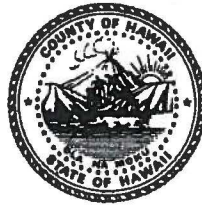


MAR 23 2017



Harry Kim
Mayor

Wilfred M. Okabe
Managing Director

William A. Kucharski
Director

Diane A. Noda
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
345 Kekūanāo'a Street, Suite 41 • Hilo, Hawai'i 96720
(808) 961-8083 • Fax (808) 961-8086
<http://www.hawaiicounty.gov/environmental-management/>

March 9, 2017

Scott Glenn, Director
State of Hawai'i
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawai'i 96813

Subject: Environmental Impact Statement Preparation Notice for the
Kealakehe Wastewater Treatment Plant R-1 Upgrade
Tax Map Keys (TMKs): 7-4-008:058 and 7-4-008:073
Kailua-Kona, Hawai'i, Hawai'i

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

17 MAR 13 P2:04

RECEIVED

Dear Mr. Glenn,

With this letter the County of Hawai'i Department of Environmental Management (DEM) hereby transmits the environmental impact statement preparation notice (EISPN) for the Kealakehe Wastewater Treatment Plant R-1 Upgrade. A completed Applicant Publication Form and a summary of the proposed action is enclosed (with a copy of the same sent via electronic mail to oeqc@doh.hawaii.gov).

Pursuant to the requirements of Sections 11-200-3 and 11-200-15, Hawai'i Administrative Rules, we request that you publish notice of the EISPN in the next available periodic bulletin (The Environmental Notice), for the public to submit comments to Wilson Okamoto Corporation, with copies to DEM, during a thirty-day public comment period. We have enclosed one (1) each of the following items:

- Hardcopy of the OEQC publication form and two hardcopies of the EISPN
- CD including the EISPN and OEQC publication form in .pdf format

Please contact our consultant, Mr. Earl Matsukawa at (808) 946-2277 if you have any questions.

Sincerely,

William A. Kucharski, Director
Department of Environmental Management

AGENCY PUBLICATION FORM

Project Name:	<i>Kealakehe Wastewater Treatment Plant R-1 Upgrade</i>
Project Short Name:	<i>Kealakehe WWTP R-1 Upgrade</i>
HRS §343-5 Trigger(s):	1) Use of State and County Lands / Funds, 2) Proposed use within land classified as a conservation district
Island(s):	Hawai'i
Judicial District(s):	North Kona
TMK(s):	7-4-008:058, 7-4-008:073, 7-4-020:007 (por.)
Permit(s)/Approval(s):	Special Management Area, Conservation District Use Application
Proposing/Determining Agency:	County of Hawai'i Department of Environmental Management
<i>Contact Name, Email, Telephone, Address</i>	Lyle Hirota, 345 Kekūanāo'a St., Suite 41, Hilo, HI 96720 Lyle.Hirota@hawaiicounty.gov (808) 961-8083
Accepting Authority:	Mayor of the County of Hawai'i, Harry Kim
<i>Contact Name, Email, Telephone, Address</i>	Office of the Mayor, West Hawai'i: 74-5044 Ane Keohokalole Highway, Bldg C, Kailua-Kona, HI 96740 (808) 323-4444 http://www.hawaiicounty.gov/office-of-the-mayor
Consultant:	Wilson Okamoto Corporation
<i>Contact Name, Email, Telephone, Address</i>	Earl Matsukawa, ematsukawa@wilsonokamoto.com 1907 South Beretania Street, Suite 400 Honolulu, Hawai'i 96826 T (808) 946-2277 F (808) 946-2253

Status (select one)

Act 172-12 EISPN
("Direct to EIS")

Submittal Requirements

Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.

Project Summary

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

The County of Hawai'i Department of Environmental Management (DEM) is proposing improvements to the Kealakehe Wastewater Treatment Plant (WWTP) that will provide additional treatment to produce R-1 standard water suitable for reuse in accordance with the State of Hawaii, Department of Health Reuse Guidelines. In addition, treated wastewater in excess of demand for reuse will be further treated through a proposed onsite subsurface flow wetlands and then conveyed to a proposed offsite soil aquifer treatment (SAT) facility for even further treatment and disposal.

The recycled water will be used to irrigate a proposed landscaped buffer parcel surrounding the WWTP and the DEM also proposes to construct underground recycled water transmission pipes to properties that plan to utilize the recycled water. These properties include the Old Kona Airport Park and the Queen Lili'uokalani Trust (QLT) Children's Center. A recycled water transmission line is also proposed from the WWTP to Queen Ka'ahumanu Highway where it will turn north within the highway right-of-way and connect to a recycled water transmission pipe that is being constructed in the highway by the State Department of Transportation for the DEM as part of its Queen Ka'ahumanu Highway Widening Project. That pipe will extend from the connection at the Kealakehe Parkway intersection to the driveway entrance of the Kohanaiki Golf and Ocean Club, which plans to use the recycled water for irrigation. At the intersection of Hina Lani Drive, a new transmission pipe will branch off mauka along Hina Lani Drive to an abandoned Department of Water Supply reservoir, which has been conveyed to DEM and will be converted to store recycled water.

In future phases, underground transmission pipes and another new storage tank will be constructed in road rights-of-way and easements for distribution of recycled water to other users.

Kealekehe Waste Water Treatment Plant R-1 Upgrade Environmental Impact Statement Preparation Notice



Prepared For



County of Hawai'i
Department of Environmental
Management

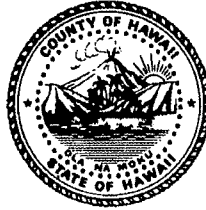
Prepared By



Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Harry Kim
Mayor

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March 9, 2017

Scott Glenn, Director
State of Hawai'i
Office of Environmental Quality Control
235 South Beretania Street, Room 702
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Subject: Environmental Impact Statement Preparation Notice for the
Kealakehe Wastewater Treatment Plant R-1 Upgrade
Tax Map Keys (TMKs): 7-4-008:058 and 7-4-008:073
Kailua-Kona, Hawai'i, Hawai'i

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- CD including the EISPN and OEQC publication form in .pdf format

Please contact our consultant, Mr. Earl Matsukawa at (808) 946-2277 if you have any questions.

Sincerely,

William A. Kucharski, Director
Department of Environmental Management

**ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE**

**Kealakehe Wastewater Treatment Plant
R-1 Upgrade**

Kealakehe, Hawai'i

Prepared For:

**County of Hawai'i
Department of Environmental Management
345 Kekūanāo'a St., Suite 41, Hilo, HI 96720**

Prepared By:

**Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawai'i 96826**

WOC Job No. 10079-01

March 2017

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PREFACE

The filing of this Environmental Impact Statement Preparation Notice (EISPN) by the County of Hawai'i Department of Environmental Management (DEM) formalizes its determination that the preparation of an Environmental Impact Statement (EIS) is required for the Proposed Action. A notice of this determination and the availability of this document for agency and public review and comment will be published in the Office of Environmental Quality Control's *The Environmental Notice*, as required by Hawai'i Administrative Rules (HAR) Title 11, Chapter 200. This document is not the EIS, but rather, serves as documentation of notice for the preparation of the EIS. It serves as a process for soliciting input from agencies, citizen groups and individuals as comments received in response to this EISPN will be considered in identifying key issues to be addressed in the Draft EIS and Final EIS.

