukumehame had become known for its pasturelands. The privatization of land restricted access to much of the ahupuaʻa, as indicated by various newspaper advertisements of the 1860s and 1870s that warned against allowing animals to graze on crown lands and private leases. The Maalaea Stock Ranch, under proprietor John Richardson, appears to have leased pastureland in Ukumehame until at least 1900 (Tomonari-Tuggle 1998). Cattle ranching in Ukumehame continued on the KWP I project area lands until the mid-1990s under a lease belonging to the Perreira Ranch. However, ranching ceased within the project area when a lease for the current project area was granted to First Wind (formerly known as UPC Wind Partners LLC) and Makani Nui Associates, LLC to develop the original KWP I project. In 2006, the KWP I project was completed, and the facility began operation. The KWP II project was completed in 2012.

IDENTIFICATION OF VALUED CULTURAL RESOURCES AND ANTICIPATED IMPACTS

Based on the results of the cultural and historical background study, previous archaeological surveys, and the manaʻo shared by several consulted parties during the interviews for this project (as well as a previous CIA conducted by Ah Sam and Rechtman [2009] prior to the construction of KWP II), There are several historical, cultural, and natural resources in the vicinity of the proposed action with immediate relevance to the exercise of traditional and customary native Hawaiian rights. Although these resources may at times be described as historical, cultural, or natural resources in this document, it is important to recognize that the historical associations and use of these resources are inherently connected and that, as a result, the divisions between these categories are not distinct. These resources, which are

discussed in detail below, include a heiau (Site 50-50-09-05232), the Lāhainā Pali Trail (Site 50-50-09-02946), several other previously documented historic properties within the KWP I area and immediate vicinity; the wao akua, the red soil exposed on Hanaʻula Ridge, the viewshed from Kahoʻolawe, and numerous species of indigenous and endemic plants and animals, some of which are listed federally or by the State as endangered. Each of these resources is described further below, along with potential impacts identified with respect to specific resources.

Historic Properties

The entire ground surface of the project area, including Kaheawa Pastures Road, has been surveyed for historical resources. At least 12 archaeological investigations, which include studies by Athens (2002, 2004), Clark and Rechtman (2005, 2008), Hammatt et al. (1996), Magnuson (2003), Rasmussen (2005a, 2005b, 2005c), Rechtman et al. (2009), Robins et al. (1994), and Tomonari-Tuggle (1998), have been conducted across portions of the project area. The methods and findings are discussed in more detail above in the Previous Archaeological Studies section of this report. Although the sites described below derive much of their significance from their presence within a cultural landscape, they are discussed individually here based on the way they have been documented during previous archaeological studies within portions of the KWP I project area. In total, these studies have documented 14 historic properties that occur either partially or entirely within the project area or are immediately adjacent to it. All these resources have been assigned SIHP numbers.

Regarding the presence of historical resources within the project area, Mr. Keoki Pfaeltzer mentioned that, while many historical resources have been lost, he also recognizes that much is still present. While these resources are old and many are no longer in active use, he believes it is still important to remember that "their mana remains."

Heiau (Site 50-50-09-05232)

In 1999, an upland heiau was discovered along the western edge of the KWP I lease area by Mr. Ed Lindsey, a cultural monitor for the original KWP I project, following a brush fire. (Additional description of the heiau can be found above in the Previous Archaeological Studies section of this report.) The heiau was assigned an SIHP site number by Athens (2002) and described as two adjacent stone enclosures joined by a wall; the mauka enclosure has a notch on its northwestern corner (see Figure 27). Informant information cited by Tomonari-Tuggle and Rasmussen (2005:6) suggested a possible connection between the location of the heiau and the pueo (which frequents the area), based on the proximity of Manawaipueo Gulch. Although the heiau is immediately west of the KWP I lease area and is to the west of the developed area, it is close to the turbines. During planning for the original construction of the KWP I facility, consultation with the developer identified the potential for development and maintenance activities associated with the wind power facility to impact the site (Tomonari-Tuggle and Rasmussen 2005). A preservation plan, which delineates a preservation buffer that intersects with the KWP I project area, remains in place for the heiau (Tomonari-Tuggle and Rasmussen 2005).

The heiau was re-visited and briefly assessed during a site visit to the KWP I project area for this CIA (Figures 32 and 33). Although no significant disturbance was observed, the heiau has become overgrown with young ironwood trees, and one ironwood tree has fallen across one of the west-facing walls (Figure 34). Two signs titled "Sacred Cultural Area," both of which were deteriorated only partially legible at the time of the visit, were identified in the vicinity of the heiau; one had fallen to the ground, and the other was obscured by ironwood trees (Figure 35). An informal conversation with the site manager during the site visit indicated that neither the presence of the heiau nor the stipulations outlined in the preservation plan (Tomonari-Tuggle and Rasmussen 2005) were known to the wind power facility work crew.

Lāhainā Pali Trail (Site 50-50-09-02946)

The Lāhainā Pali Trail, which was built in 1841 as a horse trail to replace an earlier footpath between Central Maui and Lāhainā, was documented by an AIS for the DLNR's Nā Ala Hele Trails Program (Tomonari-Tuggle and Tuggle 1991). The AIS documented the trail as a 4.5-mile-long corridor stretching between the Wailuku area and Lāhainā. A cultural resource management plan for the trail was subsequently prepared by Tomonari-Tuggle (1995).

The intersection of the Lāhainā Pali Trail and Kaheawa Pastures Road (which breached the trail during its construction in the early 2000s, was re-located during a December 2024 site visit to the KWP I facility (Figure 36). Except for the breach in the trail made by the construction of the road, the condition of the trail in December 2024 appears similar to that described by Tomonari-Tuggle and Tuggle (1991). Two interpretive signs were noted along this stretch of trail, one of which is adjacent to the road crossing, and one of which is several meters west of the road crossing (Figures 37 and 38). Although the sign marking the road intersection has been significantly degraded by

exposure to the sun, the interpretive sign to the west of Kaheawa Pastures Road has degraded to the point that is completely illegible; it has also been defaced by stickers.



Figure 32. Overview of heiau (Site 5232) in December 2024.



Figure 33. Overview of heiau (Site 5232) in December 2024.



Figure 34. View of heiau (Site 5232) in December 2024, with young ironwood tree fallen across one of the western walls of the heiau.



Figure 35. One of two signs advising the presence of the heiau (Site 5232) in December 2024. Both signs are illegible, and one has fallen to the ground.



Figure 36. Intersection of Lāhainā Pali Trail (Site 2946) and Kaheawa Pastures Road.



Figure 37. Sign marking the intersection of the Lāhainā Pali Trail (Site 2946) and Kaheawa Pastures Road.

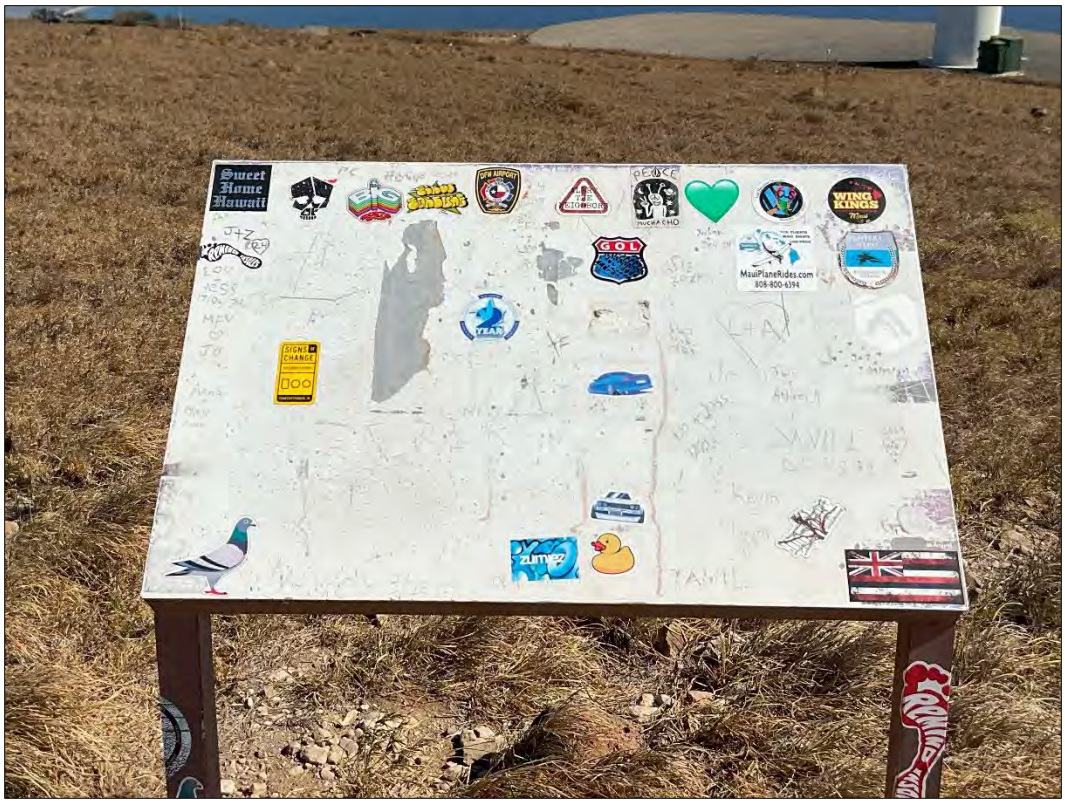


Figure 38. Interpretive sign for Lāhainā Pali Trail (Site 2946).

Additional Historic Properties Within the KWP I Project Area

Besides the heiau (Site 5232), which is immediately west of the KWP I project area, and the Lāhainā Pali Trail (Site 2946), which is crossed by Kaheawa Pastures Road, the locations of seven additional historic properties are known to intersect with the KWP I project area. These historic properties, which were documented during studies by Clark and Rechtman (2005), Rasmussen (2005a, 2005b, 2005c), and Rechtman et al. (2009), include Sites 1287[2] (the Māʻalaea Complex, a Precontact Period habitation complex), .4696 (a Historic Period highway remnant), 5402 (a Historic Period watering trough), 5648 (a Precontact Period habitation complex), 5649 (a rock cairn and modified outcrop of unknown function and temporal affiliation), 5653 (a Precontact Period habitation complex), and 5654 (a set of Historic Period concrete steps). Of these sites, four sites (Sites 4696, 5402, 5649, and 5654) were noted by Clark and Rechtman (2005) as falling within the KWP I project area and assessed as significant under Criterion d as outlined in HAR §13-284-6; each of these four sites was recommended for "no further work" prior to the construction of the KWP I facility, as, according to Clark and Rechtman (2005:41), "sufficient information has been collected [as the result of the AIS] concerning their physical attributes and possible uses to successfully mitigate any potential impacts resulting from the current proposed development."

Sites 5648 and 5653 were described by Clark and Rechtman (2005) as falling on State-owned lands outside the project area, and thus no recommendations were made in the AIS for those sites. Rechtman et al. (2009) later recorded additional features as part of Site 5648 and recommended the creation and implementation of a preservation plan in their AIS for the KWP II project; it is assumed that the features addressed by this preservation plan (Rechtman 2010) all fall outside the Kaheawa Pastures Road corridor (which had already been constructed by the time their survey was undertaken).

Additional Historic Properties in General Ukumehame Vicinity

In addition to archaeological sites whose areas overlap the current project area, this investigation also identified 16 additional sites within approximately 0.5 miles of the KWP I project area. Although none of these sites intersects with

[2] Site 50-50-09-01287 (the Māʻalaea Complex) was initially identified by Walker (1931) and subsequently re-visited by archaeologists from the Bishop Museum ca. 1973 during the Statewide Inventory Survey.

the project area, these sites were considered during the impacts analysis based on their relative proximity to the project area and the potential for indirect impacts. These sites, which were identified by Athens (2004), Clark and Rechtman (2005, 2008), Rasmussen (2005a, 2005b, 2005c), and Rechtman et al. (2009), include Sites 1441[3] (three enclosures within the larger Māʻalaea Complex [Site 1287]); 2825 (Historic Period petroglyph and trail); 2826 (Precontact Period habitation complex); 2827 (Precontact Period enclosure of unknown function); 5625, 5626, 6219, and 6221 (four cairns of unknown temporal affiliation); 5650 (Precontact Period rock cairn complex); 5652 (Historic Period road segment); 5714 (Historic Period privy); 5715 (Historic Period hoist remnants); 6218 (modified outcrop shelter of unknown temporal affiliation); 6220 (modern rock cairn); 6222 (Historic Period ranching complex); and 6665 (Historic Period watering trough). Four of these sites, including Sites 1441, 2825; 2826, and 2827, were referenced by Mr. Ikaika Nakahashi in a letter response to the KWP I project's EISPN on behalf of the DLNR-SHPD. Of the sites in this group that were formally assessed for significance and given treatment recommendations (i.e., Sites 5625 to 5627, 5625, 5626, 5650, 5652, 5714, 5715, 6219 to 6222, and 6665) all were assessed as significant under Criterion d and recommended for "no further work."

Potential Impacts to Historic Properties

Because the proposed continued operation of KWP I involves no expansion of the development footprint or new construction, and no additional ground-disturbing activities beyond the existing disturbance limits are planned, no direct physical impacts to any historic properties, including the heiau along the western perimeter of the KWP I lease area (Site 5232), the Lāhainā Pali Trail (Site 2946), or the seven additional sites that intersect with the project area (Sites 1287, 4696, 5402, 5648, 5649, 5653, and -654) are anticipated. Moreover, no direct impacts are anticipated to the additional 16 sites (Sites 1441, 2825 to 2827, 5625, 5626, -05650, 5652, 5714, 5715, 6218 to 6222, and 6665) that fall within approximately 0.5 miles of the project area, including those mentioned in the SHPD's letter response to the project's EISPN. In fact, it is conceivable that the limitations on public access imposed by the presence of the wind power facility may provide a form of protection for the sites that occur within the KWP I lease area. These limitations on access could also limit cultural access to the sites and general area.

Nevertheless, despite the absence of proposed ground-disturbing activity, the possibility exists that inadvertent impacts could occur to historic properties as the result of routine maintenance operations conducted by wind farm personnel during the continued use of the KWP I facility. Maintenance actions that could conceivably result in impacts might include moving rocks during vegetation control activities or driving vehicles or heavy equipment outside of marked road corridors, causing unintended damage to surface structures or associated subsurface archaeological deposits. Since some archaeological sites, such as stacked stone constructions, may be subtle in appearance, especially when covered in vegetation, their presence may not be clearly apparent to KWP I workers or visitors. Also, workers and visitors may not be aware that these sites constitute historic properties and that they may have established treatment protocols.

One individual interviewed for this project, Mr. Keoki Pfaeltzer, mentioned that black plastic irrigation piping has been laid by facility personnel over archaeological sites (stone constructions on the ground surface) within the wind facility lease area. Mr. Lindsey shared that the deterioration of the plastic material caused by sun exposure has resulted in the scattering of fragments of black plastic among the affected archaeological sites and contends that continued deterioration will eventually result in the melting of black plastic onto the stones.

In addition to direct physical impacts to these historic properties, it is also important to recognize potential indirect impacts. Under the administrative guidelines of the State of Hawaiʻi, several types impacts (or "effects") to historic properties are recognized. Per HAR §13-284-14, "[Potentially harmful effects] include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the property's surrounding environment, detrimental visual, spatial, noise, or atmospheric impingement, increasing access with the chance of resulting damage, and neglect resulting in deterioration or destruction." The continued operation of the wind power facility in the vicinity of the historical resources mentioned previously has clear relevance for the integrity of these historic properties, especially in relation to the qualities of visual, spatial, or noise impingement. Because the KWP I facility has already been built and has been in operation for nearly two decades, however, no changes to the integrity of these resources are anticipated from the continued operation of the wind farm.

[3] Site 1441 was assigned by Bishop Museum archaeologists durign the Statewide Inventory Survey to three enclosures within the Māʻalaea Complex (Site 1287) though to be in relatively good condition (DLNR-SHPD site file for Site 1287).

Wao Akua

Based on the information obtained from the culture-historical background research and the consultation interviews, one valued resource that falls in close proximity to the KWP I project area is the wao akua. The wao akua is defined Pukui and Elbert (1986:382) as "a distant mountain region, believed inhabited only by spirits (akua)"; the term may also be used to denote a "wilderness" or "desert" area. The 19th-century historian Davida Malo (1903:37-38), in describing terms for various elevation zones of inland mountains or kuahiwi, describes the wao akua as a place where "trees of smaller size grew," falling below the wao maʻukele and above the wao kanaka, where "men cultivate the land":

> 9. According to another classification of the features of an island the mountains in its centre are called *kua-hiwi*, back-bone, and the name *kua-lono* is applied to the peaks or ridges which form their summits. The rounded abysses beneath are (extinct) craters, *lua pele*.
>
> 10. Below the *kua-hiwi* comes a belt adjoining the rounded swell of the mountain called *kua-mauna* or *mauna*, the mountainside.
>
> 11. The belt below the *kua-mauna*, in which small trees grow, is called *kua-hea*, and the belt below the *kua-hea*, where the larger sized forest-trees grow is *wao* or *wao-nahele*, or *wao-eiwa*.
>
> 12. The belt below the *wao-eiwa* was the one in which the monarchs of the forest grew, and was called *wao-maukele*, and the belt below that, in which again trees of smaller size grew was called *wao-akua* and below the *wao-akua* comes the belt called *waokanaka* or *maʻu*. Here grows the *amʻau*-fern and here men cultivate the land.
>
> 13. Below the *maʻu* comes the belt called *apaa* (probably because the region is likely to be hard, baked, sterile), and below this comes a belt called *ilima* and below the *ilima* comes a belt called *pahee*, slippery and below that comes a belt called *kula* (plain, open country) near to the habitations of men, and still below this comes the belt bordering the ocean called *kahakai*, the mark of the ocean (*kaha*, mark, and *kai*, sea.).

A similar description of elevation zones by Samuel Mānaiakalani Kamakau (1976:9) also places the wao akua between the wao maʻukele and the wao kanaka:

> Here are some names for [the zones of] the mountains-the mauna or kuahiwi. A mountain is called a kuahiwi, but mauna is the overall term for the whole mountain, and there are many names applied to one, according to its delineations (ʻano). The part directly in back and in front of the summit proper is called the kuamauna, mountaintop; below the kuamauna is the kuahea, and makai of the kuahea is the kuahiwi proper. This is where small trees begin to grow; it is the wao nahele. Makai of this region the trees are tall, and this is the wao lipo. Makai of the wao lipo is the wao ʻeiwa, and makai of that the wao maʻukele. Makai of the wao maʻukele is the wao akua, and makai of there the wao kanaka, the area that people cultivate. Makai of the wao kanaka is the ʻamaʻu, fern belt. and makai of the ʻamaʻu, the ʻapaʻā, grasslands.

The zones described by Malo (1903:37-38) and Kamakau (1976:9), and as understood by native Hawaiians more generally, reflect an extensive and highly textured understanding of the natural resources around them and the cultural and natural significance of various elevation zones on mountain slopes. In the descriptions of both Malo and Kamakau, the uppermost elevation zones are portrayed as lacking substantive vegetation. Moreover, these high elevation areas, including the kualono and kuahiwi, are said to have been infrequently visited by native Hawaiians except for burial or by specialists for specific resource collection, particularly raw material for stoneworking (Meilleur 2019:316). Descending through progressively lower elevation zones on the mountain, one observes bands of specific ecozones with characteristic vegetative signatures, with trees growing progressively smaller until the area where people commonly cultivate and inhabit the land is reached. The wao akua of "wilderness of gods" (Malo 1903:39) lies below the highest elevation zones but still above the everyday domain of people.

Kirch and McCoy (2023:41) further frame the concepts wao akua and wao kanaka within an understanding of the continuous transformation of landscapes by people, describing the upper boundary of the wao kanaka as moving gradually mauka as the population of native Hawaiians grew:

> When Polynesians first arrived in Hawaiʻi, the wao akua stretched from the mountains down to the sea shore; everything was primeval wilderness. Over time, as people cleared the land for gardens and houses, population increased, and the reach of human activities expanded into the valleys and onto leeward slopes, wao kanaka came to replace wao akua.

Within Ukumehame specifically, Mr. Paolo Kamakehau Fujihiro, who was interviewed during the CIA for the KPW II expansion (Ah Sam and Rechtman 2009:28), explained that his ʻohana used the ʻiliahi trees that once grew at different elevations along the slope to mark the various wao. There is a certain variety of ʻiliahi (not named in the CIA report), of which, he said, he had only seen a few in his life—and only one in Ukumehame Ahupuaʻa—that used to grow near 3,000 feet amsl. Dr. Hōkūlani Holt (now Holt-Padilla), moreover, explained during both an interview for the KWP II CIA (Ah Sam and Rechtman 2009:28), as well as an interview for the current CIA, that the wao akua is usually defined based on the elevation of the naturally occurring cloud line in specific locations.

Although scholars and community members have expressed different ways to define the wao akua, this region is consistently said to lie in the middle elevations of mountainous regions, above the areas typically inhabited by people on a day-to-day basis. During the CIA for the KWP II expansion facility (Ah Sam and Rechtman 2009), the beginning of the wao akua was identified above the elevation of the existing KWP I facility (the current project area), and the view was shared by consultants that cultural impacts could be avoided by refraining from expanding the facility above the existing footprint. Because the KWP I facility has already been built and no additional infrastructure is proposed, continued use of the facility is not anticipated to cause any additional impacts to the wao akua or associated cultural beliefs or practices.

Hanaʻula Ridge

Another resource of cultural significance is the exposed red soil along Hanaʻula Ridge, which was mentioned by Mr. Paolo Kamakehau Fujihiro in his interview for the CIA for the construction of KWP II (Ah Sam and Rechtman 2009:28). Mr. Fujihiro identified Hanaʻula Ridge as the landform between Manawainui and Manawaipueonui gulches on which the KWP I facility stands. According to Mr. Fujihiro, Hanaʻula is the only ridge of red dirt of its type along the coastline from Māʻalaea to Lāhainā. Based on its unique color, Hanaʻula is understood as a large koʻa or beacon to those sailing toward Ukumehame. Hikiʻi Heiau (a navigational heiau at about 200 feet amsl, well below the KWP I and KWP II project areas) was said to have been built for this reason. As explained by Mr. Fujihiro, canoe travelers and fishermen would align their canoes with Hanaʻula Ridge and Hikiʻi Heiau and sail toward Kahoʻolawe, staying to the south of the island. When they returned, they would align their course with another navigational heiau named Āweoweonui, which is located a few ridges over towards Lāhainā, always returning from the north side of Kahoʻolawe.

The continued use of KWP I is not anticipated to impact Hanaʻula Ridge as a cultural and navigational landmark. Ah Sam and Rechtman (2009:30), who conducted a CIA for the development of KWP II, observed that "while the placement of wind towers does not go unnoticed, the actual effects the towers have on obscuring this natural navigation aid can be considered negligible in that the ability to use this landscape feature is not diminished by their presence." Because no additional infrastructure is proposed for the existing KWP I facility, the continued use of the facility is not anticipated to cause any additional impacts to views of Hanaʻula Ridge that would impact one's ability to use the ridge for navigational purposes.

View Planes from Kahoʻolawe

Although the culture-historical background research and interviews for this study yielded an abundance of information about valued resources with the potential to be found within the KWP I project area, little information was obtained regarding ongoing traditional and customary practices that might be impacted by KWP I's proposed continuation of service. A letter received from Ikaika Nakahashi (on behalf of Dr. Jessica Puff) at the DLNR-SHPD in response to the EISPN for this project mentioned the need to evaluate "the potential negative impacts on scenic vistas and view planes as seen from Kahoʻolawe [and] the effects on Hawaiian religious practitioners who conduct ceremonies there" and requested that the EIS make such an evaluation.

Though not mentioned specifically by Mr. Nakahashi or any of the individuals contacted for this study, Makahiki ceremonies have been held annually on the island of Kahoʻolawe by the organization Protect Kahoʻolawe ʻOhana since 1980 (Protect Kahoʻolawe ʻOhana 2024). There may be additional religious practices conducted on Kahoʻolawe by native Hawaiian cultural practitioners. Although the Makahiki ceremonies on Kahoʻolawe occur at a significant distance from the KWP I project area, based on the DLNR-SHPD's recommendation that the effects of the continued operation of KWP I on religious practices taking place on that island, the current assessment thus identifies view planes as observed from Kahoʻolawe as a potential cultural resource for consideration as part of the review process for the project.

The physical footprint of the KWP I project, in particular the turbines, is a highly visible aspect of the contemporary West Maui landscape. Given the large size of the turbines and the direct line of sight, it is conceivable that the power generating equipment would be perceptible (or even conspicuous) to individuals viewing the east-

facing slope of West Maui from Kahoʻolawe during religious ceremonies, and that the view of the turbines could alter the character or experience of specific ritual practices. To address this comment, multiple efforts were made to reach out to representatives of the Protect Kahoʻolawe ʻOhana and the Kahoʻolawe Island Reserve Commission. While an initial response was received from the Protect Kahoʻolawe ʻOhana, it did not ultimately prove possible to schedule an interview. Without additional information from individuals or organizations engaging in religious observances on Kahoʻolawe, however, it is difficult to assess the nature or scope of any potential impacts. Given that the KWP I project has been in operation for almost two decades, there will be no new visual impacts associated with the proposed continuation of service.

Native Plants and Animals

Background culture-historical research and community consultation have revealed that numerous culturally valued natural resources, include many species of fauna and flora, are present or potentially present within the project area. Many of these natural resources were collected and used by Native Hawaiians for food, medicines, and raw materials and thus were valued for economic, political, religious, and/or cultural reasons. Even in the absence of specific economic or other cultural uses, however, it is critical to understand that, within a traditional Hawaiian context, the cultural and natural environments are so tightly intertwined that no meaningful distinction can be made between natural or biological and cultural resources (Maly 2001). Maly (2001:1-2) provides a brief description of this concept:

> In a traditional Hawaiian context, nature and culture are one and the same, there is no division between the two. The wealth and limitations of the land and ocean resources gave birth to, and shaped the Hawaiian world view. The ʻāina (land), wai (water), kai (ocean), and lewa (sky) were the foundation of life and the source of the spiritual relationship between people and their environs. Hawaiian moʻolelo, or traditions express the attachment felt between the Hawaiian people and the earth around them. In Hawaiian culture, natural and cultural resources are one and the same. Native traditions describe the formation (literally the birth) of the Hawaiian Islands and the presence of life on, and around them, in the context of genealogical accounts. All forms of the natural environment—from the skies and mountain peaks, to the watered valleys and plains, to the shore line and ocean depths—were the embodiments of Hawaiian gods and deities. One Hawaiian genealogical account, records that Wākea (the expanse of the sky) and Papa-hānaumoku (Papa—the strata who gave birth to the islands)—also called Haumea-nuihānau-wā-wā (Great Haumea—Womanearth born time and time again)—and various gods and creative forces of nature, gave birth to the islands. Hawaiʻi, the largest of the islands, was the first-born of these island children. Respect and care for nature, in turn meant that nature would care for the people. Thus, Hawaiian culture, for the most part, evolved in a healthy relationship with the nature around it, and until the arrival of foreigners on Hawaiian shores, the health and well-being of the people was reflected in the health of nature around them.

Thus, all natural and biological resources, including various plant and animal species, are considered culturally important. It is with reference to this traditional Hawaiian understanding, which does not differentiate between cultural and natural resources, that the following plants and animals are identified within the project area.

Animals (Birds and ʻŌpeʻapeʻa)

Among the most notable animals known or thought likely to inhabit or transit the KWP I project area (based on nearby established population) are numerous species of birds, of which several are indigenous or endemic to Hawaiʻi and Maui. The CIA conducted prior to the construction of KWP II expansion project (Ah Sam and Rechtman 2009) identified the uplands of Ukumehame as a likely kulamanu or gathering place of birds. Robins et al. (1994), moreover, suggest that the tablelands of Ukumehame have been used by native Hawaiians as a resource collection area for native birds. Birds identified in or near the KWP I project area by scientific studies and information provided by consulted parties include numerous species of seabirds, shorebirds and wading birds, the pueo (Hawaiian short-eared owl, *Asio flammeus sandwichensis*), and the nēnē (*Branta sanvicensis*).

Several species of seabirds, including the ʻuaʻu (Hawaiian petrel, *Pterodroma sandwicensis*), ʻuaʻu kani (wedge-tailed shearwater, *Puffinus pacificus*), ʻaʻo (Newell's shearwater, *Puffinus newelli*), ʻakēʻakē (band-rumped storm petrel, *Oceanodroma castro*), koaʻe kea (white-tailed tropicbird, *Phaethon lepturus*), and ʻewaʻewa (sooty tern, *Sterna fuscata*), are known to inhabit or transit the KWP I project area. At the time of his CIA interview in 2009, Mr. Paolo Kamakehau Fujihiro (in Ah Sam and Rechtman 2009) reported that a colony of ʻuaʻu was then in residence in the wao corresponding to the KWP II project area. Although these birds spend much of their lives at sea and may travel thousands of miles at a time, they stay on land for periods of time each year to nest, flying from the sea to land around

dusk each evening. The cultural significance of seabirds to native Hawaiians is expressed in varied ways. According to the Kauaʻi Seabird Recovery Project (2024), the flight paths of seabirds from shore to land may be used to aid in sea navigation or assist in weather observations. The gathering of feeding seabirds can be used to locate schools of fish. Some seabirds, such as ʻuaʻu nestlings, were eaten, and feathers were used to make capes and lei (Kauaʻi Seabird Recovery Project 2024). The cultural significance of seabirds is also reflected in expressions such as one recorded by Pukui (1986) as ʻŌlelo Noʻeau 1073 to refer to a family with only one child: "Hoʻokahi nō hua a ka ʻaʻo" (lit. "For the ʻaʻo lays but a single egg").

One shorebird, the kōlea (Pacific golden plover, *Pluvialis fulva*), and one wading bird, the ʻūlili (wandering tattler, *Heteroscelus incanus*) have been identified in the vicinity of the project area. The kōlea is a migratory bird which "comes to Hawaiʻi about the end of August and leaves early in May for Siberia and Alaska" (Pukui and Elbert 1986:162). The kōlea is sometimes identified as an ʻaumakua. Based on the bird's migratory patterns, the name "kōlea" may be used as a "scornful reference to foreigners…who come to Hawaiʻi and become prosperous, and then leave with their wealth" (Pukui and Elbert 1986:162). The ʻūlili is a wading bird that migrates to Hawaiʻi for the winter after breeding in more northerly regions such as Alaska and the Yukon (Pukui and Elbert 1986:368).

The nēnē (Hawaiian goose, *Branta sandvicensis*), a goose endemic to Hawaiʻi, is known to forage and nest in the immediate vicinity of the KWP I project area. The nēnē faced near extinction in the 20th century, but its populations have since rebounded through release programs. These birds were initially released in Haleakalā Crater, although an additional release pen (which is no longer in operation) at one time operated mauka of the KWP I project area on Hanaʻula Ridge (Planning Solutions 2010:3-22). During a 2009 interview for the KWP II project, Mr. Walter Kanamu (in Ah Sam and Rechtman 2009) remarked on his belief that nēnē migrations may once have originated in the Ukumehame area. From there, he stated, they would fly over the mountains to the Wailuku and Waiheʻe areas, even traveling as far as Kanaio.

The pueo (Hawaiian short-eared owl, *Asio flammeus sandwichensis*) has also been noted near the KWP I project area. The pueo, which is often considered "benevolent ʻaumakua" (Pukui and Elbert 1986:348; Mason 2024) has a culturally significant association with the vicinity of the KWP I project area. The pueo, another endemic species, is specifically associated with Manawaipueo Gulch, a ravine that runs along the eastern boundary of the KWP I project area. The gulch is associated with a moʻolelo entitled "Ka Moʻolelo Kaʻao O Ka Hoʻouka Kaua O Nā Pueo, A Lukuʻia Nā Kānaka a Me Nā Aliʻi O Maui" ("The Legend Concerning the Battle of the Owls and the Massacre of the People and Chiefs of Maui"). According to the legend, pueo from all the islands gathered at Manawaipueo Gulch before flying to Wailuku to battle the chiefs of that area (Uaua 1871). In a 2009 interview, Mr. Paolo Kamakehau Fujihiro (in Ah Sam and Rechtman 2009) mentioned Manawaipueo as a gathering place for pueo who made a seasonal migration to feed. Mr. Foster Ampong, in an interview for this study, also recalled the presence of pueo colonies near the KWP I project area.

The ōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus cinereus semotus*) has been detected through scientific studies at low numbers within the KWP I project area. The ōpeʻapeʻa, the only native terrestrial mammal in Hawaiʻi, eats insects and roosts in trees, most commonly around 2,060 feet in elevation (Planning Solutions 2010:3-23). Mr. Foster Ampong recalled in his interview for this project seeing ōpeʻapeʻa in the vicinity of the KWP I project area. Based on his work with Maui Cultural Lands, Mr. ʻEkolu Lindsey mentioned that the ōpeʻapeʻa has adapted its habitat to roost in introduced ironwood trees (*Casuarina equisetifolia*). Because the ironwood trees are considered an invasive plant species, the presence of the ʻōpeʻapeʻa in these trees makes it more difficult to work toward eradicating them.

It is anticipated that the proposed KWP I continuation of service has the potential to create some minor impacts to several types of native animal species. The specifics of the impacts will be addressed more fully in the Fauna section of the EIS; however, given the significance of native animals as cultural resources, it is important to address these topics from the perspective of cultural impacts. The impacts of turbine collisions on terrestrial fauna is one of the most widely discussed effects of the KWP I (and KWP II) facilities' operation on Maui and was mentioned during the interviews for this CIA. Several bird species, including the ʻuaʻu, ʻaʻo, and ʻakēʻakē, known to frequent or transit the project area are listed as federally endangered or threatened, while others, such as the ʻuaʻu kani, koaʻe kea, ʻewaʻewa, kōlea, and ʻūlili, are protected by the Migratory Birds Treaty Act (MBTA). The endemic pueo is listed as endangered by the State of Hawaiʻi on Oʻahu, but not on Maui. Mr. Pfaeltzer discussed his concerns that animals, particularly the ʻōpeʻapeʻa and shearwater birds, are being killed by the wind turbines at a higher rate than originally projected. The letter submitted by DLNR-SHPD staff in response to the EISPN, additionally, expressed concern that Kaheawa Wind 1 continuation of service project would allow for continued fatalities of protected animals and that, consequently, endangered and threatened species would be further depleted.

Prior to the development of the wind power facility, Kaheawa Wind Power LLC prepared a Habitat Conservation Plan (HCP) and obtained a federal Incidental Take Permit (ITP) from USFWS from a state Incidental Take License (ITL) from the DLNR covering the incidental take of four federally and state-listed threatened and endangered species, including ʻōpeʻapeʻa, nēnē, ʻaʻo, and ʻuaʻu. Per the ITP and ITL, Kaheawa Wind I facility is permitted take limit of 50 ʻōpeʻapeʻa, 58 nēnē, 4 ʻaʻo, and 38 ʻuaʻu from 2006 through 2026. The Kaheawa Wind Project HCP Annual Report for 2024 reported that, as of 2024, 13 ʻōpeʻapeʻa fatalities, 37 nēnē fatalities, and 8 ʻuaʻu fatalities had been observed since 2006. However, to account for any undetected fatalities, the report calculated an estimated cumulative take which indicates that 32 ʻōpeʻapeʻa, 55 nēnē, and 23 ʻuaʻu fatalities have occurred since 2006. No ʻaʻo fatalities have been recorded since 2006. The report indicates that ʻōpeʻapeʻa, ʻaʻo, and ʻuaʻu fatalities will remain under the 20-year take limit; however, according to the HCP report, there is a moderate chance that nēnē fatalities will exceed the take limit.

While the HCP and the Incidental take permits only covers federally and State-listed threatened and endangered species, Kaheawa Wind Power LLC has recorded 10 fatalities representing five non-listed species at the KWP I facility. These 10 fatalities include one species protected by the Migratory Bird Treaty Act (MBTA), the koaʻe kea. The other four species consist of non-native species including the black francolin (*Francolinus francolinus;* two fatalities), gray francolin (*Francolinus pondicerianus*; two fatalities), ring-necked pheasant (*Phasianus colchicus*; four fatalities), and warbling white-eye (*Zosterops japonicus*; one fatality).

Wildlife fatalities, especially among listed species, have the potential to represent a significant cultural impact, especially in the absence of appropriate and effective mitigation strategies. Mitigation strategies are intended to offset the impacts of fatalities that occur during the routine course of turbine operations and through additional means such as habitat loss and involve actions such as habitat propagation and release programs. While the loss of individual animals is unwelcome and regrettable, to reasonably be considered a cultural impact, fatalities of members of a given species must be affected to an extent that the numbers involved are sufficiently high to represent a significant reduction in population. Although the continued operation of the KWP I facility will almost certainly result in additional fatalities to culturally valued and listed animals species, the incidental take counts and fatality counts described in the reports represent only a small proportion of the overall populations of these animals, and it is not clear that operation of the wind power facility has contributed to any measurable declines. Additionally, the Applicant has made a concerted effort to mitigate the fatalities that have occurred as the result of wind farm operations on a species-by-species basis. As a result, although it is not possible to state with certainty that there will be no impact to culturally valued animals through the continued operation of the KWP I project, the overall impact is as yet unknown. Any impacts to culturally valued animals will need to be closely monitored so that they may be mitigated through strict adherence to an approved Habitat Conservation Program (HCP) similar to the one already in place.

Plants

Although vegetation within the KWP I project area and vicinity has been dominated by non-native species since prior to the construction of KWP I, scientific studies have nevertheless documented the presence of many indigenous and endemic plants. The 2024 EISPN describes these native plant communities as primarily "[n]ative shrubland vegetation [consisting of] low stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻūlei (*Osteomeles anthyllidifolia*), and uluhe fern (*Dicranopteris linearis*)," and notes that "[n]ative vegetation appears to become increasingly more dominant mauka of the Project area toward the summit of Mauna Kahālāwai" (Tetra Tech 2024:12). The EIS for the initial project also mentioned the identification of "a grass (*Triseum inadequale*), a herb (*Waltheria indica*) and several shrubs: ʻulei, uʻulei (*Osteomeles anthyllidifolia*), ʻiliahi aloʻe, sandalwood (*Santalum ellipticum*), and ʻilima (*Sida fallax*)" (WSB Hawaiʻi 1999:3-22). A botanical survey prepared for the current EIS identified 18 plant species within the KWP I lease area that are native to the Hawaiian Islands, including seven species which are endemic to and found only in the Hawaiian Islands (Table 6). Many of the plants identified within the project area have documented cultural uses, which range from a variety of medicinal uses to the use of plant parts in making dye, lei, basketry, house parts, and many other objects. Table 6 provide some of the cultural uses that have been recorded for each of the plant species identified in the vicinity of the KWP I project area.

Table 6. Indigenous and endemic plants identified during the botanical survey for the current EIS (Tetra Tech 2025a).

Common Name	*Scientific Name*	*Status**	*Elevation Zone(s)*	*Cultural Uses***
ʻaʻaliʻi	*Dodonaea viscosa*	I	upper, middle	Leaves used as medicine, wood used for house posts, spears; fruits used as dye and in lei; flowers used in lei
ʻākia	*Wikstroemia oahuensis* var. *oahuensis*	E	upper, middle	Sap, leaves, and leaf buds used as medicine; wood used as ʻauamo (carrying stick); leaves, branches, and berries used to stupefy fish; fruits used for lei, bast fibers used for cordage
ʻiliahi aloʻe	*Santalum ellipticum*	E	middle	Leaves, bark, and shavings used as medicine; heartwood used as perfume for kapa; wood used for musical instruments
ʻilima	*Sida fallax*	I	upper, middle, lower	Flowers, leaf buds, and root bark used as medicine; flowers used for lei, stems used for house frames and to encircle kalo planting mounds; vines used for basketry and floor covering under sleep mats
kāwelu	*Eragrostis variabilis*	E	upper	Grass used for thatching
kīlau	*Pteridium aquilinum* subsp. *decompositum*	I	upper	--
koali ʻawa	*Ipomoea indica*	I	upper	All parts used as medicine
koʻokoʻolau	*Bidens micrantha* subsp. *micrantha*	E	upper	All parts used as medicine; leaves used for tea
ʻōhia lehua	*Metrosideros polymorpha*	E	upper, middle	Flowers and young leaf buds used as medicine; wood used for kiʻi (images), posts, rafters, fences, firewood, canoes, and musical instruments; flowers and young leaf buds used for lei
palaʻā	*Odontosoria chinensis*	I	upper	Parts used as medicine; fronds used as offering to the gods and dye
pili	*Heteropogon contortus*	I	middle	Grass used as medicine and thatch
pūkiawe	*Leptecophylla tameiameiae*	I	upper, middle	Leaves used as medicine; fruit used for lei; smoke used to smudge commoners with whom the aliʻi wished to mingle; wood used for cremating bodies of outlaws and for kua kuku (kapa anvil)
ʻuhaloa	*Waltheria indica*	I	upper, middle, lower	Flowers, tap root, tap root bark, leaf buds, and lower leaves used as medicine
ʻūlei	*Osteomeles anthyllidifolia*	I	upper, middle	Bark, leaf buds, and seeds used as medicine; wood used for oʻo (digging sticks), musical instruments, spears; branches used for fish net loops; fruits used as famine or casual food and to make dye and lei
uluhe	*Dicranopteris linearis* f. *linearis*	I	upper	Parts used in lei
--	*Koeleria inaequalis*	E	middle	--
--	*Morelotia gahniiformisb*	E	upper	--
--	*Nephroia orbiculate*	I	upper	--

*E: endemic; I: indigenous.
**Information from the Bishop Museum's Hawaiian Ethnobotany Online Database (Bishop Museum 2025).

In interviews for this CIA, Mr. ʻEkolu Lindsey and Mr. Foster Ampong both recalled their memories of common plant species in this portion of Ukumehame. Mr. Lindsey stated that beautiful ʻaʻaliʻi and [ʻōhiʻa] lehua plants once grew along the side of the valley near where the KWP I operations building currently stands but were destroyed during construction of Kaheawa Pastures Road. Mr. Ampong mentioned the presence of abundant pili grass in the general area and recalled that, while the area would have had maile lau liʻi, he is unsure whether they would still be present. He also shared that the area is a potential habitat for koa lau liʻi, a variety unique to West Maui.

The cultural informants expressed concern that the native flora in the project area will be negatively impacted by the KWP I continuance of service project. As described, the native vegetation within the project area has been drastically affected by historic cattle ranching, fires and modern development, including construction and operation of the KWP I facility. Current conditions within the facility, including hard soils and dense invasive species, were cited by Mr. ʻEkolu Lindsey as key factors in preventing native species from thriving within the project area today, despite Maui Cultural Lands' efforts to support regeneration. The growth of ironwood trees was emphasized during community interviews as a key problem in vegetation management at the wind farm, as well as the spread of other invasive species such as fireweed. Given that the KWP I project area has already been developed and no additional ground disturbance is planned outside the area of previous disturbance, it is anticipated that any impact of the continued operations of the KWP I facility on native flora, though as yet unknown, will be limited and in fact has the potential to be improved by renewed efforts to control invasive species and regrow native vegetation.

FEASIBLE ACTIONS TO PROTECT VALUED CULTURAL RESOURCES

As described in the preceding section, the cultural-historical information and manaʻo shared during the interviews revealed that the proposed KWP I continuation of service project has the potential to create some potential impacts on valued cultural resources. Despite the existence of these potential impacts, however, the scale of these impacts will remain largely consistent with current conditions, and there are opportunities for the Applicant to mitigate these impacts as part of a concerted effort to renew and revitalize stewardship of the KWP I project lands. This section focuses on specialized recommendations to protect specific valued resources; additional general recommendations are provided in the next section.

1. Ensure compliance with DLNR-SHPD-accepted preservation plan for the heiau (Site 50-50-09-05232).

To reasonably protect historical resources, the Applicant should review the DLNR-SHPD-accepted recommendations for existing archaeological sites within the project area and ensure compliance with all relevant directives. Long-term preservation measures for the heiau (Site 50-50-09-05232) along the western perimeter of the KWP I lease area include the following: (a) The installation of "discrete permanent markers" consisting of metal pipe set in concrete along the perimeter of a preservation buffer zone extending 100 to 200 feet from the heiau (where it overlaps with the wind power facility development area) (Tomonari-Tuggle and Rasmussen 2005:11, 14); (b) The installation of "small signs" where the buffer zone crosses into the lease area "that state that a sacred site is in this area and that respect toward this site is expected" (Tomonari-Tuggle and Rasmussen 2005:14); and (c) The distribution by the Applicant of "educational brochures or information sheets that may be produced by DLNR or a cultural group for distribution to individuals and organizations having access to the project area [to] provide information on the site, its sacred/spiritual character, the need for protection, and a point-of-contact for additional information." According to the preservation plan, "individuals responsible for landscaping maintenance and grass control [shall] be explicitly instructed to be aware of and to avoid Site 5232" (Tomonari-Tuggle and Rasmussen 2005:14).

Several actions can be recommended to ensure compliance with the SHPD-approved preservation plan for Site 5232. The Applicant should consult with the SHPD to determine if permanent markers were installed and, if so, attempt to find them and ensure that, if they are present, they are visible and clear of vegetation. The Applicant should consult with the SHPD to determine if the SHPD installed the protective signs at the site and arrange for the repair or replacement of these signs, which are currently in a state of disrepair. It is strongly recommended that site workers receive training on best practices for working not only near the heiau but in the vicinity of all historic resources in or adjacent to the project area. This training might include topics such as the valued nature of these historic resources and the need to avoid known archaeological sites during work with heavy equipment.

2. Ensure compliance with DLNR-SHPD-accepted preservation plan for Site 50-50-09-05648.

To reasonably protect historical resources, the Applicant should review the DLNR-SHPD-accepted recommendations for existing archaeological sites within the project area and ensure compliance with all relevant directives. Long-term preservation measures for Site 50-50-09-05648, which extends to both sides of the Kaheawa Pastures Road, consist of the installation of informational/cautionary signs at key locations between the wind tower pads and the feature clusters of Site 5648 (Rechtman 2010). These signs should state that the site is a "historically and culturally significant

plan" and warn against removing or disturbing rocks from the area. Furthermore, the signs warn that the site is protected under state law (Chapter 6E-11, HAR) and violations can result in fines.

To ensure compliance with the SHPD-approved preservation plan for Site 5648, the Applicant should consult with the SHPD to determine if informational/cautionary signs were installed and, if so, attempt to find them and ensure that, if they are present, they are visible and clear of vegetation. If the signs were never installed, the Applicant should consult with the SHPD to install the signs.

3. Support a curation arrangement with Maui Cultural Lands to maintain and care for the heiau (Site 5232).

Although not a preservation measure per se, the preservation plan (Tomonari-Tuggle and Rasmussen 2005:14) for the heiau (Site 5232) also states that interviews conducted for the preservation plan revealed a strong "community interest in long-term maintenance and protection of the site." As a result, the authors raised the possibility of supporting a long-term curation arrangement for care of the heiau between the State and a community group such as the Maui Cultural Lands organization or another community organization interested in heiau stewardship.

It is strongly recommended that a plan be implemented to clear the heiau of vegetation, including ironwood trees, and keep it clear, as the current state of overgrowth is likely to result in substantial disturbance to the site over time. However, any vegetation clearing or other maintenance activities in the vicinity of the heiau should be conducted in consultation with the DLNR-SHPD and the Maui Cultural Lands organization and with a qualified archaeological monitor present.

4. Ensure compliance with all Chapter 6E statutes and regulations.

The Applicant should ensure that all relevant HRS Chapter 6E statutes and regulations are followed during the proposed future KWP I operations. Consultation should be established with the DLNR-SHPD before any ground-disturbing activities covered under Chapter 6E are undertaken. Chapter 6E-8 applies to "Any State or County Project which may affect a historic property." Chapter 6E-42 is triggered by "Any State Agency's or County Agency's approval of a permit, license, certificate, land use change, subdivision, or other entitlement for use which may affect a historic property." It is further recommended that consultation with the DLNR-SHPD should be initiated prior to the start of any ground-disturbing activities with the potential to affect previously documented historic properties, regardless of regulatory context.

Mr. Foster Ampong suggested that the KWP I project area be subjected to an archaeological survey using the most contemporary technology and methods to re-document the archaeological sites that occur within it. It is recommended that the Applicant consider contracting with a qualified archaeologist to conduct a Supplementary Archaeological Inventory Survey (SAIS) at the conclusion of the initial operation term for KWP I. Regardless of any regulatory requirements, the completion of an SAIS would provide an opportunity for an archaeologist to assess the condition of previously documented sites, including any unanticipated effects on historical resources within the KWP I project area, and provide updated treatment recommendations, such as potential future protective measures or areas of training needed for facility employees. The completion of an SAIS would also allow for the documentation of archaeological sites within the project area using modern GPS technology capable of submeter accuracy, as well as other innovative techniques such as drone photography or photogrammetry.

5. Remove plastic pipes from any affected archaeological sites.

Based on the comments provided by Mr. Keoki Pfaeltzer, it is recommended that a qualified archaeologist be contracted to examine all known archaeological sites within the KWP I project area for any instances in which plastic pipes are in contact with plastic pipe. An alternate route for any piping routed through archaeological sites should be identified, and the pipe should be moved to an alternative location that does not cross any archaeological sites.

6. Coordinate with the DLNR to replace signage for the Lāhainā Pali Trail (Site 50-50-09-02946).

The signage near the intersection of the Lāhainā Pali Trail (Site 50-50-09-02946) and Kaheawa Pastures Road has deteriorated significantly and is in considerable disrepair. Although the signs are the property of the DLNR, it is recommended that the Applicant coordinate with the DLNR and provide the necessary funding to repair or replace the signs. The signs should include interpretive content explaining the history and significance of the trail as a historic property and cultural resource.

7. Conduct cultural sensitivity training to explain the significance of the cultural landscape.

It is recommended that all wind farm personnel are educated about the wao akua and the cultural landscape of Ukumehame, including the presence of the heiau (Site 50-50-09-05232) along the western perimeter of the KWP I project area, so they may understand the cultural significance of the area and the importance of ensuring that all

operations, especially those conducted in the project area's upper elevations near the wao akua and in the general vicinity of the heiau, are carried out respectfully and with proper decorum.

8. Protect native animal species, including birds and ʻōpeʻapeʻa, by following Habitat Conservation Plan.

The Applicant should continue to actively protect native animal species, including birds and ʻōpeʻapeʻa, by following an approved Habitat Conservation Plan (HCP). The existing KWP I project has operated under a Habitat Conservation Plan (HCP) since 2006 intended to protect four federal and State-listed animal species, including the ʻōpeʻapeʻa, nēnē, ʻaʻo, and ʻuaʻu. The Applicant is currently preparing a new and updated HCP to support their request for an amended and extended ITP from USFWS and a new ITL from DOFAW. The updated HCP will protect the same four species covered by the 2006 HCP. According to a letter sent to Endangered Species Recovery Committee (ESRC) members by the Applicant, the conservation strategy proposed in the updated HCP will include "avoidance, minimization, and mitigation measures aimed at fully offsetting the impact of take and providing a net benefit to covered species."

Proposed avoidance and mitigation measures are intended to decrease the number of animal fatalities through protective measures. Avoidance measures, as outlined in project planning documents, include: (1) continuation of low-speed wind curtailment and potential redistribution of curtailment informed by data when ʻōpeʻapeʻa are present and most active; and (2) continuation of vegetation management for nēnē to minimize risk for individual birds when they are present. The proposed mitigation measures are intended to offset any animal fatalities that cannot be avoided and will include the continuation of existing mitigation measures (i.e., habitat regeneration, breeding release programs, and significant financial support for conservation programs and species-specific environmental studies) as well as the development of new mitigation projects.

The updated HCP propose a continuance of the current monitoring program to ensure the wind farm is in compliance with the HCP and incidental take levels. This current monitoring program includes post-construction fatality monitoring and acoustic bat monitoring. In addition, a new element of the monitoring program, consisting of on-site nēnē monitoring, is currently being discussed by the Applicant and DOFAW. The Applicant should continue all approved monitoring programs so that any emerging impacts to listed species can be appropriately mitigated in a timely manner.

Concerning reasonably protecting bird species not federally or state-listed as threatened and endangered but still found within the project area (i.e., ʻakēʻakē, ʻuaʻu kani, koaʻe kea, ʻewaʻewa, and kōlea), the Applicant should continue to monitor and report fatalities of these species to ensure the full impact of the wind power facility on these unprotected species is understood. If the impact to any of these unlisted species increases (i.e., fatalities increase, effects to reproduction cycle are identified, etc.), mitigation measures should be developed for the individual species impacted.

10. Renew efforts to control invasive vegetation species within the KWP I lease area.

With regards to reasonably protecting native vegetation within the project area, several best management practices (BMP) and minimization measures for vegetation are currently occurring within the project area (Kaheawa Wind Power, LLC 2024b:17). These include: (a) Minimizing the introduction and spread of invasive species associated with wind facility operations through the implementation of standard BMPs, such as washing equipment prior to entering the site from other areas; (b) Implementing a Vegetation Management Plan to prevent the establishment of weeds within the project area, including vegetation maintenance around turbine pads and relevant areas to eliminate any nēnē foraging attractions of new growth; and (c) Implementing a Wildland Fire Prevention and Response Plan to minimize fire impacts to vegetation.

It is recommended that the Applicant continue to implement the above measures to reasonably protect native flora within the KWP I project area. Furthermore, it is recommended that the Applicant renew efforts to control invasive species within the KWP I lease area and thus provide an opportunity for native plants to regenerate. It is recommended that the Applicant collaborate with a community group such as Maui Cultural Lands to remove invasive species, including ironwood and fireweed, two plant varieties of particular concern to community consultants, from the KWP I project area. The heiau along the western perimeter of the KWP I project area (Site 50-50-09-05232) should also be kept clear of invasive vegetation, in consultation with the DLNR-SHPD and Maui Cultural Lands and under the supervision of an archaeological monitor.

ADDITIONAL RECOMMENDATIONS

In contrast to the above recommendations, which are intended to target specific, tangible impacts identified by this assessment on valued cultural resources, the following recommendations, which draw on manaʻo provided by consulted individuals as well as the thoughts of the authors, are more general in nature. These recommendations focus on building relationships—with both the Ukumehame cultural community and others who may have vested interests

or be viewed as stakeholders (e.g., the Protect Kahoʻolawe ʻOhana) and with native Hawaiians of Maui and the Maui community more broadly—with the goal of fostering trust and sharing knowledge.

One possibility for strengthening ties with the community would be the establishment of a community advisory group consisting of individuals with close connections to Ukumehame and the immediate vicinity. These community members might include those with lineal or cultural ties to Ukumehame, the moku of Lāhainā, or even areas from which the wind farm forms a prominent part of the visual landscape. Such an entity would be in addition to any direct curation agreement that may be established with Maui Cultural Lands or another stewardship group to directly mālama the project lands. The Applicant has an existing commitment to a Community Benefits Program package that includes $300,000 in funds to support initiatives important to the community. A community advisory group consisting of individuals with close connections to Ukumehame and the immediate vicinity would be ideally positioned to guide the disposition of these funds. Regularly scheduled community meetings would provide an advisory group, along with other individuals, ʻohana, and community groups with an opportunity to make their concerns or ideas known in a semi-public setting and also to provide direct feedback to the Applicant about ways that the Applicant can best support the Maui community.

It is also recommended that the Applicant work toward strengthening connections between its organization and the Maui community, including the native Hawaiian community, more generally. Such a goal could be accomplished in several ways, of which only a few will be mentioned here. There are clear opportunities for "give back" to the community, both financially and otherwise, and it is hoped that the Applicant will consider, in addition to supporting habitat programs as required by its mitigation agreements, also providing support for community cultural programs or, potentially, training opportunities for local students and young professionals with an interest in renewable energy. At least one individual interviewed for this assessment mentioned that it would be productive for the Applicant to provide more jobs for community members, especially jobs in key roles involving decision-making responsibilities, and for the Applicant to encourage its personnel to create stronger, more long-term ties to Maui. Given its relatively high profile on Maui, the Applicant may want to consider hiring a full-time cultural or community coordinator. This individual could be responsible not only for coordinating the cultural stewardship of project lands but also providing education and outreach to the community regarding the operations of the wind farm facility.

5. KA PAʻAKAI O KA ʻĀINA ANALYSIS

The following chapter discusses the findings of the CIA using the framework of a Ka Paʻakai O Ka ʻĀina (sometimes referred to as Ka Paʻakai, or KPA) analysis. As discussed in Chapter 1, State agencies are required to undertake such an analysis when evaluating proposed actions that require discretional approvals, in order to assess potential effects on native Hawaiian cultural, historical, and natural resources, as well as traditional and customary practices. As such, the purpose of this chapter is to provide information specific to the three components of the KPA that will support the State's responsibility to identify, evaluate, and, if necessary, protect these resources and practices. The KPA framework, developed through 2000 Hawaiʻi Supreme Court decision (*Ka Paʻakai O Ka ʻĀina* v. Land Use Commission), requires consideration of the following three areas:

> (a) "the identity and scope of 'valued cultural, historical, or natural resources' in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
>
> (b) "the extent to which those resources -- including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action;" and
>
> (c) "the feasible action, if any, to be taken … to reasonably protect native Hawaiian rights if they are found to exist."

Information and analysis pertinent to these three topics is presented in three corresponding sections below.

(a) Please provide the identity and scope of cultural, historical, and natural resources in which traditional and customary Native Hawaiian rights are exercised in this area.

During a review of the culture-historical background material, along with community consultation, several cultural, historical, and natural resources, including traditional and customary practices, with the potential to be impacted by the proposed action were identified. These resources include historic properties, natural landscape features (e.g., the wao akua, Hanaʻula Ridge, and view planes from Kahoʻolawe), and native plants and animals. Each of the potential cultural, historical, or natural resources in the vicinity of the project area is briefly described below (see Chapter 4 for a more comprehensive discussion).

Several historic properties have documented locations intersect with the KWP I project area. These historic properties include the Māʻalaea Complex (Site 50-50-09-01287), the Lāhainā Pali Trail (Site 50-50-09-02946), a Historic highway remnant (Site 50-50-09-04696), a Historic Period watering trough (Site 50-50-09-05402), a Precontact Period habitation complex (Site 50-50-09-05648), a rock cairn and modified outcrop of unknown temporal affiliation (Site 50-50-09-05649), a Precontact Period habitation complex (Site 50-50-09-05653), and a set of concrete steps dating to the Historic Period (Site 50-50-09-05654). Except for Site 5402, a watering trough, all of these sites are located along Kaheawa Pastures Road, downslope and at some distance from the wind farm lease area. Of the sites for which formal treatment recommendations were provided as the result of previous archaeological investigations, all received recommendations of "no further work" except for two; a cultural resource management plan was prepared for the Lāhainā Pali Trail (Site 2946; Tomonari-Tuggle 1995), while a preservation plan was prepared for Site 5648 (Rechtman 2010). Site 5232, an upland heiau of unknown name, is located just outside western edge of the KWP I lease area. Nevertheless, a preservation plan prepared for the heiau (Tomonari-Tuggle and Rasmussen 2005) outlines preservation measures to be implemented during any work within defined buffers zones, which include portions of the KWP I project area.

Background research and community consultation have also revealed several natural landscape features in the vicinity of the project area that are culturally valued and may be associated with traditional cultural beliefs and practices. These landscape features identified during this study include the wao akua, Hanaʻula Ridge, and view planes from Kahoʻolawe. The wao akua is an elevation zone that is associated with akua or gods and has been identified by cultural consultants as occurring in the vicinity of the KWP I lease area. Hanaʻula Ridge is the landform between Manawainui and Manawaipueonui gulches on which the KWP I facility stands. It is distinctive within the region due to its red soil, which served as a large koʻa or beacon for those sailing toward Ukumehame. Finally, a representative writing on behalf of the DLNR-SHPD identified scenic vistas and view planes as seen from Kahoʻolawe as warranting consideration in the context of a CIA.