This EISPN document presents reviewers with the purpose, need and objectives of the Proposed Action, and describes the proposed action, including its location and applicable land use, zoning and other regulatory considerations. The EISPN document also identifies topics of discussion in relation to potential anticipated impacts that will be further evaluated in the Draft EIS and may be the subject of studies to be prepared in support of the EIS. Reviewers will have the opportunity to comment on the type of information they feel should be included in the subsequent Draft EIS to comply with the content requirements established by Hawai'i Administrative Rules (HAR) Section 11-200-16 and 11-200-17. Following publication of the Draft EIS, reviewers will have an opportunity to comment on its contents toward the preparation of the Final EIS.

The purpose of the EIS process is to disclose to government agencies, the general public, stakeholders, and decision-makers the anticipated impacts of a project and to identify feasible measures that might be taken to mitigate potential impacts. Acceptance of the Final EIS by the Mayor of the County of Hawai'i, will be a determination that the document complies with disclosure requirements and that it may then be used to evaluate the decision to proceed with the proposed project.

SUMMARY

Project Name:	Kealakehe Wastewater Treatment Plant (WWTP) R-1 Upgrade
Proposing Agency:	County of Hawai'i Department of Environmental Management
Location:	Kealakehe, Hawai'i (See Figure S-1)
Tax Map Keys:	Kealakehe WWTP & Buffer: 7-4-008:058 and 7-4-008:073 Soil Aquifer Treatment (SAT) facility site: Portion of 7-4-020:007 Various road rights-of-way and easements for transmission pipes (See Figure S-2)
Land Area:	105.4 Acres (approximate) and approximately 3.77 miles of underground recycled water transmission lines
Recorded Fee Owner:	7-4-008:058 (State of Hawai'i) 7-4-008:073 (State of Hawai'i) 7-4-020:007 (State of Hawai'i)
Existing Use:	Kealakehe Wastewater Treatment Plant (WWTP), wastewater disposal basin site, various roads, driveways and jeep trails, abandoned water tank and vacant land
State Land Use District:	The Kealakehe WWTP and SAT site are designated Urban while portions of the proposed recycled water transmission lines cross land designated Conservation and Agricultural (See Figure S-3, Conservation Subzones shown in Figure S-4)
Special Management Area:	The Kealakehe WWTP and recycled water transmission lines makai of Queen Ka'ahumanu Highway are located in the County of Hawai'i Special Management Area (SMA) (See Figure S-5)
County of Hawai'i Zoning:	Open. Portions of the recycled water transmission lines cross Agricultural-minimum 5 acre building site (A-5a). (See Figure S-6)
Proposed Action:	The County of Hawai'i Department of Environmental Management (DEM) is proposing improvements to the Kealakehe Wastewater Treatment Plant (WWTP) that will provide additional treatment to produce R-1 water suitable for reuse in accordance with the State of Hawai'i, Department of Health Reuse Guidelines. In addition, treated wastewater in excess of demand for reuse will be

further treated through a proposed onsite subsurface flow wetlands and then conveyed to a proposed offsite soil aquifer treatment (SAT) facility for even further treatment and disposal.

The recycled water will be used to irrigate a proposed landscaped buffer parcel surrounding the WWTP and the DEM also proposes to construct underground recycled water transmission pipes to properties that plan to utilize the recycled water. These properties include the Old Kona Airport Park and the Queen Lili'uokalani Trust (QLT) Children's Center. A recycled water transmission line is also proposed from the WWTP to Queen Ka'ahumanu Highway where it will turn north within the highway right-of-way and connect to a recycled water transmission pipe that is being constructed in the highway by the State Department of Transportation for the DEM as part of its Queen Ka'ahumanu Highway Widening Project. That pipe will extend from the connection at the Kealakehe Parkway intersection to the driveway entrance of the Kohanaiki Golf and Ocean Club, which plans to use the recycled water for irrigation. At the intersection of Hina Lani Street, a new transmission pipe will branch off mauka along Hina Lani Street to an abandoned Department of Water Supply reservoir, which has been conveyed to DEM and will be converted to store recycled water.

In future phases, underground transmission pipes and another new storage tank will be constructed in road rights-of ways and easements for distribution of recycled water to other users.

Impacts:

Analysis of the following environmental resource topics will be addressed in the Draft EIS:

- Climate
- Geology
- Topography
- Soils
- Surface Waters
- Groundwater
- Coastal Waters
- Natural Hazards
- *Flora and Fauna
- *Historic and Archaeological Resources
- *Cultural Resources
- Air Quality
- Noise
- Visual Resources
- Socio Economic Characteristics
- Public Services and Facilities

- Infrastructure and Utilities
- Secondary and Cumulative Impacts

*The Draft EIS is anticipated to include the following supporting studies:

- Biological Survey Report (Flora/Fauna)
- Archaeological Literature Review and Field Inspection Report
- Cultural Impact Assessment

Determination:

Implementation of the subject project improvements will involve the use of State and County lands and funds and, therefore, will be subject to the requirements of Chapter 343, Hawai'i Revised Statutes (HRS) and Title 11, Chapter 200, Hawai'i Administrative Rules (HAR), Hawai'i Department of Health.

Due to the collective scale of the recommended improvements that will encompass approximately 105.4 acres of land and approximately 3.77 miles of recycled water transmission lines, preparation and processing of an environmental impact statement (EIS) is warranted to comply with Chapter 343.

**Agencies and Other Parties
Consulted in EISPN Process:**

See Section 3

Planning Consultant:

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
Honolulu, Hawai'i 96826
Telephone: (808) 946-2277
Fax: (808) 946-2253