Finally, numerous culturally valued native fauna and flora species were identified as present or potentially present within the project area. Many of these natural resources were historically collected and used by Native Hawaiians as food, medicines, and raw materials and thus may hold economic, religious, and/or cultural significance. Animals known to inhabit or transit the area include ʻōpeʻapeʻa, along with various species of birds that are known

to live or transit through the area such as ʻakēʻakē, ʻaʻo, ʻewaʻewa, koaʻe kea, kōlea, nēnē, pueo, ʻuaʻu, ʻuaʻu kani, and ʻūlili. Native flora identified within the project area include ʻaʻaliʻi, ʻākia ʻiliahi aloʻe, ʻilima, kāwelu, kīlau, koali ʻawa, koʻokoʻolau, ʻōhiʻa lehua, palaʻā, pili, pūkiawe, ʻuhaloa, ʻūlei, and uluhe (see full list of native plant species within the project area in Table 6).

(b) Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

The proposed action has some potential to affect culturally, historically, and ecologically valued resources and to impair traditional and customary native Hawaiian rights. As discussed above, several valued cultural, historical, and natural resources and associated cultural practices were identified as being located or formerly located in the vicinity of the project area, including historic properties, natural landscape features (wao akua, Hanaʻula Ridge, the view planes from Kahoʻolawe), and native plants and animals. Because the proposed continued operation of KWP I involves no expansion of the development footprint or new construction, and no additional ground-disturbing activities are planned beyond the limits of the existing disturbance, direct physical impacts to historic properties are not anticipated. In fact, it is conceivable that the limitations on public access imposed by the presence of the wind power facility may provide a form of protection for the sites that occur within the KWP I lease area. It is worth noting, however, that these same limitations on access could also hinder cultural access to the sites and general area, including the area mauka of the wind farm. The possibility also exists that inadvertent impacts could occur to historic properties as a result of routine maintenance operations conducted by wind farm personnel during the continued use of the KWP I facility. For example, activities such as vegetation control that involve moving rocks or the operation of vehicles and heavy equipment outside designated road corridors could damage surface features or subsurface archaeological deposits. As mentioned by Mr. Keoki Pfaeltzer, facility personnel have laid black plastic irrigation piping over archaeological sites within the wind facility lease area. At present, it is assumed that the impacts caused by the piping are temporary and reversible through removal.

Regarding impacts to culturally significant natural landscapes, continued operation of the KWP I facility is not anticipated to cause any additional impacts to the wao akua or Hanaʻula Ridge, since the facility has already been built, and no new infrastructure is proposed. Regarding impacts on the view planes of Kahoʻolawe, the physical footprint of the KWP I project, in particular the turbines, is a highly visible aspect of the contemporary West Maui landscape. Given the large size of the turbines and the direct line of sight, it is conceivable that the power generating equipment could be seen by individuals viewing the east-facing slope of West Maui from Kahoʻolawe during religious ceremonies, and that the view of the turbines could alter the character or experience of specific ritual practices. Given that the KWP I project has been in operation for almost two decades, no new visual impacts would result from its continued use.

Unlike historic properties and natural landscape features, the continued operation of KWP I may result in new and ongoing impacts to culturally valued native fauna. As detailed in Chapter 4, the impacts of turbine collisions on terrestrial fauna, including federally endangered or threatened species, are among the most frequently cited issues regarding the operations of both the KWP I and KWP II facilities' operation and were mentioned by consultants during the interviews for this CIA. Community consultants expressed concern that continuation of service would allow for continued fatalities of protected species, further depleting their populations. Wildlife fatalities, especially among listed species, have the potential to represent a significant cultural impact, especially in the absence of appropriate and effective mitigation strategies. Mitigation strategies are designed to offset the impacts of fatalities that occur in the routine course of turbine operations, as well through additional means such as habitat loss, and may involve actions such as habitat propagation and release programs. While the loss of individual animals is unwelcome and regrettable, a cultural impact is more likely to be recognized when fatalities significantly affect population levels. Although the continued operation of the KWP I facility will almost certainly result in additional fatalities, current incidental take and mortality counts represent only a small fraction of the total populations, and it remains unclear whether KWP I operations have contributed to any measurable declines. The Applicant has made a concerted effort to mitigate the fatalities that have occurred as a result of wind farm operations on a species-by-species basis. As such, while the full extent of the accumulated impacts on culturally valued species remains uncertain, close monitoring and strict adherence to an approved Habitat Conservation Program (HCP), similar to the one already in place, will be essential in minimizing harm to culturally significant fauna.

Finally, the KWP I continuation of service project has some potential to negatively impact native flora in the project area. Native plant communities within and near the project area have already been significantly degraded by historic cattle ranching, fires, and modern development, including the construction and operation of the KWP I facility. Current conditions resulting from the operation of the wind farm, such as compacted soils and spreading invasive

species, were cited by Mr. ʻEkolu Lindsey as ongoing barriers to native plant regeneration, despite efforts by the Maui Cultural Lands organization. In particular, the spread of ironwood trees and other invasive species, such as fireweed, was highlighted during community interviews as a major challenge to vegetation management. Given that the KWP I project area has already been developed and no additional ground disturbance beyond the existing disturbance is planned, it is anticipated that any impacts of the continued operations of the KWP I facility on native flora will be limited. In fact, there is potential for improvement if invasive species are actively managed and efforts to restore native vegetation are renewed.

(c) What feasible action, if any, could be taken to reasonably protect Native Hawaiian rights?

To reasonably protect native Hawaiian rights associated with the proposed action and the identified cultural, historical, and natural resources, the Applicant should consider implementing the following recommendations.

Regarding the protection of historic properties within or near the project area, the Applicant should ensure that all relevant HRS Chapter 6E statutes and regulations are followed during the proposed future KWP I operations, including the compliance with the DLNR-SHPD-accepted preservation plans for the heiau (Site 5232; Tomonari-Tuggle and Rasmussen 2005) and Site 5648 (Rechtman 2010). Furthermore, additional steps should be taken to ensure the long-term maintenance and protection of these historic properties. These steps may include: 1) working with the DLNR-SHPD, Maui Cultural Lands, and potentially other community groups, to maintain and care for the heiau (Site 5232) just west of the KWP I lease area; 2) removing plastic pipes from any affected archaeological sites; and 3) coordinating with the DLNR-SHPD to replace interpretive signage for the Lāhainā Pali Trail (Site 2946). In addition, the Applicant should consider developing a cultural sensitivity training for all wind farm personnel that explains the significance of the cultural landscape, including the importance of the wao akua and the broader cultural landscape of Ukumehame. Special attention should be given to the presence of the heiau (Site 5232) just beyond the western perimeter of the KWP I project area. The training should stress the importance of conducting all operations, particularly those in upper elevation zones near the wao akua and in the vicinity of the heiau, are carried out respectfully and with proper decorum.

Regarding the protection of native animal species, including native birds and ʻōpeʻapeʻa, the Applicant should adhere to the Habitat Conservation Plan (HCP) currently under development. The updated HCP includes both avoidance and mitigation strategies aimed at reducing wildlife fatalities and compensating through offset measures for any that are unavoidable. It will also propose the continuation of the current monitoring program to ensure compliance with the HCP and incidental take permit thresholds.

To reasonably protect native vegetation within the project area, several best management practices (BMPs) and minimization measures are already being implemented (Kaheawa Wind Power, LLC 2024b:17) and should be continued. These measures include: 1) minimizing the introduction and spread of invasive species through standard BMPs, such as washing equipment prior to entering the site from other areas; (b) implementing a Vegetation Management Plan to prevent the establishment of weeds within the project area, including vegetation maintenance around turbine pads and other relevant areas to discourage nēnē foraging attractions of new growth; and (c) implementing a Wildland Fire Prevention and Response Plan to minimize fire-related impacts to vegetation. In addition, it is recommended that the Applicant renew and expand efforts to control invasive species within the KWP I lease area to create conditions more favorable for native plant regeneration. Collaboration with a community group such as Maui Cultural Lands is encouraged to support the removal of invasive species—including ironwood and fireweed, two plant varieties highlighted by community consultants as especially problematic—from the KWP I project area. Finally, the heiau along the western perimeter of the KWP I project area (Site 5232) should be kept clear of invasive vegetation. This effort should be conducted in consultation with the DLNR-SHPD and Maui Cultural Lands; all vegetation removal activities conducted near the heiau should be conducted under the supervision of an archaeological monitor.

6. CONCLUSIONS

It is evident from the information presented in this study that the uplands of Ukumehame represent a culturally significant area. Although the uplands were not used for intensive settlement or cultivation, they nevertheless supported travelers moving mauka-makai or from the Maui isthmus to Lāhainā and provided important landmarks for people traveling in canoes. The upper reaches of the KWP I project area approach the "wilderness of the gods," or the wao akua, and the tablelands in the vicinity were known as a gathering place for birds, including various species of seabirds and the endemic pueo. There are several historic properties in the immediate vicinity of the KWP I project area, including a heiau (Site 50-50-09-05232) along the western perimeter of the project area, the Lāhainā Pali Trail (Site 50-50-09-02946), and several additional archaeological sites, including temporary shelters associated with the use of the trail and ranching infrastructure.

The current project involves the application by Kaheawa Wind Power, LLC, for regulatory approval to extend the term of service for the KWP I facility (built in 2006) for another 20 years. No additional development or ground-disturbing activities are proposed beyond the continued use of the existing facility. This CIA is intended to supplement an EIS being conducted by the Applicant to support HRS Chapter 343 (HEPA) environmental review of the project. The preceding CIA used historical and cultural background research, the results of a previous CIA conducted for the adjacent KWP II expansion project, and the results of several interviews with individuals knowledgeable about the area. This document was organized in such a way as to address directly the three questions posed by a Ka Paʻakai O Ka ʻĀina Analysis (KPA); the elements of the KPA are also summarized in Chapter 5.

Although the wind farm has been operating for 20 years, and there are no development activities associated with the currently proposed continuation of service project, the consulted parties did offer concerns concerning potential impacts to cultural resources that may result from the proposed continued operation of the KWP I facility. These potential impacts, as discussed in the preceding section, primarily concern natural resources of cultural significance, such as possible negative effects on native species of plants and animals through land disturbance and turbine fatalities, respectively, as well as the high-elevation wao akua (an elevation zone typically considered to be mauka of the KWP I project area) and specific view planes. Some concern was also expressed about the potential impacts of continued operation of the facility on historic properties in the immediate area and within Ukumehame more generally, although the only specific and immediate threats reported or identified (the overgrowth of vegetation on the heiau and the presence of plastic piping on or near archaeological sites) can be easily addressed based on the recommendations provided in this report.

Despite the potential for impacts as the result of the proposed project, there are numerous opportunities for the Applicant to mitigate these impacts using the measures described in the previous section of this report. These recommendations focus on two primary areas. The first group of recommendations centers on revitalizing stewardship of project lands by fulfilling all statutory obligations, including the diligent monitoring of impacts to listed bird species and the ʻōpeʻapeʻa and the fulfillment of State-approved preservation plans for historic properties, as well as pursuing voluntary initiatives to provide exceptional care for vital resources of cultural significance. The second topic addressed in the recommendations involves working to strengthen the relationship between the Applicant and the people of Maui, by building pathways to enhanced communication and ongoing cultural consultation and working to support community initiatives. By continuing to align the project's goals with the long-term interests of Maui's communities, Kaheawa Wind Power I can become a more integrated and supportive part of the island's cultural and economic landscape.

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APPENDIX A. KA WAI OLA PUBLIC NOTICE

HO'OLAHA LEHULEHU
PUBLIC NOTICE

CULTURAL IMPACT ASSESSMENT: KAHEAWA WIND 1 WIND FARM FACILITY, ISLAND OF MAUI

ASM Affiliates is preparing a Cultural Impact Assessment (CIA) to inform an Environmental Impact Statement (EIS) being prepared for the proposed maintenance to support the continued operation of the Kaheawa Wind 1 wind farm facility. The area of focus totals approximately 200 acres and is in the vicinity of the Lāhainā Pali Trail and Ukumehame Beach Park, Ukumehame Ahupua'a, Lāhainā District, Island of Maui.

ASM is seeking consultation with any community members that have long-standing cultural connections to this area, might have knowledge of traditional cultural uses of the proposed project area; or who are involved in any ongoing cultural practices that may be occurring on or in the general vicinity of the project area. If you have and are willing to share any such information, please contact Candace Gonzales at cgonzales@asmaffiliates.com, phone (808) 969-6066, mailing address ASM Affiliates 507A E. Lanikaula Street, Hilo, HI 96720. Mahalo.

BURIAL NOTICE: BETHEL STREET, ISLAND OF O'AHU

Fragments of human skeletal remains were found at TMK: (1) 2-1-002:007, at 1043 Bethel St. in Honolulu Ahupua'a, Honolulu District, on O'ahu. Land Commission awardees and former residents in the area include the families of Colcord, Cole, Elliot, Holmes, Ii, Kuapanio, Lawrence, Lewis, Mahu, Pierce, Reynolds, Robinson, Rose, Sampson, Smith, Stuart, and Thompson. The remains are more than 50 years old and are of undetermined ethnicity. They will be reinterred on site.

Descendants of individuals who may have been buried on the property and those who may have knowledge of the remains are asked to contact Regina Hilo of SHPD at 808-692-8026, 601 Kamokila Blvd. #555, Kapolei, HI, 96707 or Lizabeth Hausani'o of Keala Pono Archaeological Cons. at 808-895-1871, PO Box 1645, Kāne'ohe, HI, 96744. Interested persons shall respond within 30 days and provide information that demonstrates descent from the remains, or from ancestors buried in Honolulu Ahupua'a or District.

NATIONAL HERITAGE AREA FEASIBILITY STUDY: KA'ENA POINT, ISLAND OF O'AHU

The National Park Service (NPS) is undertaking a feasibility study for a potential Ka'ena Point National Heritage Area (NHA) on the island of O'ahu. As directed by Congress, the NPS is conducting the study to assess the suitability and feasibility of an NHA designation (Public Law 117-339).

National heritage areas are a community-driven approach to heritage conservation. The National Park Service partners with, provides technical assistance to, and distributes matching federal funds from Congress to local NHA entities. A national heritage area is not a unit of the national park system, nor is any of its land owned or managed by the NPS. More information can be found at: nps.gov/subjects/heritageareas/

The Ka'ena Point area protects exceptional natural resources and some of Hawai'i's most sacred and important cultural resources, including the location of the Leina-a-ka-'uhane, or leaping-off point for souls into the next realm. The NPS is seeking input from the Native Hawaiian community to understand whether NHA designation would be appropriate to help honor and protect Ka'ena Point's heritage. The NPS invites Native Hawaiian community members, including lineal descendants from the moku of Waialua and Wai'anae, to contact us to share your thoughts or arrange a meeting. The National Park Service study team can be reached at: kaena_point_study@nps.gov

Broad-based public engagement for the study will occur in fall 2024, with virtual and in-person public meetings scheduled for late October 2024. Information about meeting times and locations can be accessed on the study website: https://parkplanning.nps.gov/kaenapoint. ■

HALI'A ALOHA
FOND REMEMBERANCE

To create a space for our readers to honor their loved ones, Ka Wai Ola will print *Hali'a Aloha - obituaries and mele kanikau (mourning chants)*. Hali'a Aloha appearing in the print version of *Ka Wai Ola* should be recent (within six months of passing) and should not exceed 250 words in length. All other Hali'a Aloha submitted will be published on kawaiola.news. Hali'a Aloha must be submitted by the 15th of the month for publication the following month. Photos accompanying Hali'a Aloha will only be included in the print version of the newspaper if space permits. However, all photos will be shared on kawaiola.news.



IRENE KU'ULEI KAWAIOLI LEONG
MARCH 12, 1936 – JULY 25, 2024

'Ewa, O'ahu – Irene Ku'ulei Kawaioli Leong, 88, of 'Ewa Beach, Hawai'i, passed away on July 25, 2024. She was born on March 12, 1936, in 'Ewa Hawai'i.

She is survived by sons Eugene (Mavis) Leong, Jr., Roy Leo Steven (Melody) Leong; daughers Cynthia Lee (Anthony) Gamboa, Iregene (Roque) Leong-Tabisola; hānai daughter Maile (Douglas) Piatt; 19 grandchildren and 30 great-grandchildren.

A memorial service will be held on Saturday, Nov. 9, 2024, at Mililani Mortuary Mauka Chapel. Visitation begins at 9:00 a.m. and service at 10:00 a.m.



DAWN ORIAN KAPUALANI ANAHU FERNANDEZ
MAY 30, 1926 – AUG. 18, 2024

Kāne'ohe, O'ahu – On August 18, Dawn Orian Kapualani Anahu Fernandez passed away peacefully at home surrounded by her 'ohana. She was 98 years old and the last surviving member of Kamehameha Schools Class of 1944. Dawn was born in Honolulu to Hiram Brandon Kekuhinoonalani Anahu and Hazel Jeanette Rhodes of Rochester, NY. After graduating from Kamehameha Schools she married her classmate and high school sweetheart, Earl Francis Fernandez, and they soon became parents to three daughters and a son. Dawn retired from Dillingham Construction and was an excellent and avid golfer – a favorite pastime for her and Earl. Sophisticated and elegant, her grandchildren and their children fondly called her "Grandmama." In her later years, when back problems kept her from golfing, she became fascinated with researching her 'ohana genealogy, compiling meticulous and detailed records. She was preceded in death by her husband, Earl, in 1976, and by her son, Brandon Palani Fernandez in 1996. She is survived by daughters Erleen Fontanilla, Bonnie (Tom) Ryder and Moana (Sherman) Brown; grandchildren Manulani Fontanilla (Eric) Hueu, Scott Fontanilla, Billy (Wailani) Fontanilla, Tamrnie Fontanilla (Charles) Hibdon, Keoni (Maile) Fontanilla, Palani (Tina) Ryder, Aulani Ryder (Scott) Kmi, Michael (Wendy) Ryder, Rob (April) Aiwohi and Cheryl Moana (Cliff Seno) Aiwohi; 34 great-grandchildren; 52 great-great-grandchildren; one great-great-great grandchild born in 2023; and hānai sons Chet Gritzmacher, Bruce Scottow and John Valance. ■

HO'OHUI 'OHANA
FAMILY REUNIONS

E nā 'ohana Hawai'i: If you are planning a reunion or looking for genealogical information, *Ka Wai Ola* will print your listing at no charge on a space-available basis. Listings should not exceed 200 words. OHA reserves the right to edit all submissions for length. Listings will run for three months from submission, unless specified. Send your information by mail, or e-mail kwo@OHA.org. E ola nā mamo a Hāloa!

SEARCH

HOLT - The Holt 'Ohana (descendants of Robert William Holt and Tiwahi Robinson and their three sons John Dominis Holt I, James Holt and Owen Holt) is planning a reunion for June 11-20, 2025 on O'ahu. If you are interested in attending the planning meetings (held via Zoom), or being updated on the details, please email shalli.holt@gmail.com. Mālama pono!

NAEHU-SAFFERY REUNION - Descendants of Edmund Saffery, wives Kapuna & Waiki Naehu holding reunion meetings. Combined 14 children: Fanny (Kaleokaneʻhe), Edmund II (Wallace), Henry (Kaanaana), Caroline (Rose), William (Cockett & Maluhau), John (Kahauiki & Nahoolkuka), Thomas (Lane), Mary (Pukua), Emma (Pogue), Anna (Keaiohu & Nahaku) Juliana (Freitas), Charles (Hawele & Kauwahi), Helen (Tripp), Emelia Nellie (Ernestberg & Conradt & Kaʻaa). Interested in helping? tinyurl.com/NSOASite Contact Dayton Labenon, 808-232-9869, dlabenon@gmail.com, Mana Goodhue manu_loech@hotmail.com, 808-551-9586 or Naomi Loech, 808-261-9034.

LOO-KELI'IHOLOMOKU - Descendants of Pak Sing Loo and Hannah Keliʻiholomoku are planning a first family reunion October 10 - 13, 2024, on O'ahu. For more information contact Maureen Loo-Martinez at: maloomartinez@hotmail.com. Mahalo and hope to see you all! ■

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Appendix D. Kaheawa Wind Power 1 Continued Use Project Botanical Survey Report, Maui, Hawai‘i

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Kaheawa Wind 1 Continued Use Project

Botanical Resources Survey Report

Prepared for:

Kaheawa Wind Power, LLC

May 2025

TETRA TECH

complex world | CLEAR SOLUTIONS™

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1.0 Introduction

Kaheawa Wind Power, LLC (Kaheawa Wind) proposes the Kaheawa Wind 1 (KWP 1) Continued Use Project (Project), which seeks to extend the operations of the existing KWP 1 wind generation facility (operational since 2006) located on state land in West Maui, Hawai'i. The KWP 1 facility is an existing 30-megawatt (MW) wind energy generation facility consisting of 20 1.5-megawatt (MW) wind turbines in a single articulated row on the slopes of Mauna Kahālāwai in the Kaheawa Pastures area of West Maui, within portions of Tax Map Keys (TMKs) (2) 4-8-001:001 and (2) 4-8-001:001 (Figure 1). The purpose of the Project is to extend the operational period of the existing facility for a 20-year period to continue to provide 30 MW of clean, renewable energy to the island of Maui.

In order to inform the Project's continued use activities and support the environmental permitting process, Tetra Tech was contracted by Kaheawa Wind to conduct a botanical survey for the Project. The purpose of the survey was to characterize the plant species and vegetation communities present and determine whether any state or federally-listed endangered or threatened plant species (pursuant to the federal Endangered Species Act or Hawai'i Revised Statutes Chapter 195D), or otherwise rare plants have the potential to occur and could be impacted by the proposed activities and continued operation of the Project. This report presents the results of the botanical survey conducted within the Study Area by Tetra Tech on April 1 – 2, 2025.

1.1 Project Description

The Project proposes to conduct inspections and servicing of all major mechanical components of the wind turbines prior to the start of the 20-year extension period. Inspections and servicing will occur on multiple wind turbines at once and will include activities such as refurbishment and maintenance of external components, replacement of components as needed, and refurbishment and/or upgrades to the utility interconnection and the Project's substation as required. Turbine blades would be removed using a crane and lowering them onto the ground at the turbine pad to facilitate inspection and repair. Any refurbishment or maintenance on the wind turbine towers is anticipated to occur in place. Component replacements may be carried out in situ or the wind turbine rotor would be lowered to facilitate the completion of system replacements at the ground surface, as practical. For all activities described above, the Project would utilize the existing turbine pad beneath each of the twenty turbines to perform the requisite disassembly and subsequent reassembly process for each turbine. Upgrades to the utility interconnection and substation system would occur within their existing footprints.

After the above period of inspections and servicing, routine maintenance activities will occur throughout the 20-year extension period, including maintaining vegetation free areas around the wind turbine foundation pads (hereafter referred to as turbine pads), the substation and switchyard, and an operations and maintenance (O&M) building, maintaining the primary access road to provide access for personnel, and annual inspection and servicing of major wind turbine components, including replacement or refurbishment of components as needed.

While no significant ground disturbance is anticipated to occur as part of the above activities, minor grading or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities. Site preparation may involve reconditioning the existing onsite access roads, turbine pads, crane paths, and/or onsite laydown areas, and returning the existing access roads to a similar condition as existed during the original KWP 1 construction.

2.0 Description of the Study Area

The Study Area is located on the slopes of Mauna Kahālāwai on the island of Maui. It encompasses a total of approximately 57 acres (23 hectares [ha]) within tax map keys (TMK): (2) 4-8-001:001 (por.) and (2) 3-6-001:014 (por.) (owned by the State of Hawai‘i) (Figure 1) and includes the potential limits of disturbance to extend the operational period of the existing facility. The Study Area includes the 16.5-acre (6.6 ha) corridor of a four-wheel-drive gravel roadway (i.e., primary access road) originating from Honoapi‘ilani Highway, including the parking area, and approximately 41 acres (16.6 ha) primarily associated with the Project’s existing facilities, including service roads, wind turbines and associated turbine pads, an O&M building, a warehouse storage facility, substation, and transmission interconnection, and previous crane paths and staging areas associated with original facility construction. Notable land uses in the vicinity of the Study Area include the West Maui Forest Reserve to the west and the Kaheawa Wind Power 2 facility situated along the primary access road to the southeast and downslope of the KWP 1 facility.

2.1 Climate

The climate in the Study Area ranges from arid at the lowest elevation near the highway to very dry and dry in the mid-elevation areas, and seasonal mesic in the upper elevation portions of the Study Area (Price et al. 2012).

The closest National Weather Service rainfall gages to the Study Area are at Keālia Pond (roughly 3 miles [9.7 kilometers {km}] east-northeast of the primary access road driveway) and at Pu‘u Kūkui (approximately 5 miles [8 km] northwest of the uppermost wind turbine). Prior to the April 2025 survey, the Keālia Pond rain gage recorded above average rainfall in January and below average rainfall in February and March, and the Pu‘u Kūkui rain gage recorded slightly below average rainfall in January and below average rainfall in February and March (NWS 2025a). The year-to-date total for the Keālia Pond and Pu‘u Kūkui rain gages through the end of March 2025 immediately prior to the survey was 76% and 51% below average, respectively (NWS 2025a). Severe drought conditions were reported in March 2025 for the general Study Area (NWS 2025b), suggesting dry conditions during the survey.

2.2 Topography and Soils

The Study Area is located along Hana‘ula Ridge, a narrow band of land running mauka to makai between Manawainui Gulch and Papalaua Gulch. The terrain within the Study Area slopes downward, an average of 8 percent, toward the coastline (WSB-Hawaii 1999). The KWP 1 wind turbines and axillary facilities are positioned at elevations between approximately 2,000 and 3,200 feet (610 and 975 meters [m]) above

mean sea level (amsl), whereas the parking lot and entry point for the primary access road at Honoapiʻilani Highway is located at approximately 100 feet (30 m) in elevation (Figure 2).

The Natural Resources Conservation Service (NRCS) identifies five soil types within the Study Area consisting of Naiwa silty clay loam, 13 to 45 percent slopes; Olelo silty clay, 15 to 50 percent slopes; Oli medial silt loam, 13 to 45 percent slopes; rock land and rock outcrop; and rough broken and stony land (Figure 2; NCRS 2025). Naiwa silty clay loam, Olelo silty clay, and Oli medial silt loam are characterized as well drained soils with high runoff (NRCS 2025), whereas rock land and rock outcrop and rough broken and stony land are soil types that are also well drained but characterized as having very high runoff (NRCS 2025).

2.3 Surface Water

The Study Area is primarily within the Pāpalaua watershed encompassing approximately 5 square miles, and the access road is within the Pōhākea watershed, which covers over 8 square miles (CWRM 2022). There are no perennial streams or wetlands within the Study Area. Two non-perennial streams intersect portions of the Project's access road—Malalowaiaʻole Gulch and an unnamed stream. The locations of these streams according to the State of Hawaiʻi Division of Aquatic Resources (DAR) (DAR 2008), National Hydrography Dataset (NHD) (USGS 2023) and National Wetlands Inventory (NWI) data (USFWS 2024) are shown in Figure 3. Malalowaiaʻole Gulch parallels a portion of the Project's primary access road (east of the access road) and passes under the primary access road near the road's entry point off Honoapiʻilani Highway. According to the Pōhākea Watershed Plan (MEC and Central Maui SWCD 2023), Malalowaiaʻole Gulch only flows ephemerally, or during stormwater events, discharges into coastal waters east of McGregor Point beyond the highway. An unnamed stream in Manawainui Gulch originates northeast of the Study Area, parallels a portion of its eastern boundary and passes under the Project's access road, and continues southwest to Honoapiʻilani Highway before connecting to the Pacific Ocean. NHD characterize both streams within the Study Area as intermittent (USGS 2023), and NWI classifies them as riverine, intermittent, seasonally flooded (USFWS 2024).

2.4 Critical Habitat for Listed Species

USFWS has designated critical habitat for 28 listed plant species within two critical habitat units inside the Study Area. Montane Mesic – Unit 5 occurs between 3,100 – 3,200 feet (945 – 975 m) in elevation in the northernmost portion of the Study Area (Figure 4) and is designated critical habitat for 10 endangered plant species. The unit was occupied by two of the species, *Remya mauiensis* and *Santalum haleakalae* var. *lanaiense*, at the time of designation (USFWS 2016).

Lowland Dry – Unit 5 overlaps with the Study Area between approximately 2,100 – 3,100 feet (640 – 945 m) in elevation (Figure 4) and is designated critical habitat for 18 listed plant species. At the time of designation, this unit was occupied by nine of the species: *Asplenium dielerectum*, *Bidens campylotheca* subsp. *pentamera*, *Cenchrus agrimonioides*, *Gouania hillebrandii*, *Kadua coriacea*, *Remya mauiensis*, *Santalum haleakalae* var. *lanaiense*, *Spermolepis hawaiiensis*, and *Tetramolopium capillare* (USFWS 2016). The DOFAW Manawainui Plant Sanctuary, which is situated in Lowland Dry Unit 5 and located

near the upper eastern boundary of the Study Area, was occupied by two listed plant species, *Remya mauiensis* and *Asplenium dielerectum*, at the time of critical habitat designation (USFWS 2016).

However, no state or federally-listed species or otherwise rare plant species were recorded in the Study Area in previous surveys for the existing wind farm (Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b). Additionally, no listed plant species or rare plants have been observed at the existing wind farm during operations or post-construction monitoring over the last 16 years (DOFAW n.d.).

Three other designated critical habitat units are in the vicinity of the Study Area. Dry Cliff – Unit 6 and Lowland Mesic – Unit 3 are located within 1-mile (1.6 km) northwest of the Study Area and are designated critical habitat for 8 and 7 endangered plant species, respectively (Figure 4; USFWS 2016). Lowland Dry – Unit 6 is located 0.75 miles (1.2 km) to the east of the Study Area and is designated critical habitat for 18 listed plant species (Figure 4; USFWS 2016).

3.0 Methods

Prior to the field survey, Tetra Tech conducted a review of relevant publicly available literature and data with respect to botanical resources in and near the Study Area. This review included environmental assessments and environmental impact statements; available geospatial data; rare species databases; topographic maps; scientific journals and reports; the USFWS Information for Planning and Consultation (IPaC) tool, and available, unpublished data relevant to listed plant species or their suitable habitats.