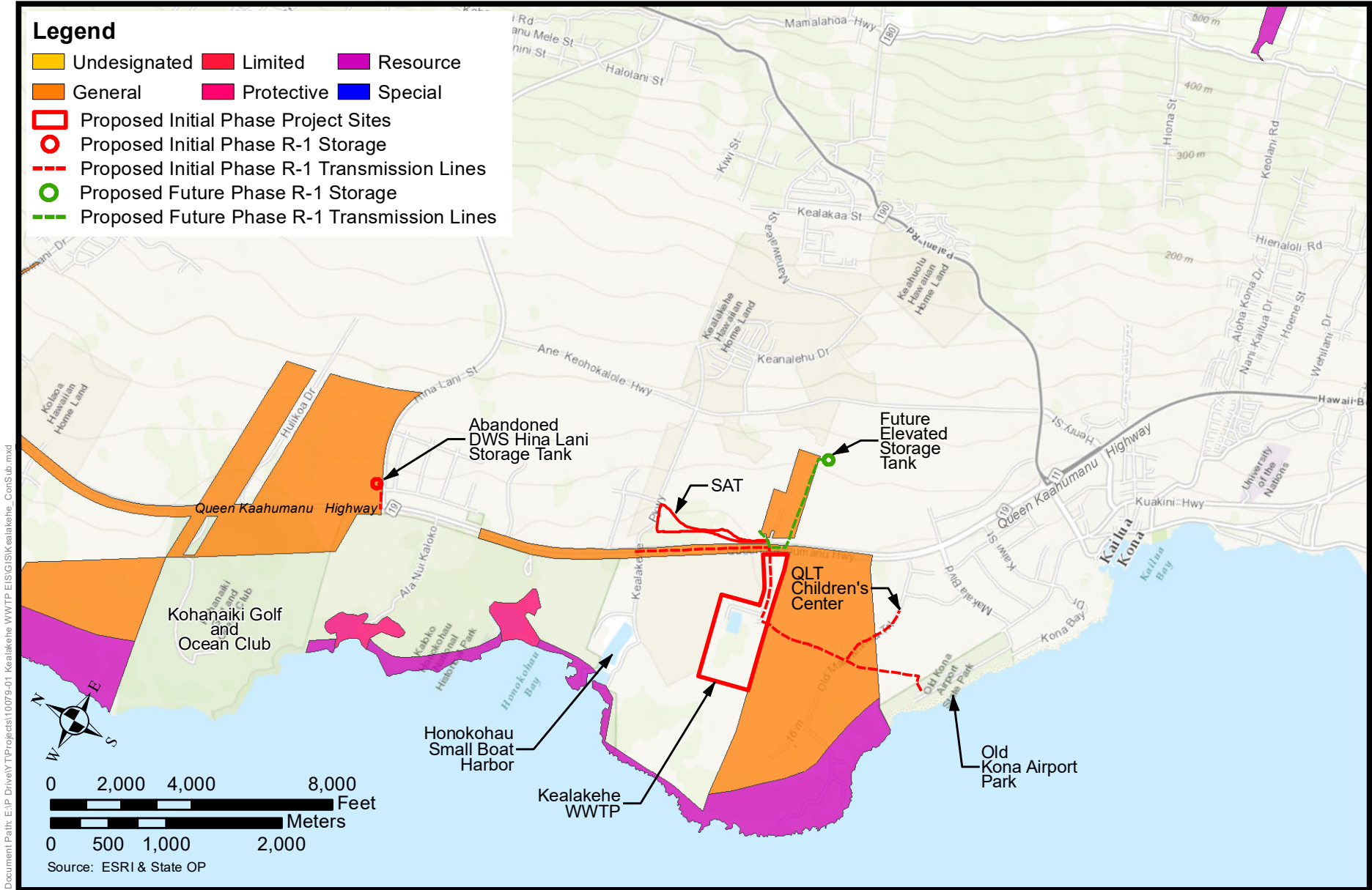


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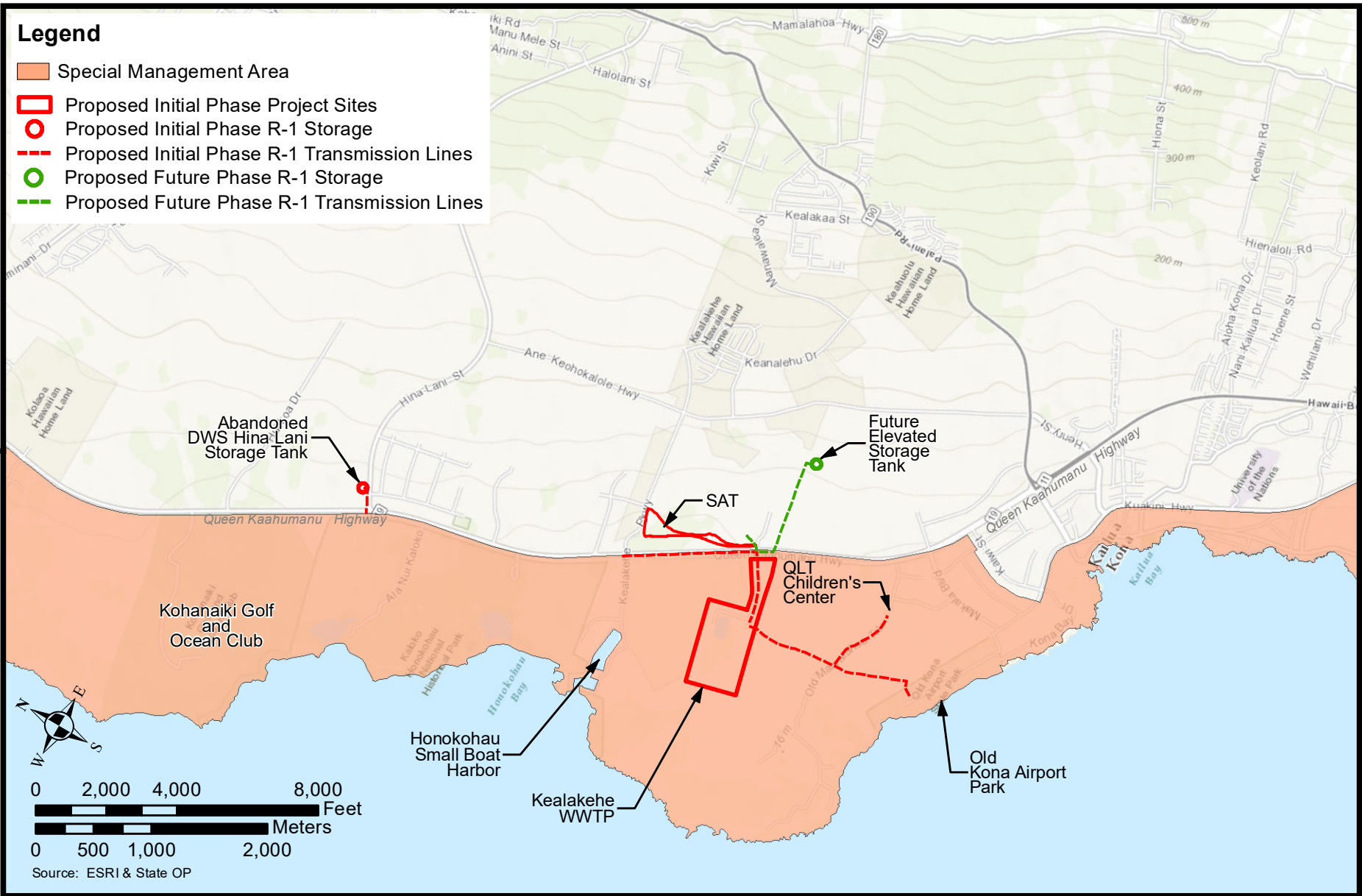
S-2 TAX MAP KEYS