One Tetra Tech biologist conducted a botanical survey within the Study Area on April 1 – 2, 2025 by vehicle and on foot. Common plant species and dominant vegetation types, as well as any listed or rare plant species, if observed, were recorded. Plant identifications were made primarily in the field; plants that could not be positively identified were photo documented for comparison with the recent taxonomic literature.

Plants recorded during this survey are indicative of the season and environmental conditions at the time of the survey. Plants are dynamic and influenced by seasonal and temporal changes; therefore, it is possible additional species may occur but were not present during this survey. The results from previous plant surveys within the Study Area (Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b, DOFAW n.d.) are also incorporated in this report where relevant.

The taxonomy and nomenclature of plants are in accordance with Wagner et al. (2023). Hawaiian/common names are provided first, followed by scientific names in parentheses. If no Hawaiian/common names are known, only the scientific name is provided.

4.0 Results and Discussion

No federal or state listed plant species were observed in the Study Area during the survey. Vegetation in the Study Area has been disturbed by historic grazing, wildfires, and construction and operation of the existing wind facility. Notably, a large wildfire burned a portion of the Study Area in 2019, particularly in the mid- to lower elevation areas. A large portion of the Study Area is unvegetated due to vegetation

management around the wind turbines and other facilities and placement of gravel along roads. Vegetation occurs along the edges of roads and the turbine pads, and within the crane paths and laydown areas utilized during original project construction. In general, vegetation in the Study Area is dominated by non-native species and consists of primarily non-native grassland in the lower elevation areas (below 2,000 feet [609 m]), non-native grassland with patches of mixed non-native and native dry shrublands in the mid-elevation areas (2,000 to 3,000 feet [609 to 914 m]), and non-native grasslands with patches of predominately native mesic shrublands in the uppermost elevations (3,000 to 3,200 feet [914 to 975 m]). In the mid-elevation areas, patches of dense trees and individual trees are also scattered within the grassland vegetation. Representative photographs from the survey are presented in Appendix A.

Eighteen plant species observed in the Study Area are native to the Hawaiian Islands, including 7 species which are endemic to and found only in the Hawaiian Islands (Table 1). All native plant species observed within the Study Area are considered common species throughout the Hawaiian Islands.

Upper Elevation:

Non-native grassland in the upper elevation portion of the Study Area (above 3,000 feet (914 m) in elevation) is primarily comprised of kikuyu (*Cenchrus clandestinus*), broomsedge (*Andropogon virginicus*), and molasses grass. Native mesic shrubland vegetation primarily occurs around the upper four wind turbines, between 3,000 and 3,200 feet [914 to 975 m]) in elevation, and consists of low stature ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻulei (*Osteomeles anthyllidifolia*), and pūkiawe (*Leptecophylla tameiameiae*) with native ferns uluhe (*Dicranopteris linearis* f. *linearis*), palaʻā (*Odontosoria chinensis*), and kīlau (*Pteridium aquilinum* subsp. *decompositum*). These native species increase in dominance toward the uppermost turbine and are more prevalent on the eastern side of the road (Appendix A, Photos 1 – 3). Other native species present in or along the edges of the mesic shrubland include ʻilima (*Sida fallax*), ʻuhaloa (*Waltheria indica*), and ʻākia (*Wikstroemia oahuensis* var. *oahuensis*), which are common in occurrence, and koʻokoʻolau (*Bidens micrantha* subsp. *micrantha*), kawelu (*Eragrostis variabilis*), *Morelotia gahniiformis*, koali ʻawa (*Ipomoea indica*), and *Nephroia orbiculata*, which are rare in occurrence. Common non-native species primarily growing along the disturbed edges of the road and wind turbine pads include fireweed (*Senecio madagascariensis*), hairy horseweed (*Conyza bonariensis*), narrow-leaved plantain (*Plantago lanceolata*), telegraph weed (*Heterotheca grandiflora*), spiny-bur (*Acanthospermum australe*), natal redtop (*Melinis repens*), partridge pea (*Chamaecrista nictitans* var. *glabrata*), bull thistle (*Cirsium vulgare*), balloon plant (*Asclepias physocarpa*), lantana (*Lantana camara*), and Christmas berry (*Schinus terebinthifolius*). Other non-native species present in the mesic shrubland but rare in occurrence are longleaf ironwood (*Casuarina glauca*), pukamole (*Lythrum maritimus*), Guinea grass (*Megathyrsus maximus*), sourbush (*Pluchea carolinensis*), Jamaican vervain (*Stachytarpheta jamaicensis*), and Philippine ground orchid (*Spathoglottis plicata*).

Mid-Elevation:

Around the mid-elevation wind turbines and building facilities (between approximately 2,000 to 3,000 feet (609 to 914 m]) in elevation), the vegetation is characterized by non-native grasslands, dominated

Table 1. Native Plant Species Recorded in the Study Area During the Survey

Scientific Name	Hawaiian/Common Name(s)	Status	Upper Elevation Non-native Grassland and Native Mesic Shrubland	Mid-Elevation Non-native Grassland and Dry Shrubland	Low-Elevation Buffelgrass Grassland
Bidens micrantha Gaudich. subsp. *micrantha*	koʻokoʻolau	E	✓		
Dicranopteris linearis (Burm. f.) Underw. f. *linearis*	uluhe		✓		
Dodonaea viscosa Jacq.	ʻaʻaliʻi	I	✓	✓	
Eragrostis variabilis (Gaudich.) Steud.	kawelu	E	✓		
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	pili	I		✓	
Ipomoea indica (Burm.) Merr.	koali ʻawa	I	✓		
Koeleria inaequalis (Whitney) Barberá, Quintanar, Soreng, & P.M. Peterson	no common name	E		✓	
Leptecophylla tameiameiae (Cham. & Schltdl.) C.M.Weiller	pūkiawe		✓	✓	
Metrosideros polymorpha Gaudich.[1]	ʻōhiʻa lehua	E	✓	✓	
Nephroia orbiculata (L.) L. Lian & Wei Wang	no common name	I	✓		
Morelotia gahniiformis Gaudich.	no common name	E	✓		
Odontosoria chinensis (L.) J. Sm.	palaʻā	I	✓		
Osteomeles anthyllidifolia (Sm.) Lindl.	ʻūlei	I	✓	✓	
Pteridium aquilinum (L.) Kuhn subsp. *decompositum* (Gaudich.) Lamoureux ex J. A. Thomson	kīlau	I	✓	✓	
Santalum ellipticum Gaudich.	ʻiliahialoʻe	E		✓	
Sida fallax Walp.	ʻilima	I	✓	✓	✓
Waltheria indica L.	ʻuhaloa	I	✓	✓	✓
Wikstroemia oahuensis (A. Gray) Rock var. *oahuensis*	ʻākia	E	✓		

Status: E = Endemic (native only to the Hawaiian Islands); I = Indigenous native to the Hawaiian Islands and elsewhere).
1. Represented by two varieties.

by natal red top and broomsedge and edged or interrupted by patches of mixed non-native and native dry shrubland comprised of the natives ʻaʻaliʻi, ʻilima, and ʻākia, and non-native lantana and Christmas berry (Appendix A, Photos 4 – 10). Individuals of these species were also scattered within the grassland. Other native species present include ʻuhaloa, which was moderately common, and ʻōhiʻa lehua, ʻulei, pūkiawe, ʻiliahialoʻe (*Santalum ellipticum*), pili (*Heteropogon contortus*), and *Koeleria inaequalis*, which were uncommon and occurred as lone to scattered individuals within this portion of the Study Area. Non-native weedy plants observed along the disturbed edges of the road and wind turbine pads in the mid-elevation area include fireweed, partridge pea, bull thistle, hairy horseweed, indigo (*Indigofera suffruticosa*), narrow-leaved plantain, spiny-bur, and telegraph weed.

Longleaf ironwood is present throughout the mid-elevation portion of the Study Area, ranging in occurrence from scattered individuals to dense patches with individuals up to approximately 20 feet in height (Appendix A, Photos 6 – 11). Scattered native plants, primarily ʻōhiʻa lehua and ʻilima, occur in understory gaps or along the edges of some of the patches of longleaf ironwood. Along the primary access road between approximately 2,000 – 2,700 feet (609 to 823 m) in elevation, stands of longleaf ironwood dominate the road corridor edges (Appendix A, Photo 12). Disturbed edges of the road are sparsely vegetated with a few weeds, such as fireweed, hairy horseweed, indigo, and swollen fingergrass (*Chloris barbata*).

Low-Elevation:

In the lower elevation areas below 2,000 feet (609 m), vegetation along the primary access road is comprised of non-native grassland dominated by buffelgrass (*Cenchrus ciliaris*) (Appendix A, Photos 13 – 14). A few individuals of the non-native kiawe (*Neltuma pallida*), koa haole (*Leucaena leucocephala* subsp. *leucocephala*), and klu (*Vachellia farnesiana*) as well as occasional scattered individuals of the native ʻuhaloa and ʻilima occur along road edges and within the grassland.

5.0 Conclusions and Recommendations

The majority of the Study Area is unvegetated, and vegetated areas are dominated by plant species non-native to the Hawaiian Islands. However, native plants are relatively common in the mid-elevation areas around the turbines and native vegetation becomes increasingly dominant around the four upper elevation turbine areas. Although a portion of the Study Area is designated as critical habitat for listed plant species, no federally or state-listed plant species have been observed in the Study Area either during this current survey conducted by Tetra Tech, during previous biological surveys conducted prior to constructon of KWP (Medeiros 1996, Medeiros 1998, Hobdy 2004a, Hobdy 2004b), or over the last 16 years during operations or post-construction monitoring of the existing wind farm (DOFAW n.d.). The 18 native plant species observed within the Study Area during this survey are considered common species throughout the Hawaiian Islands.

The endemic ʻōhiʻa lehua, is a biologically and culturally important tree, and is the dominant species in the mesic shrubland vegetation in the upper elevation areas and occurs as scattered individuals within the mid-elevation portions of the Study Area along the disturbed edges of the wind turbine pads and

roads. ʻŌhiʻa lehua is currently threatened throughout Hawaiʻi by a relatively new fungal disease known as Rapid ʻŌhiʻa Death (ROD) which spreads by wounding to any parts of the tree (UH CTAHR 2025). ROD is not established on Maui; aside from one detection in 2019 when a handful of trees tested positive and were subsequently destroyed (UH CTAHR 2025), the most recent finding of ROD was in February 2025 when ROD was detected in three landscape ʻōhiʻa lehua trees at an elementary school on Maui (DLNR 2025).

Recommended measures to avoid and minimize impacts to sensitive botanical resources are outlined below.

- Implement an environmental education and observation training for all on-site Project contractors prior to commencement of maintenance activities. The training should include information on the sensitive native botanical resources in the area and invasive species prevention protocols.
- To minimize the introduction and spread of invasive species associated with the Project, implement an invasive species prevention plan. This plan should outline invasive species minimization measures and BMPs to avoid the unintentional introduction or transport of new invasive species to the area. This plan should include adhering to the USFWS' Invasive Species Biosecurity Protocols (USFWS 2022), such as the most recent ROD decontamination and biosecurity protocols. For example, vehicles and equipment should be properly inspected and cleaned, and any cutting of native vegetation should be conducted by qualified personnel to avoid excessive injury and minimize susceptibility to disease and ROD (detailed protocols should be outlined in the invasive species prevention plan). Consult with Maui Invasive Species Committee on the details of the plan, if needed.
- To the maximum extent practicable, design the Project activities to avoid native mesic shrubland where it occurs around the upper elevation areas, or any areas with patches of ʻōhiʻa lehua. Avoidance areas should be flagged with highly visible tape or temporary fencing to prevent disturbance.
- In the event that revegetation is determined to be necessary for this Project, use native plant species to the maximum extent practicable (e.g., pili grass, ʻaʻaliʻi). If it is not feasible to revegetate with native species, use non-native plants chosen in coordination with botanists and DOFAW.
- Following ground disturbance, implement soil stabilization and erosion control measures to avoid impacting native vegetation, particularly in the vicinity of the upper elevation turbine areas.
- Continue to implement the Wildland Fire Prevention and Response Plan to minimize fire impacts to vegetation.

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Figures

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Kaheawa Wind 1 Continued Use Project

Figure 1
Project Study Area and Vicinity

MAUI COUNTY, HI

(2) 4-8-001:001

(2) 3-6-001:014

Kuihelani Hwy

380

N Kihei Rd

310

30

Honoapiilani Hwy

Maalaea Boat Harbor Rd

Maalaea Rd

Hauoli St

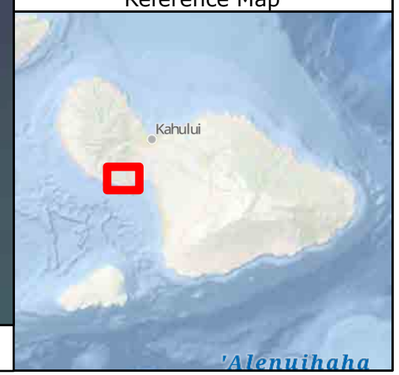
- Study Area
- TMK Boundary
- State Highway
- Local Roads

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186.

TETRA TECH

TerraForm POWER

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Kaheawa Wind 1 Continued Use Project

Figure 2
Topography and Soils

MAUI COUNTY, HI

- Study Area
- 100-foot Elevation Contour
- State Highway
- Local Roads

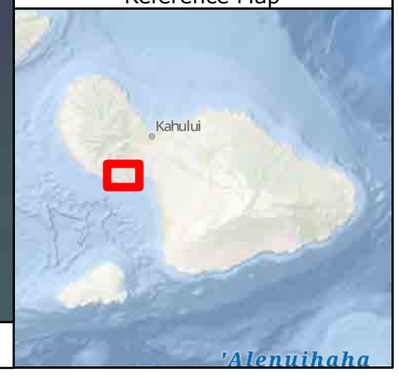
NRCS Soil Type

- NAC - Naiwa silty clay loam, 13 to 45 percent slopes, MLRA 164
- OFC - Olelo silty clay, 15 to 50 percent slopes, MLRA 164
- OMB - Oli medial silt loam, 13 to 45 percent slopes, MLRA 164
- rRK - Rock land
- rRS - Rough broken and stony land

TETRA TECH

TerraForm POWER

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

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Kaheawa Wind 1 Continued Use Project

Figure 3
Water Resources Mapped by NWI, NHD, and DAR

MAUI COUNTY, HI

- Study Area
- State Highway
- Local Roads

Division of Aquatic Resources
- Streams

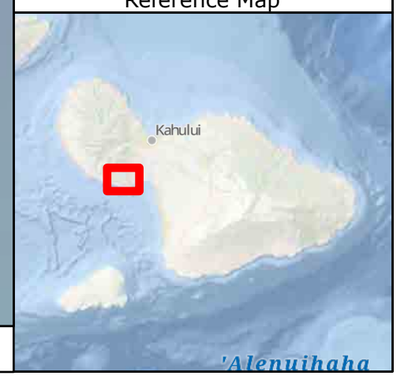
National Hydrography Dataset
- Canal/Ditch
- Stream/River
- Coastline
- Lake Pond

National Wetlands Inventory
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

TETRA TECH

TerraFORM POWER

Reference Map



380
Kuihelani Hwy
310
N Kihei Rd
Maalaea Boat Harbor Rd
Maalaea Rd
Hauoli St
Honoapiilani Hwy
Malalowaiaole Gulch
30

1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

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Kaheawa Wind 1 Continued Use Project

Figure 4
Critical Habitat Within the Study Area and Vicinity

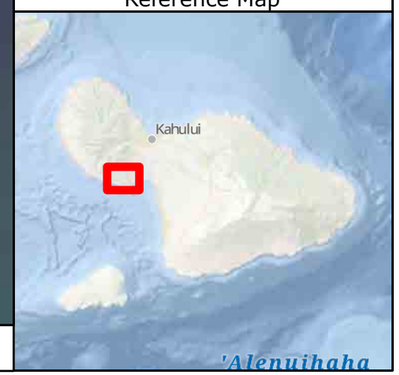
MAUI COUNTY, HI

Study Area
State Highway
Local Roads

Critical Habitat
- Dry Cliff 06
- Lowland Dry 05
- Lowland Dry 06
- Lowland Mesic 03
- Montane Mesic 05

TETRA TECH
TerraForm POWER

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Appendix A

Representative Photographs from the Survey

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Photo 1. Looking southeast along the access road, depicting representative mesic ʻōhiʻa lehua shrubland vegetation adjacent to the access road within the upper elevation portion of the Study Area. Lat/Long: 20.824286, -156.555647.



Photo 2. Looking northeast, depicting representative mesic ʻōhiʻa lehua shrubland with uluhe fern along the northern slope of one of the turbine pads within the upper elevation portion of the Study Area. Lat/Long: 20.823735, -156.556041.



Photo 3. Looking north toward, depicting mesic ʻōhiʻa lehua shrubland vegetation (foreground) mixed among non-native grassland vegetation and shrubs adjacent to one of the upper elevation wind turbines (background). Lat/Long: 20.822152, -156.554983



Photo 4. Looking south from within the Study Area toward the mid-elevation areas, depicting vegetation between the turbines (outside of the Study Area) and around the turbine pads within the Study Area showing non-native grasslands and scattered non-native and native shrubs and trees, including longleaf ironwood. Lat/Long: 20.821296, -156.554357.



Photo 5. Looking southwest toward a wind turbine from the mid-elevation portion of the Study Area within a former crane path and/or laydown area, depicting non-native grassland and shrubs with longleaf ironwood trees. Lat/Long: 20.820565, -156.552676.



Photo 6. Looking south along the road within the mid-elevation portion of the Study Area, depicting non-native grasslands with scattered shrubs and longleaf ironwood trees. Lat/Long: 20.820311, -156.553238.



Photo 7. Looking northwest from lowermost wind turbines in the mid-elevation portion of the Study Area, depicting roadside vegetation of non-native grassland and mixed native and non-native shrubs with scattered longleaf ironwood trees. Lat/Long: 20.804519, -156.544315.



Photo 8. Looking north from within the mid-elevation portion of the Study Area, depicting the occasional native ʻōhiʻa lehua growing among the dominant non-native vegetation. Lat/Long: 20.815857, -156.551828.



Photo 9. Looking southwest from within the mid-elevation portion of the Study Area around the lower wind turbines, depicting non-native grassland with non-native longleaf ironwood trees and native ʻaʻaliʻi seedlings among the grasses. Lat/Long: 20.806524, -156.547238.



Photo 10. Looking northeast from within the mid-elevation portion of the Study Area around the lowermost wind turbines, depicting mixed non-native and native shrubland bordering a turbine pad. Lat/Long: 20.804592, -156.545041.



Photo 11. Looking northwest toward the O&M building and associated parking area, depicting non-native grassland and shrubs with longleaf ironwood trees surrounding the facility infrastructure. Lat/Long: 20.817573, -156.551019.



Photo 12. Looking south along the mid-elevation portion of the primary access road, depicting roadside vegetation dominated by longleaf ironwood. Lat/Long: 20.811903, -156.544241.

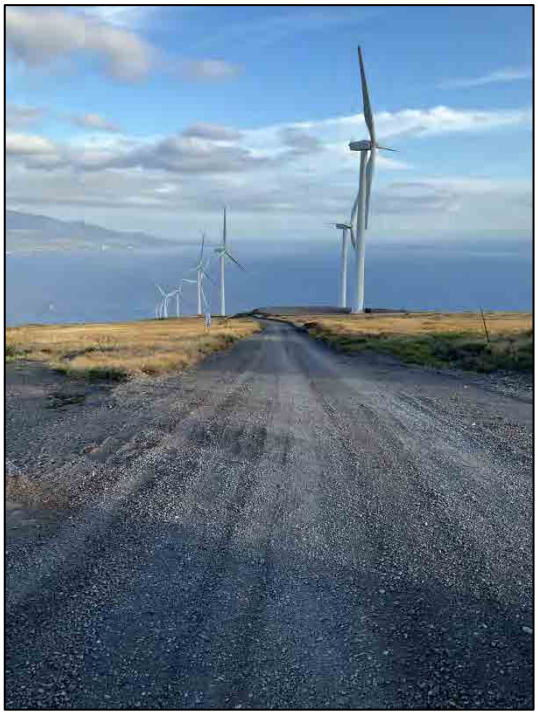


Photo 13. Looking south along the lower elevation portion of the primary access road, transiting through the Kaheawa Wind 2 operational area, depicting non-native buffelgrass grassland. Lat/Long: 20.79906, -156.538854.

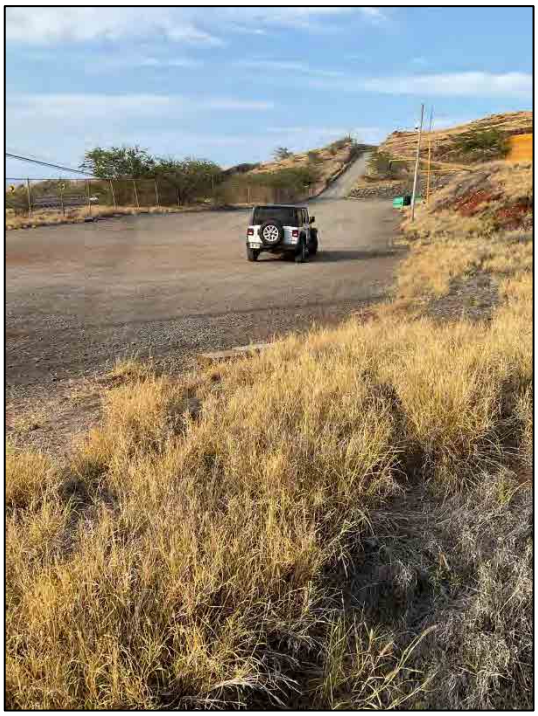


Photo 14. Looking southwest from the Study Area entrance off Honoapi'ilani Highway toward the gravel parking lot and primary access road, depicting non-native buffelgrass grassland with scattered kiawe trees along edges. Lat/Long: 20.780415, -156.52204.

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Appendix E. Kaheawa Wind 1 Continued Use Project Acoustic Assessment Report, Maui, Hawai‘i

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Kaheawa Wind 1 Continued Use Project

Acoustic Assessment Report

Prepared for:

Kaheawa Wind Power, LLC

June 2025

TETRA TECH

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Acronyms and Abbreviations

µPa	Micropascal
σ_P	standard deviation for product variation
σ_R	standard deviation for test reproducibility
σ_T	total standard deviation
ANSI	American National Standards Institute
dB	decibel
dBA	A-weighted decibel
dBL	unweighted (linear) decibel
DOH	State of Hawai‘i Department of Health
ft	foot
GE	General Electric
HAR	Hawai‘i Administrative Rule
Hz	Hertz
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
Kaheawa Wind	Kaheawa Wind Power, LLC
KWP 1	Kaheawa Wind 1
kHz	kilohertz
L_{eq}	equivalent sound level
L_P	sound pressure level
L_w	sound power level
m	meter
m/s	meters per second
MVA	Megavolt ampere
MW	megawatt
NSR	Noise sensitive receptor
O&M	Operations & Maintenance
pW	picowatt
Project	Kaheawa Wind 1 Continued Use Project
Tetra Tech	Tetra Tech, Inc.
TMK	Tax Map Keys
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator

1.0 Introduction

Kaheawa Wind Power, LLC (Kaheawa Wind) proposes the Kaheawa Wind 1 (KWP 1) Continued Use Project (Project), which seeks to extend the operations of the existing KWP 1 wind generation facility (operational since 2006) located on state land in West Maui, Hawai'i. The KWP 1 facility is an existing 30-megawatt (MW) wind energy generation facility consisting of twenty, 1.5-MW wind turbines in a single articulated row on the slopes of the West Maui Mountains in the Kaheawa Pastures area of West Maui, within portions of Tax Map Keys (TMKs) (2) 4-8-001:001 and (2) 4-8-001:001 (Figure 1). The purpose of the Project is to extend the operational period of the existing facility for a 20-year period to continue to provide 30 MW of clean, renewable energy to the island of Maui. To inform the Project's ongoing activities and support the environmental permitting process, Tetra Tech was contracted by Kaheawa Wind to prepare an acoustic assessment for the Project. The purpose of the assessment was to evaluate potential sound impacts in relation to potential NSRs and the applicable noise limits set by the State of Hawai'i Department of Health (DOH) through the Hawai'i Administrative Rule, Title 11, Chapter 46, "Community Noise Control" (HAR § 11-46). The KWP 1 wind generation facility is located over 2 miles from the nearest residence and over 4 miles from the nearest public schools, hospitals, and community centers. At its nearest point, the Lāhainā Pali Trail is approximately 0.5 mile away from the closest KWP 1 wind turbine. These identified NSRs are discussed further in Section 4.3. An acoustic modeling analysis was performed by simulating the sound produced during Project operation.

1.1 Project Description

The Project involves continuing use of the existing KWP 1 wind generation facility for an additional 20 years. Routine maintenance of WTGs and ancillary infrastructure at a wind facility is necessary to ensure safe and reliable operations. Kaheawa Wind anticipates that wind turbine components such as blades, hubs, nacelles, generators, electrical cables and components, towers, and foundations would likely require some level of maintenance or refurbishment during the 20-year continued operation period, as is typical of commercial wind farm O&M activities. Other WTG components that incur more rotational wear, such as pitch and yaw systems, main shafts and bearings, and gearboxes may need to be replaced, and as has already occurred at some of the KWP 1 WTGs during the current operation period.

The Project proposes to conduct inspections and servicing the majority of major mechanical components of the wind turbines prior to the start of the 20-year extension period. Inspections and servicing would occur simultaneously on multiple wind turbines over a 6-9-month period and would include activities such as refurbishment and maintenance of external components, replacement of components as needed, and refurbishment and/or upgrades to the utility interconnection and the Project's substation as required. Although turbine blades are not anticipated to be replaced, they may be removed using a crane and lowered onto the ground at the turbine pad to facilitate inspection and repair. Any refurbishment or maintenance on the wind turbine towers is anticipated to take place in situ. Component replacements may be carried out in situ or the wind turbine rotor would be lowered to facilitate the completion of system replacements at the ground surface, as practical. For all activities

described above, the Project would utilize the existing turbine pad beneath each of the twenty turbines to perform the requisite disassembly and subsequent reassembly process for each turbine. Upgrades to the utility interconnection and substation system would occur within their existing footprints.

After the above period of inspections and servicing, routine maintenance activities would occur throughout the 20-year extension period, including maintaining vegetation free areas around the wind turbine foundation pads (hereafter referred to as turbine pads), the substation and switchyard, and an operations and maintenance (O&M) building; maintaining the primary access road to provide access for personnel; and annual inspection and servicing of major wind turbine components, including replacement or refurbishment of components as needed.

While no significant ground disturbance is anticipated to occur as part of the above activities, minor grading or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities. Site preparation may involve reconditioning the existing onsite access roads, turbine pads, crane paths, and/or onsite laydown areas, and returning the existing access roads to a similar condition as existed during the original KWP 1 construction. All temporarily disturbed areas (e.g., crane paths) would be restored to pre-existing grades and revegetated upon completion of maintenance activities.

1.2 Description of the Study Area

The Study Area is located on the slopes of the West Maui Mountains on the island of Maui. It encompasses a total of approximately 58 acres (23 hectares [ha]) within TMKs: (2) 4-8-001:001 (por.) and (2) 3-6-001:014 (por.) (owned by the State of Hawai‘i) (Figure 1) and includes the potential limits of disturbance to extend the operational period of the existing facility. The Study Area includes the approximately 17-acre (6.9 ha) corridor of a four-wheel-drive gravel roadway (i.e., primary access road) originating from Honoapi‘ilani Highway, including the staging/parking area, and approximately 41 acres (16.6 ha) primarily associated with the Project’s existing facilities, including service roads, wind turbines and associated turbine pads, an O&M building, a warehouse storage facility, substation, and transmission interconnection, and previous crane paths and staging areas associated with original facility construction. Notable land uses in the vicinity of the Study Area include the West Maui Forest Reserve to the west and the Kaheawa Wind Power 2 facility situated along the primary access road to the southeast and downslope of the KWP 1 facility.

HAR, Title 11, Chapter 46, “Community Noise Control,” establishes allowable noise limits based on permitted land uses. Class A districts, which include residential, conservation, preservation, and public spaces, have the most stringent noise limits; Class B districts, encompassing multi-family dwellings, commercial, hotel, and resort areas, have moderately stringent limits; and Class C districts, covering agricultural, county, industrial, and similar lands, have the least stringent limits. The Study Area falls entirely within the Class A district, as it is located within the State Conservation District, and therefore must comply with the noise limits applicable to Class A zones (see Section 3.0 for further details).

Figure 1. Acoustic Study Area Extent



2.0 Acoustic Metrics and Terminology

All sounds originate with a source, whether it is a human voice, motor vehicles on a roadway, or a combustion turbine. Energy is required to produce sound, and this sound energy is transmitted through the air in the form of sound waves – tiny, quick oscillations of pressure just above and just below atmospheric pressure. These oscillations, or sound pressures, impinge on the ear, creating the sound we hear. A sound source is defined by a sound power level (L_W) which is independent of any external factors. By definition, sound power is the rate at which acoustical energy is radiated outward and is expressed in units of watts.

A source sound power level cannot be measured directly. It is calculated from measurements of sound intensity or sound pressure at a given distance from the source outside the acoustic and geometric near field. A sound pressure level (L_P) is a measure of the sound wave fluctuation at a given receiver location and can be obtained through the use of a microphone or calculated from information about the source sound power level and the surrounding environment. The sound pressure level in decibels (dB) is the logarithm of the ratio of the sound pressure of the source to the reference sound pressure of 20 micropascals (µPa), multiplied by 20.[1] The range of sound pressures that can be detected by a person with normal hearing is very wide, ranging from about 20 µPa for very faint sounds at the threshold of hearing, to nearly 10 million µPa for extremely loud sounds such as a jet during take-off at a distance of 300 feet.

Broadband sound includes sound energy summed across the entire audible frequency spectrum. In addition to broadband sound pressure levels, analysis of the various frequency components of the sound spectrum can be completed to determine tonal characteristics. The unit of frequency is Hertz (Hz), measuring the cycles per second of the sound pressure waves. Typically, the frequency analysis examines 11 octave bands ranging from 16 Hz (low) to 16,000 Hz (high). Since the human ear does not perceive every frequency with equal loudness, spectrally-varying sounds are often adjusted with a weighting filter. The A-weighted filter is applied to compensate for the frequency response of the human auditory system and is represented in dBA.