Kealahou WWTP R-1 Upgrade



S-4
CONSERVATION DISTRICT SUBZONES MAP

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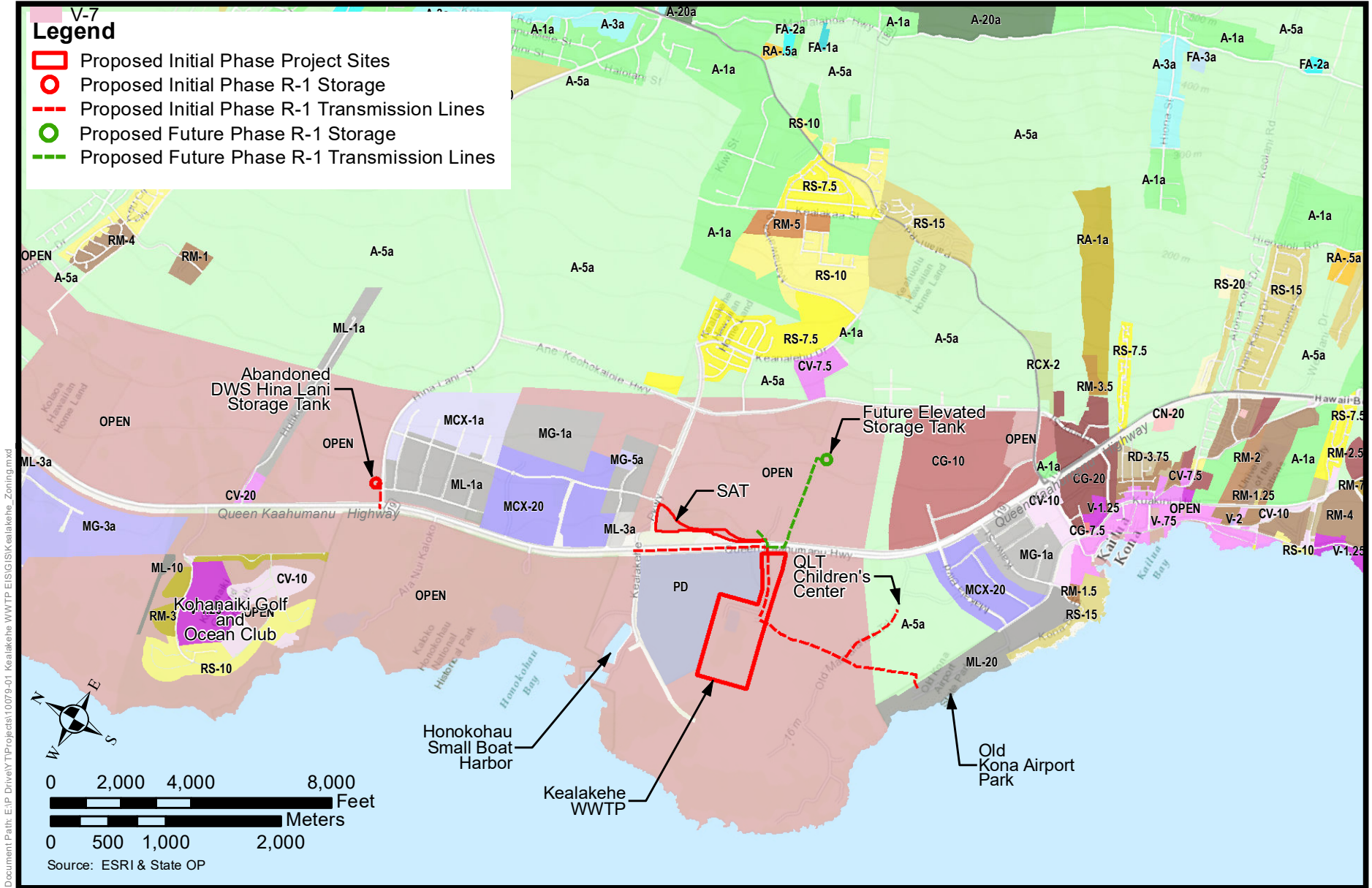
S-5
SPECIAL MANAGEMENT AREA MAP

Kealakehe WWTP R-1 Upgrade

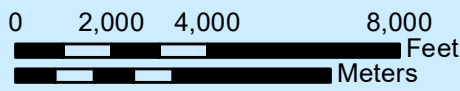
- V-2a
- V-4
- V-6.0

Legend

- Proposed Initial Phase Project Sites
- Proposed Initial Phase R-1 Storage
- Proposed Initial Phase R-1 Transmission Lines
- Proposed Future Phase R-1 Storage
- Proposed Future Phase R-1 Transmission Lines



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Source: ESRI & State OP



1. GENERAL DESCRIPTION OF THE PROPOSED ACTION'S TECHNICAL, ECONOMIC, SOCIAL, AND ENVIRONMENTAL CHARACTERISTICS

1.1 Background

The County of Hawai'i, Department of Environmental Management (DEM) proposes to upgrade the Kealakehe Wastewater Treatment Plant (WWTP) to produce recycled water meeting the Hawai'i State Department of Health (DOH) classifications for R-1, the highest grade with the broadest allowable reuse applications. The DOH advocates for the use of recycled water provided that public health and water resources are not compromised. "Recycled water" means treated wastewater that by design is intended to be used for beneficial purposes. Use of recycled water has become more significant due to the state's growing population, limited potable water resources, and wastewater disposal issues.

To be classified as R-1 recycled water, treated wastewater effluent must be oxidized, filtered and disinfected according to the classification outlined in the Hawai'i State DOH Wastewater Branch Reuse Guidelines dated January 2016. R-1 recycled water is suitable for irrigation, agricultural, construction, cleaning, cooling, firefighting, and other applications as outlined in the DOH Reuse Guidelines.

To promote the use of recycled water from the Kealakehe WWTP, the DEM is proposing to construct a landscaped buffer area around the WWTP that will be irrigated with the recycled water. In addition, the DEM is proposing to construct underground recycled water distribution lines and aboveground storage facilities to convey the water to properties planning to use it, primarily for landscape irrigation.

Treated wastewater in excess of demand for reuse will be further treated through a proposed onsite subsurface flow wetlands and then conveyed to a proposed offsite soil aquifer treatment (SAT) facility for even further treatment and disposal.

1.2 Project Location

The existing Kealakehe Wastewater Treatment Plant (WWTP) is located at mile marker 98.06 west of Queen Kaahumanu Highway (Route 190) with access from Hale Māka'i Place (See Figure S-1). The WWTP is about 2,000 feet (0.38 miles) west of Queen Ka'ahumanu Highway, 1.51 miles north of Kailua-Kona and about 4.1 miles south of Kona International Airport at Keāhole southern boundary on the western coast of Hawai'i Island. The WWTP also lies about 3,700 feet (0.70 miles) south of Honokohau Small Boat Harbor and about 4,500 feet (0.85 miles) south of the southern boundary of Kaloko Honokohau National Historical Park . Hale Māka'i Place east (mauka) of Queen Ka'ahumanu Highway provides access to the Kona Police Substation and the County's solid waste transfer station. The existing WWTP lies at an elevation of about 56 feet mean sea level. The WWTP is secured with a security fence. A locked gate located about 250 feet west of Queen Ka'ahumanu Highway also controls access to the WWTP.

The existing Kealakehe WWTP occupies a total of approximately 93.4 acres in two Tax Map Key (TMK) parcels (See Figure S-2). TMK parcel 7-4-008:058, comprised of approximately 52.96 acres, encompasses the WWTP facility. TMK parcel 7-4-008:073, comprised of approximately 40.46 acres, surrounds the WWTP facility as a buffer area. The buffer parcel

73 and a separate access easement through parcel 58 to Queen Ka'ahumanu Highway were added to the WWTP by Executive Order 3856 in 2001. The proposed SAT facility site occupies an approximately 12 acre portion of TMK parcel 7-4-020:007.

1.3 Existing Conditions

In 1993, the County of Hawai'i Department of Public Works constructed the Kealakehe WWTP near Kailua-Kona. The WWTP treats and disposes of wastewater collected from the North Kona Sewerage system, which extends across the greater Kailua Kona region from just below Kealakehe Parkway at its northern edge to Ali'i Heights in the south. When it was constructed, it was intended that treated effluent from the plant would be reused to irrigate the proposed Kealakehe municipal golf course, which was to be privately developed mauka of Queen Ka'ahumanu Highway opposite the WWTP. The golf course, due to a variety of factors, was never constructed. As a result, since 1993, the secondary treated effluent, produced through an aerated lagoon process, has been disposed of into an approximately 10,000 square-foot disposal basin located in the lava fields east, or mauka, of Queen Ka'ahumanu Highway, about 1,600 feet north of the intersection of Queen Ka'ahumanu Highway and Hale Māka'i Place.

The WWTP currently treats about 1.7 million gallons per day (mgd) of incoming flows to secondary treatment classifications through the use of five aerated lagoons. Prior to disposal, the WWTP effluent is chlorinated to control algae in the disposal basin. Although this method of effluent disposal has been used for a number of years, the County has sought to improve the WWTP treatment process so that the effluent could be used for more beneficial uses, including those in which the effluent would displace the use of potable water.

1.4 Purpose and Need

The purpose of the Kealakehe WWTP R-1 Upgrade project is to construct the necessary improvements to produce treated effluent that meets the various objectives set forth in Hawai'i Administrative Rules Title 11, Department of Health Chapter 62 Wastewater Systems (Chapter 11-62), which was adopted on March 21, 2016.

Among various General Requirements Chapter 11-62 stated that the DOH:

- (1) Seeks to ensure that the use and disposal of wastewater does not contaminate or pollute any valuable water resource, does not give rise to public nuisance, and does not become a hazard or potential hazard to the public health, safety, and welfare.
- (2) Seeks to work in close partnership with the counties to manage wastewater to prevent pollution and harm to public health, safety and welfare.
- (3) Seeks to advance the use of recycled water consistent with public health and safety and environmental quality.
- (4) Acknowledges that when properly treated and used, recycled water is a valuable resource with environmental and economic benefits and can be used to conserve the State's precious resources and that the most highly treated recycled water and exceptional quality wastewater sludge can be used for a wide variety of applications with the appropriate restrictions and when best management practices and other requirements of this chapter are met.

Chapter 11-62 further seeks to ensure that the use and disposal of wastewater systems:

- (1) Do not contaminate or pollute any drinking water or potential drinking water supply, or the waters of any beaches, shores, ponds, lakes, streams, groundwater, or shellfish growing waters;
- (2) Do not encourage the harborage of insects, rodents, or other possible vectors;
- (3) Do not give rise to nuisances;
- (4) Do not become a hazard or a potential hazard to public health, safety and welfare;
- (5) Contribute to the achievement of wastewater management goals contained in approved county water quality management plans;
- (6) Reinforce state and county planning policies; and
- (7) Are consistent with the State's administration of the National Pollutant Discharge Elimination System.

In addition, the proposed action is intended to realize several Policy and Action items outlined in the 2008 Kona Community Development Plan (KCDP). Applicable KCDP Policy and Action items are listed below:

- Policy PUB-4.5: Wastewater Treatment and Effluent Reuse
- Action PUB-4.5a: Master plan the expansion of the Kealakehe Wastewater Treatment Plant
- Action PUB-4.5c: Master plan a comprehensive wastewater reclamation system to maximize reuse.

1.5 Objectives of the Proposed Action

The Kealakehe WWTP R-1 Upgrade Project will be undertaken to achieve the following objectives:

- Implement water recycling within the service area to decrease the amount of potable water currently being used for irrigation (and other non-potable uses) and to reduce the quantity of WWTP effluent requiring disposal.
- Increase nutrient removal within the wastewater treatment process to reduce the nutrient load to the disposal system.
- Replace the existing sump disposal system with a land application system that will provide additional environmental protection and is recognized by the US Environmental Protection Agency (EPA).
- Provide for the wastewater management needs of the service area for the next 20 years.
- Minimize impacts to the ratepayers.
- Provide a reliable wastewater management system that is relatively simple to operate and maintain.

1.6 Proposed Action

The DEM proposes to implement improvements to the Kealakehe WWTP that will supplement the existing secondary treatment process. The supplemental process will provide additional treatment to produce R-1 recycled water.

A separate effluent disposal stream is also needed because the quantity of wastewater presently received and treated at the Kealakehe WWTP exceeds the anticipated initial demand for recycled water and the R-1 storage limits of the proposed Kealakehe WWTP upgrades, which are scaled to meet the anticipated regional demand for R-1 water. Furthermore, demand for recycled water will vary seasonally due to precipitation and evapotranspiration patterns. Therefore, not all of the secondary treated effluent will be further treated and used for R-1 purposes. In addition, the DOH recycled water guidelines require an effluent disposal system for recycled water projects for managing water that is not recycled or does not meet recycled water classifications.

In order to significantly improve upon the current method of disposal, a proposed new onsite subsurface flow wetlands system within the WWTP will further "polish" the secondary treated effluent by removing additional nutrients and other constituents. After flowing through the wetland, the water will be pumped via the existing effluent disposal pipe across Queen Ka'ahumanu Highway to enter a soil aquifer treatment (SAT) system - the final step to remove nutrients and other impurities prior to release.

The Recycled Treatment and Effluent Disposal streams are shown in the process map and facility concept schematic are shown in Figures 1-1 and 1-2, respectively.

For ease of discussion, the description of the proposed action has been broken into three separate components: R-1 Treatment Facilities, Polishing Wetlands and Soil Aquifer Treatment, and R-1 Recycled Water Storage and Distribution/Transmission. These three components are described in further detail in the sections that follow.

1.6.1 R-1 Treatment Facilities

The improvements to be constructed within the area of the existing WWTP include:

1) Lagoon 6 Cover

The existing aerated lagoon effluent typically contains algae due to the long hydraulic residence time in the treatment process, warm water temperatures, nutrients in the wastewater, and the presence of ample sunlight. The presence of algae can increase filtration backwash requirements significantly, particularly if cloth media filtration is implemented. Lagoon 6 will be covered with a floating cover and baffle curtains to remove algae prior to the R-1 treatment process. The cover will block sunlight, which will kill the algae and allow it to settle to the bottom of the lagoon.

2) Filter Feed Pumps

A filter feed pump station will lift the aerated lagoon effluent to the R-1 treatment processes that will be constructed above-grade.