An inherent property of the logarithmic decibel scale is that the sound pressure levels of two separate sources are not directly additive. For example, if a sound of 50 dBA is added to another sound of 50 dBA, the result is a 3-decibel increase (or 53 dBA), not an arithmetic doubling to 100 dBA. With respect to how the human ear perceives changes in sound pressure level relative to changes in "loudness", scientific research demonstrates that the following general relationships hold between sound level and human perception for two sound levels with the same or very similar frequency characteristics:

[1] The sound pressure level (L_p) in dB corresponding to a sound pressure (p) is given by the following equation:

$$L_P = 20 \log10 (p / pref);$$

Where:

p = the sound pressure in µPa; and

pref = the reference sound pressure of 20 µPa.

- 1 dBA is the practical limit of accuracy for sound measurement systems and corresponds to an approximate 10 percent variation in the sound pressure level. A 1 dBA increase, or decrease is a non-perceptible change in sound.
- 3 dBA increase or decrease is a doubling (or halving) of acoustic pressure level and it corresponds to the threshold of change in loudness perceptible in a laboratory environment. In practice, the average person is not able to distinguish a 3 dBA difference in environmental sound outdoors.
- 5 dBA increase or decrease is described as a perceptible change in sound level and is a discernible change in an outdoor environment.
- 10 dBA increase or decrease is a tenfold increase or decrease in acoustic pressure level but is perceived as a doubling or halving in loudness (i.e., the average person will judge a 10 dBA change in sound level to be twice or half as loud).

Sound can be measured, modeled, and presented in various formats, with the most common metric being the equivalent sound level (L_{eq}). The equivalent sound level has been shown to provide both an effective and uniform method for comparing time-varying sound levels and is widely used in acoustic assessments in the State of Hawai'i. Estimates of noise sources and outdoor acoustic environments, and the comparison of relative loudness are presented in Table 1. Additional reference information on terminology used in the report is presented in Table 2.

Table 1. Sound Pressure Levels (L_P) and Relative Loudness of Typical Noise Sources and Acoustic Environments

Noise Source or Activity	Sound Level (dBA)	Subject Impression
Vacuum cleaner (10 feet)	70	Moderate
Passenger car at 65 miles per hour (25 feet)	65	
Large store air-conditioning unit (20 feet)	60	
Light auto traffic (100 feet)	50	Quiet
Quiet rural residential area with no activity	45	
Bedroom or quiet living room; Bird calls	40	Faint
Typical wilderness area	35	
Quiet library, soft whisper (15 feet)	30	Very quiet
Wilderness with no wind or animal activity	25	Extremely quiet
High-quality recording studio	20	
Acoustic test chamber	10	Just audible
	0	Threshold of hearing
Adapted from: Kurze and Beranek (1988) and United States Environmental Protection Agency (1971).		

Table 2. Acoustic Terms and Definitions

Term	Definition
Noise	Typically defined as unwanted sound. This word adds the subjective response of humans to the physical phenomenon of sound. It is commonly used when negative effects on people are known to occur.
Sound Pressure Level (L_P)	Pressure fluctuations in a medium. Sound pressure is measured in dB referenced to 20 micropascals, the approximate threshold of human perception to sound at 1,000 Hz.
Sound Power Level (L_W)	The total acoustic power of a noise source measured in dB referenced to picowatts (one trillionth of a watt). Noise specifications are provided by equipment manufacturers as sound power as it is independent of the environment in which it is located. A sound level meter does not directly measure sound power.
Equivalent Sound Level (L_{eq})	The L_{eq} is the continuous equivalent sound level, defined as the single sound pressure level that, if constant over the stated measurement period, would contain the same sound energy as the actual monitored sound that is fluctuating in level over the measurement period.
A-Weighted Decibel (dBA)	Environmental sound is typically composed of acoustic energy across all frequencies. To compensate for the auditory frequency response of the human ear, an A-weighting filter is commonly used for describing environmental sound levels. Sound levels that are A-weighted are presented as dBA in this report.
Unweighted Decibels (dBL)	Unweighted sound levels are referred to as linear. Linear decibels are used to determine a sound's tonality and to engineer solutions to reduce or control noise as techniques are different for low and high frequency noise. Sound levels that are linear are presented as dBL in this report.
Propagation and Attenuation	Propagation refers to the process by which sound waves travel through a medium from source to receiver. It involves the transmission of sound as a sequence of pressure waves through media such as air, water, or solids. During this process, sound waves can be reflected, refracted, or attenuated. Attenuation is the decrease in amplitude of an acoustic signal. Sound attenuation factors include air absorption, terrain effects, sound interaction with the ground, diffraction of sound around objects and topographical features, foliage, and meteorological conditions including wind velocity, temperature, humidity, and atmospheric conditions.
Octave Bands	The audible range of humans spans from 20 to 20,000 Hz and is typically divided into center frequencies ranging from 31 to 8,000 Hz.
Broadband Noise	Noise which covers a wide range of frequencies within the audible spectrum, i.e., 200 to 2,000 Hz.
Frequency (Hz)	The rate of oscillation of a sound, measured in units of Hz or kilohertz (kHz). One hundred Hz is a rate of one hundred times (or cycles) per second. The frequency of a sound is the property perceived as pitch: a low-frequency sound (such as a bass note) oscillates at a relatively slow rate, and a high-frequency sound (such as a treble note) oscillates at a relatively high rate. For comparative purposes, the lowest note on a full range piano is approximately 32 Hz and middle C is 261 Hz.

3.0 Noise Requirements and Guidelines

The State of Hawai'i DOH regulates noise through the HAR, Title 11, Chapter 46, "Community Noise Control". The stated purpose of the Community Noise Control regulations is to "provide for the prevention, control, and abatement of noise pollution in the State from the following noise sources: stationary noise sources; and equipment related to agricultural, construction, and industrial activities" (HAR § 11-46). Sound from routine ongoing maintenance activities is considered part of routine operation and the combined total of the ongoing maintenance and routine operation are subject to the sound level limits. Sound from the occasional, major equipment overhauls during operations and maintenance is temporary and would be regulated similar to construction activity.

The Hawai'i noise limits for stationary sources, such as transformers and inverters, apply to sound levels received at the property line for three zoning class districts and are generally more restrictive during nighttime periods. For mixed zoning districts, the primary land use designation is used to determine the applicable zoning district class and maximum permissible sound level. The daytime and nighttime maximum permissible noise limits by zoning class district are presented in Table 3. The noise limits are assumed to be absolute and independent of the existing acoustic environment; therefore, no ambient sound survey is required to assess conformity.

Pursuant to HAR §11-46-4(b), Project compliance is assessed relative to the noise limits at any point at or beyond (past) the property line based on the zoning class district of the adjacent lands. Because the Study Area is in the State Conservation District, the Project compliance is assessed relative to the maximum permissible sound levels for Class A Zoning districts, i.e., sound levels cannot exceed 55 dBA during daytime and 45 dBA during nighttime.

Table 3. Hawai'i Maximum Permissible Sound Levels by Zoning District

Receiving Zoning Class District	Maximum Permissible Sound Level (dBA)	
	Daytime (7:00am – 10:00pm)	Nighttime (10:00pm – 7:00am)
Class A Zoning districts include all areas equivalent to land zoned residential, conservation, preservation, public space, or similar type.	55	45
Class B Zoning districts include all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.	60	50
Class C Zoning districts include all areas equivalent to lands zoned agriculture, county, industrial, or similar type.	70	70
Source: Hawai'i Administrative Rules §11-46, "Community Noise Control"		

According to HAR §11-46-4(c), noise levels may exceed the prescribed limits up to 10 percent of the time within any 20-minute period. The maximum permissible sound level for impulsive noise, as measured with a fast meter response, is 10 dBA above the maximum permissible sound levels for the given receiving zoning class district.

HAR § 11-46-5 provides further exemptions to these limits. Pursuant to HAR § 11-46-7, a permit may be granted by the director of DOH for operation of an excessive noise source beyond the maximum permissible sound levels. Under HAR § 11-46-7(j), noise permits for construction allow for activities emitting noise in excess of the limits but restrict these activities to the hours of 7:00 am to 6:00 pm during weekdays and 9:00 am to 6:00 pm on Saturdays (no exceedances allowed on Sundays or holidays). Pursuant to HAR § 11-46-8, a variance may be obtained for operation of an excessive noise source beyond the maximum permissible sound levels outside of permitted construction hours. Factors that are considered in granting of such variances include whether the activity is in the public interest and whether the best available noise control technology is being employed.

4.0 Acoustic Modeling Methodology and Results

This acoustic assessment analyzes operations of KWP 1 with continued use of the GE 1.5se turbines, a 6–9-month initial maintenance period, and a 2-year decommissioning period. The following subsections describe the sound sources and their characteristics for the operations, maintenance, and decommissioning phases, as well as the acoustic modeling software used for the analysis.

4.1 Acoustic Modeling Software

The acoustic modeling analysis was conducted using the most recent version of CadnaA, a comprehensive three-dimensional acoustic software model that conforms to the International Organization for Standardization (ISO) standard ISO 9613-2 “Attenuation of Sound during Propagation Outdoors” (ISO 1996). The engineering methods specified in this standard consist of full (1/1) octave band algorithms that incorporate geometric spreading due to wave divergence, reflection from surfaces, atmospheric absorption, screening by topography and obstacles, ground effects, source directivity, heights of both sources and receptors, seasonal foliage effects, and meteorological conditions.

Topographical information was imported into the acoustic model using the official U.S. Geological Survey digital elevation dataset to accurately represent terrain in three dimensions (USGS 2025). Terrain conditions, vegetation type, ground cover, and the density and height of foliage can also influence the absorption that takes place when sound waves travel over land. The ISO 9613-2 standard accounts for ground absorption rates by assigning a numerical coefficient of G=0 for acoustically hard, reflective surfaces and G=1 for absorptive surfaces and soft ground. If the ground is hard-packed dirt, typically found in industrial complexes, pavement, bare rock or for sound traveling over water, the absorption coefficient is defined as G=0 to account for reduced sound attenuation and higher reflectivity. In contrast, ground covered in vegetation, including suburban lawns or livestock and agricultural fields, will be acoustically absorptive and aid in sound attenuation (i.e., G=1). A mixed (semi-reflective) ground

factor of G=0.5 was used in the Project acoustic modeling analysis and is considered standard engineering practice. In addition to geometrical divergence, attenuation factors include topographical features, terrain coverage, and/or other natural or anthropogenic obstacles that can affect sound attenuation and result in acoustical screening. To be conservative, sound attenuation through foliage and diffraction around and over existing anthropogenic structures such as buildings was not included in this modeling analysis.

Sound attenuation by the atmosphere is not strongly dependent on temperature and humidity; however, the temperature of 10 degrees Celsius (50 degrees Fahrenheit) and 70 percent relative humidity parameters were selected for this analysis and is considered standard engineering practice and is a conservative assumption. Over short distances, the effects of atmospheric absorption are minimal. The ISO 9613-2 standard calculates attenuation for meteorological conditions favorable to propagation, i.e., downwind sound propagation or what might occur typically during a moderate atmospheric ground level inversion. Though a physical impracticality, the ISO 96132 standard simulates omnidirectional downwind propagation. For receivers located between discrete Project sound sources, the acoustic model may result in over-prediction. In addition, the acoustic modeling algorithms essentially assume laminar atmospheric conditions, in which neighboring layers of air do not mix. This conservative assumption does not take into consideration turbulent eddies and micrometeorological inhomogeneities that may form when winds change speed or direction, which can interfere with the sound propagation path and increase effects of attenuation.

4.2 Sound Sources

4.2.1 Wind Turbines

Sound generated by an operating wind turbine is comprised of both aerodynamic and mechanical sound with the dominant sound component from modern utility-scale wind turbines being aerodynamic. Aerodynamic noise results from air flowing across and around each blade of the turbine. Secondarily, mechanical sound is sound generated by machinery located inside the nacelle of the turbine, such as gearboxes, motors, cooling systems, and pumps. The improved design of wind turbine mechanical components and the use of improved noise damping materials within the nacelle, including elastomeric elements supporting the generator and gearbox, have minimized mechanical noise emissions.

Wind energy facilities, in comparison to other energy-related facilities, are somewhat unique in that the sound generated by each individual wind turbine increases as the wind speed increases. The sound emitted by a wind turbine is strongly dependent on the speed of the tip of the blade, the design of the blade, and on atmospheric conditions such as the degree of turbulence. Blade noise increases with increasing wind speed until full-rated electrical power is achieved due to the interaction between the incident turbulence eddies and the blade surface. The prevalence of this inflow turbulence noise varies depending on site-specific and variable atmospheric conditions. The second mechanism is the shedding of vortices that form at the tip of each blade. This depends on the strength of the vortex and the design of the blade tip. Finally, noise may be generated by turbulent flow over the trailing edge of the blade. As

air flows over the face of the blade, a turbulent boundary layer develops but remains attached to the trailing edge. Eddies extending past the trailing edge causes sound emission scattering, resulting in the characteristic wind turbine broadband swooshing sound. This turbulent boundary layer noise (trailing edge noise) usually defines the upper limit of wind turbine noise levels and is considered the greatest contributor to aerodynamic noise.

It is important to recognize that as wind speeds increase, the background ambient sound level will generally increase as well, resulting in acoustic masking effects; however, this trend is also affected by local contributing sound sources. The net result is that during periods of elevated wind speeds, when higher wind turbine sound emissions occur, the sound produced from a wind turbine operating at maximum rotational speed may be largely or fully masked due to wind-generated sound in foliage or vegetation. In practical terms, this means a nearby receptor would tend to hear leaves or vegetation rustling rather than wind turbine noise. This relationship is expected to further minimize the potential for any adverse noise effects of the Project. Conversely, these acoustic masking effects may be limited during periods of unusually high wind shear or at receiver locations that are sheltered from the prevailing wind direction.

The operational acoustic assessment was performed using the existing Project site layout using the GE 1.5se wind turbine with a rotor diameter of 70.5 m (231 ft) and hub height of 55 m (180 ft).

To assist project developers and acoustical engineers, wind turbine manufacturers report wind turbine sound power data at integer wind speeds referenced to the effective hub height, ranging from cut-in to full rated power. This accepted International Electrotechnical Commission (IEC) standard was developed to ensure consistent and comparable sound emission data of utility-scale wind turbines between manufacturers. The IEC test is an accepted standard providing a uniform methodology for measuring the noise emissions of a wind turbine from cut-in through full rotational wind speeds. The IEC testing standard defines deviation values σ_T, σ_R and σ_P for measured apparent sound power levels as described by IEC/TS 61400-14, where σ_T is the total standard deviation, σ_R is the standard deviation for test reproducibility, and σ_P is the standard deviation for product variation. To account for this inherent deviation associated with the IEC testing methodology, a confidence interval of k = 2 dBA was applied. The combination of the modeling parameters used, and the inclusion of the 2-dBA term are expected to result in a reasonable and conservative assessment of Project sound levels since it is unlikely that all wind turbines would be operating concurrently 2 dBA above the mean.

Wind turbines can be somewhat directional, radiating more sound in some directions than others. The IEC test measurement protocol requires that sound measurements be made for the maximum downwind directional location when reporting apparent sound power levels. Thus, it is assumed that wind turbine directivity and sound-generating efficiencies are inherently incorporated in the sound source data and used in acoustic model development. A summary of sound power data by octave band center frequency for the GE 1.5se wind turbines, as provided by GE, operating at maximum rotation is presented in Table 4.

Table 4. Wind Turbine Sound Power Level by Octave Band Frequency

Wind Turbine	K-Factor	Octave Band Sound Power Level (dBA) by Frequency (Hz)									Broadband (dBA)
		31.5	63	125	250	500	1000	2000	4000	8000	
GE 1.5se	2.0	-	85	94	97	99	98	95	87	78	104

4.2.2 Substation

Substations have switching, protection, and control equipment, as well as a main power transformer, which generates the sound generally described as a low humming. There are three chief noise sources associated with a transformer: core noise, load noise, and noise generated by the operation of the cooling equipment. The core is the principal noise source and does not vary significantly with electrical load. The load noise is primarily caused by the load current in the transformer's conducting coils (or windings), and consequently, the main frequency of this sound is twice the supply frequency: 120 Hz for 60 Hz transformers. The cooling equipment (fans and pumps) may also be an important noise component, depending on fan design. During the air-forced cooling method, cooling fan noise is produced in addition to the core noise. The resulting audible sound is a combination of hum and broadband fan noise. Just as horsepower ratings designate the power capacity of an electric motor, a transformer's megavolt ampere (MVA) rating indicates its maximum power output capacity. The Project substation houses a 34 MVA transformer, the sound specifications of which are presented in Table 5. The L_W for the Project Substation transformer was calculated using the methodology recommended by the Electric Power Plant Environmental Noise Guide (Edison Electric Institute 1983).

Table 5. Modeled Octave Band Sound Power Level for Substation Transformer

Sound Source	Sound Power Level (L_W) by Octave Band Frequency dBL									Broadband Level
	31.5	63	125	250	500	1k	2k	4k	8k	dBA
34 MVA Transformer	48	67	79	82	87	85	81	76	66	91

4.3 Operational Modeling Results

Acoustic modeling was completed for the wind turbine site configuration with the installed GE 1.5se wind turbine. Broadband (dBA) sound pressure levels were calculated for expected maximum rated Project operation, assuming wind turbines are operating continuously and concurrently at the representative manufacturer maximum-rated sound power levels. The sound energy was then summed to determine the equivalent continuous A-weighted downwind sound pressure level at a point of reception.

Figure 2 is a sound contour plot displaying broadband (dBA) sound levels, presented as color-coded isopleths, for Project operation under standard operating conditions. The sound contours are graphical representations of the cumulative noise associated with the full operation of the equipment, showing how operational noise would be distributed over the surrounding area. Results from acoustic modeling are projected in 5-dBA increments over aerial imagery. The contour isopleths are analogous to elevation

contours on a topographic map, i.e., the noise contours are continuous lines of equal noise level around some source, or sources, of noise. The sound contour isopleths are modeled and plotted at a height of 4 meters (m) above ground level, as per the American National Standards Institute (ANSI) standard on wind turbine sound modeling (ANSI/ACP 111-1-2022). Results are independent of the existing acoustic environment, representative of Project-generated sound levels only.

Figure 2 also shows the receiving zoning class districts identified in the HAR § 11-46 noise regulations. Land adjacent to the Project boundary is categorized as Class A; therefore, the most stringent daytime and nighttime limits of 55 dBA and 45 dBA, respectively, will apply. Modeling results show that there are exceedances of the daytime and nighttime limits at the Project parcel boundary; however, NSRs are not expected to be in proximity to the boundary given the surrounding land use and terrain. Therefore, no meaningful noise impacts would occur at the Project parcel boundary.

Conversely, received sound levels were also evaluated at discrete NSRs, as shown in Figure 2 and listed in Table 6. The predicted received sound levels ranged from 25 to 42 dBA, so at locations where NSRs are expected, the Project complies with both daytime and nighttime limits for the Class A zoning district. Examples of noise sources and activities relative to subject impression values can be found in Table 1. As noted above, the modeling results are independent of the existing acoustic environment and only reflect the modeled Project-generated sound levels. NSRs 3 through 9 are approximately two miles or more from the closest KWP 1 wind turbine and many of these NSRs are located near highways or roads which contribute to the existing ambient acoustic environment. Given the distance from the operational wind turbines and the existing ambient environment, it is unlikely turbine noise would be discernable at NSRs 3 through 9. At NSRs 1 and 2 the Project may result in audible sound under certain operational and meteorological conditions. At all NSRs, Project-related sound will be at a low level and successfully demonstrate compliance with the daytime and nighttime limits for the Class A zoning district.

Table 6. Identified NSRs and Operational Acoustic Modeling Results

NSR ID	Name	UTM Coordinates (m)		Received Sound Level (dBA)	Compliance with noise standard	Subject Impression
		Easting	Northing			
1	Lahaina Pali Trail (Location 1)	756223	2301772	42	Below Class A nighttime noise limit	Quiet
2	Lahaina Pali Trail (Location 2)	756298	2302104	38	Below Class A nighttime noise limit	Faint
3	McGregor Point and Lighthouse	757883	2299498	28	Below Class A nighttime noise limit	Very quiet
4	Maui Ocean Center	758995	2301188	25	Below Class A nighttime noise limit	Extremely quiet
5	Condominiums at Hauoli Street	759162	2301204	27	Below Class A nighttime noise limit	Very quiet
6	Papalaua State Wayside Park	753220	2301119	27	Below Class A nighttime noise limit	Very quiet
7	King Kamehameha Golf Club	758474	2304505	24	Below Class A nighttime noise limit	Extremely quiet
8	Residence at Pohaku Aeko Street	751122	2302400	26	Below Class A nighttime noise limit	Very quiet
9	Kealia Coastal Boardwalk	761175	2301673	25	Below Class A nighttime noise limit	Extremely quiet

Figure 2. Received Sound Levels, Project Operation



4.4 Maintenance Period

Project maintenance would consist of a 6–9-month initial maintenance period to service all major mechanical components of the wind turbines. Maintenance activities would require the use of heavy equipment that may be periodically audible at off-site locations. Received sound levels would fluctuate, depending on the maintenance activity, equipment type, and distance between the noise source and receiver. Sound from maintenance equipment would vary depending on the maintenance phase and the number and class of equipment at a location at any given time.

The variation in power and usage imposes additional complexity in characterizing maintenance activity noise levels. Equipment types for each phase of maintenance are presented in Tables 7a, for an average workday, and 7b, for a peak workday, for the identified NSRs. The estimated composite site noise level assumes that all equipment would operate simultaneously at a conservative load usage factor of 100% over a standard eight-hour workday. Usage factor accounts for the fraction of time that the equipment is in use over the specified period. Maintenance sound would be attenuated with increased distance from the source. Other factors, such as vegetation, terrain, and obstacles such as buildings, would act to further limit the impact of maintenance noise levels, but were not considered in the analysis.

Traffic noise generated during maintenance on and offsite would contribute to overall sound levels. Maintenance activity would generate traffic having potential noise effects, such as trucks traveling to and from the Project site on public roads but would be short-term. Maintenance may generate noise levels that exceed the ambient levels and have the potential to cause a temporary and short-term disturbance. The Project would make reasonable efforts to minimize the noise impact resulting from maintenance activities.

Maintenance activities with the equipment listed in tables 7a and 7b are anticipated to occur during daytime hours (between 7:00am – 10:00pm); therefore, the maximum permissible daytime sound levels would apply to these activities.

Some limited maintenance activities may occur outside of daytime hours (between 10:00pm – 7:00am) for health and safety reasons (i.e. working during periods of low wind speeds); however, this work would be limited, avoiding the use of heavy equipment. Exceedance of the nighttime standard at nearby NSRs, including those at the Lahaina Pali Trail, during any required nighttime maintenance activities is not anticipated.

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Table 7a. Maintenance Noise Levels at NSRs (Average Workday)

Maintenance Equipment	Number of Equipment	Maximum L_{max} Equipment Noise Level at 50 ft (15 m) dBA	Composite Equipment Noise Level at 50 ft (15 m), dBA	Composite Noise Level (dBA)								
				NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8	NSR 9
Cranes	2	85	95	42	49	31	31	31	23	25	25	27
Excavators	2	85										
Bulldozers	2	85										
Grader	1	85										
Skid Steer	2	85										
Roller	1	85										

Table 7b. Maintenance Noise Levels at NSRs (Peak Workday)

Maintenance Equipment	Number of Equipment	Maximum L_{max} Equipment Noise Level at 50 ft (15 m) dBA	Composite Equipment Noise Level at 50 ft (15 m), dBA	Composite Noise Level (dBA)								
				NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8	NSR 9
Cranes	4	85	98	45	52	34	34	34	26	28	28	30
Excavators	4	85										
Bulldozers	4	85										
Grader	2	85										
Skid Steer	4	85										
Roller	2	85										

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4.5 Decommissioning Period

At the end of the KWP 1 wind generation facility lifecycle, all facility components would be decommissioned. The efforts involved in decommissioning depend on the size and number of turbines and typically include removal by cranes and other equipment, disassembly of the turbines and associated components, removal of the turbine foundations, and restoration and revegetation of the area to its previous conditions as closely as possible. For the Project, the decommissioning process is expected to take approximately 2 years, with peak activities planned for 6 months of the total decommissioning period. The equipment used for decommissioning would largely remain the same as that used during maintenance but would include additional specialty equipment for concrete cutting and breaking. Table 8a shows the anticipated equipment and resulting noise levels during an average workday and Table 8b shows the anticipated equipment and resulting noise levels during a peak workday. The estimated composite site noise level assumes that all equipment would operate simultaneously at a conservative load usage factor of 100%. Similar to maintenance, noise levels may exceed ambient levels, potentially causing temporary and/or short-term disturbances. The Project would make reasonable efforts to minimize noise impacts resulting from decommissioning activities. Also, like maintenance, decommissioning activities are anticipated to occur during daytime hours (between 7:00am – 10:00pm); therefore, the maximum permissible daytime sound levels would apply to these activities.

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Table 8a. Decommissioning Noise Levels at NSRs (Average Workday)

Decommissioning Equipment	Number of Equipment	Maximum L_{max} Equipment Noise Level at 50 ft (15 m) dBA	Composite Equipment Noise Level at 50 ft (15 m), dBA	Composite Noise Level (dBA)								
				NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8	NSR 9
Cranes	4	85	99	46	53	35	35	35	27	29	29	31
Excavator	3	85										
Bulldozers	3	85										
Grader	2	85										
Skid Steer	4	85										
Roller	3	85										
Specialty attachments for concrete cutting and breaking	2	90										

Table 8b. Decommissioning Noise Levels at NSRs (Peak Workday)

Decommissioning Equipment	Number of Equipment	Maximum L_{max} Equipment Noise Level at 50 ft (15 m) dBA	Composite Equipment Noise Level at 50 ft (15 m), dBA	Composite Noise Level (dBA)								
				NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8	NSR 9
Cranes	6	85	102	49	56	38	38	38	30	32	32	34
Excavator	6	85										
Bulldozers	6	85										
Grader	4	85										
Skid Steer	8	85										
Roller	6	85										
Specialty attachments for concrete cutting and breaking	4	90										

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5.0 Conclusions

Inclusive of a number of conservative assumptions, Tetra Tech conducted an acoustic modeling analysis using CadnaA to evaluate potential offsite noise impacts associated with operation of the Project's twenty, GE 1.5se wind turbines and 34 MVA substation transformer. As noted in Section 1.0, the KWP 1 wind turbines are located approximately 2 miles or more from all identified NSRs listed in Table 6, with the exception of the Lāhainā Pali Trail, located approximately 0.5 mile from the facility at its closest point. Land adjacent to the Project boundary is categorized as Class A; therefore, the most stringent daytime and nighttime limits of 55 dBA and 45 dBA, respectively, applied. Modeling results showed that there are exceedances of the daytime and nighttime limits at portions of the Project parcel boundary during Project operation; however, NSRs are not expected to be in proximity to the boundary given the surrounding land use and terrain. Therefore, no meaningful noise impacts would occur at the Project parcel boundary. Conversely, predicted received sound levels were also evaluated at discrete NSRs, which ranged from 25 to 42 dBA, so at locations where NSRs are expected, the Project complies with both daytime and nighttime limits for the Class A zoning district.

Noise levels associated with the possible 6-9-month initial maintenance period and during decommissioning were also reviewed. During the 6-9-month initial maintenance period, noise levels at NSRs could range from 23 to 52 dBA. During decommissioning, noise levels at NSRs could range from 27 to 56 dBA. Noise generated during maintenance and decommissioning activities would be temporary and subject to authorization under HAR § 11-46-7 (noise permit) and HAR § 11-46-8 (variance).

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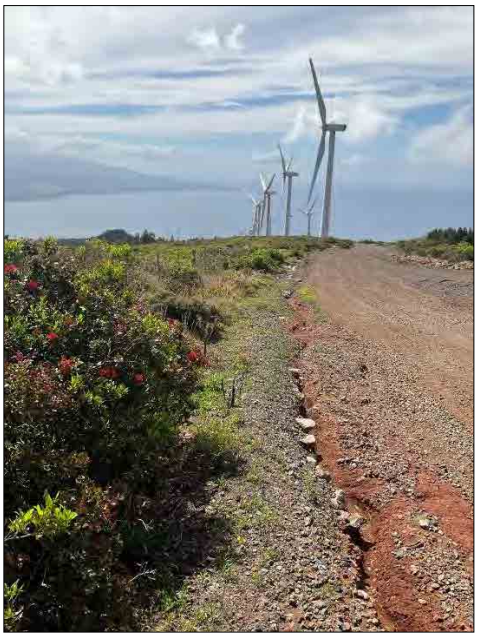
Appendix F. KWP 1 Vegetation Management Plan

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Kaheawa Wind 1 Continued Use Project

Vegetation Management Plan

(Living Document – Subject to Change)



Prepared for

Kaheawa Wind Power, LLC

200 Liberty Street, 14th Floor | New York, NY 10281

kaheawawind.com

Prepared by

TETRA TECH

737 Bishop St., Suite 2000, Mauka Tower | Honolulu, HI 96813

Tel: 808.441.6600 | tetratech.com

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Appendix A. Example Plant Photos

1.0 Introduction

Kaheawa Wind Power, LLC (KWP) owns and operates the Kaheawa Wind 1 (KWP 1) Project (Project), an existing 30-megawatt (MW) wind energy generation facility located on state-owned land in the Kaheawa Pastures area of West Maui, Hawai'i. The Project Area includes a 200-acre KWP 1 wind facility lease area located on tax map key (TMK) (2) 4-8-001:001 (por.) as well as the existing footprint of the primary access road and staging areas (approximately 17 acres) located on TMK (2) 3-6-001:014 (por.) (both TMKs owned by the State of Hawai'i). The location of the Project Area is shown in Figure 1. The Project's limits of disturbance (LOD), within which the Project's existing facilities are sited and maintained, is 58 acres and shown in Figure 2. The LOD includes an approximately 41-acre area associated with the wind turbines and turbine pads, an Operations & Maintenance (O&M) building, a warehouse storage facility, substation, switchyard and transmission interconnection, access roads, and crane paths and staging areas associated with original facility construction. The LOD also includes an approximately 17-acre corridor that includes the primary access road (i.e. the Kaheawa Pastures access road, an existing four-wheel-drive gravel roadway originating from Honoapi'ilani Highway), and a parking area at the entrance of the road along the highway.