WA110079-01 Kealakehe WWTP EIS\Final

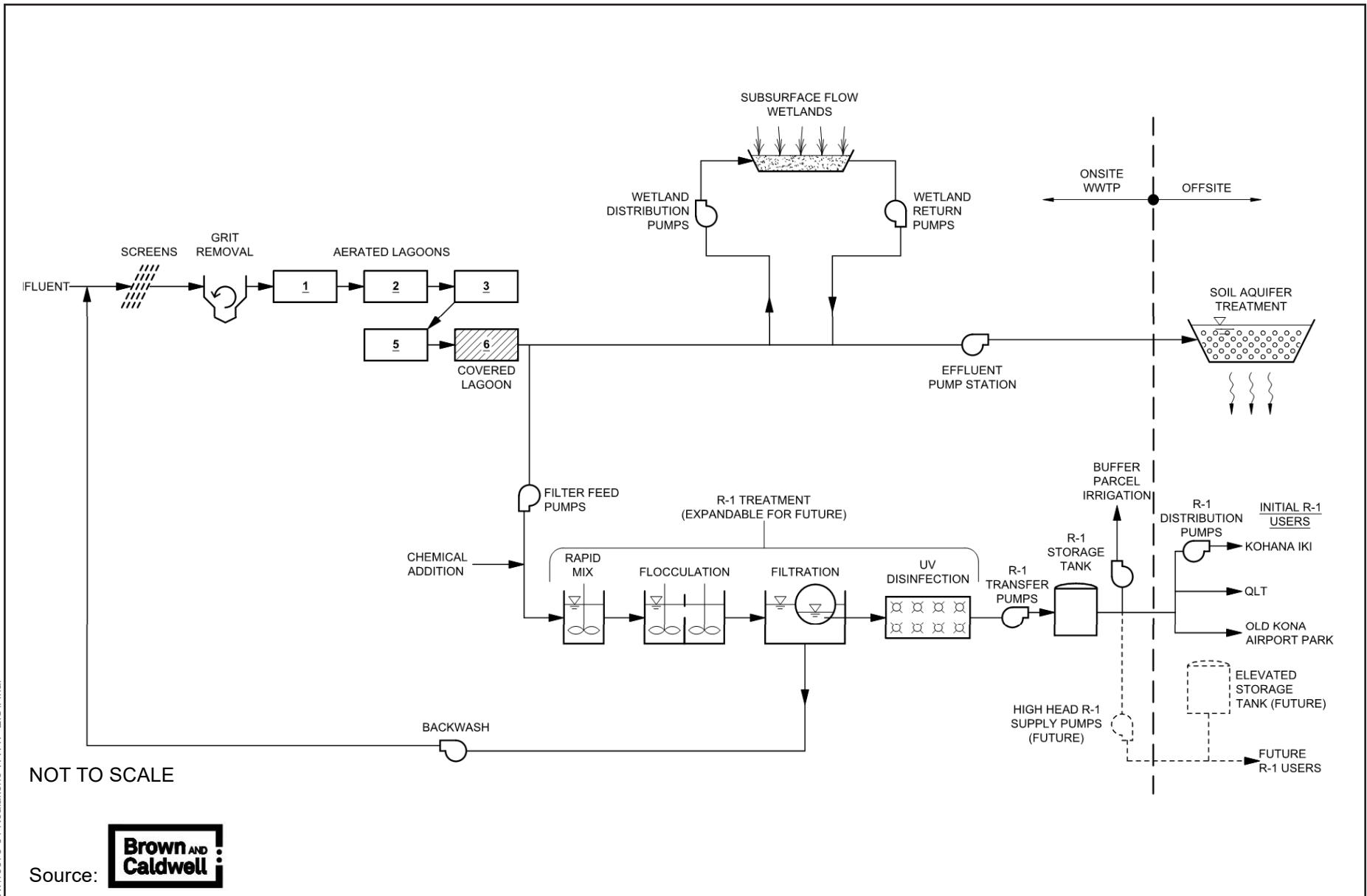
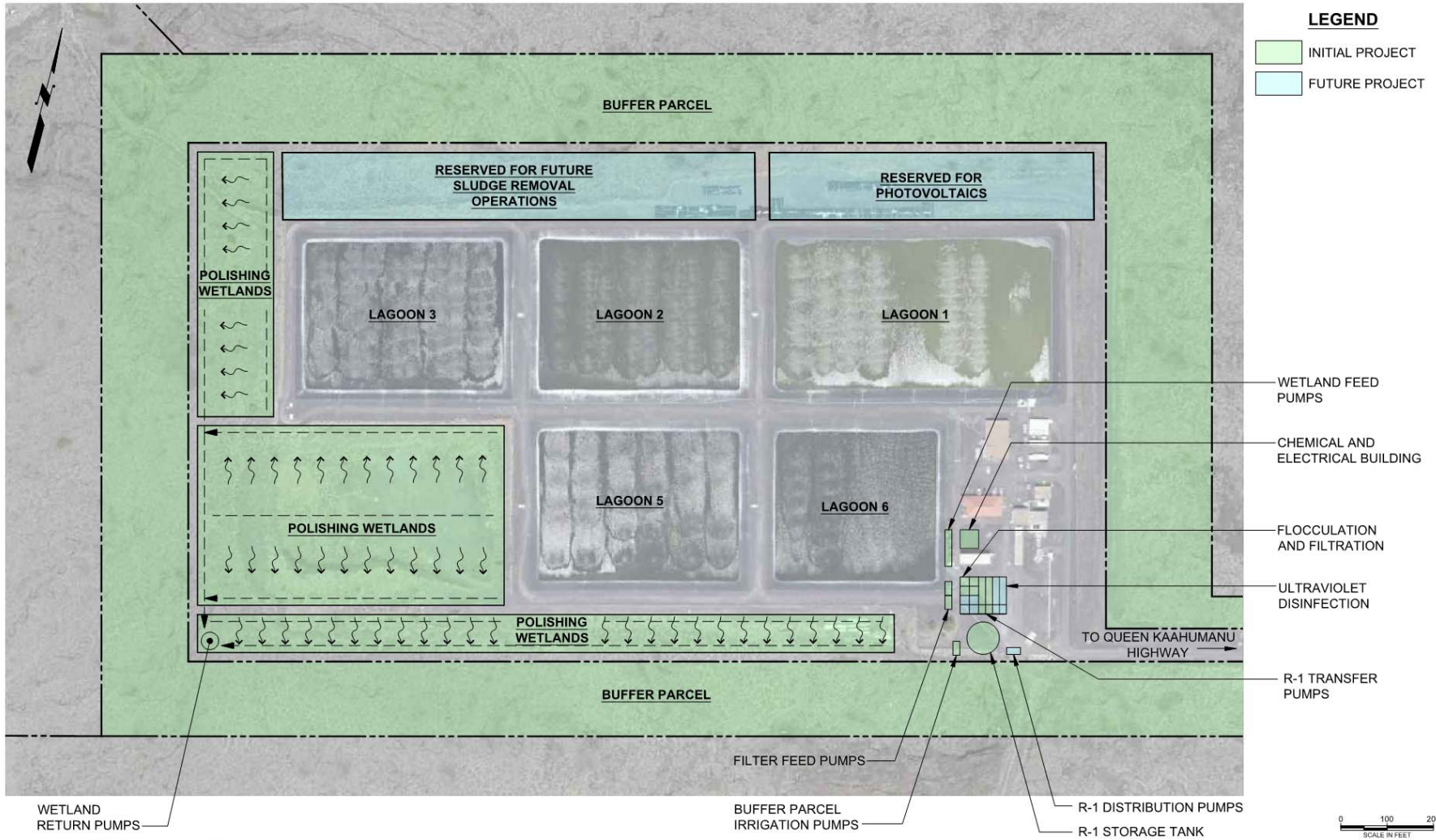


FIGURE 1-1

R-1 AND TREATMENT UPGRADE FACILITY SCHEMATIC

Kealakehe WWTP R-1 Upgrade

WA110079-01 Kealakehe WWTP EIS\Final



Source: **Brown AND Caldwell**

FIGURE 1-2

R-1 AND TREATMENT UPGRADE FACILITY CONCEPT



Kealakehe WWTP R-1 Upgrade

3) Chemical Addition Building

A building will be constructed to house facilities to store and meter chemicals for the R-1 treatment process. Facilities for coagulant and/or polymer addition will be provided so the chemicals can be added as needed to aid the filtration process. The building will also house the electrical and control systems in a separate air conditioned space.