Vegetation management (i.e., removing or maintaining plants) occurs at the facility as part of routine operations and maintenance. In addition, impacts to vegetation occasionally occur due to maintenance activities (e.g., when a crane pad is needed). Typically, vegetation management occurs within the LOD. However, as described in this Vegetation Management Plan (Plan), vegetation maintenance to address community and cultural concerns in coordination with Maui Cultural Lands (or an appropriate alternative cultural group/consultant) or in an effort to better manage the landscape for protected species may occasionally occur outside the LOD (but within the Project Area).

The purpose of this Plan is to provide guidance to on-site O&M managers and staff and contractors regarding:

- When and how vegetation management shall occur at the facility to ensure compliance with the various applicable permits and required Project commitments;
- Best management practices (BMPs) related to any activities that may involve impacts to vegetation; and
- Measures to minimize/mitigate potential impacts on the Habitat Conservation Plan's (HCP) Covered Species, and native plants and animals.

Section 2.0 provides an overview of existing conditions within the LOD and larger Project Area to provide context for vegetation management. Section 3.0 outlines the existing documents, permits, and Project commitments that influence vegetation management actions. Section 4.0 summarizes the routine vegetation management activities conducted under those documents and permits and outlines the BMPs and avoidance and minimization measures that are to be implemented when conducting routine vegetation management or when vegetation may be impacted due to operations and maintenance activities. These BMPs and avoidance/minimization measures are governed by the existing documents

and permits, as well as input from community groups and relevant resource agencies and committees. This Plan does not specifically address measures and BMPs to prevent and minimize the introduction or spread of invasive species. A separate Invasive Species Prevention Plan has been prepared for the Project (Tetra Tech 2025a).

For more information on vegetation management procedures, practices, and requirements, please contact the KWP Senior Biologist:

Contact: Molly Stephenson

Phone: (612) 240-9830

Email: Molly.stephenson@terraformpower.com

2.0 Site Description

2.1 Existing Vegetation

Vegetation in the Project Area has been disturbed from historic grazing and wildfires, including a recent wildfire in 2019 which burned portions of the Project Area, and as a result of construction and operation of the existing KWP 1 and KWP 2 wind facilities. During construction of KWP 1, vegetation was cleared to construct the facility and the existing Kaheawa Pastures access road was widened. Since operations began in 2006, vegetation has been continually maintained within portions of the LOD to support compliance with the Project's HCP (KWP LLC 2006). Graveled, vegetation-free areas are maintained within the graded areas of the turbine pads located within 230 feet of the base of the wind turbines, within a 30-foot buffer of the substation, switchyard, O&M building, and warehouse storage facility, and within the access roads (including a 3-foot buffer area on each side of the access roads). These vegetation-free buffers are managed to provide fire breaks, minimize attractiveness of onsite habitat to the HCP's Covered Species (specifically, nēnē) , and increase searchability of turbine pads for downed wildlife as part of post-construction mortality monitoring (PCMM). Thus, the majority of the LOD, roughly 60 percent, is unvegetated or vegetation is regularly managed to remain clear of vegetation for fatality monitoring in compliance with the Project HCP[1].

Vegetation present within the LOD occurs along the edges of access roads and the turbine pads, and within areas that were previously disturbed during KWP 1 construction (e.g., temporary laydown areas and crane pads) where vegetation has regrown naturally or established through post-construction revegetation measures. Between 2007-2009, KWP outplanted nearly 23,500 native plants within the KWP area (Planning Solutions 2010), many of which were propagated from the site-specific seed bank. Overall, vegetation in the LOD is dominated by non-native species and consists of primarily non-native

[1] While it is not anticipated that these graveled areas will host 'ilima encroachment or assimulans yellow-faced bee nesting sites to their previously disturbed condition, to the extent practicable within these areas, vegetation management that would involve the removal of 'ilima or ground disturbance that could affect this species will be avoided during regular maintenance and decommissioning.

grassland in the lower elevation areas (below 2,000 feet [609 meters (m)]), non-native grassland with patches of mixed non-native and native dry shrublands in the mid-elevation areas (2,000 to 3,000 feet [609 to 914 m]), and non-native grasslands with patches of predominately native mesic shrublands in the uppermost elevations (3,000 to 3,200 feet [914 to 975 m]). In the mid-elevation areas, patches of dense trees and individual trees are also scattered within the grassland vegetation (Tetra Tech 2025b).

Eighteen plant species that are native to the Hawaiian Islands were observed during the April 2025 botanical survey of the LOD (Tetra Tech 2025b), including 7 species which are endemic to and found only in the Hawaiian Islands (Table 1). Native plant species increase in dominance toward the uppermost turbine and are more prevalent on the eastern side of the access road. All native plant species observed within the LOD are considered common species throughout the Hawaiian Islands, and some of these native plant species serve as a foraging resource for the protected assimulans yellow-faced bee (ʻilima, ʻūlei, ʻuhaloa [USFWS 2022]; see Section 4.3.3). The Project Area contains critical plant habitat for 28 species of listed plants; however, no listed plant species have been documented within the Project Area throughout the life of KWP 1. Various non-native plant species, including some considered invasive, have been recorded in the LOD and Project Area (KWP LLC 2006, Tetra Tech 2025b). Two of these species, koa haole (*Leucaena leucocephala*) and kiawe (*Prosopis pallida*), may have potential as assimulans yellow-faced bee forage (USFWS 2022; see Section 4.3.3).

Table 1. Native Plant Species Recorded Within the Project Limits of Disturbance in 2025

Scientific Name	Hawaiian/ Common Name(s)	Status	Location in LOD		
			Upper Elevation Non-native Grassland and Native Mesic Shrubland	Mid-Elevation Non-native Grassland and Dry Shrubland	Low-Elevation Buffelgrass Grassland
Bidens micrantha subsp. *micrantha*	koʻokoʻolau	E	X		
Dicranopteris linearis linearis	uluhe	I	X		
Dodonaea viscosa	ʻaʻaliʻi	I	X	X	
Eragrostis variabilis	kawelu	E	X		
Heteropogon contortus	pili	I		X	
Ipomoea indica	koali ʻawa	I	X		
Koeleria inaequalis	no common name	E		X	
Leptecophylla tameiameiae	pūkiawe	I	X	X	
Metrosideros polymorpha [1]	ʻōhiʻa lehua	E	X	X	
Nephroia orbiculata	no common name	I	X		
Morelotia gahniiformis	no common name	E	X		
Odontosoria chinensis	palaʻā	I	X		
Osteomeles anthyllidifolia	ʻūlei	I	X	X	
Pteridium aquilinum subsp. *decompositum*	kīlau	I	X	X	
Santalum ellipticum	ʻiliahialoʻe	E		X	
Sida fallax	ʻilima	I	X	X	X

Scientific Name	Hawaiian/ Common Name(s)	Status	Location in LOD		
			Upper Elevation Non-native Grassland and Native Mesic Shrubland	Mid-Elevation Non-native Grassland and Dry Shrubland	Low-Elevation Buffelgrass Grassland
Waltheria indica	ʻuhaloa	I	X	X	X
Wikstroemia oahuensis var. *oahuensis*	ʻākia	E	X		

Status: E = Endemic (native only to the Hawaiian Islands); I = Indigenous (native to the Hawaiian Islands and elsewhere).
1. Represented by two varieties.

2.2 Existing Wildlife

The grasslands and shrublands within the Project Area provide habitat for both native and non-native wildlife. While the majority of the birds, mammals, and invertebrates present in the Project Area are common, non-native species, the Project has the potential to impact several state or federally listed threatened or endangered species. These listed species include:

- ʻōpeʻapeʻa (Hawaiian hoary bat; *Lasiurus semotus*)
- nēnē (Hawaiian goose; *Branta sandvicensis*)
- ʻuaʻu (Hawaiian petrel; *Pterodroma sandwichensis*)
- ʻaʻo (Newell's shearwater; *Puffinus newelli*)
- 'akē'akē (Band-rumped storm petrel; *Oceanodroma castro*)
- assimulans yellow-faced bee (*Hylaeus assimulans)*.

In addition to the species listed above, an additional endangered species has the potential to occur in or transit the Project Area or its vicinity: Blackburn's sphinx moth (*Manduca blackburni*). This invertebrate species is an obligate of specific host plants. The native ʻilima (*Sida fallax*), which is considered the primary host plant for the assimulans yellow-faced bee, occurs in the Project Area (Tetra Tech 2025b). Tree tobacco (*Nicotiana glauca),* a larval host plant for Blackburn's sphinx moth, has not been documented in the Project Area. However, tree tobacco is common on Maui, and the plant is known to readily colonize disturbed areas. Impacts to the two invertebrate listed species can be avoided through proper vegetation management. Additional vegetation management measures can minimize impacts to the ʻōpeʻapeʻa and nēnē.

The endemic pueo (Hawaiian short-eared owl; *Asio flammeus sandwichensis*) is not state or federally listed on the island of Maui, but is a culturally significant bird and is protected under the Migratory Bird Treaty Act (MBTA). Pueo have the potential to forage or nest in the Project Area. Impacts to this MBTA-protected species from vegetation management activities can be avoided through adhering to monitoring requirements and clearing restrictions.

3.0 Project Documents or Permits Influencing Vegetation Management

3.1 Habitat Conservation Plan and Associated Permits

As stated above, the Project has the potential to impact species listed under the federal Endangered Species Act (ESA) and protected under the State of Hawai‘i’s endangered species law under Hawaii Revised Statutes (HRS) Chapter 195D. Since 2006, KWP has operated under a joint Federal and State HCP (KWP LLC 2006), an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS), and an Incidental Take License (ITL) from the Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW). Additionally, KWP is in the process of developing a new HCP for 20 more years of continued operations (Tetra Tech 2025c) in order to obtain a new ITP and ITL. It is anticipated that the permits will cover the incidental take of five federally and state listed threatened and endangered species, collectively referred to as the Covered Species. The Covered Species include the ‘ōpe‘ape‘a (Hawaiian hoary bat), nēnē (Hawaiian goose), ‘ua‘u (Hawaiian petrel), ‘a‘o (Newell’s shearwater), the ‘akē‘akē (band-rumped storm petrel), and the assimulans yellow-faced bee. All of these species, with the exception of the band-rumped storm petrel and assimulans yellow-faced bee, are included on the current ITP and ITL.

In addition to the Covered Species, there is the potential for the Blackburn’s sphinx moth to occur in or transit the LOD. The vegetation management measures outlined in the HCP and this Plan with regards to ‘ilima and tree tobacco will be implemented to avoid take of these listed species.

3.2 Conservation District Use Permit (MA-3103)

The entire Project Area is within the State Conservation District. HRS Chapter 205-5 specifies that conservation districts shall be governed by the State of Hawai‘i DLNR pursuant to HRS Chapter 183C; uses in the Conservation District are regulated by the DLNR Office of Conservation and Coastal Lands under Hawai‘i Administrative Rules (HAR) Title 13, Chapter 5.

HAR 13-5 classifies conservation lands into five subzones: protective, limited, resource, general, and special. The Project Area is within the general and protective subzones. KWP I currently operates under the terms and conditions of a Conservation District Use Permit (CDUP) which was approved by DLNR on January 24, 2003. On June 24, 2005, a modification to CDUP MA-3103 was approved by the Board of of Land and Natural Resources (BLNR) to include conditions related to the draft HCP. This CDUP will remain in effect for the extended operational period (anticipated to be through 2046).

There are 44 conditions outlined in the CDUP, of which the following pertain to vegetation management during operations:

- Condition #3: *All mitigative measures proposed in the final Environmental Impact Statement for the project shall be implemented*. Relevant measures from the Final EIS (Zond Pacific 1999) referenced in the CDUP include:
    - Work with DLNR/DOFAW and local plant experts to plan a native plant propagation and restoration program;
    - Continue coordination with DLNR/DOFAW on a native plant propagation and restoration program; and
    - Implement the native plant propagation and recovery program with assistance from local experts.
- Condition #20: *All cleared areas shall be revegetated in a manner consistent with other permit conditions, with specific consideration given to the fire contingency plan and the Habitat Conservation Plan. Any necessary revegetation shall be completed within thirty days of the completion of specific project components that resulted in ground clearing, using native species found in the area.*
    - As stated in the KWP 2 Final EIS (Planning Solutions 2010), establishing vegetation within 30 days by seeding with native species was determined to be infeasible due to the insufficient commercial quantities of native seed and limitations with native hydroseeding. In the *Response to October 27, 2005 Letter Regarding the Establishment of Stabilizing Vegetation Cover for Erosion and Sediment Control Related to Wind Farm Access Road Construction*, DLNR authorized KWP's request to apply commercially available annual ryegrass (*Lolium multiflorum*) in order to comply with permit conditions of the CDUP and the NPDES permit, given the following conditions:

      1. "The permittee shall acquire commercial quantities of native pili grass bundles or other native species as soon as possible to substitute the annual rye; and

      2. The permittee is responsible for controlling the annual rye if it starts invading adjacent State lands."
    - Based on the October 2005 DLNR letter (referenced above), revegetation may include use of annual ryegrass subject to conditions 1 and 2 referenced above.
- Condition #25: *The applicant shall work closely with DLNR, Division of Forestry and Wildlife staff to manage the wildlife habitat. This will include periodic removal of rubbish. If necessary, this will include trapping to control the number of unwanted mammals, e.g., rats, mongoose, feral cats and dogs. The applicant shall implement additional mitigation measures to protect native habitat as suggested on page 11 of this staff report.* Mitigation measures to protect native habitat include:
    - Revegetate areas that have been temporarily cleared of vegetation to facilitate O&M activities in conformance with Condition #20 (as referenced above);
    - To the extent practicable, propagate native plants from on site to avoid genetic contamination to the existing plant populations; and

    - Non-native plants will also be considered for revegetation activities in consultation with botanists and DOFAW.
- Condition #37: *The applicant shall ensure that operations and maintenance staff do not damage native plants. If construction or operation required the removal of native plants, the plants will be removed, relocated and replanted. The applicant shall pay for the cost of this effort.*
- Condition #38: *The applicant shall work with plant experts to introduce appropriate native plant species back into the Kaheawa Pastures.*

3.3 Wildfire Prevention Plan

KWP implements a Wildfire Prevention Plan (Terraform 2025) focusing on fuel reduction, building resilience, regular inspections, vegetation management, and emergency communications protocols. The Wildfire Prevention Plan (Terraform 2025) outlines the following vegetation management activities to reduce fuel for wildfires within approximately 30 feet of buildings:

- Regularly maintain and clear vegetation, creating defensible space;
- Remove flammable materials like dry leaves, grass, and underbrush; and
- Maintain a well-maintained landscape, ensuring that trees and shrubs are pruned and not overly dense.

These activities will be performed in coordination with DOFAW Maui and species experts to minimize impacts to listed species that may use or transit through the site.

3.4 Commitments Made During the Development of the Environmental Impact Statement

The 2025 Draft Environmental Impact Statement (EIS; Tetra Tech 2025d) for the continued use of KWP 1 contains various resource-specific avoidance and minimization measures, some of which relate to vegetation management. For example, based on interviews conducted during the Cultural Impact Assessment (CIA), concerns were brought up with respect to impacts on native and invasive plants (ASM 2025). Invasive plants of particular concern identified during the CIA process include fireweed (*Senecio madagascariensis*) and ironwood (*Casuarina* spp.). During the EIS process, KWP 1 committed to various measures to reduce or minimize impacts to resources. The measures related to vegetation management are listed in this Plan.

4.0 Vegetation Management Requirements and Best Management Practices (BMPs)

Routine vegetation management activities occur as part of operations and maintenance activities at the facility and include actions to mitigate the risk of wildfire, to clear vegetation for post-construction monitoring activities, to minimize attraction of Covered Species near operating facility infrastructure, and

to avoid impact on other Covered and listed species. These activities must adhere to the requirements listed in the permits and documents listed in Section 3.0. In addition to regular vegetation management, some actions to control select invasive species and preserve native plant communities may occur at irregular intervals within the LOD or larger Project Area. This section lists the methods, limitations, and BMPs for vegetation management based on the various permits and Project documents. Figure 3 shows the timing restrictions for various protected species.

4.1 Education and Training

- Prior to commencement of ground disturbing activities, all on-site Project staff and contractors will be provided the Wildlife Education and Orientation Progam training. The training should include information on the sensitive native botanical resources and listed wildlife in the area, the BMPs and protocols outlined in this Plan, and invasive species prevention measures outlined in the Invasive Species Prevention Plan (Tetra Tech 2025a).
- Vegetation removal/management will be completed by a qualified vegetation management company. In addition to the training mentioned above, Project staff and contractors conducting vegetation management will receive training for health and safety covering personal protective equipment, proper use of tools and equipment, and herbicide application and decontamination protocols.

4.2 Wildfire Prevention

The following vegetation management activities will be implemented to reduce the risk of wildfires:

- Keep vegetation cleared or limited within 30 feet (9 m) of buildings and structures to create a defensible area for wildfire prevention. Should native plants encroach within 30 feet, remove and replant individual plants as needed in coordination with a botanist (see Section 4.5).
- Continue to maintain cleared (unvegetated) areas on the graded roads and pads within 230 feet (70 m) of each turbine on a regular basis. This is also a requirement for PCMM (see Section 4.3.1).
- Remove flammable materials like dry leaves, grass and underbrush near buildings. This should include removal of any material created during other vegetation management activities (e.g., tree trimming). Creation of large dense piles of mulching from chipped vegetation should be avoided as those materials could attract nēnē (see Section 4.3.2).
- Maintain a well-maintained landscape, ensuring that trees and shrubs near buildings are pruned and not overly dense.
- Any cut woody vegetation will be removed from the site to limit fuel load for wildfires. This will also prevent inadvertently creating attractive habitat for nēnē and limiting the potential for nesting of assimulans yellow-faced bee by covering bare ground (see Section 4.3.2).

4.3 HCP, ITL, ITP Compliance

This section identifies requirements related to the HCP, ITL, and ITP.

4.3.1 PCMM Search Areas and Access Roads

The following vegetation management activities will be implemented to support the PCMM program and HCP compliance:

- Maintain the graded vegetation-free roads and pads out to 230 feet (70 m) of each turbine including a 3-foot buffer area on each side of access roads, with the goal of maximizing searcher efficiency for finding any potential downed wildlife and minimizing the potential for nēnē to seek cover in roadside vegetation[2].
    - Vegetation management will occur through a combination of mechanical, chemical, and manual methods, including but not limited to spot herbicide use and periodic weed whacking.
        - Timing restrictions must be adhered to including:
            - During the October 1 – April 30 nēne peak nesting season, or when nēnē are first documented nesting on site in any given year, this activity is limited to hand management tools (i.e., spray packs and weed whackers) within the vicinity of nēnē use areas. See nēnē restrictions in Section 4.3.2.
            - Between June 1 and September 15, no woody vegetation greater than 15 feet in height should be cut, removed, or trimmed to avoid potential impacts to ʻōpeʻapeʻa. See ʻōpeʻapeʻa restrictions in Section 4.3.3.
        - Chemical (herbicide) use will adhere to the following BMPs for pollinators as adapted from the Xerces Society 2018, including:
            - Avoid broadcast applications of herbicides.
            - Conduct herbicide applications on calm days when wind speed is <10 mph (avoid applications during gusty or sustained high winds).
            - Avoid spraying immediately before forecasted heavy rain. To the extent practicable, apply during a window that allows for a minimum of 24 hours without heavy rain after application.
            - When available, use selective herbicides that are targeted to the species that need treating.
            - Use targeted application techniques (e.g., stem injection, drip application).
            - Selectively control undesirable plants with spot treatments, frill treatment, weed wipe, or other well-targeted techniques to avoid non-target species.
            - Keep applications on target and minimize drift:

[2] This action is intended to limit the potential for vehicular strike if nēnē were to flush from roadside vegetation, and will avoid ʻilima removal to the extent practicable.

    - Carefully choose and calibrate your spray nozzles to minimize drift, ensuring only target plants are treated;
    - When possible, utilize spatial or vegetative buffers around pollinator habitat.
  - Apply herbicide during the plant life stage when a weed is most vulnerable:
    - Plants should not be sprayed when they are in flower or after they have gone to seed;
    - This practice alone can greatly reduce herbicide exposure for the local pollinator community.
  - To the extent practicable, apply in the early morning or in the evening when pollinators are less active, and not during mid-day when bees and other pollinators are most active, especially if the optimal time to spray the target plant is when it is flowering.
- Should ʻilima encroach into the maintained cleared areas, avoid removing to the maximum extent practicable to avoid and minimize potential impacts to listed assimulans yellow-faced bee. See restrictions in Section 4.3.4.
- Any herbicide application will be logged with the herbicide composition and concentration and application dates.

4.3.2 Nēnē

Vegetation management for nēnē is conducted to increase the visibility of nēnē for staff driving along access roads and edges, while also decreasing the attractiveness of habitat within the Project Area for nēnē. The following will be implemented for nēnē:

- Targeted management of vegetation will occur to remove woody vegetation, lush grass, and other forage vegetation along roads and in the vicinity of turbine pads that may attract nēnē or decrease visibility of nēnē along roads. This vegetation management will occur through a combination of mechanical, chemical, and/or manual methods.
- This vegetation management should be limited to May 1 to September 30 to avoid the nēnē nesting season (October 1 – April 30). See Figure 3.
- If vegetation management needs to occur during the nēnē nesting season (October 1 – April 30), the following will be implemented:
  - A biological monitor will first assess nēnē use within the vegetation management areas prior to commencing work. If nēnē are determined to be present, vegetation management will be limited or halted.
  - Vegetation management will be limited to hand management tools (i.e., spray packs and weed whackers) from October 1 through April 30, in conjunction with use of a biological monitor, within the vicinity of nēnē use areas. Nēnē use areas will be determined in conjunction with observational data collected over previous operational years and in conjunction with a biological monitor.

- Creation of large dense piles of mulching from chipped vegetation should be avoided as those materials could attract nēnē.

4.3.3 Assimulans Yellow-Faced Bee

The following will be implemented to avoid impacts to assimulans yellow-faced bees:

- Avoid removing/maintaining ʻilima to the maximum extent practicable. See example ʻilima photos in Appendix A.
- If ʻilima is present in a location where vegetation will be removed/maintained, this work should occur between July and November (or when ʻilima is confirmed to not be flowering) when yellow-faced bees are expected to be inactive (see Figure 3).
    - If ʻilima is removed during the assimulans yellow-faced bee inactive period, utilize a qualified entamologist or a biologist directly trained by a qualified entamologist to survey for assimulans yellow-faced bees nesting within a 50-foot buffer around the ʻilima plants in the location where the ʻilima will be removed/maintained.
- If removal/maintenance must occur within the bee active period (generally December to June), utilize a qualified entomologist or a biologist directly trained by a qualified entomologist to conduct a survey for assimulans yellow-faced bees in the location where the ʻilima will be removed/maintained plus a 50-foot buffer around the ʻilima plants.

Other native foraging resources exist for this species within the LOD, including ʻuhaloa and ʻūlei. Impact avoidance measures for these species include:

- Avoid removal of the native ʻuhaloa and ʻūlei to the maximum extent practicable.
- If vegetation management of these species must occur, schedule work when the species are not flowering or have a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer.
- Any native plants requiring removal will be translocated and replanted in accordance with CDUP Condition #37, which requires protection of native plants through removal, relocation, and replanting. Additional outplantings may also be used to supplement the translocated plant(s).
- Other foraging resources (non-natives: kiawe and koa haole)
    - Vegetation management of these species would be scheduled for when the species are not flowering or a qualified entomologist (or someone trained by an entomologist with yellow-faced bee experience) would conduct a pre-activity survey for assimulans yellow-faced bees in the impact area and a 50-foot buffer.

4.3.4 Woody Plants > 15 Feet (ʻŌpeʻapeʻa)

The following will be implemented to avoid impacts to the endangered ʻōpeʻapeʻa:

- Do not cut, remove, or trim woody vegetation greater than 15 feet in height during the bat pupping season (June 1 – September 15). Any woody plants over 15 feet should be cut or trimmed between September 16 and May 31.
- Should cutting or trimming of woody vegetation over 15 feet in height be needed during the bat pupping season, a biological monitor will assess the tree(s) for bat activity prior to removal in conjunction with agency coordination.

4.3.5 Tree Tobacco (Blackburn's Sphinx Moth)

The following will be implemented to avoid impacts to the listed Blackburn's sphinx moth:

- Site staff will be trained to identify tree tobacco and will report any sighting of tree tobacco to the onsite biologist or site manager, and signage will be added to the O&M building illustrating different stages of tree tobacco for identification. According to USFWS, monitoring for tree tobacco can be completed by any staff, such as groundskeepers or regular maintenance crew, provided with picture placards of tree tobacco at different life stages (USFWS 2023). See example tree tobacco photos in Appendix A.
    - If tree tobacco less than 3 feet in height is observed in the LOD, remove the plants immediately to prevent attracting Blackburn's sphinx moth. DOFAW recommends this removal occur during the dry season (usually May to October).
    - If tree tobacco over 3 feet in height is observed in the LOD, a qualified biologist should thoroughly search the plant(s) for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). DOFAW and USFWS may be contacted for additional guidance.
- Should any major ground disturbance occur within the Project Area, regular surveys for tree tobacco may occur in those areas to confirm tree tobacco is not present and there are no impacts to the listed Blackburn's sphinx moth.

4.3.6 Pueo

The following will be implemented to avoid impacts to the pueo:

- Before any ground disturbing activities that may disturb potential pueo nesting habitat (e.g., vegetation clearing during the 6-month initial maintenance period), a qualified biologist will conduct surveys for pueo. Surveys should be done for 2-3 nights prior to ground disturbing activities during crepuscular hours from vantage points where the entire disturbance area can be observed. If any pueo breeding displays are observed, it is likely there could be a nest.
- If pueo nests are detected in the Project Area at any time, a 328-foot (100 m) buffer should be established in which no activity occurs until the nesting cycle is complete and the chicks are capable of flight.

- As part of the Wildlife Education and Orientation Progam, all construction and regular on-site staff will be trained to identify pueo and if pueo or a pueo nest are observed, staff will stop work and coordinate with onsite biologist to determine appropriate steps.
- DOFAW staff should be notified of any nests or adult breeding behavior.

4.4 Targeted Control of Select Invasive Plant Species

The Project's Invasive Species Prevention Plan outlines protocols and measures that will be implemented prior to and during operations and maintenance to prevent or minimize the introduction or spread of invasive species (Tetra Tech 2025a). In addition to these measures, KWP has committed to the following with regards to select invasive plants:

- Work with local experts and community and cultural groups (e.g., Maui Cultural Lands) to remove/control invasive species of concern, including ironwood and fireweed, within the graded vegetation-free roads and pads located within 230 feet (70 m) of the turbines for HCP compliance (see Section 4.3.1). Because these two species are relatively common throughout the LOD, it is unlikely that complete removal of these species will be possible. See example photos of ironwood and fireweed in Appendix A.
    - Because the assimulans yellow-faced bee may nest within and in proximity to ironwood when favorable bare ground and friable soil exist, before any removal activities a clearance survey should be conducted by a qualified entomologist or a biologist directly trained by a qualified entomologist to survey for assimulans yellow-faced bee nests. The detection of nests will preclude removal of the invasive species.
- Work with local experts and community group (e.g., Maui Cultural Lands) to remove/control invasive species of concern, including ironwood and fireweed, in select areas outside of the LOD. For example, the heiau along the western perimeter of the KWP I Project Area (Site 50-50-09-05232) should be kept clear of invasive vegetation, in consultation with the DLNR-SHPD and Maui Cultural Lands and under the supervision of an archaeological monitor. Other target areas of invasive plant control will be determined in consultation with Maui Cultural Lands. Because assimulans yellow-faced bee are known to nest in ironwood patches in the Project's vicinity when soil conditions are favorable, a clearance survey by a qualified biologist should be conducted first as outlined above. Additionally, because nēnē are known to nest under ironwood, the qualified biologist should assess nēnē use as well.

4.5 Native Plant Preservation

- If vegetation removal is needed in areas outside of the existing maintained areas (i.e., graded roads and pads), hire a plant expert/botanist to determine if any areas with native plants should be avoided. Any areas to be avoided should be flagged with highly visible tape or temporary

perimeter fencing should be installed to prevent disturbance. The plant expert/botanist may also supervise removal work if needed.

- Should native plant species (e.g., ʻōhiʻa) encroach into the maintained cleared areas on graded roads and pads, avoid removal if possible. If native plant density prevents successful fatality monitoring, work with DOFAW and USFWS to adjust fatality search areas as needed or remove natives. If the native plants need to be removed, translocate or replace plants in coordination with a botanist and entomologist with assimulans yellow-faced bee expertise. See restrictions for ʻilima in Section 4.3.4.
- Should native plant species (e.g., ʻōhiʻa) encroach within 30 feet of buildings and structures, translocate or replace plants as needed in coordination with a botanist. See restrictions for ʻilima in Section 4.3.3.
- Any cutting or trimming of ʻōhiʻa should be conducted by qualified personnel to ensure measures to reduce the risk of introducing the Rapid ʻŌhiʻa Death (ROD) fungus (see the Invasive Species Prevention Plan). See example ʻōhiʻa photos in Appendix A.

4.6 Revegetation/ Restoration

- Continue to coordinate with DLNR/DOFAW and local experts to implement the native plant propagation and restoration program at the site. This may include collecting native seeds and cuttings in the area, propagating native plants at local nurseries, and subsequently outplanting native plants at select locations within the site. As practicable, native plants should be propagated from existing plants on site to ensure no genetic contamination to the existing plant populations.
    - Site selection for outplanting native plants will incorporate clearance surveys conducted by a qualified entamologist or a biologist directly trained by a qualified entamologist to survey for assimulans yellow-faced bee nests. The detection of nests will preclude using the location for outplantings.
- Revegetation should occur within 30 days of completion of activities that require ground disturbance (i.e. temporary clearing to facilitate equipment delivery, crane pads/paths, turbine blade or nacelle maintenance).
    - Native species found in the area should be used for revegetation to the maximum extent practicable (e.g., pili grass, ʻaʻaliʻi).
    - If it is not feasible to revegetate with native species, use non-native plants chosen in coordination with botanists and DOFAW.