4) Rapid Mix and Flocculation Concrete Tank

Chemicals will be mixed into the aerated lagoon effluent in a short residence time, high-energy rapid mix tank. The subsequent flocculation process will provide low-energy mixing for 10 to 20 minutes to allow floc formation. The concrete tanks will all be above-ground or partially buried rectangular tanks with associated mixing equipment. There will be a metal or concrete roof structure over the tanks to provide weather and sun protection.

5) Filtration Concrete Tank

The filtration process will either consist of cloth media filters or continuous backwash upflow granular media filters. Filter hydraulic loading rates will comply with the DOH Reuse Guidelines. Filter backwash will be returned to the aerated lagoons. Continuous turbidity monitoring systems will be provided upstream and downstream of the filtration units to comply with DOH guidelines. If filter effluent turbidity exceeds 2 Nephelometric Turbidity Units (NTU) the recycled water production process will automatically stop, and an alarm will notify the WWTP operators. Similar to the Rapid Mix and Flocculation tank, the Filtration tank will all be above-ground or partially buried rectangular concrete tanks. There will be a metal or concrete roof structure over the tanks to provide weather and sun protection.

6) UV Disinfection Tanks

The filtered water will be disinfected by exposure to ultraviolet (UV) light. The UV system will consist of at-grade concrete channels that house the UV lightbulbs. The filtered water is disinfected as it flows through the channels between the UV lights. There will be a metal or concrete roof structure to provide weather and sun protection. The UV system will be designed to comply with DOH guidelines. The UV dose will be continuously monitored. If the UV dose drops below the required level the recycled water production process will automatically stop, and an alarm will notify the WWTP operators.

7) Transfer Pumps

The R-1 transfer pumps will lift the R-1 water from the UV system to the adjacent R-1 storage tank.

8) R-1 Above-grade Storage Tank

A 500,000 gallon above-grade storage tank will provide diurnal storage for the Phase 1 R-1 users, and will also serve as a clear well for the R-1 distribution pumping systems. R-1 water production will be controlled by a pressure sensor in the on-site tank; when the tank is full the R-1 water production process will automatically stop, and low tank level will re-start R-1 production.

9) Buffer Parcel Irrigation System

The buffer parcel will be graded and vegetated to provide a green buffer around the WWTP. Top soil will be imported from an on-island source to provide a media for vegetation growth. A sprinkler irrigation system will be constructed to apply R-1 water. The buffer parcel irrigation pumps will deliver water from the R-1 above-grade storage tank to the sprinkler system. An irrigation control system will be provided to start and stop the flow of irrigation water. Precipitation and/or runoff sensors will be provided to prevent over-irrigation. Runoff from the buffer parcel will be contained on-site.

1.6.2 Polishing Wetlands and Soil Aquifer Treatment

10) Feed Pumps

A wetland feed pump station and piping will deliver secondary effluent from the existing aerated lagoons to the polishing wetlands (subsurface flow wetlands).

11) Polishing Wetlands

The polishing/onsite subsurface flows wetlands system within the WWTP will further "polish" the secondary treated effluent by removing additional nutrients and other constituents. The polishing wetland will be above grade. The wetlands will be designed as a subsurface flow wetland whereby water flows through a gravel matrix in which emergent wetland vegetation is grown. Thus, there will be no exposed water surface that could attract birds. The wetland will have a geomembrane liner for containment. Appropriate Hawaiian native plant species will be selected and planted in the wetland. The polishing wetlands will cover about 12 acres and will be constructed within the existing WWTP parcel boundaries. A pump station will return water from the wetland to the WWTP.

12) Effluent Pump Station

After flowing through the polishing/onsite subsurface flows wetlands, the existing effluent pump station and the existing effluent pipeline will be used to deliver the treated effluent across Queen Ka'ahumanu Highway to the Soil Aquifer Treatment system.

13) Soil Aquifer Treatment

The soil aquifer treatment (SAT) system will be the final step to remove nutrients and other impurities prior to release back to the environment. SAT is an EPA-recognized form of land treatment and will replace the disposal method that is currently in use. Soil Aquifer treated effluent will be applied over a large area, and will percolate downward through a soil system engineered to provide additional treatment and flow control. This combination of natural processes will ensure that treated water is safely returned to the environment.

Topographic maps from the US Geological Survey (USGS) show the Old Mamalahoa Trail is located parallel to and east (mauka) of Queen Ka'ahumanu Highway and Hale Māka'i Street intersection. Prior to design of the SAT system, a topographic survey

will be conducted of the parcel and, to the extent possible, the Trail will be mapped to ensure that the SAT system does not conflict with the Old Mamalaohoa Trail. An archeological field inspection and archeological literature review will be conducted to evaluate this portion of the Old Mamalahoa Trail.

1.6.3 R-1 Water Storage and Distribution/Transmission

14) R-1 Distribution Pumps

Three R-1 distribution pumping systems will be required. A buffer parcel irrigation pumping system will be dedicated to supplying the buffer parcel irrigation system. A low-head pumping system will deliver R-1 water to the repurposed 1.0 million gallon tank on Hina Lani Street. A future high-head pumping system will deliver R-1 water to the future elevated storage tank (See Figure 1-3).

15) R-1 Storage Tanks

Two R-1 Water Storage Tanks will be required. In addition to the 500,000 gallon tank within the WWTP, R-1 water will be pumped to an existing abandoned 1.0 million gallon Department of Water Supply (DWS) reservoir at elevation 125 feet on the north side of Hina Lani Street, approximately 580 feet east (mauka) of Queen Ka'ahumanu Highway. This tank has been conveyed to DEM and will be completely disconnected from the DWS potable water system.

16) R-1 Water Distribution/Transmission System

In the initial phase of the project, a 2,500 foot long, 24-inch diameter R-1 water transmission pipe will extend from the Kealakehe WWTP R-1 storage tank eastward along Hale Māka'i Street to Queen Ka'ahumanu Highway. At that point, an approximately 3,700 foot long transmission pipe will be constructed within the makai shoulder area of the right-of-way of the recently widened Queen Ka'ahumanu Highway northward to the Kealakehe Parkway intersection. At the intersection of Queen Ka'ahumanu Highway and Kealakehe Parkway, the State of Hawai'i Department of Transportation (DOT) will construct a stub-out on the pipe they are constructing. In the future, the State can use the stub to connect an irrigation line to the Honokohua Small Boat Harbor and to the proposed Department of Land and Natural Resources facility.