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Figures

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Kaheawa Wind 1 Continued Use Project

Figure 1
Project Area

MAUI COUNTY, HI



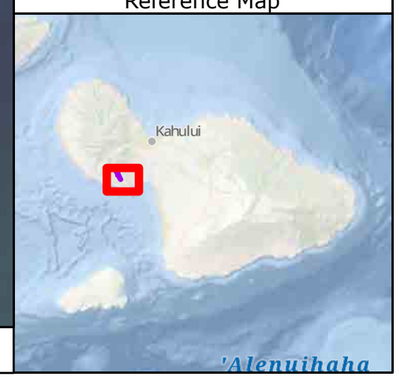
- Project Area
- TMK Boundary
- State Highway

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 1 Existing Met Tower
- HECO Switchyard and KWP 1 Substation
- HECO Switchyard and KWP 2 Substation
- O&M Building and Yard
- Warehouse Building and Yard
- KWP 2 Battery Storage Facility
- Existing Rain Catchment Structure
- Hawaiian Electric Transmission Lines

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186.

Reference Map



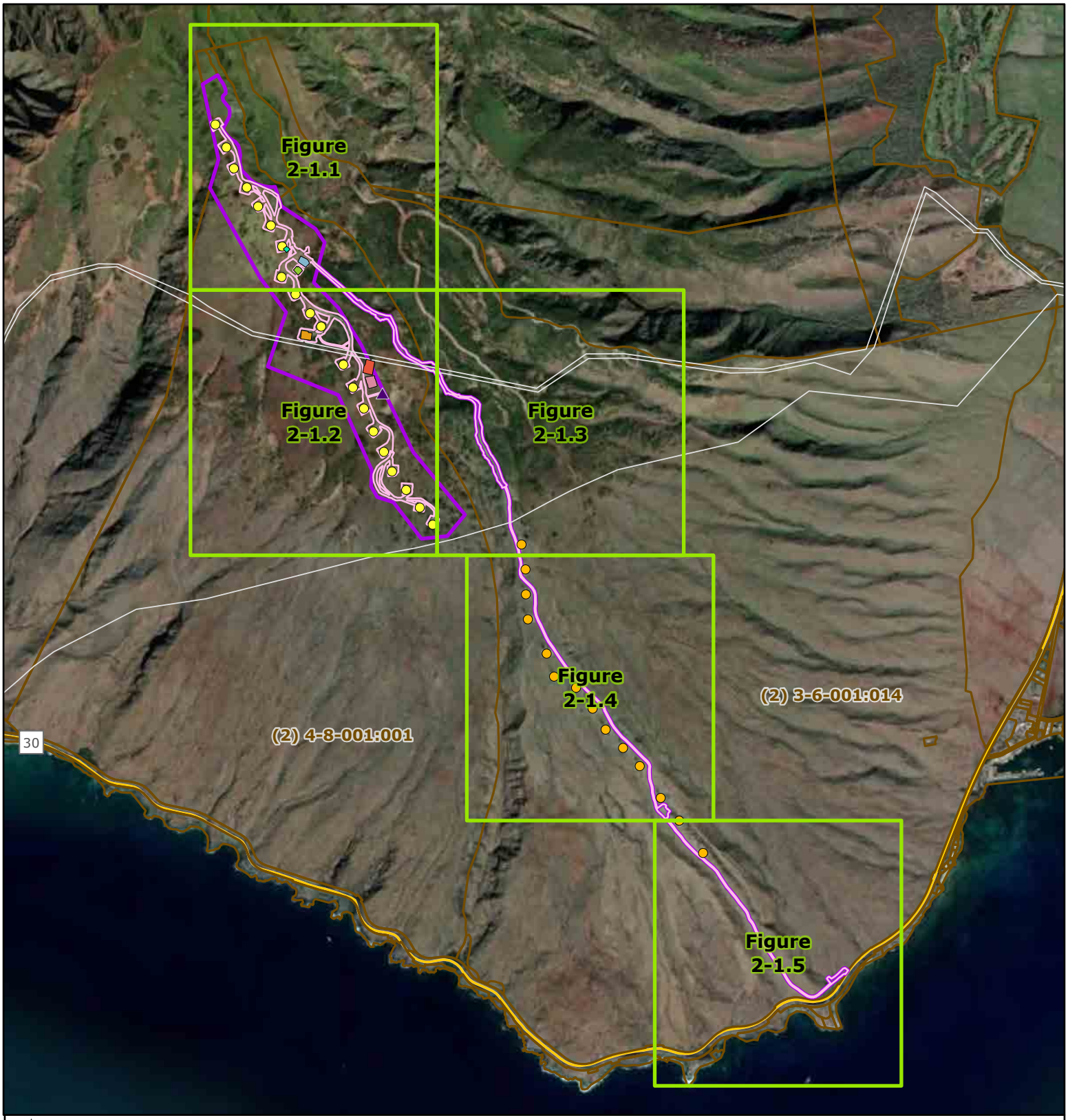
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Kaheawa Wind 1 Continued Use Project

Figure 2 Limits of Disturbance Index Map

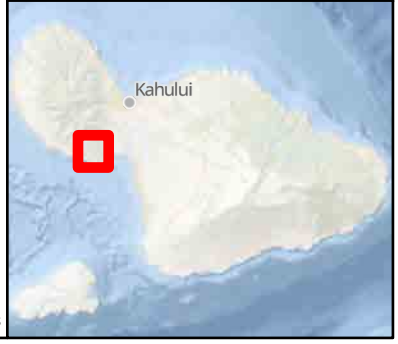
MAUI COUNTY, HI

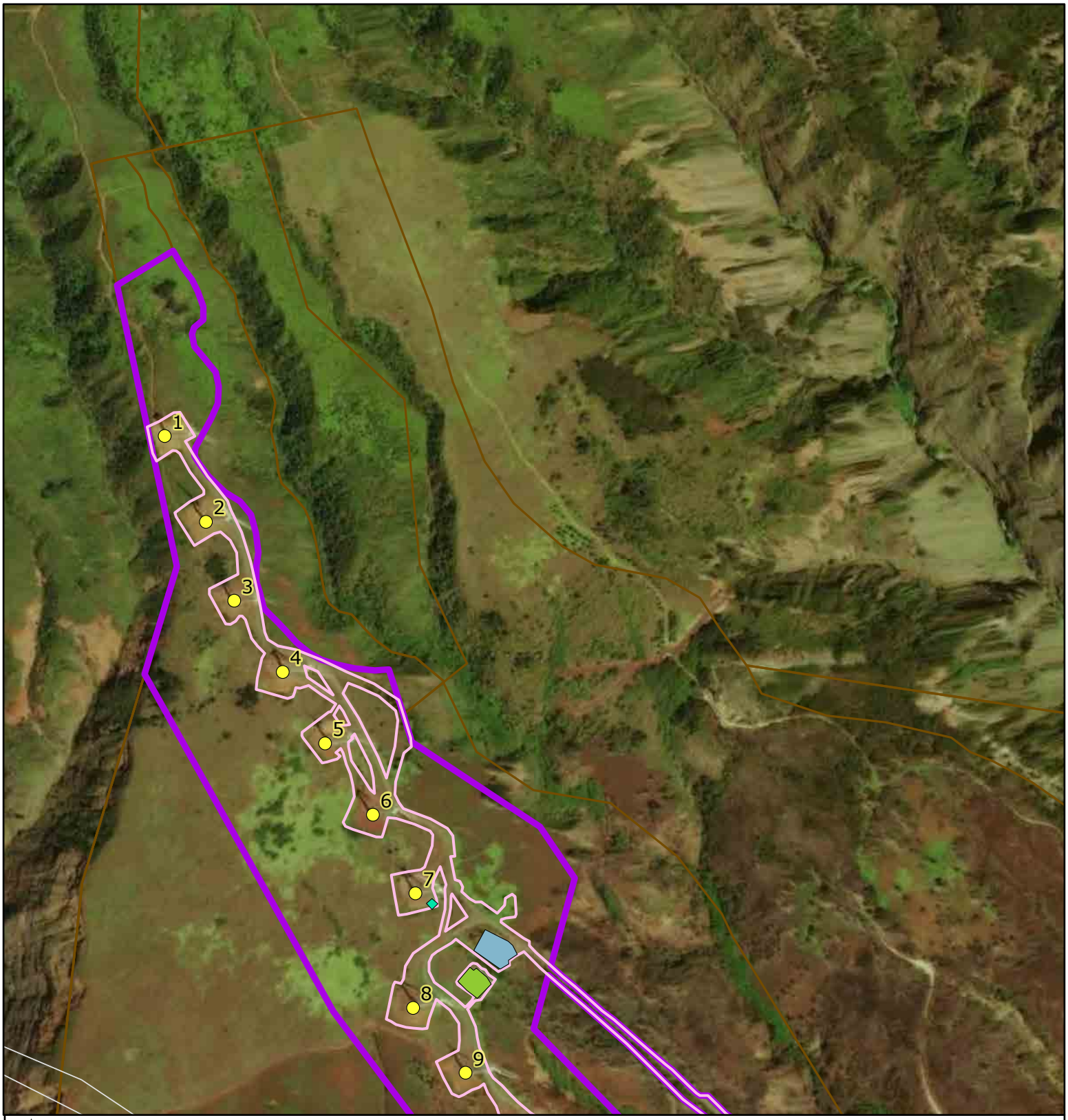
- Detail Map Grid
- Project Area
- Limit of Disturbance
- TMK Boundary
- State Highway

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 2 Existing Wind Turbines
- Warehouse Building and Yard
- HECO Switchyard and KWP 2 Substation
- HECO Switchyard and KWP 1 Substation
- KWP 2 Battery Storage Facility
- O&M Building and Yard
- Existing Rain Catchment Structure
- KWP 1 Existing Met Tower
- Hawaiian Electric Transmission Lines

Reference Map





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Kaheawa Wind 1 Continued Use Project

Figure 2-1.1
Limits of Disturbance Index Map

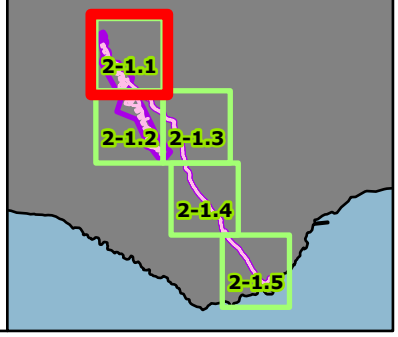
MAUI COUNTY, HI

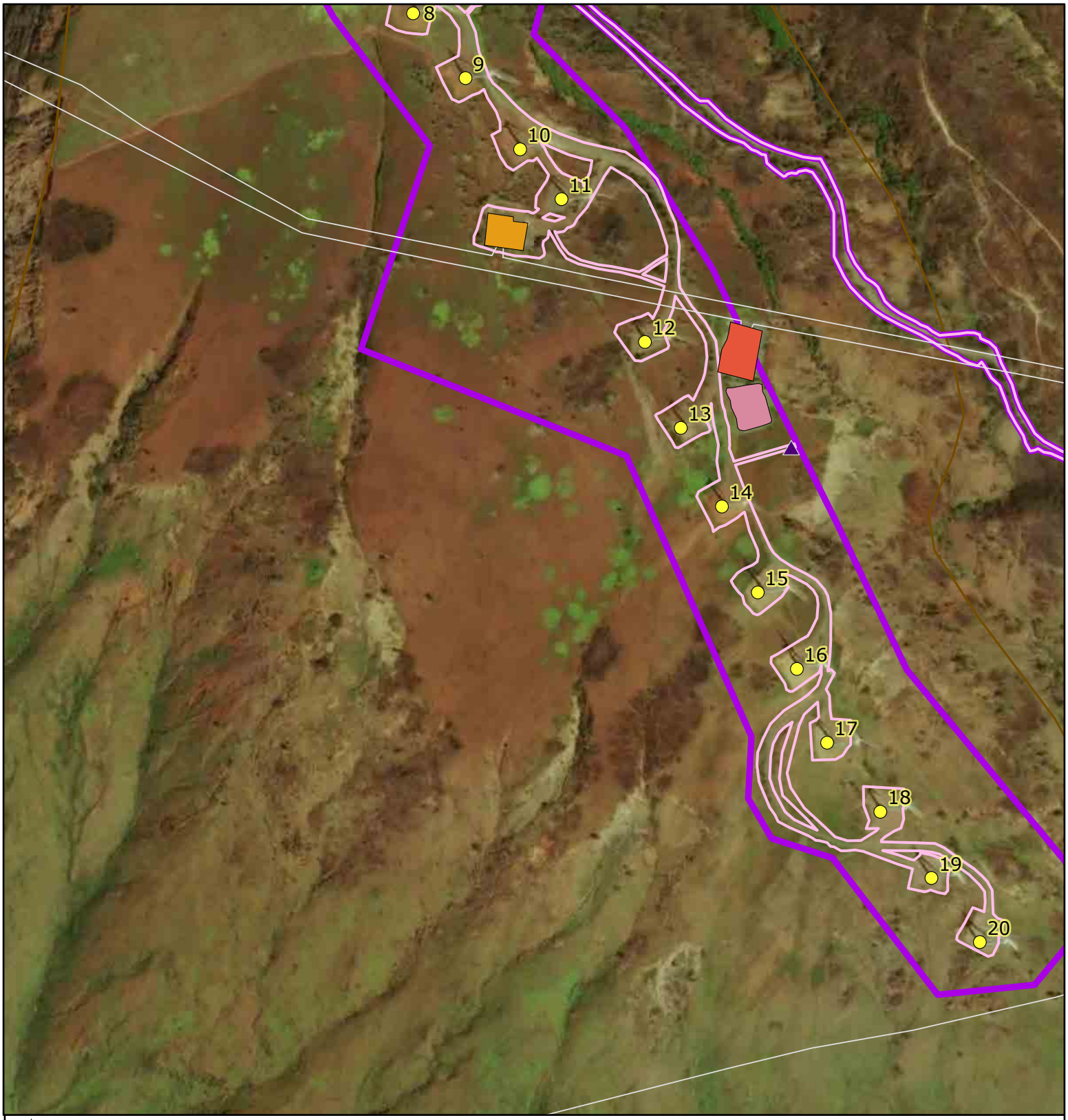
- Project Area
- Limit of Disturbance
- TMK Boundary

Existing Facilities

- KWP 1 Existing Wind Turbines
- Warehouse Building and Yard
- O&M Building and Yard
- Existing Rain Catchment Structure

Reference Map





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Kaheawa Wind 1 Continued Use Project

Figure 2-1.2
Limits of Disturbance Index Map

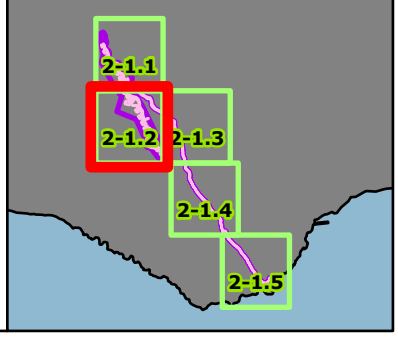
MAUI COUNTY, HI

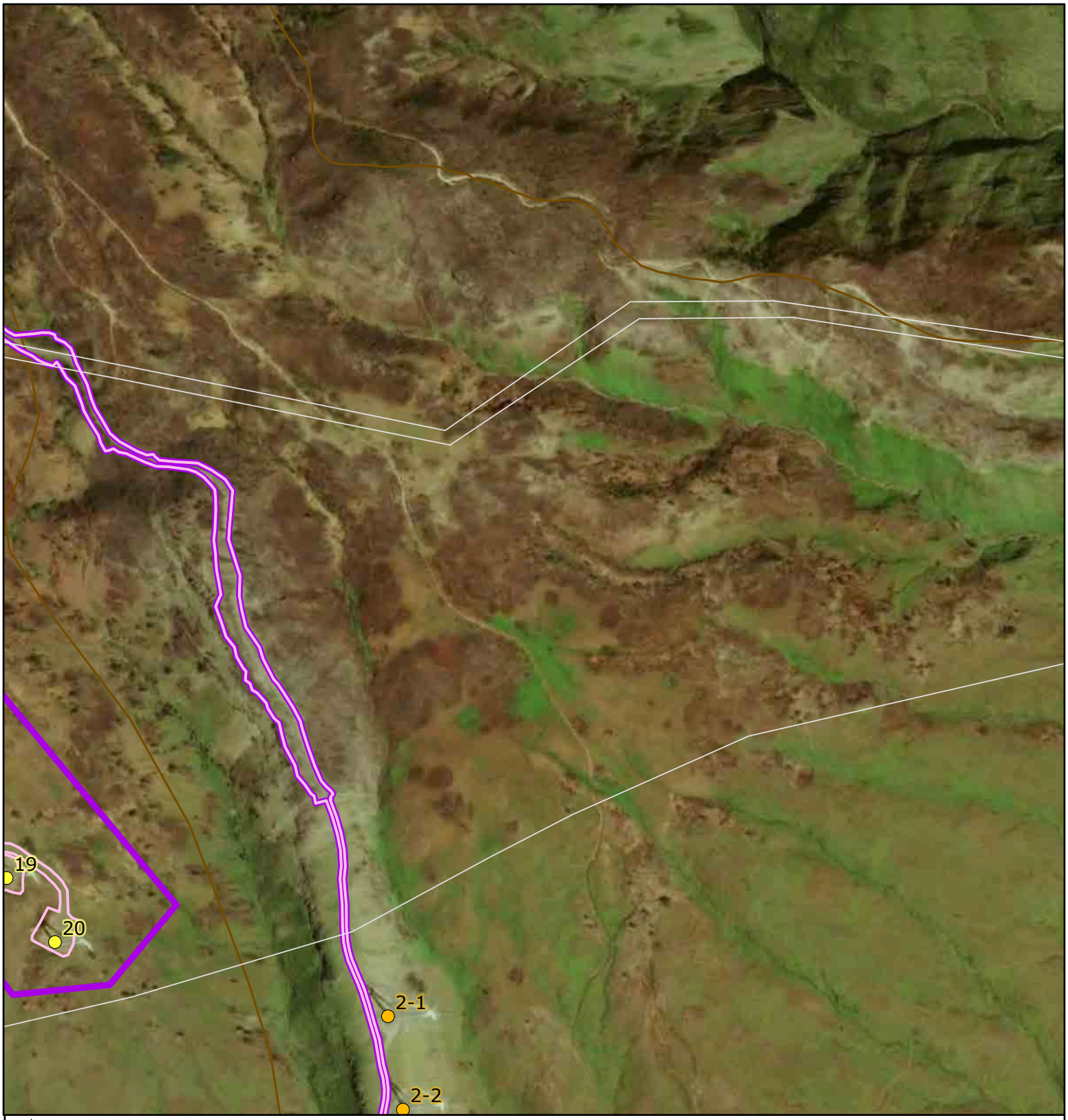
- Project Area
- Limit of Disturbance
- TMK Boundary

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 1 Existing Met Tower
- HECO Switchyard and KWP 2 Substation
- HECO Switchyard and KWP 1 Substation
- KWP 2 Battery Storage Facility
- Hawaiian Electric Transmission Lines

Reference Map





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Kaheawa Wind 1 Continued Use Project

Figure 2-1.3
Limits of Disturbance Index Map

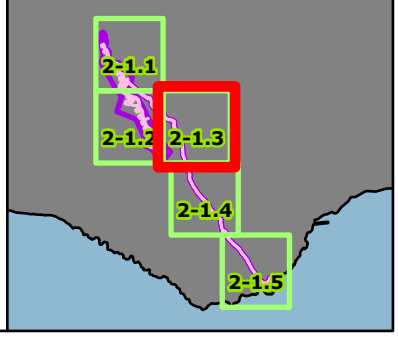
MAUI COUNTY, HI

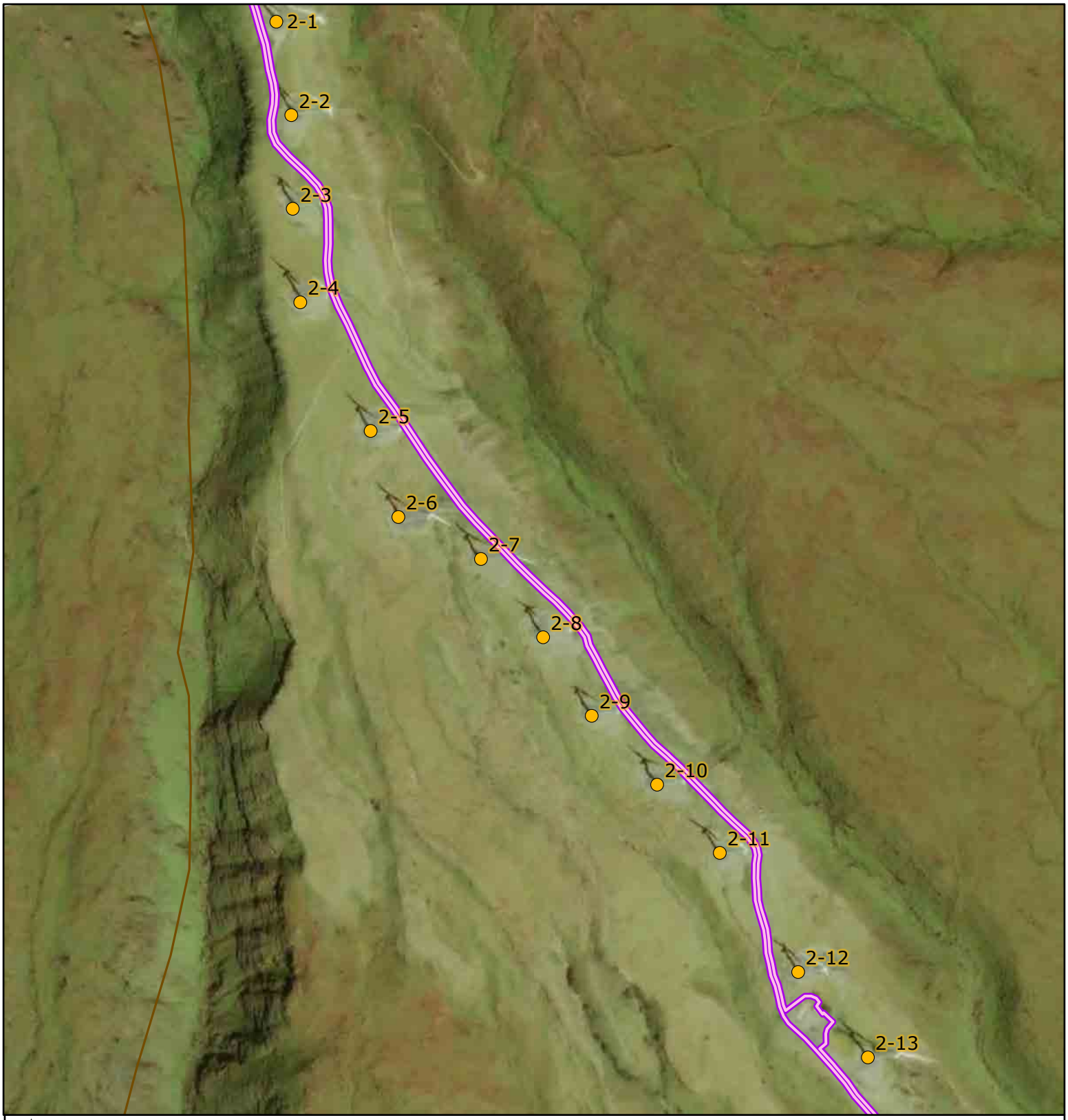
- Project Area
- Limit of Disturbance
- TMK Boundary

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 2 Existing Wind Turbines
- Hawaiian Electric Transmission Lines

Reference Map





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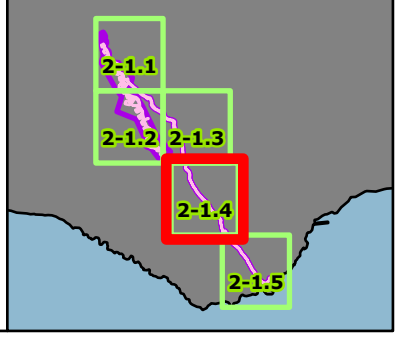
Kaheawa Wind 1 Continued Use Project

Figure 2-1.4
Limits of Disturbance Index Map

MAUI COUNTY, HI

Project Area
Limit of Disturbance
TMK Boundary
Existing Facilities
KWP 2 Existing Wind Turbines

Reference Map





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1:8,000 WGS 1984 UTM Zone 4N 0 250 500 1,000 US Feet NOT FOR CONSTRUCTION

Kaheawa Wind 1 Continued Use Project

Figure 2-1.5
Limits of Disturbance Index Map

MAUI COUNTY, HI

- Project Area
- Limit of Disturbance
- TMK Boundary
- State Highway
- Local Roads

Existing Facilities

- KWP 2 Existing Wind Turbines

Reference Map

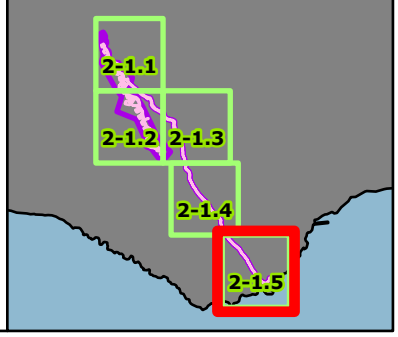


Figure 3. Annual Vegetation Management Timing Restrictions for Protected Species

Protected/Culturally Important Species	Month											
	January	February	March	April	May	June	July	August	September	October	November	December
Nēnē Breeding[1]	■	■	■	■						■	■	■
ʻŌpeʻapeʻa Pupping Season[2]						■	■	■	■			
Yellow-faced bee Nesting and Active Period[3]	■	■	■	■	■	■					■	■
Pueo Nesting [4]	■	■	■	■	■	■	■	■	■	■	■	■

[1] Vegetation management is limited to hand management tools within the vicinity of nēnē use areas.
[2] Tree trimming/removal limited to trees < 15 feet in height between June 1 and September 15 to avoid potential impacts to the Hawaiian hoary bat too young to fly.
[3] If ʻilima is present in a location where vegetation will be removed/maintained, conduct activities between July and November when yellow-faced bees are in a period of dormancy, or when the ʻilima plants are not flowering.
[4] If pueo nests, adult breeding displays, or other indications of nesting are seen or heard, suspend all work within 328 ft (100 m) of the nest.

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Appendix A. Example Plant Photos

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‘Ilima (*Sida fallax*) – Host Plant for Listed Assimulans Yellow-Faced Bee









Tree Tobacco (*Nicotiana glauca*) – Host Plant for Blackburn's Sphinx Moth

NOTE: Tree Tobacco does not currently occur at KWP I; photos from elsewhere.









Fireweed (*Senecio madagascariensis*) – Invasive Plant





Ironwood (*Casuarina* spp.) – Invasive Plant





ʻŌhiʻa (*Metrosideros polymorpha*) – Native Hawaiian Plant









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Appendix G. KWP 1 Invasive Species Prevention Plan

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Kaheawa Wind 1 Continued Use Project

Invasive Species Prevention Plan



Prepared for

Kaheawa Wind Power, LLC

200 Liberty Street, 14th Floor | New York, NY 10281

kaheawawind.com

Prepared by

TETRA TECH

737 Bishop St., Suite 2000, Mauka Tower | Honolulu, HI 96813

Tel 808.441.6600 | tetratech.com

July 2025

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1.2 Other Activities within the Project Area 2
2.0 Regulatory Setting 2
3.0 Invasive Species of Concern 2
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Appendix A. OISC Decontamination Protocols for Prevention of Invasive Species
Appendix B. Coconut Rhinoceros Beetle Identification Key

1.0 INTRODUCTION

Kaheawa Wind Power, LLC (KWP) owns and operates Kaheawa Wind I (KWP I), an existing 30-megawatt (MW) wind energy generation facility located on state-owned land in the Kaheawa Pastures area of West Maui, Hawai'i. KWP is proposing the KWP 1 Continued Use Project (Project), which would extend the operations of the existing 30-MW KWP I wind generation facility for a 20-year period. The KWP I facility, operational since 2006, consists of 20 wind turbine generators and ancillary facilities (e.g., substation, operations and maintenance [O&M] facility, access roads, and transmission interconnection) on portions of Tax Map Key (TMK) (2) 4-8-001:001 (por) and TMK (2) 3-6-001:014 (por). The location of the Project Area is shown in Figure 1.

The disturbance of soil, the introduction of plants and fill material, and the movement of equipment and personnel as a result of the Project has the potential to spread or introduce invasive species. Invasive species are defined according to the 1999 Presidential Executive Order 13112 as "an alien [non-native] species whose introduction does or is likely to cause economic or environmental harm or harm to human health." The Hawaiian Islands are particularly vulnerable to invasive species and their impacts; thousands of species introduced to the Hawaiian Islands have become invasive, threatening the state's economy, natural environment, and lifestyle (HISC and CGAPS 2020). The Kaheawa Pastures region is particularly prone to the ingress of invasive plants in part due to its propensity for periodic wildfire and the widespread occurrence of aggressive pasture weeds. Several plant species documented within the Project Area are considered invasive in Hawai'i. This Invasive Species Prevention Plan (Plan) provides protocols and measures that will be implemented to prevent or minimize the introduction or spread of additional invasive species as a result of the Project.

1.1 Relevant Project Activities

The Project consists of continued operations and maintenance (O&M) activities; compliance activities required per the Habitat Conservation Plan (HCP) and associated permits; and decommissioning and restoration activities. No significant ground disturbance is anticipated to occur during the continued use period. However, minor grading or vegetation removal may be necessary to prepare the site for equipment transport and maintenance activities, to maintain the primary and secondary access roads for service vehicles, and to maintain vegetation-free buffers to provide fire breaks and assist with HCP compliance monitoring. Ground disturbance and vegetation management is not anticipated to extend beyond the limits of the original KWP I construction footprint, which includes approximately 58 acres within the 217-acre Project Area. This area is referred to as the Project's limits of disturbance (LOD).