At the intersection of Queen Ka'ahumanu Highway and Kealakehe Parkway, the pipe will connect to the pipe being constructed as part of the next phase of the Queen Ka'ahumanu Highway Widening project. When completed, the underground pipe will extend approximately 12,700 feet (2.4 miles) from the Kealakehe Parkway intersection north to the driveway for the Kohanaiki Golf and Ocean Club, which plans to use R-1 water for irrigation. This portion of the pipe is being constructed for the DEM by the DOT, as part of its Queen Ka'ahumanu Highway Widening project.

Other R-1 water transmission pipes that will be constructed in the initial phase include an approximately 5,200-foot (1.0-mile) long pipe from the R-1 storage tank at the WWTP to the County of Hawai'i Old Kona Airport Park, where the R-1 water will be used for irrigation. A branch off of this pipe will extend approximately 1,500-foot long (0.4 mile) to supply the QLT Children's Center irrigation system. The line to Old Kona

Airport will be located within the existing easement that extends from the WWTP to the Park.

In future phase(s), R-1 water transmission pipes will branch off of the proposed 24-inch diameter pipe in Queen Ka'ahumanu Highway near Hale Māka'i Street. One branch will extend approximately 2,500 feet east (mauka) to a future regional park where the municipal golf course was once planned and envisioned to use R-1 water for irrigation. The other pipe will extend approximately 4,000 feet (0.75 miles) east (mauka) to a 2.0 million gallon R-1 water storage tank at elevation 200± feet that will serve the future regional park as well as future developments on QLT land.

1.7 Chapter 343, HRS (Hawai'i EIS Law)

This Environmental Impact Statement Preparation Notice (EISPN) has been prepared to meet the requirements of Chapter 343 §5, HRS, as amended, and Hawai'i Administrative Rules Title 11, State of Hawai'i Department of Health, Chapter 200, Environmental Impact Statement Rules. This EISPN provides public notification of the Kealakehe Wastewater Treatment Plant R-1 Upgrade. This EISPN will be followed by the preparation of a Draft Environmental Impacts Statement (DEIS) and, subsequently, a Final Environmental Impact Statement (FEIS).

This EISPN presents a general description of the proposed Kealakehe Wastewater Treatment Plant R-1 Upgrade. The EIS will include a detailed description of the proposed action, as well as alternatives that were considered through the alternatives screening and formulation process. The potential for direct, indirect, and cumulative effects on the natural and human environment will also be addressed; mitigation measures that avoid or minimize the potential adverse effects of the project will also be identified. The following resource categories have been tentatively identified for consideration in the EIS:

- Climate
- Geology
- Topography
- Soils
- Surface Waters
- Groundwater
- Coastal Waters
- Natural Hazards
- Flora and Fauna*
- Historic and Archaeological Resources*
- Cultural Resources*
- Air Quality
- Noise
- Visual Resources
- Socio Economic Characteristics
- Public Services and Facilities
- Infrastructure and Utilities
- Secondary and Cumulative Impacts

*The Draft EIS is anticipated to include the following supporting studies:

- Biological Survey Report (Flora/Fauna)
- Archaeological Literature Review and Field Inspection Report
- Cultural Impact Assessment

Community input will be sought during the EIS process and is initiated with public notification and community scoping.

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2. DETERMINATION

This document serves as notice that the Applicant intends to prepare a Draft Environmental Impact Statement (EIS).

Although the proposed improvements will be implemented in phases that, individually, may not have significant environmental impacts, Section 11-200-8, HAR requires that phases of a "larger total undertaking" be treated as a single action. Due to the collective scale of the recommended improvements that will encompass approximately 105.4 acres of land and approximately 3.77 miles of transmission pipeline, compliance with HRS Chapter 343 warrants the preparation and processing of an EIS.

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3. CONSULTATION

This section identifies agencies, citizen groups, and individuals to be consulted as part of the EIS process. This EISPN has been prepared as an initial step in developing the scope of the Draft EIS. The EISPN will be published by the State Office of Environmental Quality Control in The Environmental Notice. In addition, the EISPN will be sent to those agencies believed to have jurisdiction or expertise as well as those citizen groups and individuals reasonably believed to be affected by the Proposed Action. These parties are identified below:

Federal Agencies

- U.S. Army Corps of Engineers
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. National Parks Service, Kaloko Honokohau National Historic Park
- U.S. National Marine Fisheries Service
- U.S. Department of the Navy
- Federal Aviation Administration
- Federal Transit Administration
- Federal Highways Administration
- U.S. Department of Homeland Security
- National Oceanic and Atmospheric Association

State Agencies

- Department of Agriculture
- Department of Accounting and General Services
- Department of Business, Economic Development and Tourism (DBEDT)
- DBEDT, Research Division Library
- DBEDT, Strategic Industries Division
- DBEDT, Hawai'i State Energy Office
- DBEDT, Land Use Commission
- DBEDT, Office of Planning
- Department of Defense
- Department of Education
- Department of Hawaiian Homelands
- Department of Health
- Department of Health, Environmental Management Branch
- Department of Health, Environmental Planning Office
- Department of Health, Clean Water Branch
- Department of Health, Wastewater Branch
- Department of Health, Office of Environmental Quality Control
- Department of Land and Natural Resources (DLNR)
- DLNR, Historic Preservation Division
- DLNR, Division of Forestry and Wildlife
- DLNR, Engineering Division
- DLNR, Commission on Water Resource Management
- Department of Transportation
- Department of Transportation, Airports Division
- Department of Transportation, Harbors Division

State Agencies (continued)

Department of Transportation, Highways Division
Office of Hawaiian Affairs
University of Hawai'i Environmental Center
University of Hawai'i Sea Grant

County of Hawai'i Agencies

Fire Department
Department of Parks and Recreation
Department of Planning
Department of Public Works
Department of Water Supply
Office of the Mayor

Others

Hawai'i Electric Light Company (HELCO)
Verizon Hawai'i
Hawai'i Gas
Hawaiian Telcom
Oceanic Time Warner Cable
Queen Liliuokalani Trust
Kohanaiki Golf & Ocean Club

Aronson, Sue
Aronson, Ron
Bennett, Richard
Clement, Jane
Maile, David
Eoff, Karen
Gaffney, Rick
Holmes, Steve
Kaapu, David
Kahui, Bo
Kanuha, Dru
Kim, Susan
Kunitake, Walter
Leicher, Terri
Moore, Bill
Murata, Justin
Nazara, Cynthia
Palacat-Nelson, Shane
Purdy, Mānā
Root, Joe
Sung, Shihwu
Shibata, Michael
Smith, Riley
Taylor, Bill
Wilson, Ross
Zimpfer, Jeff

Comment on key issues, potential environmental impacts, existing information, methodologies, additional persons and organizations to be contacted due to possible interest in the Proposed Action, are welcome.

3.1 Public Outreach and Consultation

During the 30 day public review and comment period that starts upon the publication of this EISPN, the applicant intends to hold a public scoping meeting to receive comments regarding the scope of the Draft EIS. The meetings are scheduled to be held on the island of Hawai'i.

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Kealekehe Waste Water Treatment Plant R-1 Upgrade

Environmental Impact Statement

Preparation Notice



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