The Project includes an approximately 6-to-9-month period of initial maintenance that will occur after the current Power Purchase Agreement (PPA) ends in June 2026 and prior to the start of commercial operations under a new PPA in December 2026. During this period, maintenance activities would occur on multiple turbines at once. During this initial maintenance period, an average of 15 round-trip vehicle trips are estimated per day to and from the highway/access road intersection. The risk of introducing or

spreading invasive species would be elevated during this period due to the presence of additional personnel and equipment within the Project Area. Following the initial maintenance period, less ground disturbance and movement of people and vehicles would occur during typical O&M activities. During a normal day of operation, the KWP I facility would typically generate approximately seven round-trip vehicle trips to and from the highway. Thus, the regular staff and minimal movement during the remainder of the 20-year period has a lower risk of introducing and spreading invasive species.

1.2 Other Activities within the Project Area

KWP holds a non-exclusive land lease for the Project Area. Therefore, it is important to note that there are other users of the Project Area that have the potential to introduce and spread invasive species. KWP will implement this Plan but cannot require other users to implement.

2.0 REGULATORY SETTING

The transport, introduction, prevention, and management of invasive species is regulated by several state and federal regulations including Executive Order 13112, Executive Order 13751, the Federal Noxious Weed Act (amended by the Noxious Weed Control and Eradication Act of 2004), Title 18 of the Lacey Act (Federal Injurious Wildlife), Hawaii Administrative Rules (HAR) Chapter 68 (Hawaii Noxious Weed List), HAR Chapter 124 (Hawaii Injurious Wildlife), and Plant Quarantine Rules from the Hawai‘i Department of Agriculture (HDOA).

Additionally, the Project has agreed to various measures related to the prevention and management of invasive species within Project documents and permits. For example, several of the terms and conditions of the Project’s Conservation District Use Permit (CDUP), which was approved by the Department of Land and Natural Resources (DLNR) on January 24, 2003, relate to invasive species; this CDUP will remain in effect for the extended operational period (anticipated to be through 2046). KWP 1 currently operates under an existing HCP (KWP 2006) and associated permits that run through January 2026, and is in the process of developing a new HCP for 20 more years of continued operations (Tetra Tech 2025a). KWP 1 also developed a Vegetation Management Plan (Tetra Tech 2025b) for the Project. The 2025 Draft Environmental Impact Statement (Tetra Tech 2025c) for the continued use of KWP I also contains various resource-specific avoidance and minimization measures some of which relate to invasive species. The commitments in these documents and permits are included in this Plan.

3.0 INVASIVE SPECIES OF CONCERN

Invasive species of concern for this Project are summarized in Table 1. Invasive species of concern include select Maui Invasive Species Committee (MISC) target pests (MISC 2025a) that have the potential to establish in the area, and select species recommended by MISC for Early Detection and Rapid Response (M. Ade/MISC, pers. comm., July 2025). These species of concern are based on recent surveys in the area (Tetra Tech 2025d) and information from MISC. This list does not include all invasive

species present in the LOD, Project Area, or in Hawai‘i because many invasive species are already widespread on Maui and therefore are not well-suited for management. Although Table 1 identifies specific invasive species of concern, the protocols are also expected to minimize and avoid the introduction of other potential invasive species.

Table 1. Project Invasive Species of Concern

Scientific Name	Common Name	Occurrence on Maui
Plants and Fungi		
Cenchrus setaceus	Fountain grass	Not documented at the site, but known to occur in other portions of Maui (MISC 2025a).
Ceratocystis spp.	Rapid ʻŌhiʻa Death (ROD)	*Ceratocystis huliohia* recorded in two locations on Maui (M. Ade/MISC, pers. comm., July 2025), and ʻōhiʻa trees may be cut in the LOD during operations and maintenance.
Chromolaena odorata	Devil weed	Not currently documented on Maui, but highly invasive on other islands (HISC 2025).
Coccinia grandis	Ivy gourd	Not documented at the site, but known to occur in other portions of Maui (MISC 2025a).
Cortaderia spp.	Pampas grass	Not documented at the site, but known to occur in other portions of Maui (MISC 2025a).
Cryptostegia spp.	Rubbervine	Not documented at the site, but known to occur in other portions of Maui (MISC 2025a).
Silybum marianum	Blessed milk thistle	Not documented at the site, but previously recorded at another site on Maui (MISC 2025a).
Verbascum thapsus	Mullein	Not documented at the site, but known to occur in other portions of Maui (MISC 2025a).
Vernonanthura polyanthes	Assa-peixe	Not documented at the site, but known to occur in other portions of Maui (M. Ade/MISC, pers. comm., July 2025).
Animals		
Boiga irregularis	Brown tree snake	Not known to be established in Hawaiʻi, but has the potential to be accidentally transported from infested areas such as Guam (HISC 2025).
Eleutherodactylus coqui	Coqui	Not documented at the site, but populations known from elsewhere on Maui. Coqui easily spread in a variety of materials, from landscaping products to construction equipment (MISC 2025a, HISC 2025).
Oryctes rhinoceros	Coconut rhinoceros beetle (CRB)	Live CRB larvae found in Kihei in 2023 (MISC 2025b). No host plants for adult CRB known to occur in the LOD (Tetra Tech 2025d).
Wasmannia auropunctata	Little fire ant (LFA)	Not documented at the site, but active LFA sites are present on Maui (HISC 2025). This species is cryptic and can hitchhike on various types of materials during construction.

4.0 PREVENTION PROTOCOLS AND BEST MANAGEMENT PRACTICES

The Project intends to minimize and avoid the introduction of new invasive species and prevent the spread of existing invasive species using the prevention protocols and best management practices (BMPs) described in this section. These protocols and BMPs will be implemented prior to and operations and maintenance to reduce the risk of introduction and spread of invasive species. Prior to the initial maintenance period, all Project staff and contractors will be trained in these BMPs and protocols.

4.1 General

- Ground disturbance and vegetation removal will be minimized to the maximum extent practicable.
- Contractors and staff will stay on existing roads as much as possible. Parking will only occur in established parking areas, or in graded areas.
- Soil from the Project will not be moved to any off-site locations.
- Food trash will be contained and removed at the end of each day to avoid attracting ants and other invasive animals to the area.

4.2 Sourcing (Vehicles, Machinery, Equipment, and Other Materials)

- All vehicles, machinery, equipment, and other materials will be sourced from Maui to the extent possible. If it is necessary to use vehicles, machinery, equipment, or other materials from outside Maui, they will be washed and/or visually inspected (as appropriate) prior to transport to the Project Area as described in Sections 4.3 and 4.4 below.
- Due to concerns with Rapid ʻŌhiʻa Death (ROD), no soil, plants, vehicles, machinery, or equipment sourced from Hawaiʻi Island will be permitted for use on the Project. See ROD specific protocols detailed in Section 4.5.
- On-site gravel, rock, and soil should be utilized as much as possible. Potential off-site sources of materials should be purchased from a local supplier on Maui, and inspected prior to transport to the Project Area (see Section 4.4). Materials from sites that are known or likely to contain seeds or propagules of invasive species will not be used.

4.3 Inspection and Cleaning (Vehicles and Machinery)

Initial Maintenance Period

The following will occur as part of the initial maintenance period when there would be an elevated risk of introducing and spreading invasive species:

- Immediately prior to Project initiation, all vehicles and machinery will be inspected and washed with deterrent (as appropriate) at a designated inspection/washing station. It is anticipated this

station will be located at the staging area at the beginning of the Kaheawa Pastures access road driveway at Honoapiʻilani Highway. Inspections and cleaning will include dirt, mud, seeds, soil, plant parts, and animals (including insects and invertebrates). Decontamination protocols provided by the Oahu Invasive Species Committee are included as Appendix A.

  - Vehicle components to be inspected and washed (as appropriate) include cab; bed and tailgate; undercarriage and axles; wheels and tires; body and grill; and engine block. The interior of all vehicles and equipment should be vacuumed.
  - Machinery components to be inspected and washed (as appropriate) include tracks; skid plates; blades, buckets, or other attachments; and cages or roll bars. Examples of machinery include bulldozers, excavators, cranes, pay loaders, man-lifts, and skid steers.

- Inspections during the initial maintenance period will be logged to record the type of equipment inspected, date, and who conducted each inspection.
- Following the initial maintenance period, the inspection/washing station will be surveyed for invasive species of concern (see Section 4.7).

Typical O&M activities

- During typical O&M activities, vehicles will be periodically inspected for dirt, mud, seeds, soil, plant parts, and animals. Vehicles with mud and dirt will be washed prior to using the access road.
- Vehicles that travel to other sites with known invasive species of concern will be washed again prior to entering the Project Area.

4.4 Inspection and Cleaning (Clothes, Equipment, and Other Material)

- Clothing should be washed with detergent prior to use in the Project Area. Pockets should be turned inside out to remove debris.
- All clothes, personal gear (e.g., boots, backpacks), equipment, and Project materials will be inspected for dirt, mud, seeds, soil, plant parts, and animals prior to entering the Project Area. Brushes, screwdrivers or boot picks, and water (if necessary) will be used for cleaning.
- All staff and contractors will have cleaning supplies, such as brushes, available in their vehicles at all times.

4.5 Rapid ʻŌhiʻa Death (ROD) Prevention

ROD is infecting and killing ʻōhiʻa (*Metrosideros polymorpha*), a culturally and ecologically important native tree. ROD is caused by two species of fungi (*Ceratocystis lukuohia* and *C. huliohia*). Cutting and wounding ʻōhiʻa creates entry points for the fungal spores and increases the odds that a tree could become infected with ROD (MISC 2025a). *Ceratocystis huliohia* has been recorded in two locations on Maui (M. Ade/MISC, pers. comm., July 2025). ʻŌhiʻa occurs in portions of the LOD (Tetra Tech 2025d),

and while they will be avoided to the maximum extent practicable, it is possible that trees may be cut in the LOD as part of the Project.

The following measures will be implemented to avoid the potential for ROD:

- Per the CDUP, ʻōhiʻa would be transplanted as feasible if impacted. Avoid cutting ʻōhiʻa to the maximum extent practicable. Avoiding injuries to ʻōhiʻa is the best way to prevent the disease from spreading.
- No equipment, machinery, personal gear, clothing, or materials sourced from Hawaiʻi Island or that has been used on Hawaiʻi Island should be used within the Project Area.
- If vehicles, machinery, or other equipment from outside of Maui must be used, they will be thoroughly inspected and cleaned (see Section 4.3 and 4.4).
- If trimming of ʻōhiʻa is needed and cannot be otherwise avoided, the following BMPs will be implemented:
    - Cutting of ʻōhiʻa trees will be conducted by qualified staff to avoid excessive injury and minimize susceptibility to disease and pests.
    - Tools used for cutting ʻōhiʻa will be sanitized prior to entering the access road to remove visible mud and other contaminants, and disinfected with 70 percent isopropyl alcohol or 10 percent bleach prior to use.
    - Prior to cutting ʻōhiʻa, trees should be inspected for symptoms of ROD (e.g., browning, wilting and yellowing of leaves; see photos at CTAHR 2024). See Section 4.9 for reporting of any signs of ROD.
    - Cut ʻōhiʻa lehua would be scattered whole whenever possible rather than chipped or cut into smaller lengths to avoid creating small pieces that can carry ROD.
- Do not transport ʻōhiʻa interisland without a permit.

4.6 Green Waste Management

- No large, dense piles of chipped vegetation will be created by the Project.
- Any cut woody vegetation will be chipped on-site and distributed to limit fuel load for wildfires, prevent nēnē attraction, and limit breeding habitat for coconut rhinoceros beetles (CRB).
- As stated in Section 4.6, cut ʻōhiʻa lehua would be scattered whole whenever possible rather than chipped or cut into smaller lengths, to avoid creating small pieces that can carry ROD.

4.7 Revegetation/Restoration

Revegetation may be required following ground disturbance as part of the initial maintenance period. The Project may also be required to implement a native plant propagation and restoration program at the site. If revegetation/restoration is required, the following will be implemented:

- Native species found in the area should be used for revegetation to the maximum extent practicable (e.g., pili grass, ʻaʻaliʻi). Native plants should be propagated from existing plants on site to ensure no genetic contamination to the existing plant populations.
- If it is not feasible to revegetate with native species, use non-native plants chosen in coordination with botanists and DOFAW.
- Only certified weed-free seed mixes and mulches will be used for revegetation.

4.7.1 Little Fire Ants (LFA)

- If native plants propagated at local nurseries are used, plants and planting material should be checked for LFA using the following survey instructions from Stop the Little Fire Ant (LFA-Hawaii.org. 2024).
    - Place coffee stirrers or popsicle sticks with a thin coat of peanut butter in and around new materials.
    - Collect sticks after 1 hour, and place any sticks with ants in a plastic bag with your contact information.
    - Mail or drop off any samples with ants to MISC.

4.7.2 Coconut Rhinoceros Beetles (CRB)

The following should be implemented to avoid introduction or spread of CRB:

- Do not use/import palm plants, decomposing plant material (e.g., compost, wood or tree chips; mulch; potting soil), and other landscaping products from areas designated as infested with CRB (such as Oʻahu), as outlined in the 2024 interim HDOA rule (HDOA 2024).
- Because CRB may lay their eggs and their grubs (larvae) in compost, mulch, and green waste, inspect any of these materials upon receipt and ensure any of these materials needed for the Project receive proper treatment prior to accepting (e.g., chipping, grinding, heat treatment, or fumigation). The larvae are sluggish, white, 'C'-shaped grubs (see Appendix B).

4.8 Post-Maintenance Surveys

- The inspection/washing station will be surveyed at the end of the initial maintenance period to confirm no invasive species established in the area. If an Invasive Species of Concern or other new invasive plant or animal species is detected, they will be reported as described in Section 4.9.
- A one-time, follow-up plant survey may be conducted as appropriate within the LOD (including the inspection/washing station) six months after the initial maintenance period to inventory for invasive species. The 2025 botanical survey (Tetra Tech 2025d) will function as the baseline for the plant survey. Invasive species will be reported as described in Section 4.9.

- Project personnel will be instructed to report incidental observations of any Invasive Species of Concern seen during typical O&M activities.

4.9 Reporting

If the presence of an Invasive Species of Concern or other new invasive plant or animal species is suspected in the Project Area:

- Flag the area, take photographs, and collect GPS (latitude/longitude) coordinates.
- Contact TerraForm Power Senior Biologist Molly Stephenson (612-451-4175; Molly.stephenson@terraformpower.com) as soon as possible.
- If needed, TerraForm may contact the following for additional guidance:
    - MISC (808-573-6472, miscpr@hawaii.edu)
    - DLNR (Lance DeSilva; Lance.K.DeSilva@hawaii.gov)
    - Statewide Pest Hotline (643-PEST [7378] or online at 643PEST.org)

5.0 LITERATURE CITED

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Tetra Tech. 2025b. Kaheawa Wind 1 Continued Use Project, Vegetation Management Plan.

Tetra Tech. 2025c. Kaheawa Wind I Continued Use Project Draft Environmental Impact Statement.

Tetra Tech. 2025d. Kaheawa Wind 1 Continued Use Project, Botanical Resources Survey Report.

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Kaheawa Wind 1 Invasive Species Plan

Figure 1
Project Area

MAUI COUNTY, HI

KWP 1 Point of Interconnection

KWP I Lease Area
200 Acres
Lease No. S-5731

(2) 4-8-001:001

(2) 3-6-001:014

KWP 2 Wind Farm

Existing Kaheawa Pastures Access Road

380

310

30

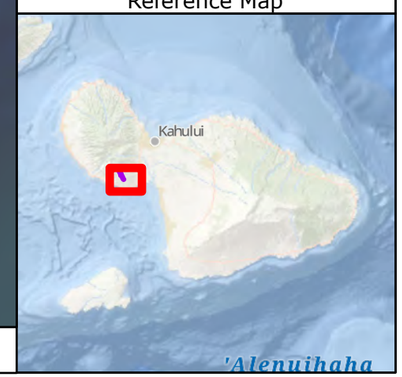
- Project Area
- TMK Boundary
- State Highway

Existing Facilities

- KWP 1 Existing Wind Turbines
- KWP 1 Existing Met Tower
- HECO Switchyard and KWP 1 Substation
- HECO Switchyard and KWP 2 Substation
- O&M Building and Yard
- Warehouse Building and Yard
- KWP 2 Battery Storage Facility
- Existing Rain Catchment Structure
- Hawaiian Electric Transmission Lines

TMK boundary data for TMKs 4-8-001:010 and 3-6-001:052 are approximate based on State of Hawaii Survey Division map C.S.F. No. 19186.

Reference Map



1:23,000

WGS 1984 UTM Zone 4N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

\\ess706gisfs1\CES\Projects\PDX\TerraForm_Power\Kaheawa_Wind_Power_I\Maps\EIS_20250410\TerraFormPower_KaheawaPowerI_EIS_11i17i_2025410.aprx

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Appendix A.

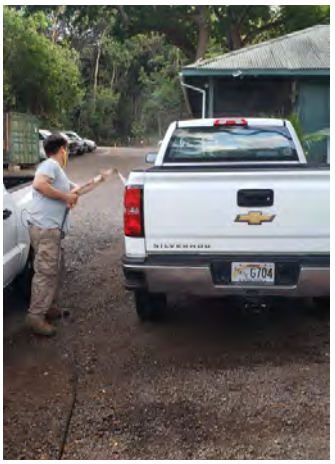
OISC Decontamination Protocols for Prevention of Invasive Species

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DECONTAMINATION PROTOCOLS FOR PREVENTION OF INVASIVE SPECIES







Invasive plants, animals, and pathogens are a concern to public health, the economy, our watersheds, and the services they provide. Preventing the introduction of invasive species to new areas is important to eradication or containment efforts. Ensuring that gear and equipment are clean is a key component to stopping the spread and mitigating the impacts of invasive pests. Reporting newly arrived pests early in the infestation is crucial to eradication and significantly reduces resource spending and negative impacts.





WHAT to inspect & clean

- Gear, equipment, & tools

WHERE to inspect & clean

- Baseyard, site inspections

REPORTING invasive species

- What & how to report

Email: oisc@hawaii.edu

OISC
O'AHU INVASIVE SPECIES COMMITTEE
www.oahuisc.org

Call/Text: 808-286-4616

WHAT TO INSPECT & CLEAN

Look for seeds, plant material, soil, mud, insects, and other invertebrates.

LARGE EQUIPMENT & VEHICLES | **PERSONAL GEAR** | **SMALL EQUIPMENT & HAND TOOLS**

Large Equipment & Vehicles

(including but not limited to: hydraulic or wheel bulldozers, excavators, dump trucks, backhoes, chippers, bucket trucks, brush cutters, etc.)

Cleaning - Exterior

Manually remove clods of dirt with scraper, stiff brushes, or pry bar. Use compressed air to clean radiators and grills prior to using water. Use high pressure hose to wash from top to bottom.

Cleaning - Interior

Use brushes and/or vacuum to sweep out loose material (special attention to under mats, around seats and gear shifts).

Inspect & Clean Exterior

- Tires, tracks, rims, fender wells
- Spare tire mounting area
- Undercarriage & exhaust system
- Body (plates and panels)
- Light casings and mirrors
- Grills, bumpers and beds
- Chassis and engine bays
- Front and rear axles, brakes and shocks
- Boom, buckets, blade, and other attachments

Inspect & Clean Interior

- Beneath seats
- Beneath floor mats
- Upholstery
- Beneath foot pedals
- Inside folds of gear shift cover

WHAT TO INSPECT & CLEAN

Look for seeds, plant material, soil, mud, insects, and other invertebrates.

LARGE EQUIPMENT & VEHICLES **PERSONAL GEAR**

SMALL EQUIPMENT & HAND TOOLS

Personal Gear

- Clothing
- Hats/Helmets
- Jackets
- Gloves
- Socks
- Boots/shoes
- PPE (chaps, helmets, safety vests, etc.)

Cleaning:
Pockets should be thoroughly inspected for the above-listed materials. Pockets should be turned inside out to remove debris. Shoelaces and shoe tongues should be checked. Upon inspection, pre-clean personal gear by physical removal of dirt and mud with a stiff brush, lint remover, compressed air, or pressurized hot water. Clothing and gear that can be laundered, use soap and water. To kill fungal pathogens such as Rapid ʻŌhiʻa Death, spray footwear with 70% isopropyl alcohol and let sit for 15 seconds, AFTER mud and dirt are removed.

Areas of Concern:
Particular attention must be given to places where foreign material could become accidentally trapped, such as in the cuffs and folds of clothing, treads of boots or waders, or closures such as zippers or ties. Closures include: Zippers, belts, laces or ties, buckles, straps, Velcro grips, buttons and fasteners, and rivets. Attention to fabrics such as: canvas, nylon, cotton, poly blend, wool, fleece, netting, and suede. Other clothing items and accessories that should be checked include: socks and ankle grips, treads of footwear, cuffs and folds, seams, flaps, pockets, collars and hoods, and ventilation openings.

WHAT TO INSPECT & CLEAN

Look for seeds, plant material, soil, mud, insects, and other invertebrates.

LARGE EQUIPMENT & VEHICLES **PERSONAL GEAR**

SMALL EQUIPMENT & HAND TOOLS

Small Equipment & Hand Tools

(including but not limited to: riding mowers, zero-turn mowers, hedge-trimmers, chainsaws, leaf blowers, edgers, backpack sprayers, hand saws, loppers, shovels, machetes, rakes, etc.)

Inspect & Clean

- Mower decks
- Blades
- Undercarriages
- Wheels
- Seats
- Grills
- Safety guards
- Mufflers
- Air vents
- Housing covers
- Handles
- Moving parts
- Grooves
- Joints
- Cracks/Bends

Cleaning:
Manually remove clods of dirt with a scraper, stiff brush, or pry bar. Use compressed air to remove debris from radiators, grills, decks, and covers prior to using water. Wash with high-pressure hose or with water and brush. To kill fungal pathogens such as Rapid ʻŌhiʻa Death, spray footwear with 70% isopropyl alcohol and let sit for 15 seconds, AFTER mud and dirt are removed.

DECONTAMINATION PROTOCOLS FOR PREVENTION OF INVASIVE SPECIES

Where and when to inspect?

BASEYARD:
Before heading out for the day inspect all equipment, vehicles, hand tools, and clothing to ensure it is clean and free of debris. If it is not clean, note it on the daily inspection log (if available), then clean equipment before leaving for the site.

ARRIVAL AT WORK SITE:
Upon arrival, do a quick site assessment for any suspect invasive species of concern. If you find any, take a photo and report it to the O'ahu Invasive Species Committee (OISC) either by email: oisc@hawaii.edu or text: 808-286-4616.

DEPARTURE FROM WORK SITE:
Manually remove mud, dirt, and debris from personal gear and equipment before moving off the work site. Inspect all personal gear, tools, vehicles, and equipment.

RETURNING TO BASEYARD:
All vehicles, equipment, tools and personal gear should be completely free of all mud, dirt and debris. Inspections of equipment are logged daily to make sure it is clean (if available).

Reporting invasive species...

REPORT INVASIVE SPECIES
643-PEST
643pest.org
CALL OR CLICK TO PROTECT HAWAII

Not *every* invasive species in Hawai'i is managed because we simply have too many to tackle. However, some are managed statewide and some are managed island-wide. But not to worry! You don't have to know which species are managed or where. Just remember, **if it's weird report it** to the statewide pest hotline. They will take it from there and, if it is an actionable pest, they will forward the report to the appropriate agency.

DECONTAMINATION PROTOCOLS FOR PREVENTION OF INVASIVE SPECIES

OISC Target Species Locations

Each of the four species below has been detected in various locations on O'ahu. Little Fire Ants (LFA), Rapid 'Ōhi'a Death (ROD), and Coqui Frogs are being managed at all known locations by either OISC or in partnership with other organizations.

Coconut Rhinoceros Beetles are now established in numerous locations across O'ahu island. Management of CRB on O'ahu has shifted from eradication to containment. The CRB Response can provide guidance for green waste management and Best Management Practices (BMPs) for infested areas: www.crbhawaii.org

You can contact OSIC with any questions. E: oisc@hawaii.ed or call: (808) 286-4616.

Click photo for link to species info or visit: www.oahuisc.org/target-pests/

These four species occur or could occur ***anywhere*** on O'ahu.



Little Fire Ant



Rapid Ohia Death



Coqui Frog



Coconut Rhinoceros Beetle

If restorative planting efforts are taking place, be sure you are not using plants that can become invasive. Not all invasive plants are restricted from sale in Hawai'i. To ensure you are using only native or non-invasive plants, visit www.plantpono.org.

PLANT PONO
plantpono.org

DECONTAMINATION PROTOCOLS FOR PREVENTION OF INVASIVE SPECIES

QUICK TIPS

REPORT ANY SUSPECT INVASIVE SPECIES TO 643PEST.ORG OR YOUR LOCAL INVASIVE SPECIES COMMITTEE.

REPORT INVASIVE SPECIES
643-PEST
643pest.org
CALL OR CLICK TO PROTECT HAWAII



STINGING INSECTS: Most people notice little fire ants (LFA), not because they see them, but because they're getting stung. LFA can nest on the ground and in the trees. Report stinging ants and if possible collect ants for identification by your local Invasive Species Committee.

Check new materials for ants. Plants, planting materials, and building materials should be checked for LFA BEFORE use. Simply place coffee stirrers with a thin smear of peanut butter in and around new materials. Collect them after 1 hour, place any sticks with ants in a ziptop bag and freeze overnight. Mail or drop off ants for identification to your local Invasive Species Committee. For more details on where to submit your ants, visit: ww.stoptheant.org.



PALM DAMAGE & GRUBS: Coconut Rhinoceros Beetles (CRB) are most noticed by the damage to palm leaves and grubs in mulch and compost piles. For the latest information on Best Management Practices for CRB, and images of CRB damage to palm trees and beetle grubs, visit: www.crbhawaii.org



RAPID ʻŌHIʻA DEATH: Rapid ʻŌhiʻa Death (ROD) is a fungal disease that enters wounds of 'ōhiʻa trees. DO NOT INJURE ʻŌHIʻA. If you see an 'ōhiʻa tree with dead leaves attached, report it to your local Invasive Species Committee before pruning/removing. The tree will need to be tested for ROD and if it is infected, special protocols are required to reduce the risk of spreading the fungus. The ROD fungus can be present in the soil. Ensuring mud and debris are removed and spraying gear and tools with 70% alcohol will kill fungal spores.

Click here for a downloadable **ROD Sanitation Checklist**.



Hawai'i's Most Invasive Non-Native Grasses

A selection of introduced grass species in the Hawaiian Islands has spread widely and become highly invasive. Many areas that were once covered with native shrublands and forests are now dominated by a small number of non-native grasses. These grasses grow rapidly, outcompeting other plants and creating extreme fire risks during dry seasons or prolonged droughts.









Here are ten of the most invasive grass species in the Hawaiian Islands, known for altering habitats and potentially increasing fire risks:

- Fountain Grass (Cenchrus setaceus)
- Guinea Grass (Megathyrsus maximus)
- Buffel Grass (Cenchrus ciliaris)
- Molasses Grass (Melinis minutiflora)
- Beardgrass (Schizachyrium microstachyum)
- Broomsedge (Andropogon virginicus)
- Pampas Grass (Cortaderia jubata & C. selloana)
- California Grass (Urochloa mutica)
- Cane Grass (Cenchrus purpureus)
- Kikuyu Grass (Cenchrus clandestinus)

Note:

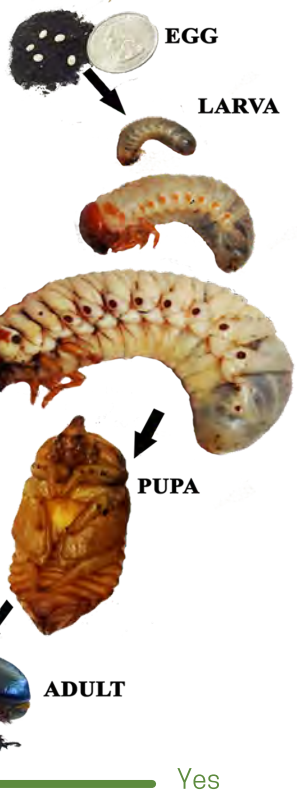
- These grasses have been identified as invasive and habitat-modifying based on HPWRA scores and scientific literature.
- For specific management instructions for grass species, visit: Weed Fire Risk Assessment Scores.

Appendix B.
Coconut Rhinoceros Beetle Identification Key

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Coconut Rhinoceros Beetle Identification Key

Identifying Larvae: There are a few look-alike species that are similar to coconut rhinoceros beetle. Use this key to determine what type of larvae you found.



UH Master Gardener
808-453-6055
oahumg@ctahr.hawaii.edu

Is it a white larva?

- No: You have another type of insect. Take a photo and contact the Oahu Master Gardener's Program for identification
- Yes → **Is it larger than 2 inches?**
  - No → **What color is the head capsule?**
    - Reddish Brown → **Does it have a raster line?**
      - Yes: This is an oriental flower beetle. OFB look really similar to CRB, but are more widespread.
      - No/ Not Sure → **How does it crawl?**
        - On its back, legs in the air: This is an oriental flower beetle. OFB look really similar to CRB, but are more widespread.
        - Straight forward on its belly: This is a Chinese rose beetle. They do not get as big as CRB.
        - On its side, dragging its lower body: This is a coconut rhinoceros beetle. Take a photo and notify the CRB Response.
    - Pale Yellow: This is a Chinese rose beetle. They have a wider rear and do not get as big as CRB.
  - Yes: This is a coconut rhinoceros beetle larva. They can reach 3.5-4 inches in length, have a reddish brown head capsule, no raster line, and crawl dragging the lower half of its body.




Oriental flower beetle (OFB) larvae



Chinese rose beetle larvae



Oriental flower beetle (OFB) adult



Chinese rose beetle adult



Coconut rhinoceros beetle adult



The CRB Response
(808)679-5244
info@crbhawaii.org
www.crbhawaii.org

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